

**STATE OF NEW HAMPSHIRE  
PUBLIC UTILITIES COMMISSION**

**DOCKET NO. DE 19-057**

**PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE**

**d/b/a EVERSOURCE ENERGY**

**DISTRIBUTION SERVICE RATE CASE**

**UPDATED DIRECT TESTIMONY OF**

**Jay E. Dudley  
Utilities Analyst IV  
NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION**

July 16, 2020

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**I. INTRODUCTION AND QUALIFICATIONS**

**Q. Mr. Dudley, please state your full name and business address.**

**A.** My name is Jay E. Dudley. My business address is 21 South Fruit Street, Suite 10, Concord, NH 03301.

**Q. Please state your employer and your position.**

**A.** I am employed by the New Hampshire Public Utilities Commission (“Commission”) as a Utility Analyst for the Electric Division.

**Q. Have you previously submitted testimony in this proceeding?**

**A.** Yes. I submitted my original direct testimony in this docket on December 20, 2019.

**Q. Please describe your professional background.**

**A.** Descriptions of my professional background, education experience and prior testimony before the Commission can be found at pages 3-5 of my initial testimony submitted in this docket.

**II. SUMMARY OF TESTIMONY**

**Q. Please describe the purpose of your revised testimony.**

**A.** The purpose of my testimony is to provide updates and revisions to my original direct testimony filed in this docket on December 20, 2019, based on additional information submitted in this docket since that time. In response to the unforeseen, nationwide

1 pandemic triggered by the COVID-19 virus, Governor Sununu issued a series of  
2 Emergency Orders including Emergency Order #29 dated April 24, 2020, which  
3 authorized the New Hampshire Public Utilities Commission (PUC or Commission) to  
4 delay proceedings involving the investigation of any rate schedules filed by a public  
5 utility for period of up to six months but no later than eighteen months. Accordingly, on  
6 March 20, 2020, the Commission issued a Secretarial Letter granting Staff's request for a  
7 change in the procedural schedule cancelling the technical sessions/settlement  
8 conferences scheduled for March 24 and 25, 2020, and moving the technical  
9 sessions/settlement conferences to the previously scheduled hearing dates reserved for  
10 this docket. On March 24, 2020, with agreement from Eversource, Staff filed an  
11 additional request, granted by the Commission, for a three-month extension of the  
12 procedural schedule in this proceeding delaying the hearing dates until late June or early  
13 July 2020. On June 16, 2020, in Order No. 26,363, the PUC extended the deadline for  
14 the docket by six months, and directed Staff to develop an appropriate hearing schedule.  
15 The Commission approved the revised procedural schedule on July 7, 2020, which  
16 includes proposing 20 days of hearings beginning on August 19, 2020 and continuing  
17 throughout the months of September and October culminating on October 30, 2020.

18 **Q. During this period of delay in the procedural schedule, did Staff undertake a review**  
19 **of the additional information submitted by Eversource in this docket to determine**  
20 **whether or not Staff's testimony required updating or revision?**

21 **A.** Yes. The delay in the procedural schedule presented Staff with additional time to review  
22 the rebuttal testimony filed by Eversource on March 4, 2020, along with subsequent data  
23 responses from the Company filed on March 19, 20, and 27, and compare that material



1 against Staff's existing analysis. I was also able to review the results of the Staff Audit in  
2 this docket which was completed on March 25, 2020. Under normal circumstances (i.e.  
3 the original procedural schedule set out in this docket), Staff would have had to address  
4 these issues in a tech session, settlement conference, or at the merits hearing. Staff has  
5 found some of the additional information submitted by the Company to be useful and as a  
6 result I provide the following updates and revisions to my testimony. I have also  
7 provided my analysis of the remainder of the capital projects in my sample group not  
8 covered in my initial testimony based on my data response to Eversource's data request  
9 TS 3-01.

10 **Q. Which rebuttal testimony and data responses submitted by Eversource did you rely**  
11 **on in terms of updating the information in your original testimony?**

12 **A.** I largely relied on the joint rebuttal testimony, including attachments, of Erica L. Menard,  
13 Lee G. Lajoie, and David L. Plante dated March 3, 2020. I also reviewed Data  
14 Responses Staff 16-5, and 16-8 through 16-15.

15 **Q. Can you please briefly summarize the impact of your updated testimony on the**  
16 **recommendations contained in your initial testimony?**

17 **A.** As detailed below, in response to the additional information provided by Eversource, I  
18 have decreased my recommended disallowance by approximately \$13.5 million.  
19

20 **III. DISCUSSION OF REVISED DISALLOWANCE CALCULATIONS**

21 **Q. Did Staff's review of the Company's rebuttal testimony and the subsequent**  
22 **responses to Staff's data requests impact Staff's recommendations involving capital**  
23 **investments and additions to Eversource's rate base from 2015 to 2018?**

A. Yes, in part. The amounts of the recommended disallowances for capital projects were adjusted based on a review of the Menard, Lajoie, Plante rebuttal testimony. Specifically, the Eversource witnesses point out that my original calculation of disallowances was based on an incorrect comparison between initial budget amounts comprised of only direct costs and the final expenditure amounts comprised of both direct and indirect costs resulting in inflated variances.<sup>1</sup> Staff agrees that both direct and indirect costs need to be included in order to provide a complete accounting and an appropriate “apples-to-apples” comparison. To correct this error, I chose an all-in approach inclusive of both direct and indirect costs and relied on the original authorized budget amounts contained in Eversource’s Project Authorization Forms (PAF) and Supplement Request Forms, and Column J “Total Cost of Project” of Ms. Menard’s Attachment ELM-3 at Bates 1268. Ms. Menard confirmed at the Tech Sessions of October 28 and 29, 2019, that Column J of her attachment represented the final amounts for projects booked into rate base for the years represented, including the test year rate base of 2018. The updated initial budget amounts, and variance amounts, inclusive of both direct and indirect costs are provided in the table below:

**Table 1: Revised Project Variances for Reviewed Projects**

| Year | Project ID | Project Description       | Original Authorized Amount <sup>2</sup> | Total Cost (Actual) <sup>3</sup> | Variance      |
|------|------------|---------------------------|---|----------------------------------|---------------|
| 2018 | A14W02     | Daniel/Webster Substation | \$12,786,813                            | \$19,138,965                     | (\$6,352,152) |
| 2018 | A18VRP     | Viper Replacement         | \$ 950,000                              | \$6,003,793                      | (\$5,053,793) |
| 2018 | A16C09     | Blaine St. Substation     | \$2,718,253                             | \$3,969,115                      | (\$1,250,862) |
| 2018 | A16C10     | Jackman Replace Equip.    | \$4,556,810                             | \$7,132,860                      | (\$2,576,050) |
| 2018 | A16E06     | West Rye Substation       | \$1,304,000                             | \$2,698,369                      | (\$1,394,369) |
| 2018 | A18E16     | West Road Overload        | \$ 746,000                              | \$1,408,801                      | (\$ 662,801)  |
| 2018 | A07X45     | Reject Pole Replacmt.     | \$ 850,000                              | \$1,962,868                      | (\$1,112,868) |

<sup>1</sup> Rebuttal Testimony of Menard, Lajoie, Plante at 10 (Bates 58).

<sup>2</sup> Source: Staff 12-045, Project Authorization Forms and/or Supplemental Request Forms

<sup>3</sup> Source: Attachment ELM-3, column J.

|                    |          |                       |                          |                     |                       |
|--------------------|----------|-----------------------|--------------------------|---------------------|-----------------------|
| <b>Total</b>       |          |                       | <b>\$23,911,876</b>      | <b>\$42,314,771</b> | <b>(\$18,402,895)</b> |
|                    |          |                       |                          |                     |                       |
| 2017               | A14N21   | Berlin Eastside       | \$1,308,101              | \$3,709,636         | (\$2,401,535)         |
| 2017               | A14S08   | Garvin Substation     | \$4,578,971              | \$5,479,461         | (\$900,490)           |
| 2017               | A16C01   | 3271 Line Reconductr. | \$1,096,573              | \$2,458,566         | (\$1,361,993)         |
| 2017               | NHRMTR17 | NH Remote Disconn.    | \$918,793                | \$2,283,449         | (\$1,364,656)         |
| 2017               | DL9R     | Distribution ROW      | \$1,644,500              | \$2,379,966         | (\$735,466)           |
| <b>Total</b>       |          |                       | <b>\$9,546,938</b>       | <b>\$16,311,078</b> | <b>(\$6,764,140)</b>  |
|                    |          |                       |                          |                     |                       |
| 2016               | A15N01   | Convert Laconia 4kV   | \$1,123,000              | \$2,465,701         | (\$1,342,701)         |
| 2016               | DL9R     | Distribution ROW      | \$929,800                | \$1,643,132         | (\$713,332)           |
| <b>Total</b>       |          |                       | <b>\$2,052,800</b>       | <b>\$4,108,833</b>  | <b>(\$2,056,033)</b>  |
|                    |          |                       |                          |                     |                       |
| 2015               | R15RPR   | Reject Pole Replacmt. | \$3,001,000              | \$8,715,864         | (\$5,714,864)         |
| 2015               | A15CDA   | Central Region DA     | \$1,648,945              | \$4,859,890         | (\$3,210,945)         |
| 2015               | A15EDA   | Eastern Region DA     | \$358,551                | \$5,182,798         | (\$4,824,247)         |
| 2015               | A15NDA   | Northern Region DA    | \$3,578,106              | \$9,292,601         | (\$5,714,495)         |
| 2015               | A15SDA   | Southern Region DA    | \$1,156,821 <sup>4</sup> | \$4,022,145         | (\$2,865,324)         |
| <b>Total</b>       |          |                       | <b>\$9,743,423</b>       | <b>\$32,073,298</b> | <b>(\$22,329,875)</b> |
|                    |          |                       |                          |                     |                       |
| <b>Grand Total</b> |          |                       | <b>\$45,255,037</b>      | <b>\$94,807,980</b> | <b>(\$49,552,943)</b> |

- 1
- 2 The updated total disallowances, based on Staff's project review, are provided in Table 2 below:

3 **Table 2: Updated Project Disallowances**

| Year         | Project ID | Project Description       | Recommended Disallowances |
|--------------|------------|---------------------------|---------------------------|
| 2018         | A14W02     | Daniel/Webster Substation | \$6,352,152               |
| 2018         | A18VRP     | Viper Replacement         | \$5,053,793               |
| 2018         | A16C09     | Blaine St. Substation     | \$1,232,862               |
| 2018         | A16C10     | Jackman Replace Equip.    | \$2,491,663               |
| 2018         | A16E06     | West Rye Substation       | \$1,394,369               |
| 2018         | A18E16     | West Road Overload        | \$ 662,801                |
| 2018         | A07X45     | Reject Pole Replacmt.     | \$1,112,868               |
| <b>Total</b> |            |                           | <b>\$18,300,508</b>       |
|              |            |                           |                           |
| 2017         | A14N21     | Berlin Eastside           | \$2,401,535               |
| 2017         | A14S08     | Garvin Substation         | \$900,490                 |
| 2017         | A16C01     | 3271 Line Reconductr.     | \$1,361,993               |
| 2017         | NHRMTR17   | NH Remote Disconn.        | \$1,364,656               |
| 2017         | DL9R       | Distribution ROW          | \$735,466                 |

<sup>4</sup> Source: Attachment CPP-Rebuttal -1 at Bates 112.

|                    |        |                       |                       |
|--------------------|--------|-----------------------|-----------------------|
| <b>Total</b>       |        |                       | <b>\$6,764,140</b>    |
|                    |        |                       |                       |
| 2016               | A15N01 | Convert Laconia 4kV   | \$1,342,701           |
| 2016               | DL9R   | Distribution ROW      | \$713,332             |
| <b>Total</b>       |        |                       | <b>\$2,056,033</b>    |
|                    |        |                       |                       |
| 2015               | R15RPR | Reject Pole Replacmt. | \$5,714,864           |
| 2015               | A15CDA | Central Region DA     | \$3,210,945           |
| 2015               | A15EDA | Eastern Region DA     | \$4,824,247           |
| 2015               | A15NDA | Northern Region DA    | \$5,714,495           |
| 2015               | A15SDA | Southern Region DA    | \$2,865,324           |
| <b>Total</b>       |        |                       | <b>\$22,329,875</b>   |
|                    |        |                       |                       |
| <b>Grand Total</b> |        |                       | <b>(\$49,450,556)</b> |

As indicated in this table, Staff's corrected amount for total disallowances is \$49,450,556 (inclusive of both direct and indirect costs) as opposed to \$62,999,792 recommended previously, representing a reduction in Eversource's favor of \$13,549,236. Consequently, Staff revises its original recommendation on adjustments to Eversource's permanent rate proposal as follows:

|  |                                   |
|--|-----------------------------------|
| • Eversource's proposed revenue requirement: | \$69,254,451                      |
| • Staff's reduction to revenue requirement:  | <u>(\$31,432,669)<sup>5</sup></u> |
| Adjusted revenue requirement                 | \$37,821,782                      |
| • Eversource's proposed rate base:           | \$2,171,045,401                   |
| • Staff's reduction to rate base:            | <u>(\$49,450,556)</u>             |
| Adjusted rate base:                          | \$2,121,594,845                   |

<sup>5</sup> See Revised Testimony of Donna H. Mullinax, Attachment DHM-S-1 at 2.

1 **Q. Does Staff agree with the Company's assertion that any variances in budgeted**  
2 **amounts versus final project costs should be based on the difference between "Revised**  
3 **Estimated Cost" and the "Direct Costs of the Project"?**

4 **A.** No. The Company's witnesses assert that the appropriate initial project cost, or the  
5 appropriate starting point for calculating budget variances, begins with the "Revised Estimated  
6 Cost" amounts represented in Column F of Attachment ELM-3 at Bates 1268 of Ms. Menard's  
7 original testimony and comparing those figures against the "Direct Cost of Project" amounts  
8 under column G of Ms. Menard's Attachment ELM-3.<sup>6</sup> It is important to note that the "Revised  
9 Estimated Cost" amounts include only direct costs and exclude indirect costs as do the amounts  
10 reflected in Column G. This is a deficiency that repeats itself throughout Attachment CPP-  
11 Rebuttal-1. The Commission has recognized that a utility's management must consider both  
12 direct and indirect costs in evaluating capital investments.<sup>7</sup> By utilizing the totals which contain  
13 only the direct costs, Eversource significantly reduces the impact of the variances and provides  
14 an incomplete picture of the overall capital budget issue. The Company's calculus is inaccurate  
15 and masks the severity of the budgeting issues uncovered by Staff.  
16 For example, referring to the rebuttal testimony of Menard, Lajoie, and Plante at Bates 63, using  
17 Blaine Street Substation #A16C09 as an illustration, the revised budget estimate of \$3,151,000  
18 (Column F) is referenced as the appropriate starting point resulting in a budget under-run of only  
19 -\$123,416 (Column H) when compared with the actual final direct cost of \$3,027,584 (Column  
20 G). However, in reviewing the Supplement Request Form and the PAF for this project (Staff's  
21 complete analysis for this project is provided below) the "Current Authorized Amount" (i.e. the  
22 initial budget amount approved by Eversource) for the project is \$2,719,000 including both

<sup>6</sup> Rebuttal Testimony of Menard, Lajoie, Plante at 14-16 (Bates 62-64).

<sup>7</sup> See *Liberty Utilities*, Order No. 26,377 at 9-10 (June 30, 2020)

1 direct and indirect costs.<sup>8</sup> A further review of the Supplement Request Form shows justifications  
2 provided by the project manager for additional funds in the amount of \$1,268,000 resulting in the  
3 revised total request of \$3,987,000 inclusive of both direct and indirect costs. The form also  
4 provides an itemized break-out of the direct and indirect costs and a brief description of why the  
5 authorized budget was exceeded. Thus, by taking the initial authorized budget amount of  
6 \$2,719,000 (both direct and indirect costs) and comparing it with the total cost of the project  
7 \$3,969,115 (Column J) there is actually a sizable cost overrun of \$1,250,115. Based on this  
8 content and similar content in the other Supplement Request Forms reviewed, it is clear that the  
9 intent of the form is to account for and justify any increases in spending over “the original  
10 authorized dollar amount” for the project.<sup>9</sup> Given that the Company’s own project  
11 documentation points to the “Current Authorized Amount” as the appropriate starting point for  
12 project managers/engineers, Staff views Eversource’s position on this issue to be highly suspect.  
13 If the Company’s described approach were accurate, then how would the Company’s project  
14 managers/engineers know when to file a request for additional funding under the Supplement  
15 Request procedure if the original authorized budget amounts do not serve as appropriate  
16 benchmarks for additional funding? Why bother with submitting a Supplement Request at all?  
17 According to the Company’s assertion, the revised estimate amounts which include the amounts  
18 requested for additional funding, comprise the actual starting points for determining budget  
19 variances. Under such a methodology, Eversource would always be within budget and almost  
20 never over-budget. Staff recommends that the Commission dismiss this alternative methodology  
21 because it is inherently flawed and is not a reliable indicator as to whether the Company’s  
22 actions were prudent.

<sup>8</sup> Attachment JED-8.

<sup>9</sup> Also see Menard testimony, Attachment ELM-5 at Bates 1369-1370.

1 In addition, the Company consistently argues that initial budget estimates provided under column  
2 E of Ms. Menard's Attachment ELM-3 are "iterative" and "conceptual"<sup>10</sup> and therefore cannot  
3 be relied upon since they are constantly changing and evolving based on circumstances on the  
4 ground. Staff realizes that budgets are subject to change based on unforeseen complications,  
5 especially with large complex projects; however, as stated repeatedly in my original testimony  
6 and in the analysis contained below, Staff's expectations are that the Company's engineering  
7 staff are experienced, knowledgeable, and intimately familiar with all levels of capital projects  
8 and the specific engineering requirements of those projects. As such, Staff believes that it is not  
9 unreasonable to expect that Eversource's scoping, design, and budgeting processes be as robust  
10 and accurate as possible to avoid extensive re-engineering of a project as it progresses to  
11 completion. As the Commission has recently held, "Prudent decisions cannot be made if  
12 significant, foreseeable cost elements of a project are overlooked at the outset and meaningful  
13 reexamination of costs does not take place during project execution, as costs increase."<sup>11</sup> Indeed,  
14 the Company's own project authorization policy, APS-1, requires that the project evaluation  
15 criteria contained in the PAF should be "in sufficient detail and with explanations so that the  
16 approver is fully informed and can make an educated approval decision."<sup>12</sup> Nevertheless, in  
17 many of the Supplement Request Forms reviewed by Staff, and as discussed in my project-by-  
18 project analysis, the design, scoping, and budgeting process is criticized by the project managers  
19 themselves for overlooking foreseeable and knowable costs that should have been recognizable  
20 by the project planner and factored into the initial budget. For example, the Supplement Request  
21 Forms reviewed for the Blaine St. Substation #A16C09 (Attachment JED-8), Jackman #A16C10  
22 (Attachment JED-9), and West Rye Substation #A16E06 (Attachment JED-10), all refer to, and

<sup>10</sup> *Id* at 12-16 (Bates 60-64).

<sup>11</sup> *See Liberty Utilities*, Order No. 26,377 at 9 (June 30, 2020).

1 itemize, many cost elements that were overlooked in the original PAF estimate contributing to  
2 the cost overruns for those projects. As outlined in the analysis below, this type of commentary  
3 repeated itself for most of the projects reviewed by Staff. Such internal assessments do not give  
4 Staff confidence that the Company's design, scoping, and budgeting processes are sufficiently  
5 rigorous, efficient, or accurate. Moreover, this only serves to reinforce Staff's original finding  
6 that the Company's budgeting process appears to be nebulous and ad hoc in nature, and deficient  
7 in discipline and exactness.

8 **Q. Are you recommending the disallowance of the variance between original project**  
9 **cost estimates and the final actual costs for certain projects purely because you deem these**  
10 **variances to be unjustified cost overruns and evidence of imprudence?**

11 **A.** No, not at all. Staff recognizes that for any project there may be changed circumstances  
12 and escalation in costs that are not foreseeable. Staff recommended disallowances are based on  
13 record evidence that demonstrates that the Company overlooked significant, foreseeable project  
14 costs at the outset, that the Company failed to conduct a meaningful re-examination of cost  
15 increases during project execution, that management's review and oversight of the project was  
16 severely flawed, that the Company at times did not follow its own procedures and that the  
17 Company has failed to meet its burden of demonstrating that its decision making was prudent.

18 **Q. Your direct testimony indicates that you reviewed a sample of the capital projects**  
19 **undertaken by the Company since its last rate case. Based on your review of that sample,**  
20 **are you recommending that the Commission disallow costs for projects that you did not**  
21 **review?**

22 **A.** No. I reviewed a sample of the projects because it was not practical for me to review all  
23 500 projects undertaken by the Company since its last rate cases. My recommended

<sup>12</sup> Attachment ELM-5 at Bates 1365.



disallowances only apply to the projects I reviewed based on record evidence of the Company's lack of management oversight with respect to project details, cost containment and compliance with its own written procedures, and the Company's failure to demonstrate that its actions were prudent.

**Q. Your direct testimony discusses deficiencies in the Company's project documentation and compliance with Eversource's policies and procedures. Were those concerns addressed in the rebuttal testimony of the Company's witnesses?**

**A.** No. Although the rebuttal testimony of Menard, Lajoie, and Plante admit to the lack of sufficient detail in Eversource's project documentation, they also claim that the same documentation was in strict compliance with Eversource's capital authorization policy and procedures.<sup>13</sup> This claim runs contrary to the findings of Staff since during the course of Staff's review, numerous examples of policy noncompliance were detected primarily involving the Supplement Request Forms. For example, under the APS-1 Project Authorization Policy, the project manager is responsible for submitting a Supplement Request Form *as soon as it is likely* that the project cost is expected to increase from the original authorized dollar amount.<sup>14</sup> In addition the APS-1 requires that: "Prior to spending any additional funds, the Supplemental Request Form should be routed to and approved by the appropriate approvers in accordance with the DOA based on the total project cost including the supplement."<sup>15</sup> However, as discussed in my direct testimony and the project analysis below, Staff found that the supplement requests for the following projects were filed between one month and up to a year after the projects were completed:

- Daniel/Webster Substation

<sup>13</sup> Rebuttal Testimony of Menard, Lajoie, Plante at 7-8 (Bates 55-56).

<sup>14</sup> Testimony of Erica L. Menard, Attachment ELM-5 at Bates 1369.

- 1 • Garvins Substation
- 2 • Berlin Eastside
- 3 • West Road Overload
- 4 • Reject Pole Replacement (#A07X45
- 5 • Convert Laconia 4kV
- 6 • Reject Pole Replacement (R15RPR)

7 As I state in my direct testimony, the untimely filing of this key document appears to negate the  
8 purpose of the form which is to alert management to any cost overruns and obtain authorization  
9 for those overages, further indicating that cost overruns were not diligently monitored by  
10 management. An additional deficiency was a failure to include “Lessons Learned” sections or  
11 “Actions to prevent recurrence” sections in most of the supplement requests reviewed by Staff  
12 which, when included, provided a valuable look-back and reassessment from the project  
13 engineers/managers’ perspective as to what could have been done differently to keep a project  
14 within budget. In terms of other non-compliant documentation, as detailed above, most of the  
15 PAF’s reviewed were faulted in the Supplement Request Forms for overlooking basic and  
16 fundamental cost elements that should have been considered by the planners and engineers in  
17 developing the initial budget for the project. As the APS-1 requires, project evaluation criteria  
18 contained in the PAF should contain “sufficient detail” to allow the approver to be fully  
19 informed so that an educated approval decision can be made at the outset.

20 **Q. Your direct testimony discusses missing project documentation that was not**  
21 **provided by Eversource in discovery, primarily missing work orders. Did the Company**  
22 **provide Staff with the missing work orders?**

<sup>15</sup> *Id.* at Bates 1370.

1    **A.**     Yes, in part. Copies of work orders for all projects under review were originally  
2    requested by Staff in Staff Data Request No. 12-045 on September 20, 2019, but not provided by  
3    Eversource in its response. Staff inquired again at the Technical Session held on February 12,  
4    2020, but Eversource witnesses stated that they did not know or understand what a work order  
5    was. Eversource later claimed in the rebuttal testimony of Menard, Lajoie, and Plante that they  
6    withheld the documentation because they did not understand what Staff meant by “work order”  
7    and also admitted that they were in possession of the documentation and that it was available for  
8    Staff’s review.<sup>16</sup> Based on this disclosure, Staff issued a second data request in Staff Data  
9    Request No. 16-9 and Eversource responded on March 31, 2020; however, copies of individual  
10   work orders for each project were not provided. Instead Eversource apparently enters all of the  
11   work order information into an Excel spreadsheet and Eversource provided the spreadsheets in  
12   its data response. In addition to the work order numbers and amounts, the spreadsheets also  
13   contained numerous accounting adjustments, coded entries, and many entries lacking a  
14   description, making it difficult for Staff to precisely trace and verify the actual costs assigned to  
15   a project leading up to the variance. Adding to the difficulty is the fact that the entries to the  
16   spreadsheets are not arranged in chronological order but rather are scattered randomly  
17   throughout. As a result, Staff did not find this information useful in that format. If Eversource  
18   had provided this information earlier, it would have given Staff the opportunity to work through  
19   the line items with the Company’s witnesses during the Technical Sessions held in October, and  
20   perhaps obtain copies of the physical work orders. However, given that the requested  
21   information was not provided until March, the period for both discovery and technical sessions  
22   had expired under the procedural schedule precluding any further inquiries by Staff.  
23   Interestingly, Staff later learned upon review of the Final Audit Report, that Eversource had

<sup>16</sup> Rebuttal Testimony of Menard, Lajoie, Plante at 39 (Bates 87).

1 provided Audit with copies of individual work orders for capital projects under Audit's review  
2 apparently without objection or delay.<sup>17</sup>

3 **Q. In addition to your review of the individual capital projects, are you aware of any**  
4 **other evidence of the Company's lack of adequate management oversight with respect to**  
5 **capital projects.**

6 A. Yes. On March 25, 2020, the PUC Audit Staff issued its Final Audit Report in this  
7 docket. Audit Issue #3 in that Report addressed Budgeted vs. Actual Project Costs. The Report  
8 notes a number of projects that had variances in excess of 30% between the budgeted and actual  
9 amounts and found that the Company should be better able to track the cost of projects so the  
10 cost variances may be identified and justified.<sup>18</sup> Audit Issue #4 addressed Project/Work Order  
11 Documentation. The Report notes that the Audit reviewed 21 projects and associated work  
12 orders and found instances where the Company was missing supporting information or the  
13 project was not adequately justified. The Audit Report recommended that the Company should  
14 be able to provide and track project information in an adequate manner so that the Company is  
15 better able to track the cost details associated with project and work order expenditures.<sup>19</sup> Audit  
16 Issue #4 also corroborated Staff's findings in terms of the Company's inaccurate accounting of  
17 the appropriate starting point for calculating budget variances for capital projects by finding "the  
18 Company must have meaningful benchmarks to determine budgeted vs. actual costs to measure  
19 cost overruns/underruns on projects."<sup>20</sup>

20 **Q. You note above that you only found the discussion of direct and indirect costs as**  
21 **part of the Company's capital budgeting in the rebuttal testimony of Menard, Lajoie, and**

<sup>17</sup> Rate Case DE 19-057, FINAL Audit Report at 50-74 (March 25, 2020).

<sup>18</sup> *Id.* at 135.

<sup>19</sup> *Id.* at 137.

<sup>20</sup> *Id.* at 136.

**Plante to be useful. What about your review of the additional data responses from Eversource?**

A. Aside from the discussion of direct and indirect costs, the rebuttal testimony of Menard, Lajoie, and Plante was essentially a reiteration of information contained in prior data responses received from Eversource and contained no new insights. In terms of the additional data responses I reviewed, specifically series 16 (Attachment JED-19), I found most of them to largely confirm Staff's prior conclusions as outlined below:

- Data Response Staff 16-005 and 16-006, Pole Replacements: Demonstrates that the high number of pole replacements under the Company's pole replacement program was unnecessary and that the increased deployment by Eversource of steel poles is unneeded and wasteful (see discussion of projects A07X45 and R15RPR below).
- Data Response Staff 16-010, 16-011, and 16-012, Viper Reclosers: Confirms that the defective Viper reclosers could be replaced and redeployed at no additional cost to Eversource and verifies the complete cooperation of G&W Electric Company in that project. Also confirms that the Viper failure rate was not significant or critical over the time period of 2016-2018.
- Data Response Staff 16-013, Used and Useful: Confirms that plant additions deemed by Eversource to be used and useful are subject to full prudence review by Staff.
- Data Response Staff 16-015, Daniel/Webster Substation: Confirms Staff's conclusion involving load growth in that service area.

**IV. DISCUSSION OF ADDITIONAL CAPITAL PROJECT REVIEW & RECOMMENDATIONS FOR 2015 THROUGH AND 2018**

**Q. Do have any additional updates you wish to add to your testimony?**

**A.** Yes. In a data request served on Staff by Eversource on February 12, 2020, Eversource TS 3-01, the Company requested that I produce my analysis of the remaining capital additions referenced in my testimony but not specifically detailed. I provided Eversource with that analysis on February 21, 2020, and include it below.

**Q. Please provide a list of those additional projects.**

**A.** A table of the additional projects in question is provided below:

**Table 3: Additional Projects Reviewed**

| Year         | Project ID | Project Description     | Original Authorized Amount <sup>21</sup> | Total Cost (Actual) <sup>22</sup> | Variance             |
|--------------|------------|-------------------------|--|-----------------------------------|----------------------|
| 2018         | A16C09     | Blaine St. Substation   | \$2,718,253                              | \$3,969,115                       | (\$1,250,862)        |
| 2018         | A16C10     | Jackman Replace Equip.  | \$4,556,810                              | \$7,132,860                       | (\$2,576,050)        |
| 2018         | A16E06     | West Rye Substation     | \$1,304,000                              | \$2,698,369                       | (\$1,394,369)        |
| 2018         | A18E16     | West Road Overload      | \$ 746,000                               | \$1,408,801                       | (\$ 662,801)         |
| 2018         | A07X45     | Reject Pole Replacement | \$ 850,000                               | \$1,962,868                       | (\$1,112,868)        |
| <b>Total</b> |            |                         | <b>\$10,175,063</b>                      | <b>\$17,172,013</b>               | <b>(\$6,996,950)</b> |
| 2017         | A16C01     | 3271 Line Reconductor   | \$1,096,573                              | \$2,458,566                       | (\$1,361,993)        |
| 2017         | NHRMTR17   | NH Remote Disconn.      | \$918,793                                | \$2,283,449                       | (\$1,364,656)        |
| 2017         | DL9R       | Distribution ROW        | \$1,644,500                              | \$2,379,966                       | (\$735,466)          |
| <b>Total</b> |            |                         | <b>\$3,659,866</b>                       | <b>\$7,121,981</b>                | <b>(\$3,462,115)</b> |
| 2016         | A15N01     | Convert Laconia 4kV     | \$1,123,000                              | \$2,465,701                       | (\$1,342,701)        |
| 2016         | DL9R       | Distribution ROW        | \$929,800                                | \$1,643,132                       | (\$713,332)          |
| <b>Total</b> |            |                         | <b>\$2,052,800</b>                       | <b>\$4,108,833</b>                | <b>(\$2,056,033)</b> |

<sup>21</sup> Source: Staff 12-045, Project Authorization Forms and/or Supplemental Request Forms

<sup>22</sup> Source: Attachment ELM-3, column J.

|              |        |                         |                    |                    |                      |
|--------------|--------|-------------------------|--------------------|--------------------|----------------------|
|              |        |                         |                    |                    |                      |
| 2015         | R15RPR | Reject Pole Replacement | \$3,001,000        | \$8,715,864        | (\$5,714,864)        |
| <b>Total</b> |        |                         | <b>\$3,001,000</b> | <b>\$8,715,864</b> | <b>(\$5,714,864)</b> |

**2018 Capital Projects**

**1. Project #A16C09 Blaine St. Sub Add 34.5-12kV 10MVA Transformer**

**Attachment JED-8**

**Budget: \$2,718,253                  Actual: \$3,969,115**

**Budget v. Actual: \$1,250,862 (46% variance)**

**Recommended Disallowance: \$1,232,862 (see below)**

**Project Authorization Form:**

- This project involved the removal and replacement of the 60 year old substation transformer and metal clad switchgear lineup, with the installation of a new 34.5-12.47 kV 12.5 MVA transformer with 15 kV metal clad switchgear to feed two new 12.47 kV circuits which tie to the upgraded Pinardville and Notre Dame substations as part of a multi-year reliability project on the west side of Manchester.
- Upon initial review, the project summary, justification, scope, and alternatives sections appeared to be sufficient; however, as noted in the Supplement Request Form discussed below, some critical cost elements were overlooked.
- The total authorized budget for the project, including direct and indirect costs, is \$2.7 million. This amount differs from the amounts provided in Attachment ELM-3 at Bates 1268. As the Commission stated in Order No. 26,122, Docket

1 No. DG 17-048 at 23: “Prior to commencing construction, however, the  
2 Commission expects a reasonable utility executive to make certain that projected  
3 costs are accurate and reasonable and have been appropriately evaluated.”

4 Supplement Request Form:

- 5 • This request is for \$1.3 million in additional funding (including direct and indirect  
6 costs).
- 7 • The justifications included additional costs for services “overlooked” in the  
8 original estimate including soil testing, soil removal, substation security, fencing  
9 and landscaping, easement acquisition, permitting, property taxes, and sound  
10 testing. Cost increases were also experienced for additional engineering related to  
11 design modifications resulting from a site walk-down conducted by the contractor  
12 engineer and for defective switchgear from the manufacturer.
- 13 • The section on “Actions to prevent recurrence” emphasized the need for project  
14 managers to closely monitor project expenditures in comparison with the  
15 authorized budget and to work more closely with project cost analysts to impede  
16 cost escalation. This section also states that “A proactive approach in controlling  
17 project costs is...imperative.” indicating that cost control measures were not a  
18 consideration in implementing this project. The Company personnel also  
19 recommended greater involvement by project managers in formulating initial  
20 budgets and scope of work was an additional recommendation.

21 Work Orders:

- 22 • Eversource did not provide the work orders for this project in response to Staff  
23 12-045. Eversource apparently enters all of the work order information into an



Excel spreadsheet and Eversource provided that spreadsheet in response to Staff 16-9, Attachment Staff 16-009K containing a spreadsheet summary of all work orders.

- As noted above, in addition to the work order identification numbers and the amounts, the spreadsheet also contained accounting adjustments, coded entries, and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.
- Upon review the spreadsheet shows the final project cost to be \$4,009,770 which conflicts with Attachment ELM-3 Column J which shows the total cost to be \$3,969,115.

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes provided by Eversource indicate that the Committee was aware of the cost overruns but does not mention any concerns or corrective actions other than recommending the attachment of a “Lessons learned that details what was learned to prevent recurrence.”

**Staff’s Conclusions & Recommendations:**

Staff found the initial justification for the project reasonable in terms of known obsolescence involving the asset condition of the some of the components of the substation and the need for related upgrades. In addition, Staff agrees that the defective manufacturing involving the

1 switchgear was unknowable and unforeseen by Eversource at the time the Company estimated  
2 the project. However, after reviewing all of the essential cost components that were missed  
3 during the initial engineering and estimating phase of the project (as detailed in the Supplement  
4 Request Form), and the resultant cost escalations totaling \$1.25 million, Staff finds this to be  
5 additional evidence of a flawed scoping and planning process at Eversource. Again, Staff  
6 presumes that Eversource engineers possess a high level of expertise and experience in  
7 performing project cost estimates and that those estimates should be reasonably accurate;  
8 however, like most of the other projects included in Staff's review, many cost elements were  
9 missed during the original scoping stage of the project. As the Commission has recently held  
10 "Prudent decisions cannot be made if significant, foreseeable cost elements of a project are over  
11 looked at the outset and meaningful re-examination of costs does not take place during project  
12 execution, as costs increase."<sup>23</sup>

13 In addition, it appears that no attempts at cost containment were implemented during the  
14 construction phase as indicated by the recommendations contained in the Supplement Request  
15 Form. In response to Staff TS 2-053, Eversource claims the project was monitored monthly  
16 during the Distribution Capital Review meetings, however, "cost controls" resulting from those  
17 meetings did not appear to involve anything beyond budget forecasts, cost reviews, and updates  
18 to project financials. Staff believes a judicious project manager would have been more diligent  
19 and forward-looking in considering the various cost components and possible alternatives that  
20 could impact the project, and that the site walk-downs should have informed that process, thus  
21 producing a scope document and cost estimate that would have been more comprehensive and  
22 complete. Instead, as the documentation indicates, Eversource's contract engineers had to

<sup>23</sup> See *Liberty Utilities*, Order No. 26,377 at 9 (June 30, 2020)

devote much of their time to re-engineering the project during the construction phase thus adding to the costs. Because the evidence demonstrates that the Company overlooked significant, foreseeable project costs at the outset, that management's review and oversight of the project was severely flawed, and that the Company has failed to meet its burden of demonstrating that its decision making was prudent, Staff recommends that the Commission disallow all of the costs over and above the original estimate of \$2.7 million, except for unforeseen costs associated with the defective switchgear totaling \$18,000 (see Staff TS 2-053 b), resulting in a total disallowance of \$1.23 million.

**2. Project #A16C10 Jackman – Replace Obsolete Equipment**

**Attachment JED-9**

**Budget: \$4,556,810                      Actual: \$7,132,860**

**Budget v. Actual: \$2,576,050 (56% variance)**

**Recommended Disallowance: \$2,491,663 (see below)**

Project Authorization Form:

- This project involved the removal and replacement of obsolete oil circuit breakers as part of an obsolete equipment replacement program. The project also included removal of distribution equipment from a generation control house, replacement of electromechanical relays, reconfiguration of substation bus work, and construction of a new distribution control house.
- Upon initial review, the project summary, justification, scope, and alternatives sections appeared to be sufficient; however, as noted in the Supplement Request Form discussed below, many critical cost elements were overlooked.

- The total authorized cost of the project, including direct and indirect costs, was \$4.56 million. This amount differs from the amount provided in Attachment ELM-3, column F., at Bates 1268 by \$1.3 million. As the Commission stated in Order No. 26,122, Docket No. DG 17-048 at 23: “Prior to commencing construction, however, the Commission expects a reasonable utility executive to make certain that projected costs are accurate and reasonable and have been appropriately evaluated.”

Supplement Request Form:

- There were three Supplement Request Forms submitted for this project, the first dated January 31, 2017, the second dated February 9, 2017, and the third dated February 8, 2018. Both of the 2017 requests outline an additional amount of \$843,154 and the 2018 request is for an additional amount of \$1.775 million (including direct and indirect costs).
- The justifications provided in 2017 involved many cost elements that were overlooked in the original PAF estimate. Those elements included lack of available drawings, re-design of equipment, buried equipment not shown on drawings, “issued for construction” (IFC) drawings resulting in additional materials costs, contracting of a lead commissioning engineer, contaminated soil removal, contracting of an Owner’s Engineer, mobile substation costs, site security, station lighting, and lightning protection.
- No “Lessons Learned” section nor an “Actions to prevent recurrence” section was included in the 2017 form.

- The justifications provided in 2018 involved costs associated with the hiring (and replacement) of an engineering contractor (Altran) that lacked sufficient experience, additional and substantial on-site engineering, property taxes, and substantial under-estimation of indirect costs and AFUDC.
- Like the 2017 forms, no “Lessons Learned” section nor an “Actions to prevent recurrence” section was included in the 2018 form.

Work Orders:

- Eversource did not provide the individual work orders for this project in response to Staff 12-045 despite the fact that the PAF states “A total of ten (10) substation project work orders have been written under this project.” Later, in response to Staff 16-9, the Company provided Attachment Staff 16-009L containing a spreadsheet summary of all work orders.
- As noted above, in addition to the work order identification numbers and the amounts, the spreadsheet also contained accounting adjustments, coded entries, and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.
- The spreadsheet shows the final project cost to be \$7,132,860 which conflicts with Attachment ELM-3 Column J which shows the total cost to be \$7,151,858

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

1        Project Reviews & Approvals by the Project Authorization Committee:

- 2            • The meeting minutes and documented approvals by the Committee were not  
3            provided by Eversource as requested in Staff 12-045.

4        **Staff's Conclusions & Recommendations:**

5        Like many of the projects reviewed in Staff's sample, Staff found the initial justification for the  
6        project reasonable in terms of known obsolescence involving asset condition and the fact that  
7        many of the upgrades and additions were driven by Eversource's subsequent divestiture of its  
8        generation assets. However, after reviewing all of the essential cost components that were missed  
9        during the initial engineering and estimating phase of the project, despite several site visits  
10       conducted by Eversource engineers (see Data Response TS 2-054a included in Attachment JED-  
11       9), and the resultant cost escalations totaling \$2.6 million, Staff finds this to be additional  
12       evidence of a flawed scoping and planning process at Eversource. Staff understands that much  
13       of the additional costs experienced in 2018 were the result of hiring a new engineering  
14       contractor, Altran, with which Eversource had little previous working experience. However,  
15       Staff presumes that a large utility like Eversource utilizes a rigorous vetting and monitoring  
16       process that would reasonably mitigate and prevent this type of risk, especially involving large  
17       and complex projects such as Jackman. Nevertheless, as the project documents show, project  
18       designs created by Altran did not meet Eversource's standards and Altran's inability to complete  
19       the project according specifications was not discovered by the Company until the project was  
20       nearly complete in 2018 (see Data Response TS 2-054 a and b included in Attachment JED-9).  
21       Again, Staff presumes that Eversource engineers possess a high level of expertise and experience  
22       in performing project cost estimates and project management; however, like most of the other  
23       projects reviewed in Staff's sample, many cost elements were missed during the original scoping

1 phase of the project and diligent management during construction appeared to be absent.  
2 Prudent decisions cannot be made where significant, foreseeable cost elements are overlooked at  
3 the outset of a project and are not subject to meaningful re-examination during project execution.  
4 In addition, although the Supplement Request Form outlines the primary cost drivers for the  
5 project, there is no discussion involving any attempts at cost containment by the Company. In  
6 response to Staff TS 2-054, Eversource claims the project was monitored monthly during the  
7 Distribution Capital Review meetings, however, “cost controls” resulting from those meetings  
8 did not appear to involve anything beyond budget forecasts, cost reviews, and updates to project  
9 financials. Staff believes a judicious project manager would have been more diligent and  
10 forward-looking in considering the various cost components and possible scenarios that could  
11 impact the project, thus producing a more accurate cost estimate and employing a more effective  
12 monitoring process once the project was underway. Instead, as the documentation indicates,  
13 Eversource’s engineering contractors had to devote much of their time to re-engineering the  
14 project during the construction phase substantially adding to the costs. Because the evidence  
15 shows that the Company overlooked significant, foreseeable project costs at the outset, that  
16 management’s review and oversight of the project was severely flawed, and that the Company  
17 has failed to meet its burden of demonstrating that its decision making was prudent, Staff  
18 recommends that the Commission disallow all of the costs over and above the original estimate  
19 of \$4.56 million, except for costs associated with unforeseen delays in scheduling outages for  
20 testing (estimated at \$84,387), resulting in a total disallowance of \$2.49 million.

21  
22 **3. Project #A16E06 West Rye Substation Rebuild Attachment JED-10**

23 **Budget: \$1,304,000 Actual: \$2,698,369**  
24

**Budget v. Actual: \$1,394,369 (107% variance)**

**Recommended Disallowance: \$1,394,369**

Project Authorization Form:

- This project involved the removal and replacement of two 1.5 MVA transformers and related switchgear that have exceeded their life expectancy (1950's) for which replacement parts are no longer available. The obsolete transformers and switchgear were to be replaced by a new 10 MVA transformer, three new reclosers, and distribution automation converting the substation to a 34.5kV – 12kV substation.
- Upon initial review, the project summary, justification, scope, and alternatives sections appeared to be sufficient; however, as noted in the Supplement Request Form discussed below, many critical cost elements were overlooked.
- The original authorized budget for the project, including direct and indirect costs, was estimated at \$1.3 million. The total direct costs were \$1.04 million.

Supplement Request Form:

- There were three Supplement Request Forms submitted for this project, the first dated July 3, 2017, the second dated November 28, 2017, and the third dated April 10, 2018. The June 3 request indicates an increase of \$286,000 and the November 28 request shows an increase of \$712,385. The April 10 request provides an increase of \$364,000 for total combined increase in project costs of \$1.36 million (including direct and indirect costs).
- The justifications provided in July 3, 2017 form involved many cost elements that were overlooked in the original PAF estimate. Those elements included hiring an



1 engineering contractor, undertaking several revisions to the site design, and  
2 failure to consider station service, site expansion, fencing, grounding, and stoning  
3 in the original estimate.

- 4 • The justifications provided in the November 28, 2017 form involved “significant  
5 oversight” in estimating construction costs in the July 3 request which did not  
6 consider costs for testing and commissioning, ROW clearing, environmental  
7 monitoring, and additional materials. Eversource attributes this oversight to the  
8 fact that the July 3 request was “apparently” written by someone who was not the  
9 project manager and the oversight went undetected during the monthly meetings.
- 10 • No “Lessons Learned” section nor an “Actions to prevent recurrence” section was  
11 included in the 2017 forms.
- 12 • The justifications provided in 2018 involved costs associated with “engineering  
13 deficiencies (both internal and external),” poor fit of structural steel and other  
14 materials due to multiple design changes, addition of animal protection, and  
15 wiring discrepancies.
- 16 • The 2018 form included an “Actions to prevent recurrence” section which  
17 highlighted the importance of the project manager “being more involved in the  
18 estimates created by Engineering as well as scope of work for projects,” and “the  
19 importance of monitoring the status of planned project spend and comparing  
20 against the authorized budget..”

21 Work Orders:

- 22 • Eversource did not provide the work orders for this project in response to Staff  
23 12-045. Eversource apparently enters all of the work order information into an

Excel spreadsheet and Eversource provided that spreadsheet in response to Staff 16-9, Attachment Staff 16-009M containing a spreadsheet summary of all work orders.

- As noted above, in addition to the work order identification numbers and the amounts, the spreadsheet also contained numerous accounting adjustments, coded entries, and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.
- Upon review the spreadsheet shows the final project cost to be \$3,190,715 which conflicts with Attachment ELM-3 Column J which shows the total cost to be \$2,698,369.

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes and documented approvals by the Committee were not provided by Eversource as requested in Staff 12-045.

**Staff's Conclusions & Recommendations:**

Again, like many of the projects reviewed by Staff, the initial justification for the project reasonable in terms of known obsolescence involving asset condition. However, after reviewing all of the essential cost components that were missed during the initial engineering and estimating phase of the project (as detailed in the Supplement Request Forms), and the resultant cost escalations totaling \$1.4 million, Staff finds this to be additional evidence of a flawed

1   scoping and planning process at Eversource. Staff presumes that Eversource engineers possess a  
2   high level of expertise and experience in performing project cost estimates and project  
3   management; however, like most of the other projects reviewed by Staff, many cost elements  
4   were overlooked during the original scoping phase of this project, and during a subsequent  
5   review (2017). In addition, diligent management during the construction phase appeared to be  
6   absent. Although the Supplement Request Forms outline the primary cost drivers for the project,  
7   there is no discussion involving cost containment by the Company until the filing of the form on  
8   November 28 when the project was near completion (estimated completion was April 1, 2018).  
9   Staff believes a judicious project manager would have been more diligent and forward-looking in  
10   considering the various cost components and possible scenarios that could impact the project,  
11   thus producing a more accurate cost estimate and employing a more effective monitoring process  
12   once the project was underway. Instead, as the documentation indicates, Eversource's engineers  
13   and engineering contractors had to devote much of their time to re-engineering the project during  
14   the construction phase substantially adding to the costs. Because the evidence demonstrates that  
15   the Company overlooked significant, foreseeable project costs at the outset, that management's  
16   oversight and review of the project was severely flawed, and that the Company has failed to meet  
17   its burden of demonstrating that its decision making was prudent, Staff recommends that the  
18   Commission disallow all of the costs over and above the original estimate of \$1.304 million,  
19   resulting in a total disallowance of \$1.4 million.

20           **4.     Project #A18E16 West Road Overload     Attachment JED-11**

21  
22                   **Budget: \$746,000                   Actual: \$1,408,801**

23                   **Budget v. Actual: \$662,801 (88% variance)**

24                   **Recommended Disallowance: \$662,801**

Project Authorization Form:

- This project involved the elimination of a set of overloaded 500kV stepdown transformers by converting the radially fed area from 12.47kV to 34.5kV. In addition, two new 34.5kV circuit ties were to be installed to bypass 12 sections that are located in tidal saltmarshes that are inaccessible by truck.
- Upon initial review, the project summary, justification, scope, and alternatives sections appeared to be sufficient; however, as noted in the Supplement Request Form discussed below, many critical cost elements were overlooked.
- The total cost of the project, including direct and indirect costs, was estimated at \$746,000. The total direct costs were \$536,000.

Supplement Request Form:

- This request for supplemental funding is in the amount of \$682,000 (including direct and indirect costs) essentially doubling the original authorized budget of the project from \$746,000 to \$1.428 million.
- The form was dated January 26, 2019, approximately six months after the projected in-service date of June 2018. This delay in filing is contrary to the requirement for timely submission and approval as provided in the APS-1. Based on Staff's review of Eversource's project authorization policy, the apparent intent of the form as described is to alert management to cost overruns during the course of the project either before or at the time the changes occur. This after-the-fact notification undermines the purpose of the form.

- The justifications provided in the form involved significant underestimation of the man-hours needed to complete the job. Eversource's work management system had initially estimated 1,900 hours of labor whereas the project contractors estimated 4,500 hours. This increase was apparently overlooked since the work management system was never updated to re-estimate the job. In addition, costs for materials and overheads were substantially underestimated and permitting and traffic conditions within the City of Portsmouth contributed to the added costs.
- No "Lessons Learned" section nor an "Actions to prevent recurrence" section was included in the form.

Work Orders:

- Eversource did not provide the work orders for this project in response to Staff 12-045. Eversource apparently enters all of the work order information into an Excel spreadsheet and Eversource provided that spreadsheet in response to Staff 16-9, Attachment Staff 16-009N containing a spreadsheet summary of all work orders.
- As noted above, in addition to the work order identification numbers and the amounts, the spreadsheet also contained numerous accounting adjustments, coded entries, and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.
- Upon review the spreadsheet shows the final project cost to be \$1,430,363 which conflicts with Attachment ELM-3 Column J which shows the total cost to be \$1,408,801.

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes and documented approvals by the Committee were not provided by Eversource as requested in Staff 12-045.

**Staff's Conclusions & Recommendations:**

Staff found the initial justification for the project reasonable in terms of asset condition, potential overloading, and planned road widening by the City of Portsmouth. However, after reviewing all of the essential cost components that were missed during the initial engineering and estimating phase of the project (as detailed in the Supplement Request Form), and the resultant cost escalations totaling \$682,000 (\$662,801 final), Staff finds this to be additional evidence of a flawed scoping and planning process at Eversource. Staff presumes that Eversource engineers possess a high level of expertise and experience in performing project cost estimates and project management; however, like most of the other projects reviewed by Staff, many cost elements were overlooked during the original scoping phase of this project. Staff finds that most of these cost elements were foreseeable during this phase, in particular the cost escalations associated with labor costs and the potential complications involved with conducting a project in the City of Portsmouth. In addition, although the Supplement Request Form outlines the primary cost drivers for the project, there is no discussion involving cost containment and, contrary to the Company's own procedures, the request for approval of increased costs was submitted after completion of the project, precluding any meaningful re-examination of the cost increases. Staff

believes a judicious project manager would have been more diligent and forward-looking in considering the various cost components and possible scenarios that could impact the project, thus producing a more accurate cost estimate and employing a more effective monitoring process once the project was underway. Instead, as the documentation indicates, Eversource engineers and project managers dealt with these added costs as they arose during the construction phase. Because the evidence demonstrates that the Company overlooked significant, foreseeable project costs at the outset, that management's oversight and review of the project was severely flawed, and that the Company has failed to meet its burden of demonstrating that its decision making was prudent, Staff recommends that the Commission disallow all of the costs over and above the original estimate of \$746,000, resulting in a total disallowance of \$662,801.

**5. Project #A07X45 Reject Pole Replacement Attachment JED-12**

**Budget: \$850,000 Actual: \$1,962,868**

**Budget v. Actual: \$1,112,868 (131% variance)**

**Recommended Disallowance: \$1,112,868**

Project Authorization Form:

- This project involves the annual inspection of wood poles in Eversource's maintenance territory and the replacement of poles deemed to be "rejects." As a result of the 2016 pole inspection program, 1,386 poles were identified as deficient based on Eversource's pole inspection criteria. Eversource utilizes a 10-year inspection cycle.
- The annual inspection typically identifies between 300 and 500 poles that require replacement, however, the "dramatic increase is the result of a business decision

1 to replace poles that would have previously been braced or restored until the next  
2 inspection occurred 10 years later.”

- 3 • Upon initial review, the project summary, justification, scope, and alternatives  
4 sections appeared to be sufficient; however, no explanation was provided as to  
5 why Eversource decided to ignore its own pole inspection criteria in this instance.
- 6 • The total cost of the project, including direct and indirect costs, was estimated at  
7 \$850,000. The total direct costs are \$634,000.

8 Supplement Request Form:

- 9 • This request for supplemental funding is in the amount of \$1.113 million  
10 (including direct and indirect costs) more than doubling the cost estimate of the  
11 project from \$850,000 to \$1.963 million.
- 12 • The form was dated January 25, 2019, approximately one month after the  
13 completion date of December 2018. This delay in filing is contrary to the  
14 requirement for timely submission and approval as provided in the APS-1. Based  
15 on Staff’s review of Eversource’s project authorization policy, the apparent intent  
16 of the form as described is to alert management to cost overruns during the course  
17 of the project either before or at the time the changes occur. This after-the-fact  
18 notification undermines the purpose of the form.
- 19 • The justifications provided in the form were identical to those outlined in the  
20 PAF, i.e. the failure rate from the inspection (4 percent) was much higher than the  
21 average (1.5 to 2 percent) resulting in the rejection of 1,386 poles. Although the  
22 number of reject poles remained the same as included in the original PAF  
23 estimate, no specifics or details were provided to explain the significant escalation



1 in costs of \$1.113 million or why the factors driving the increase were overlooked  
2 in the initial estimate.

- 3 • No “Lessons Learned” section nor an “Actions to prevent recurrence” section was  
4 included in the form.

5 Work Orders:

- 6 • Eversource did not provide the individual work orders for this project in response  
7 to Staff 12-045. Eversource apparently enters all of the work order information  
8 into an Excel spreadsheet and Eversource provided that spreadsheet in response to  
9 Staff 16-9, Attachment Staff 16-009A containing a spreadsheet summary of all  
10 work orders. Note: Attachment Staff 16-009A and Attachment Staff 16-009C are  
11 duplicate filings.
- 12 • As noted above, in addition to the work order identification numbers and the  
13 amounts, the spreadsheet also contained accounting adjustments, coded entries,  
14 and nondescript entries making it difficult for Staff to precisely trace and verify  
15 the actual costs assigned to the project leading up to the variance.
- 16 • Upon review the spreadsheet shows the final project cost to be \$2,423,396 which  
17 conflicts with Attachment ELM-3 Column J which shows the total cost to be  
18 \$1,962,868.

19 Project Reviews Performed by Eversource Enterprise Risk Management Group:

- 20 • This project was not subject to the review of this committee.

21 Project Reviews Performed by the Financial Planning and Analysis Group:

- 22 • The reviews were not provided as requested in Staff 12-045.

23 Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes and documented approvals by the Committee were not provided by Eversource as requested in Staff 12-045, even though the Supplement Request Form states that “Additional investment in reject pole replacement was monitored and approved by the capital budget review committee during monthly project meetings.”

**Staff’s Conclusions & Recommendations:**

Staff found the initial justification for the project reasonable in terms of the asset condition of some of the poles discovered during the annual inspection, and because this is part of standard business practices at Eversource and other electric utilities. However, Staff is troubled by the fact that the “dramatic increase” in reject poles apparently resulted from a “business decision” to deviate from Eversource’s policy and procedure involving reject pole replacement. According to the Eversource Maintenance Program, Document 6.61A Rev. 3, Wood Pole Restoration, Guidelines for Reject Pole Replacement, reject poles are first categorized as “Priority Reject” or “Normal Reject.” Priority reject poles are poles that are hollowing or are in imminent danger of falling. Normal reject poles are poles that have experienced a reduced circumference at 67 percent of original circumference but are not deteriorated enough to be classified as Priority. Under the guidelines, a Normal reject pole must be evaluated for the potential of extending its useful life until the next inspection cycle. If a Normal reject pole is deemed salvageable, it must be restored or braced according to several methods outlined in the “Pole Restoration” section. According the PAF referenced above, Eversource chose to sidestep its own restoration guidelines for these types of poles resulting in a significant cost increase for this project. Again, no justification was provided by Eversource to support this deviation from its policy or explain why restoration efforts were not appropriate or economic in this instance. Moreover, the Supplement

Request Form was submitted after completion of the project, preventing any meaningful re-examination and approval of the cost increases. Because the evidence demonstrates that the Company failed to follow its own internal process for pole replacements, that management's oversight and review of the project was severely flawed, and that the Company has failed to meet its burden of demonstrating that its decision making was prudent, Staff recommends that the Commission disallow all of the costs over and above the original estimate of \$850,000, resulting in a total disallowance of \$1.1 million.

**2017 Capital Projects**

**1. Project #A16C01 3271 Line Re-conductor Attachment JED-13**

**Budget: \$1,096,573 Actual: \$2,458,566**

**Budget v. Actual: \$1,361,993 (124% variance)**

**Recommended Disallowance: \$1,361,993**

**Project Authorization Form:**

- This project involved the re-conductoring and upgrade of a 2.66 mile section of the 3271 line between Weare Substation and Greggs Substation to help support load in the Rimmon area of Manchester, allow removal of obsolete equipment at Greggs Substation, and develop a major tie between the two substations.
- Upon initial review, the project summary, justification, scope, and alternatives sections appeared to be sufficient; however, as noted in the Supplement Request Form discussed below, many critical cost elements were overlooked.
- The total cost of the project, including direct and indirect costs, was estimated at \$1.1 million. The total direct costs are \$771,000.

Supplement Request Form:

- This request for supplemental funding is in the amount of \$1.4 million (including direct and indirect costs) essentially more than doubling the original authorized budget for the project from \$1.1 million to \$2.5 million.
- The justifications provided in the form involved significant underestimation of certain cost elements of the project including changing the design from open wire to bundled Hendrix tree wire (\$352,000) and contracting outside services for wetland permitting, mitigation plans, line construction, wetland matting, and tree clearing (\$960,000). Commitments to abutting property owners for an access easement and failure to consider hazardous trees and compliance with DES and Army Corps of Engineers requirements also added to the cost escalations (\$168,000).
- No “Lessons Learned” section nor an “Actions to prevent recurrence” section was included in the form.

Work Orders:

- Eversource did not provide the individual work orders for this project in response to Staff 12-045. Eversource apparently enters all of the work order information into an Excel spreadsheet and Eversource provided that spreadsheet in response to Staff 16-9, Attachment Staff 16-009J containing a spreadsheet summary of all work orders.

- As noted above, in addition to the work order identification numbers and the amounts, the spreadsheet also contained accounting adjustments, coded entries, and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.
- The spreadsheet shows the final project cost to be \$2,427,609 which conflicts with Attachment ELM-3 Column J which shows the total cost to be \$2,458,566.

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes and documented approvals by the Committee were not provided by Eversource as requested in Staff 12-045.

**Staff's Conclusions & Recommendations:**

Staff found the initial justification for the project reasonable in terms of asset condition and potential overloading. However, after reviewing all of the essential cost components that were missed during the initial engineering and estimating phase of the project (as detailed in the Supplement Request Form), and the resultant cost escalations totaling \$1.36 million, Staff finds this to be additional evidence of a flawed scoping and planning process at Eversource. Staff presumes that Eversource engineers possess a high level of expertise and experience in performing project cost estimates and project management; however, like most of the other projects reviewed by Staff, many cost elements were overlooked during the original scoping phase of this project. Staff believes that most of these cost elements were foreseeable during this

1 phase, in particular the cost escalations associated with Hendrix tree wire and the need of  
2 additional outside services. It is unknown whether or not Eversource engineers conducted a site  
3 visit during the initial design and scoping phase of the project and Eversource provided no  
4 justification for the necessity of the design changes noted in the Supplement Request Form. In  
5 addition, although the Supplement Request Form outlines the primary cost drivers for the  
6 project, there is no discussion involving cost containment or whether or not the increased costs  
7 were a concern. Staff believes a judicious project manager would have been more diligent and  
8 forward-looking in considering the various cost components and possible scenarios that could  
9 impact the project, thus producing a more accurate cost estimate and employing a more effective  
10 monitoring process once the project was underway. Instead, as the documentation appears to  
11 indicate, Eversource engineers and project managers devoted much of their time to project re-  
12 design and acquisition of additional resources during the construction phase. Because the  
13 evidence demonstrates that the Company overlooked significant, foreseeable project costs at the  
14 outset, that management's oversight and review of the project was severely flawed, and that the  
15 Company has failed to meet its burden of demonstrating that its decision making was prudent,  
16 Staff recommends that the Commission disallow all of the costs over and above the original  
17 estimate of \$1.1 million, resulting in a total disallowance of \$1.36 million.

18  
19 **2. Project #NHRMTR17 NH Remote Disconnect 2017-2018**

20 **Attachment JED-14**

21 **Budget: \$918,793 Actual: \$2,283,449**

22 **Budget v. Actual: \$1,364,656 (149% variance)**

23 **Recommended Disallowance: \$1,364,656**

Project Authorization Form:

- This project involved a corporate shared services project undertaken by Eversource electric utilities located in New Hampshire, Massachusetts and Connecticut to replace manually probed interval meters in NH, and electromechanical meters in MA and CT, with remote disconnect meters. A specific PAF for NH operations was not provided in the data response even though the Supplement Request Form indicates that one was created.
- Upon initial review, the project summary, justification, scope, and alternatives sections appeared to be sufficient.
- The project was originally scheduled as a two-year project to take place in 2017 and 2018. The total cost of the project for 2017 was estimated at \$918,793 and \$316,825 in 2018, for a total overall cost of \$1.26 million.

Supplement Request Form:

- This request for supplemental funding is in the amount of \$1.06 million (including direct and indirect costs) essentially doubling the cost of the 2017 project from \$918,793 to \$1.98 million.
- The justifications provided in the form involved a decision by Meter Operations to accelerate the project for completion in 2017 due to the availability of additional resources (meters, materials, and labor). Significant underestimation of the total costs to complete (\$1.26 million) appears to have resulted since the request exceeds the amount budgeted for 2018 (\$316,825) by \$750,000. Aside from Eversource's expressed desire to complete the project ahead of schedule, no details or additional support was provided for the cost increase of \$1.06 million.

- No “Lessons Learned” section nor an “Actions to prevent recurrence” section was included in the form.

Work Orders:

- Eversource did not provide the work orders for this project in response to Staff 12-045. Eversource apparently enters all of the work order information into an Excel spreadsheet and Eversource provided that spreadsheet in response to Staff 16-9, Attachment Staff 16-009R containing a spreadsheet summary of all work orders.
- As noted above, in addition to the work order identification numbers and the amounts, the spreadsheet also contained accounting adjustments, coded entries, and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.
- Upon review the spreadsheet shows the final project cost to be \$2,283,449 which matches the total cost shown on Attachment ELM-3 Column J.

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes and documented approvals by the Committee were not provided by Eversource as requested in Staff 12-045.



**Staff's Conclusions & Recommendations:**

Staff found the initial justification for the project reasonable in terms of asset condition and potential cost savings in O&M resulting from replacement of the manually probed meters. However, because of the lack of details in the Supplement Request Form, no insight was provided on the necessity of the cost overrun of \$1.06 million or why acceleration of the project in 2017 was a determining factor. Staff finds this to be additional evidence of a flawed scoping and planning process at Eversource. As a result, because the evidence does not provide a justification for the additional cost increases and Eversource failed to provide documentary evidence supporting the prudence of the significant cost increase, Staff recommends that the Commission disallow all of the costs over and above the original estimate of \$918,793, resulting in a total disallowance of \$1.365 million.

**3. Project #DL9R Distribution ROW Annual Attachment JED-15**

**Budget: \$1,644,500 Actual: \$2,379,966**

**Budget v. Actual: \$735,466 (48% variance)**

**Recommended Disallowance: \$735,466**

**Project Authorization Form:**

- This project involves an annual Eversource program that covers planned replacement of equipment in distribution right of ways. Two separate PAF's were provided by Eversource: a standard PAF and a Technical Authorization Form.
- Upon initial review, the project summary, justification, scope, and alternatives sections appeared to be sufficient in terms of this project constituting an annual ongoing program.

- The total cost of the project was estimated at \$1.644 million in both PAF forms. Annual expenditure estimates for this project are based on historical spending and known spending levels.

Supplement Request Form:

- This request for supplemental funding is in the amount of \$711,600 (including direct and indirect costs) increasing the authorized budget amount of the project from \$1.644 million to \$2.36 million.
- The justifications provided in the form involved “more work being performed on the system than anticipated” related to 115 pole replacements and 32 cross arm or brace repairs, and repairs to insulators and overhead lines. Aside from Eversource’s expressed desire to improve reliability, no details or additional support was provided for the requested cost increase of \$711,600.
- No “Lessons Learned” section nor an “Actions to prevent recurrence” section was included in the form.

Work Orders:

- Eversource did not provide the work orders for this project in response to Staff 12-045. Eversource apparently enters all of the work order information into an Excel spreadsheet and Eversource provided that spreadsheet in response to Staff 16-9, Attachment Staff 16-009Q containing a spreadsheet summary of all work orders.
- As noted above, in addition to the work order identification numbers and the amounts, the spreadsheet also contained accounting adjustments, coded entries,

and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.

- Upon review the spreadsheet shows the final project cost to be \$2,380,580 which conflicts with Attachment ELM-3 Column J which shows the total cost to be \$2,379,966.

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes and documented approvals by the Committee were provided by Eversource but contained no additional details related to the project.

**Staff's Conclusions & Recommendations:**

Staff found the initial justification for the project reasonable in terms of continuing and ongoing efforts to address asset condition in the distribution right of way as part of an annual program. However, the lack of details in the Supplement Request Form provided no explanation of the need for the requested cost increase of \$711,600 or why the increase was out of trend given that the annual cost estimates are based on historical spending. In addition, no commentary was provided to account for or support the additional expenditure of \$23,866 leading to the final total cost amount of \$2.4 million. Vague generalizations such as costs were higher than originally budgeted does not serve as an adequate analysis and justification for a significant cost increase. Because Eversource did not provide any documentary evidence supporting the cost increase and failed to demonstrate that the additional expenditures were prudent, Staff recommends that the

Commission disallow all of the costs over and above the original estimate of \$1.644 million, resulting in a total disallowance of \$735,466.

**2016 Capital Projects**

**1. Project #A15N01 Convert Laconia 4kV to 12.47kV Attachment JED-16**

**Budget: \$1,123,000 Actual: \$2,465,701**

**Budget v. Actual: \$1,342,701 (84% variance)**

**Recommended Disallowance: \$1,342,701**

**Project Authorization Form:**

- This project involved the final phase of converting the Laconia area from 4kV to 12kV to retire old equipment and create an interconnected 12kV system with other circuits and substations pursuant to the findings of the Laconia Area Distribution System Study. This project converted the two remaining 4kV circuits (38H1 and 38H3) to 12kV allowing for the retirement of the existing 4kV substation equipment at the Messer Street Substation.
- Upon initial review, the project summary, justification, scope, and alternatives sections appeared to be sufficient; however, as noted in the Supplement Request Form discussed below, problems with project management and oversight contributed to substantial cost increases.
- The total authorized cost of the project, including direct and indirect costs, was estimated to be \$1.123 million.

Supplement Request Form:

- The Supplement Request Form requests an additional amount of \$1.336 million (including direct and indirect costs) nearly doubling the original cost estimate of \$1.123 million.
- The form was dated October 29, 2018, approximately one year after the completion of the project in 2017. This excessive delay in filing is contrary to the requirement for timely submission and approval as provided in the APS-1. Based on Staff's review of Eversource's project authorization policy, the apparent intent of the form as described is to alert management to cost overruns during the course of the project either before or at the time the changes occur. This after-the-fact notification undermines the purpose of the form.
- The justification involved "higher than anticipated contracted outside service costs" primarily driven by a decision of Eversource's Construction Rep to replace many of the existing poles during the course of the project by upgrading the poles from Class 3 to Class 2 resulting in delays and additional costs totaling approximately \$1.1 million. These pole replacements were not contemplated in the original estimate. Staff's understanding of this occurrence, based on information provided by Eversource at the October 29, 2019 technical session and in response to Staff TS 2-063, was that the Construction Rep acted unilaterally in response to recommendations made by the contractor involving the pole condition. Eversource represented that the Construction Rep was later terminated prior to completion of the project.

- No “Lessons Learned” section nor an “Actions to prevent recurrence” section was included in the form; however, the “Justification” section states: “Project controls have been put in place to monitor funding at monthly T&D capital project meetings. This will provide the necessary controls to address the need for supplements in a timely manner.”

Work Orders:

- Eversource did not provide the individual work orders for this project in response to Staff 12-045. Eversource apparently enters all of the work order information into an Excel spreadsheet and Eversource provided that spreadsheet in response to Staff 16-9, Attachment Staff 16-009G containing a spreadsheet summary of all work orders.
- As noted above, in addition to the work order identification numbers and the amounts, the spreadsheet also contained accounting adjustments, coded entries, and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.
- The spreadsheet shows the final project cost to be \$2,643,839 which conflicts with Attachment ELM-3 Column J which shows the total cost to be \$2,465,701.

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes and documented approvals by the Committee were not provided by Eversource as requested in Staff 12-045.

#### **Staff's Conclusions & Recommendations:**

Like many of the projects reviewed in Staff's sample, Staff found the initial justification for the project reasonable in terms of known obsolescence involving asset condition and the need for circuit and substation upgrades. However, after reviewing all of the essential cost components that were missed during the initial engineering and estimating phase, i.e. the potential for pole replacements (as detailed in the Supplement Request Form), and the resultant cost escalations totaling \$1.336 million, Staff finds this to be additional evidence of a flawed scoping, planning, and management process at Eversource. Staff understands that much of the additional costs experienced during the course of this project were the result of the unilateral decision making by Eversource's Construction Rep involving pole replacements. However, Staff presumes that a large utility like Eversource utilizes a rigorous vetting and monitoring process that would prevent or mitigate the risk of such occurrences. Nevertheless, as the Supplement Request Form indicates, and as represented by Eversource at the October 29 Technical Session (also see Staff TS 2-063b), although the decisions made by the Construction Rep were not approved in advance by Eversource, it does not appear that Eversource conducted appropriate oversight or management of the project. Again, Staff presumes that Eversource engineers possess a high level of expertise and experience in performing project cost estimates and project management; however, like most of the other projects reviewed in Staff's sample, critical cost elements were missed during the original scoping phase of the project and diligent management during construction, especially oversight of contractors, appeared to be absent. In addition, although the

Supplement Request Form references apparent “project controls” that have been put into place, this appears to be an after the fact response given that the form was dated a year after project completion (also see Staff TS 2-063a). Staff believes a judicious project manager would have been more diligent and forward-looking in considering the various cost components and possible scenarios that could impact the project, thus producing a more accurate cost estimate and employing a more effective monitoring process once the project was underway. Instead, there is no evidence that Eversource sufficiently monitored its contractor conducting the pole replacements and the associated costs, resulting in significant cost overruns. Because the evidence demonstrates that the Company overlooked significant, foreseeable project costs at the outset, that management’s oversight and review of the project was severely flawed, and that the Company has failed to meet its burden of demonstrating that its decision making was prudent, Staff recommends that the Commission disallow all of the costs over and above the original authorized budget amount of \$1.123 million resulting in a total disallowance of \$1.3 million.

**2. Project #DL9R Distribution ROW Annual Attachment JED-17**

**Budget: \$929,800                      Actual: \$1,643,132**

**Budget v. Actual: \$713,332 (77% variance)**

**Recommended Disallowance: \$713,332**

Project Authorization Form:

- Unlike the Distribution ROW project for 2017 discussed above, the PAF submitted by Eversource for the 2016 project is very general in content and covers all annual distribution reliability projects. As a result, the initial budget amounts for this project were not provided except for the gross amount of \$2.7 million that funds all replacements involving steel towers, oil filled switchgear,



1 degraded vault tops, poles, URD cables, etc. (The initial budget estimate of  
2 \$929,800 is provided in the Supplement Request Form referenced below.)

- 3 • Upon initial review, the project summary, justification, and scope sections  
4 appeared to be sufficient in terms of projects constituting an annual ongoing  
5 program, but at a very high level. No specific discussion or description of this  
6 ROW project was included.

7 Supplement Request Form:

- 8 • This request for supplemental funding is in the amount of \$713,300 (including  
9 direct and indirect costs) increasing the authorized budget amount of the project  
10 from \$929,800 to \$1.64 million.
- 11 • The justifications provided in the form involved “Higher than normal equipment  
12 failure and the majority of work completed by outside contractors...” No other  
13 details or additional support was provided for the cost increase of \$713,300.
- 14 • No “Lessons Learned” section nor an “Actions to prevent recurrence” section was  
15 included in the form.

16 Work Orders:

- 17 • Eversource did not provide the work orders for this project in response to Staff  
18 12-045. Eversource apparently enters all of the work order information into an  
19 Excel spreadsheet and Eversource provided that spreadsheet in response to Staff  
20 16-9, Attachment Staff 16-009P containing a spreadsheet summary of all work  
21 orders.
- 22 • As noted above, in addition to the work order identification numbers and the  
23 amounts, the spreadsheet also contained accounting adjustments, coded entries,

and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.

- Upon review the spreadsheet shows the final project cost to be \$1,643,536 which conflicts with Attachment ELM-3 Column J which shows the total cost to be \$1,643,132.

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes and documented approvals by the Committee were not provided by Eversource as requested in Staff 12-04.

**Staff's Conclusions & Recommendations:**

Staff found the initial justification for the project reasonable in terms of continuing and ongoing efforts to address asset condition in the distribution right of way as part of a standard annual program. However, the lack of details in the Supplement Request Form provided no justification for the cost increase of \$713,300 or why equipment failure was higher than normal in 2016. Likewise, the Company's response to Staff TS 2-064 did not provide any information demonstrating the prudence of the Company's actions. Vague generalizations such as costs were higher than originally budgeted does not provide an adequate analysis for a significant cost increase. Because the evidence demonstrate that the Company failed to conduct a meaningful re-examination of the cost increases during the project execution and failed to provide documentation or evidence to prove its actions were prudent, Staff recommends that the

Commission disallow all of the costs over and above the original authorized amount of \$929,800, resulting in a total disallowance of \$713,332.

**2015 Capital Projects**

**1. Project #R15RPR Reject Poles Replacement Attachment JED-18**

**Budget: \$3,001,000 Actual: \$8,715,864**

**Budget v. Actual: \$5,714,864 (52% variance)**

**Recommended Disallowance: \$5,714,864**

**Project Authorization Form:**

- This project involves the annual inspection of wood poles in Eversource's maintenance territory and the replacement of poles deemed to be "rejects." As part of the 2015-2016 pole inspection program, approximately 120 poles were expected to be replaced based on Eversource's pole inspection criteria. Eversource utilizes a 10-year inspection cycle.
- This project was part of the 2015-2017 Reliability Enhancement Program (REP 3) approved by the Commission as part of the global settlement agreement related to the Eversource Generation divestiture.
- Upon initial review, the project summary, justification, scope, and alternatives sections appeared to be sufficient; however, as noted in the Supplement Request Form discussed below, a subsequent business decision was made by Eversource to transition from Class 4 to Class 2 poles dramatically increasing the costs.
- The total authorized amount for the project, including direct and indirect costs, was estimated at \$3.0 million; however, Form E-22 filed by Eversource on March 2, 2015, shows an initial estimate of \$1.095 million.

Supplement Request Form:

- This request for supplemental funding is in the amount of \$5.7 million (including direct and indirect costs) nearly tripling the cost of the project from \$3 million to \$8.7 million.
- The form was dated February 13, 2019, approximately three years after project completion in December 2015. This excessive delay in filing is contrary to the requirement for timely submission and approval as provided in the APS-1. Based on Staff's review of Eversource's project authorization policy, the apparent intent of the form as described is to alert management to cost overruns during the course of the project either before or at the time the changes occur. This after-the-fact notification undermines the purpose of the form.
- The justification provided in the form centered on a business decision made by Eversource to replace older Class 2 poles with Class 4 poles instead of preserving the older poles that could be salvaged. Although the failure rate of 1.7 percent remained within Eversource's average range of 1.5 to 2 percent, no additional details were provided to support the increase of \$5.7 million or why the transition to Class 2 poles was necessary.
- No "Lessons Learned" section nor an "Actions to prevent recurrence" section was included in the form.

Work Orders:

- Eversource did not provide the work orders for this project in response to Staff 12-045. Eversource apparently enters all of the work order information into an Excel spreadsheet and Eversource provided that spreadsheet in response to Staff

16-9, Attachment Staff 16-009S containing a spreadsheet summary of all work orders.

- As noted above, in addition to the work order identification numbers and the amounts, the spreadsheet also contained accounting adjustments, coded entries, and nondescript entries making it difficult for Staff to precisely trace and verify the actual costs assigned to the project leading up to the variance.
- Upon review it was noticed that Attachment Staff 16-009S does not contain work order entries for project year 2015 and only covers the years 2016 through 2018. Therefore, the spreadsheet was of no use for the purposes of reviewing this project.

Project Reviews Performed by Eversource Enterprise Risk Management Group:

- This project was not subject to the review of this committee.

Project Reviews Performed by the Financial Planning and Analysis Group:

- The reviews were not provided as requested in Staff 12-045.

Project Reviews & Approvals by the Project Authorization Committee:

- The meeting minutes and documented approvals by the Committee were not provided by Eversource as requested in Staff 12-045.

**Staff's Conclusions & Recommendations:**

Staff found the initial justification for the project reasonable in terms of the asset condition of some of the poles discovered during the annual inspection process, and because this is part of a standard annual program undertaken by Eversource. However, Staff is troubled by the fact that the dramatic increase in project costs apparently relates back to a business decision made by Eversource to replace all Class 4 poles with Class 2 poles regardless of asset condition. Staff can

1 only conclude that the results of this decision led to the replacement of poles that may have been  
2 in acceptable condition or salvageable under Eversource's policy and procedure involving reject  
3 pole replacement. As noted above in the 2018 Reject Pole Replacement project, according to the  
4 Eversource Maintenance Program, Document 6.61A Rev. 3, Wood Pole Restoration, Guidelines  
5 for Reject Pole Replacement, "Normal" reject poles must be evaluated for the potential of  
6 extending useful life until the next inspection cycle, and if deemed salvageable, must be restored  
7 or braced according to several methods outlined in the "Pole Restoration" section. According  
8 the Supplement Request Form, rather than restoring or treating the existing poles to extend their  
9 service life, Eversource apparently disregarded its own guidelines resulting in a significant cost  
10 increase for this project. Again, no justification was provided by Eversource to support this  
11 deviation from its policy or explain why restoration efforts were not appropriate or economic in  
12 this instance. In response to Staff TS 2-070, Eversource's only explanation was its desire to  
13 "harden the distribution system." Although the Commission previously approved this project as  
14 part of the global settlement agreement related to the Eversource Generation divestiture, the  
15 Company's deviation from its own pole replacement policy and the additional costs that  
16 exceeded the original budget amount were not approved by the Commission. Because the  
17 evidence demonstrates that the Company failed to follow its own procedures for approving the  
18 project cost increase and for pole replacements, that management's oversight and review of the  
19 project was severely flawed, and that the Company has failed to meet its burden of  
20 demonstrating that its decision making was prudent, Staff recommends that the Commission  
21 disallow all of the costs over and above the original estimate of \$3.0 million resulting in a total  
22 disallowance of \$5.7 million.

1 **Q. Are there any other updates to your direct testimony and your project review that**  
2 **you would like to make at this time?**

3 **A.** Yes. At Bates pages 32 to 33 of my direct testimony I discussed the cost overruns  
4 associated with the Central, Eastern, Northern, and Southern DA projects, but did not  
5 include as attachments the PAF's and Supplement Request Forms related to those  
6 projects. I have attached to my updated testimony as Attachment JED-20 the project  
7 documentation for the Central, East, and North DA projects. The documentation for the  
8 Southern DA project was not provided by Eversource.

9  
10 **V. CONCLUSIONS AND RECOMMENDATIONS**

11 **Q. Based on your review of the additional information filed by Eversource in this**  
12 **docket since the date of your direct testimony, do you have reason to revise any of**  
13 **your initial conclusions or recommendations about the Company's capital planning,**  
14 **budgeting, and project management?**

15 **A.** No. Other than adjusting the initial budget amounts to incorporate both direct and  
16 indirect costs, I found no persuasive evidence in the rebuttal testimony or the series 16  
17 data responses to cause me to change my original conclusions involving the  
18 recommended disallowances. Indeed, my analysis of the remaining projects in Staff's  
19 sample, in response to Eversource Data Request TS 3-01, only worked to reinforce my  
20 prior conclusions:

- 21 • Cost estimates contained in the PAF's were consistently under-estimated, in some  
22 cases by two or three times the initial amount, indicating that little effort was  
23 made to ensure that projected costs were accurate, reasonable, and appropriately

1 evaluated. Many of the PAF's reviewed did not provide sufficient details and  
2 analysis for "Alternatives Considered" or "Overall Justification."

- 3 • Many of the Supplement Request forms reviewed were submitted after the project  
4 completion dates. This practice runs contrary to the apparent intent of the form as  
5 described in the APS-1 Project Authorization Policy since engagement of  
6 management for approval, and alerting management to cost overruns, presumably  
7 should be sought during the course of the project at the time the changes occurred.  
8 An additional deficiency was that many forms failed to include "Lessons  
9 Learned" sections or "Actions to prevent recurrence" sections which, when  
10 included, provided a valuable look-back and reassessment from the project  
11 engineers/managers' perspective as to what could have been done differently to  
12 keep a project within budget. Those forms that did provide this information were  
13 often critical of project planners and engineers who failed to include basic and  
14 fundamental cost elements in their estimates. As the Commission has recently  
15 held the Liberty Utilities rate case (Order No. 26,377 at 9, dated June 30, 2020):  
16 "Prudent decisions cannot be made if significant, foreseeable cost elements of a  
17 project are over looked at the outset and meaningful re-examination of costs does  
18 not take place during project execution, as costs increase."
- 19 • Individual work orders for projects were not provided to Staff for review. Instead  
20 Eversource provided the work order information in the form of a spreadsheet that  
21 served as a summary of all work orders under a given project number. Staff did  
22 not find those spreadsheets helpful in that they contained accounting adjustments,  
23 coded entries, and nondescript entries that made it difficult to precisely trace and



1 verify the actual costs assigned to the project leading up to the variance. As noted  
2 above, the Audit Division did obtain individual work orders from Eversource for  
3 the purposes of its audit of the Company's books and records.

- 4 • Project reviews performed by the Project Approval Committees and the Financial  
5 Planning Group that were either not provided or did not include discussion or  
6 reference to significant cost overruns for most projects, indicating a lack of  
7 diligent oversight and engagement on the part of management.

8 As I covered in great detail in my direct testimony and in the analysis provided above, the  
9 evidence shows that for all of the projects reviewed the Company overlooked significant,  
10 foreseeable project costs at the outset, that management's review and oversight of  
11 projects was severely flawed, and that the Company has failed to meet its burden of  
12 demonstrating that its decision making was prudent. Therefore, the disallowances to rate  
13 base that I outline and recommend above should be adopted by the Commission.

14  
15 **Q. Have your original conclusions and recommendations related to Eversource's**  
16 **proposals for step adjustments and the proposed GTEP program changed based on**  
17 **your review of the additional information filed by Eversource?**

18 **A.** No. My conclusions and recommendations involving those issues remain unchanged.

19 **Q. Does that conclude your testimony?**

20 **A.** Yes, it does.

## Public Service Co of New Hampshire Project Approval Information

|  |   |                   |
|--|---|-------------------|
| Fund Project Number <u>A16C09</u>                        | Status <u>open</u>                        | Revision <u>9</u> |
| Project Title <u>Blaine St SS add 34.5-12kV 10MVA tr</u> | Operating Unit _____                      |                   |
| Initiated By <u>Lynne Godbout</u>                        | Initiated Date <u>11/12/2015 18:16:16</u> |                   |

|                            |   |
|----------------------------|---|
| <b>Description of Work</b> | Blaine Street - Remove 4kV Equipment, Add 34.5-12kV 10MVA transformer |
| <b>Location</b>            | DIST SUBS - NEW HAMPSHIRE   |

| Project Schedule / Expenditures |                | Est Start Date : | 1/1/2016 | Est Complete Date : | 6/30/2018    |                           |
|---------------------------------|----------------|------------------|----------|---------------------|--------------|---------------------------|
| 2016                            | 2017           | 2018             | 2019     | 2020                | Future Years | Total                     |
| \$288,344.19                    | \$2,937,733.92 | \$761,000.00     | \$0.00   | \$0.00              | \$0.00       | <b><u>\$3,987,078</u></b> |
|                                 | Capital        | Expense          | Removal  | Retirements         | Credits      |                           |
| <b>Cost Breakdown</b>           | \$3,944,665    | \$0              | \$42,413 | \$0                 | \$0          | \$3,987,078.11            |

Reason For Work

Background Information

### Approvals

| Level                        | Approver             | Approval Limit | Date Approved |
|------------------------------|----------------------|----------------|---------------|
| Project Manager              | Morales, Natacha     | \$0            | 05/24/2018    |
| Plant Accounting             | Salbinski, Chris     | \$0            | 05/24/2018    |
| Manager - Investment Pla     | Menard, Erica        | \$50,000       | 05/29/2018    |
| Director - EPAC Chair        | Dipaola-Tromba, John | \$250,000      | 05/30/2018    |
| Director - EPAC Chair        | Wegh, George         | \$250,000      | 06/12/2018    |
| VP-FP&A (Distrib Supplerr    | Moreira, John        | \$1,000,000    | 06/14/2018    |
| Vice President - Electric Pi | Khan, Aftab          | \$1,000,000    | 06/19/2018    |
| Vice President - Electric Pi | Purinton, Joseph     | \$1,000,000    | 06/25/2018    |
| Sr. VP Electric Engineering  | Butler, Linda-Jo     | \$5,000,000    | 06/27/2018    |
| Sr. VP/President - Ops       | Quinlan, William     | \$5,000,000    | 07/17/2018    |

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**Funding Project Estimates - Summary**    A16C09    Current Total Authorized Amount: \$3,987,078

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Title:   
Project Number:

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|  |                      |
|--|----------------------|
| <b>Budget Version</b> Working (inactive) |                      |
| Revision                                 | <input type="text"/> |
| Revision Status                          | Approved             |
| Revision No.                             | 9                    |
| Est Start Date                           | 01/01/2016           |
| Est Complete Date                        | 06/30/2018           |
| Est In Srvc Date                         | 06/30/2018           |
| Capital                                  | \$3,944,665.29       |
| Expense                                  | \$0.00               |
| Jobbing                                  | \$0.00               |
| Retirement                               | \$0.00               |
| Removal                                  | \$42,412.82          |
| Total (excl. Rets.)                      | \$3,987,078.11       |
| Credits                                  | \$0.00               |
| Net                                      | \$3,987,078.11       |

**Revision Info**    Other Updates

Revision  of 10    < < > > |

Find Revision    Send for Approval

☐ Show 'Budget Only' Revisions

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**Estimates:**

**Grid Estimates**

Forecast

Summarize from WD

Copy Estimate

**Edit:**

New Revision

Delete Revision

Update

Update With Actuals

Import Estimates

Version Compare

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**Property Estimates:**

Unit Estimates

Create As Built

Delete Used Estimates

**Other:**

Revision Comments

Released Dollars

Substitution

Slide

Cancel

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Record  of 1    < < > > |

Audits

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APS 1 - Project Authorization Policy

Supplement Request Form

**Supplement Request Form**  
**Approved at May 9, 2018 EPAC**  
[Link to Meeting Minutes](#)

|                                     |  |
|-------------------------------------|--|
| Date Prepared: May 1, 2018          | Project Title: Blaine Street 12kV Substation               |
| Company/Companies: Eversource - NH  | Project ID Number: A16C09                                  |
| Organization: NH – Operations       | Plant Class/(F.P.Type): Distribution Substation            |
| Project Initiator: Michael Warren   | Project Type: Specific                                     |
| Project Manager: Natacha Morales    | Capital Investment Part of Original Operating Plan? Yes    |
| Project Sponsor: James Eilenberger  | O&M Expenses Part of the Original Operating Plan? Yes      |
| Current Authorized Amount: \$2,719K | Estimated in service date(s): June 30 <sup>th</sup> , 2018 |
| Supplement Request: \$1,268K        | Other:   |
| Total Request: \$3,987K             |  |

## Supplement Justification

This request is for supplemental funding in the amount of \$1,268K for the completion of the re-construction of the Blaine Street Substation.

The project is currently under construction. The ISD is projected to be June 30, 2018.

### Background

The long-term plan for the west side of Manchester has been to convert the vintage 4kV to 12kV and then add additional 12kV sources to provide capacity and back up capability. This will allow the removal of the 60-year-old substation transformer and metal clad switchgear line up which will make room for the installation of the new 34.5/12.47kV 12.5MVA transformer with 15kV Metalclad switchgear to feed two new 12.47kV circuits, which will tie to the recently upgraded Pinardville Substation and Notre Dame Substation.

Switching and back feed capabilities for 8,777 customers will improve on the West side of Manchester. All customers are currently served from three 12kV circuits out of two substations (Pinardville and Notre Dame) and the wire size on one of the circuits is 1/0 AL Spacer. A new 12kV substation with two additional 12kV circuits would allow for greater switching flexibility and improved reliability due to additional back feeds and switching points.

As of end of April 2018, the project is at \$3.5M spent which includes the cost of the switchgear procurement.

### Executive Summary

Since the start of project, there have been some changes on construction, test and commissioning as well as materials. The construction contract was competitively bid and properly awarded however due to deficient performance and manufacturing of the switchgear, the construction contractor has had to take on tasks to address the switchgear's defects that were not included in the original construction scope of work. The same has occurred with test and commissioning. The test and commissioning vendors will need to double their efforts to make sure that the switchgear is up to standards and is ready for commissioning.



## APS 1 - Project Authorization Policy

## Supplement Request Form

Some of the charges incurred due to the poor manufacturing of the switchgear will be disputed with AZZ to recover these additional costs. These charges are related to engineering and construction services.

There are other costs for services that were overlooked in the original estimate, these include soil testing, soil removals, substation security, fencing and landscaping, easement acquisition, permitting, real estate taxes and sound testing. Also, the original estimates for construction, testing and commissioning were underestimated.

Since the start of project, the E&S loaders have been raised from 25% to 40% also affecting the original budget.

### Justification for Additional Resources

Please, refer to the following break-down for each category:

#### Outside services:

The original estimate for outside services was for \$675,000. Once the bids came back from all the vendors, the project was over budget by \$787,326 and in order to finish the project, we are forecasting another \$306,923.5 for a total of \$1,094,249.50 The breakdown for these charges are listed below:

| Vendor/Services   | Original estimate from vendor | Added services  | Projection | Delta    |
|---|-------------------------------|---|------------|----------|
| TF Moran (permitting/environmental) <ul style="list-style-type: none"> <li>Site plan package</li> <li>Permits</li> <li>Meetings</li> <li>Permit fees</li> <li>Expenses</li> <li>Survey</li> </ul> | \$28,150                      | <ul style="list-style-type: none"> <li>NHDES Shoreland application</li> <li>Acoustic Testing</li> </ul>   | \$46,250   | \$18,100 |
| GZA (soils testing and characterization)  | \$27,200                      | <ul style="list-style-type: none"> <li>Soil transportation and disposal after finding arsenic</li> <li>Health and safety plan preparation</li> <li>Soil management assistance, observation and air monitoring</li> <li>Regulatory notifications to NHDES after removal</li> </ul> | \$93,750   | \$66,550 |
| Securitas (security)  | \$40,700                      | Security for substation while in construction   | \$40,700   | \$0      |
| RLC (engineering) <ul style="list-style-type: none"> <li>P&amp;C</li> <li>Civil</li> </ul>  | \$236,000                     | <ul style="list-style-type: none"> <li>Design modification after site walk – through</li> <li>Drafting efforts to complete AZZ's drawings (some or all</li> </ul>   | \$288,420  | \$52,420 |



APS 1 - Project Authorization Policy

Supplement Request Form

|   |                    |   |           |                    |
|---|--------------------|---|-----------|--------------------|
| <ul style="list-style-type: none"> <li>PM &amp; Manufacturing Interface</li> <li>Substation</li> <li>Scope document</li> </ul>                  |                    | <ul style="list-style-type: none"> <li>costs will be recovered from AZZ)</li> <li>Re-IFC's design package to ensure drawings are complete with comments received from Eversource after switchgear was inspected (some or all costs will be recovered from AZZ)</li> </ul> |           |                    |
| Oil disposal (Disposal of oil from decommissioned transformer)  | \$6,957            |   | \$6,957   | \$0                |
| Metal Disposal (Disposal of all decommissioned metal from substation)   | \$27,000           |   | \$27,000  | \$0                |
| Outside labor (Randstad)  | \$8,700            | Scheduling  | \$12,000  | \$3,300            |
| ES Boulos (Construction) <ul style="list-style-type: none"> <li>P&amp;C</li> <li>Substation</li> <li>Site development</li> <li>Civil</li> </ul> | \$729,000          | <ul style="list-style-type: none"> <li>Impact recorder services/report for transformer transfer</li> <li>Additional animal protection</li> <li>Corrective tasks to cover AZZ's punch list items (some or all costs will be recovered from AZZ)</li> </ul>                 | \$759,177 | \$30,177           |
| EIG (Commissioning Engineer)  | \$122,500          | Another 1.5 months in the field due to the changes caused by the wrong wiring in the switchgear   | \$170,000 | \$47,500           |
| Eaton (Testing)   | \$230,124          | Another 1.5 months in the field to do testing on the re-wiring of the switchgear  | \$319,000 | \$88,876           |
| IC Reed (line work)   | \$5,995            |   | \$5,995   | \$0                |
| <b>Totals</b>   | <b>\$1,462,326</b> | <b>Projection total</b>   |           | <b>\$1,769,249</b> |

Outside services was originally estimated for \$675,000. The difference between the estimate and the projection is \$1,094,249. All above vendors bids total \$1,462,326 which is \$787,326 more than the original estimate for outside services. The difference between the original bids and the projection of the extra efforts from all the vendors is \$306,923. All these extra charges and the difference between the original estimate and bids adds up to the \$1,094,249 (\$787,326 + \$306,923).

**Straight time labor:**

The original estimate was for \$122,000. Eversource provided reviews for the RLC engineering, this also includes the coverage needed at the Substation for any construction and line work. Through April 1<sup>st</sup>, the project has spent \$120,622. The projection for this line item to complete the project is at \$135,000, another \$13,000 from original estimate.





## APS 1 - Project Authorization Policy

## Supplement Request Form

### Materials:

The original estimate was for \$1,400K.

The following materials were needed to complete this project:

|              |             |
|--------------|-------------|
| Transformer  | \$475,166   |
| Switchgear   | \$619,226   |
| Construction | \$68,632    |
| Total        | \$1,163,024 |

The materials line item is less than what was estimated by \$236,976

### Real estate taxes:

Real estate taxes were not part of the original estimate. Through April 1<sup>st</sup>, the project has spent \$25,692.

### AFUDC:

The original estimate was \$6,000. Through April 1<sup>st</sup>, the project has spent \$7,342 with a projection of \$15,054. The difference between the estimate and the projection is \$9,000.

### Overheads:

The original estimate was \$458,000. Through April 1<sup>st</sup>, the project has spent \$770,457. This is due mostly to the increase of the rates. The projection is \$821,557. The difference between the estimate and the projection is \$363,557.

### Actions to prevent recurrence:

The importance of monitoring the status of planned project spend and comparing against the authorized budget is reinforced to all project management staff at weekly staff meetings. Project Managers need to work with project cost analysts on a regular basis to impede projects from exceeding authorized budgets. A proactive approach in controlling project costs is imperative. Management receives reports on a regular basis to identify projects that are approaching authorized spend amounts to facilitate a proactive approach to controlling project costs.

Project manager will be more involved in the estimates created by Engineering as well as the scope of work for projects. Project costs and spend projections will be closely monitored, particularly once updated to include construction bids, bill of materials, and other vendor costs including permitting, environmental, monitoring, testing and commissioning. This will facilitate a more accurate budget for the project. Project Managers need to identify potential budgetary issues and resolve by appropriate means as early as possible.



APS 1 - Project Authorization Policy

Supplement Request Form

**Summary Table:**

*Dollar values are in thousands*

| Activity          | Amount Authorized | Forecast       | Delta          |
|-------------------|-------------------|----------------|----------------|
| Labor             | \$122             | \$135          | \$13           |
| Materials         | \$1,400           | \$1,163        | (\$237)        |
| Outside Services  | \$675             | \$1,769        | \$1,094        |
| Indirects         | \$458             | \$821          | \$363          |
| AFUDC             | \$6               | \$15           | \$9            |
| Real Estate Taxes | \$0               | \$26           | \$26           |
| Contingency       | \$58              | \$58           | \$0            |
| <b>Totals</b>     | <b>\$2,719</b>    | <b>\$3,987</b> | <b>\$1,268</b> |

**Supplement Cost Summary**

*Note: Dollar values are in thousands:*

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 2,255            | \$ 896                | \$ 3,151        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | -                   | -                     | -               |
| Total Direct Spending         | \$ 2,255            | \$ 896                | \$ 3,151        |
| Capital Additions - Indirect  | 458                 | 363                   | 821             |
| AFUDC                         | 6                   | 9                     | 15              |
| Total Capital Request         | \$ 2,719            | \$ 1,268              | \$ 3,987        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 2,719</b>     | <b>\$ 1,268</b>       | <b>\$ 3,987</b> |

*Note: Dollar values are in thousands:*

|                               | Year 2017     | Year 2018     | Year 20__+  | Total           |
|-------------------------------|---------------|---------------|-------------|-----------------|
| Capital Additions - Direct    | \$ 452        | \$ 444        |             | \$ 896          |
| Less Customer Contribution    | -             | -             | -           | -               |
| Removals net of Salvage ____% | -             | -             | -           | -               |
| Total Direct Spending         | \$ 452        | \$ 444        | \$ -        | \$ 896          |
| Capital Additions - Indirect  | 55            | 308           |             | 363             |
| AFUDC                         | -             | 9             | -           | 9               |
| Total Capital Request         | \$ -          | \$ 761        | \$ -        | \$ -            |
| O&M                           | -             | -             | -           | -               |
| <b>Total Request</b>          | <b>\$ 507</b> | <b>\$ 761</b> | <b>\$ -</b> | <b>\$ 1,268</b> |



Accounting Policy Statement No. 2  
Operations Project Authorization

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## **Project Authorization Form**

### **General Information**

|                                       |  |
|---------------------------------------|--|
| Date Prepared: 03/14/2016             | Project Title: Blaine St 12 kV Substation                |
| Company: Eversource - NH              | Project ID Number: A16C09                                |
| Organization: NH Operations           | Class(es) of Plant: Distribution                         |
| Project Initiator: Michael Warren     | Project Category: Reliability - Substation               |
| Project Owner/Manager: Lee Lajoie     | Project Purpose – part of regulatory tracked program? No |
| Project Sponsor: James Eilenberger    | Project Type: Specific                                   |
| Estimated in service date: 12/01/2017 | Capital Investment Part of Original Operating Plan? Yes  |
| If Transmission Project: N/A          | Supplement to Existing Authorization? No                 |
|                                       | O&M Expenses Part of the Original Operating Plan? Yes    |

If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and Financial Planning and Analysis (FP&A)

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

### **Executive Summary**

The long term plan for the west side of Manchester has been to convert the old 4 kV to 12 kV and then to add additional 12kV sources to provide capacity and back up capability. Currently two 12 kV substations in the area serve approximately 8,800 customers (15 MW's) but the limited substation capacity of one of the stations (3.75 MVA @ Notre Dame S/S) significantly restricts any back-up or switching capability.

Since the last of the 4 kV circuits out of Blaine Street S/S is being converted in 2016, this will allow the removal of the 60 year old substation transformer and metal clad switchgear lineup which will make room for the installation of a new 34.5/12.47 kV 12.5 MVA transformer with 15 kV Metalclad switchgear to feed two new 12.47 kV circuits which will tie to the recently upgraded Pinardville S/S (12.5 MVA) and Notre Dame S/S (3,750 MVA). This will complete a multi-year plan to replace aging infrastructure and provide greater capacity and reliability to the west side of Manchester with a 12 kV interconnected system. Automated Distribution will be added to these circuits as part of the REP distribution automation project to further improve the area reliability.



## Accounting Policy Statement No. 2 Operations Project Authorization

### Project Costs Summary

| (\$000)                      | Prior<br>Authorized* | 2015 | 2016   | 2017+    | Totals   |
|------------------------------|----------------------|------|--------|----------|----------|
| Capital Additions - Direct   |                      | \$ - | \$ 230 | \$ 1,990 | \$ 2,220 |
| Customer Contribution        |                      | \$ - | \$ -   | \$ -     | \$ -     |
| Removals net of Salvage      |                      | \$ - | \$ -   | \$ 35    | \$ 35    |
| Total - Direct Spending      | \$ -                 | \$ - | \$ 230 | \$ 2,025 | \$ 2,255 |
| Capital Additions - Indirect |                      | \$ - | \$ 56  | \$ 401   | \$ 457   |
| Subtotal Request             | \$ -                 | \$ - | \$ 286 | \$ 2,426 | \$ 2,712 |
| AFUDC (half-year convention) |                      | \$ - | \$ 3   | \$ 3     | \$ 6     |
| Total Request                | \$ -                 | \$ - | \$ 289 | \$ 2,429 | \$ 2,718 |

### Summary Project Description

The 4kV equipment at Blaine Street S/S is more than 60 years old. This project will replace this old equipment with a new 34.5-12.47kV, 12.5 MVA transformer and a 15 kV Metalclad switchgear. This project addresses the substation work only and does not include any 12.47kV line work to create the system ties to the other substations. Separate project(s) will be generated to include creating the 12 kV circuit ties (Estimated in the \$270K Range) and any distribution automation will be included in the REP distribution automation project.

Note: Dollar values are in thousands

|         | Total Project Costs | Amount in<br>Operating Plan | Difference |
|---------|---------------------|-----------------------------|------------|
| Capital | \$2,718             | \$2,718                     | \$0        |
| O&M     | 0                   | \$0                         | \$0        |
| Total   | \$2,718             | \$2,718                     | \$0        |

### Project Authorization

| Approver           | Approver Name     | Approver Signature | Date |
|--------------------|-------------------|--------------------|------|
| Project initiator  | Michael E Warren  |                    |      |
| Project manager    | Lee Lajoie        |                    |      |
| Plant Accounting   | Michele Roncaioli |                    |      |
| Manager            | Thelma Brown      |                    |      |
| Director           | James Eilenberger |                    |      |
| Sr. Vice President | Peter Clarke      |                    |      |



## Accounting Policy Statement No. 2 Operations Project Authorization

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### **Overall Justification**

A 12 kV substation at Blaine Street is part of the original West Side plan conceived in 2012. With the need to shed load due to over loaded CTs on the Blaine Street S/S transformer, the overall age of the west side's distribution substation equipment (Shirley Hill 1956, Blaine St 1956, Pinardville 1961, Notre Dame 1976) and the large pocket of 4 kV load with no ties or back feeds, the decision was made to convert the area to 12 kV and install new modern 12 kV substations at Pinardville and Blaine Street.

#### **West Side project timeline**

- 2011 – Blaine Street CTs over loaded. Off load 12H1 to 3138X
- 2012 – West Side plan created. Off load half the 12H5 to the 3151X10
- 2013 – Off load 35H1 and eliminate 1956 vintage Shirley Hill Substation
- 2014 – Convert 18H1 to 12 kV and construct new Pinardville 12 kV Substation
- 2015 – Convert 12H2 and remaining 12H5 out of Blaine Street and move to Pinardville.
- 2016 – Convert 12H4 and off load to Pinardville. Begin design of new 12 kV Blaine Street.
- 2017 – Construct new 12 kV Substation at Blaine Street site.

During the past 5 years peak loading for the west side was 15.1 MVA. Due to the small size of the 3,750 KVA transformer at Notre Dame S/S, switching is severely limited between the 3 circuits. Notre Dame's transformer has been loaded to 69% of summer TFRAT. Once all 4 kV circuits have been converted to Pinardville the peak load will be at or slightly above nameplate rating. A new 12 kV substation situated at the old Blaine Street 4 kV site would eliminate this issue and improve reliability, loading and switching options. Customers impacted include West High School, Parkside Junior High School, Gossler Park Elementary, two nursing homes and the Parker Varney School.

### **Project Scope**

The scope will include:

- Remove the existing 34.5-4.16kV unit substation at Blaine St S/S.
- Reconfigure/Rebuild the 34.5kV bus at Blaine St S/S
- Install a new 34.5-12.47kV power transformer
- Install a new 15kV metalclad switchgear (three feeder positions (2 – 2017, 1 – future), one transformer position)

### **Project Objectives**

Improve overall capacity, switching and back feed capabilities for 8,777 customers on the West side of Manchester. All customers are currently served from three 12 kV circuits out of two substations (Pinardville and Notre Dame). Switching options are limited currently by the size of the transformer at Notre Dame (3,750 KVA) and wire sizes on one of the circuits (1/0 AL Spacer). A new 12 kV substation with two additional 12 kV circuits would allow for greater switching flexibility and improved reliability due to additional back feeds and switching points. In service date of the new substation would be 2017.



## Accounting Policy Statement No. 2 Operations Project Authorization

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### **Business Process and / or Technical Improvements**

The project benefits include:

- 8,777 customers fed from five 12 kV circuits instead of just three circuits.
- Three substations totaling at least 39 MVA versus two at 22 MVA.
- Additional capacity would allow Distribution Automation capable of limiting outages to fewer than 1000 customers per event and eventually 500 per event.

### **Assumptions**

- All permits are obtained in 2016.
- The 4kV system at Blaine Street S/S is offloaded by the end of 2016.

### **Alternatives Considered**

Replace the 3,750 MVA transformer at Notre Dame S/S with a 12.5 MVA unit. This would provide more capacity but Blaine Street S/S's location and existing circuits are better positioned for the customer footprint. The Notre Dame's single circuit is not centrally located to the existing load base.

If the circuits are left as currently configured we would have the following issues:

- Loss of entire 18W1 would mean hitting 100% of emergency rating of 1/0 ACSR on Putnam St.
- Loss of entire 18W1 puts 18W3 breaker at 98% of Pick Up current level.
- Even with Distribution Automation installed there is the potential for large blocks of customers to be affected by a single outage.
- Total loss of Pinardville substation leaves over 4,500 customers without power and no backup available until a mobile S/S can be installed.

### **Project Schedule**

| Milestone/Phase Name           | Estimated Completion Date |
|--------------------------------|---------------------------|
| Scope Documents and Permitting | July 2016                 |
| Bid Switchgear                 | July 2016                 |
| IFC Drawings                   | February 2017             |
| Equipment Delivery             | July 2017                 |
| ISD                            | October 2017              |



Accounting Policy Statement No. 2  
Operations Project Authorization

### Financial Evaluation

| <b>Direct Capital Costs (\$000)</b>             | <b>Year 1</b> | <b>Year 2</b>  | <b>Year 3+</b> | <b>Total</b>   |
|---|---------------|----------------|----------------|----------------|
| Straight Time Labor                             | \$22          | \$100          | \$             | \$122          |
| Overtime Labor                                  | \$            | \$             | \$             | \$             |
| Outside Services                                | \$175         | \$500          | \$             | \$675          |
| Materials                                       | \$            | \$1,400        | \$             | \$1,400        |
| Other, including contingency amounts (describe) | \$33          | \$25           | \$             | \$58           |
| <b>Total</b>                                    | <b>\$230</b>  | <b>\$2,025</b> | <b>\$</b>      | <b>\$2,255</b> |

| <b>Indirect Capital Costs (\$000)</b> | <b>Year 1</b> | <b>Year 2</b> | <b>Year 3+</b> | <b>Total</b> |
|---------------------------------------|---------------|---------------|----------------|--------------|
| Benefits / Loaders                    | \$56          | \$401         | \$             | \$458        |
| Capitalized interest or AFUDC, if any | \$3           | \$3           | \$             | \$6          |
| <b>Total</b>                          | <b>\$58</b>   | <b>\$405</b>  | <b>\$</b>      | <b>\$463</b> |

|                            |              |                |           |                |
|----------------------------|--------------|----------------|-----------|----------------|
| <b>Total Capital Costs</b> | <b>\$288</b> | <b>\$2,430</b> | <b>\$</b> | <b>\$2,718</b> |
|----------------------------|--------------|----------------|-----------|----------------|

|                            |           |           |           |           |
|----------------------------|-----------|-----------|-----------|-----------|
| <b>Total O&amp;M Costs</b> | <b>\$</b> | <b>\$</b> | <b>\$</b> | <b>\$</b> |
|----------------------------|-----------|-----------|-----------|-----------|

|                                    |              |                |           |                |
|------------------------------------|--------------|----------------|-----------|----------------|
| <b>Total Project Costs (\$000)</b> | <b>\$288</b> | <b>\$2,430</b> | <b>\$</b> | <b>\$2,718</b> |
|------------------------------------|--------------|----------------|-----------|----------------|

### Regulatory Approvals

This project will require Manchester Planning and Zoning Board approvals.

### Risks and Risk Mitigation Plans

The project risks are:

Permitting process is greater than expected – This will be mitigated by talking with the town early on the project to layout the requirements.

Environmental Issues cause a delay in construction – Testing of the soil, concrete and oil will be taken in the first quarter of 2016 so that construction can be sequenced accordingly.

Docket No. DE 19-057  
Data Request OCA  
6-099 Dated  
8/13/2019 Attachment  
OCA 6-099A Page 15

**Funding Project Information**

New Approval Type:

Budget Version: 2016 Working (inactive)

Funding Project: A16C09 Revision: 6

Approval Type: FP PSNH - Distribution - Eng Amount: \$2,718,252.80

Status: Approved Sent By: Herk, Randy Date Sent: 03/22/2016 Date Appr: 03/25/2016

Buttons: Send for Approval, Refresh

|                            | Approver           | Required | Date Approved | Authority Limit |
|----------------------------|--------------------|----------|---------------|-----------------|
| + Project Manager - - - -  | Menard, Erica      | ✓        | 03/22/2016    | \$0             |
| + Plant Accounting - - - - | Roncaiofi_TERMINAT | ✓        | 03/24/2016    | \$0             |
| + Manager - PSNH Dist      | Brown, Thelma      | ✓        | 03/24/2016    | \$100,000       |
| + Director - PSNH Dist     | Eilenberger, James | ✓        | 03/25/2016    | \$250,000       |
| + Sr. VP/President - Ops   | Clarke_TERMINATED  | ✓        | 03/25/2016    | \$5,000,000     |

Buttons: Details, Accounts, Departments, Contacts, Tasks, Class Codes, Justification, Tax Status, Authorizations, User Comment, Review, Related FPs, Audits, Delete FP, Cancel FP, Suspend FP, Estimates, Update, Print, Cancel

Record 1 of 1



Funding Project Estimates - Summary A16C09 Current Total Authorized Amount: \$3,987,078

Title: Blaine St SS add 34.5-12kV 10MVA tr  
Project Number: A16C09

**Budget Version:** 2016 Working (inactive)  
**Revision:**  
**Revision Status:** Approved  
**Revision No.:** 6  
**Est Start Date:** 01/01/2016  
**Est Complete Date:** 12/01/2017  
**Est In Svc Date:** 12/01/2017  
**Capital:** \$2,675,839.98  
**Expense:** \$0.00  
**Jobbing:** \$0.00  
**Retirement:** \$0.00  
**Removal:** \$42,412.82  
**Total (excl. Rets.):** \$2,718,252.80  
**Credits:** \$0.00  
**Net:** \$2,718,252.80

**Estimates:**  
Grid Estimates  
Forecast  
Summarize from WO  
Copy Estimate

**Property Estimates:**  
Unit Estimates  
Create As Built  
Delete Used Estimates

**Edit:**  
New Revision  
Delete Revision  
Update  
Update With Actuals  
Import Estimates  
Version Compare

**Other:**  
Revision Comments  
Released Dollars  
Substitution  
Slide  
Cancel

**Revision Info:** Other Updates  
Revision: 6 of 10  
Find Revision  
Send for Approval  
Show 'Budget Only' Revisions

Record 1 of 1  
Audits

8/13/2019 Attachment

OCA 6-099A Page 17

of 22

|                                  |  |          |                |             |             |          |        |                          |  |  |  |
|----------------------------------|--|----------|----------------|-------------|-------------|----------|--------|--------------------------|--|--|--|
| A' Annual Estimates (Gold Entry) |  |          |                |             |             |          |        |                          |  |  |  |
| Fund Proj: A116203               |  | Commit:  | \$2,675,923.00 | Statements: | \$0.00      | Credits: | \$0.00 | Est Start Date: 8/1/2016 |  |  |  |
| Revision: 6                      |  | Expense: | \$0.00         | Reversal:   | \$92,412.92 | Jidding: | \$0.00 | Est End Date: 7/31/2017  |  |  |  |

| Fund Proj      | Row Exp Type | Est Charge Type | Department                  | Fund FR Class | Work Order | Job Task | Description | Charge | Special Factor | Total          | 2016         | 2017           |
|----------------|--------------|-----------------|-----------------------------|---------------|------------|----------|-------------|--------|----------------|----------------|--------------|----------------|
| A116203 Blaine |              |                 |                             |               |            |          |             |        |                |                |              |                |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$2,718,252.00 | \$269,344.13 | \$2,428,908.61 |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$5,330.52     | \$2,594.12   | \$2,734.64     |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$23,549.89    | \$2,960.11   | \$21,589.78    |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$130,403.25   | \$33,408.35  | \$96,994.90    |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$130,000.00   | \$0.00       | \$130,000.00   |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$46,771.80    | \$8,730.00   | \$38,041.80    |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$85,560.78    | \$11,363.54  | \$74,197.24    |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$120,700.00   | \$27,735.00  | \$92,965.00    |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$1,491,000.00 | \$0.00       | \$1,491,000.00 |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$87,600.21    | \$32,804.21  | \$54,796.00    |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$60,000.00    | \$175,000.00 | \$415,000.00   |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$142.82       | \$0.00       | \$142.82       |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$15,000.00    | \$0.00       | \$15,000.00    |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$1,470.00     | \$0.00       | \$1,470.00     |
| Dollars        | 6            | Addition        | FP/Abc: A116203 (29) (cont) |               |            |          |             |        |                | \$95,000.00    | \$0.00       | \$95,000.00    |

\$2,718,252.00

\$269,344.13

\$2,428,908.61

View Options

Edit Options

Expanded All

Monthly View

Annual View

View Options

Insert

Copy

Delete

Update

Cancel



Accounting Policy Statement No. 2  
Operations Project Authorization

## **Project Authorization Form**

### **General Information**

|                                       |  |
|---------------------------------------|--|
| Date Prepared: 03/14/2016             | Project Title: Blaine St 12 kV Substation                |
| Company: Eversource - NH              | Project ID Number: A16C09                                |
| Organization: NH Operations           | Class(es) of Plant: Distribution                         |
| Project Initiator: Michael Warren     | Project Category: Reliability - Substation               |
| Project Owner/Manager: Lee Lajoie     | Project Purpose – part of regulatory tracked program? No |
| Project Sponsor: James Eilenberger    | Project Type: Specific                                   |
| Estimated in service date: 12/01/2017 | Capital Investment Part of Original Operating Plan? Yes  |
| If Transmission Project: N/A          | Supplement to Existing Authorization? No                 |
|                                       | O&M Expenses Part of the Original Operating Plan? Yes    |

If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and Financial Planning and Analysis (FP&A)

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

### **Executive Summary**

The long term plan for the west side of Manchester has been to convert the old 4 kV to 12 kV and then to add additional 12kV sources to provide capacity and back up capability. Currently two 12 kV substations in the area serve approximately 8,800 customers (15 MW's) but the limited substation capacity of one of the stations (3.75 MVA @ Notre Dame S/S) significantly restricts any back-up or switching capability.

Since the last of the 4 kV circuits out of Blaine Street S/S is being converted in 2016, this will allow the removal of the 60 year old substation transformer and metal clad switchgear lineup which will make room for the installation of a new 34.5/12.47 kV 12.5 MVA transformer with 15 kV Metalclad switchgear to feed two new 12.47 kV circuits which will tie to the recently upgraded Pinardville S/S (12.5 MVA) and Notre Dame S/S (3,750 MVA). This will complete a multi-year plan to replace aging infrastructure and provide greater capacity and reliability to the west side of Manchester with a 12 kV interconnected system. Automated Distribution will be added to these circuits as part of the REP distribution automation project to further improve the area reliability.



## Accounting Policy Statement No. 2 Operations Project Authorization

### Project Costs Summary

| (\$000)                      | Prior<br>Authorized* | 2015 | 2016   | 2017+    | Totals   |
|------------------------------|----------------------|------|--------|----------|----------|
| Capital Additions - Direct   |                      | \$ - | \$ 230 | \$ 1,990 | \$ 2,220 |
| Customer Contribution        |                      | \$ - | \$ -   | \$ -     | \$ -     |
| Removals net of Salvage      |                      | \$ - | \$ -   | \$ 35    | \$ 35    |
| Total - Direct Spending      | \$ -                 | \$ - | \$ 230 | \$ 2,025 | \$ 2,255 |
| Capital Additions - Indirect |                      | \$ - | \$ 56  | \$ 401   | \$ 457   |
| Subtotal Request             | \$ -                 | \$ - | \$ 286 | \$ 2,426 | \$ 2,712 |
| AFUDC (half-year convention) |                      | \$ - | \$ 3   | \$ 3     | \$ 6     |
| Total Request                | \$ -                 | \$ - | \$ 289 | \$ 2,429 | \$ 2,718 |

### Summary Project Description

The 4kV equipment at Blaine Street S/S is more than 60 years old. This project will replace this old equipment with a new 34.5-12.47kV, 12.5 MVA transformer and a 15 kV Metalclad switchgear. This project addresses the substation work only and does not include any 12.47kV line work to create the system ties to the other substations. Separate project(s) will be generated to include creating the 12 kV circuit ties (Estimated in the \$270K Range) and any distribution automation will be included in the REP distribution automation project.

Note: Dollar values are in thousands

|         | Total Project Costs | Amount in<br>Operating Plan | Difference |
|---------|---------------------|-----------------------------|------------|
| Capital | \$2,718             | \$2,718                     | \$0        |
| O&M     | 0                   | \$0                         | \$0        |
| Total   | \$2,718             | \$2,718                     | \$0        |

### Project Authorization

| Approver           | Approver Name     | Approver Signature | Date |
|--------------------|-------------------|--------------------|------|
| Project initiator  | Michael E Warren  |                    |      |
| Project manager    | Lee Lajoie        |                    |      |
| Plant Accounting   | Michele Roncaioli |                    |      |
| Manager            | Thelma Brown      |                    |      |
| Director           | James Eilenberger |                    |      |
| Sr. Vice President | Peter Clarke      |                    |      |



## Accounting Policy Statement No. 2 Operations Project Authorization

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### Overall Justification

A 12 kV substation at Blaine Street is part of the original West Side plan conceived in 2012. With the need to shed load due to over loaded CTs on the Blaine Street S/S transformer, the overall age of the west side's distribution substation equipment (Shirley Hill 1956, Blaine St 1956, Pinardville 1961, Notre Dame 1976) and the large pocket of 4 kV load with no ties or back feeds, the decision was made to convert the area to 12 kV and install new modern 12 kV substations at Pinardville and Blaine Street.

#### West Side project timeline

- 2011 – Blaine Street CTs over loaded. Off load 12H1 to 3138X
- 2012 – West Side plan created. Off load half the 12H5 to the 3151X10
- 2013 – Off load 35H1 and eliminate 1956 vintage Shirley Hill Substation
- 2014 – Convert 18H1 to 12 kV and construct new Pinardville 12 kV Substation
- 2015 – Convert 12H2 and remaining 12H5 out of Blaine Street and move to Pinardville.
- 2016 – Convert 12H4 and off load to Pinardville. Begin design of new 12 kV Blaine Street.
- 2017 – Construct new 12 kV Substation at Blaine Street site.

During the past 5 years peak loading for the west side was 15.1 MVA. Due to the small size of the 3,750 KVA transformer at Notre Dame S/S, switching is severely limited between the 3 circuits. Notre Dame's transformer has been loaded to 69% of summer TFRAT. Once all 4 kV circuits have been converted to Pinardville the peak load will be at or slightly above nameplate rating. A new 12 kV substation situated at the old Blaine Street 4 kV site would eliminate this issue and improve reliability, loading and switching options. Customers impacted include West High School, Parkside Junior High School, Gossler Park Elementary, two nursing homes and the Parker Varney School.

### Project Scope

The scope will include:

- Remove the existing 34.5-4.16kV unit substation at Blaine St S/S.
- Reconfigure/Rebuild the 34.5kV bus at Blaine St S/S
- Install a new 34.5-12.47kV power transformer
- Install a new 15kV metalclad switchgear (three feeder positions (2 – 2017, 1 – future), one transformer position)

### Project Objectives

Improve overall capacity, switching and back feed capabilities for 8,777 customers on the West side of Manchester. All customers are currently served from three 12 kV circuits out of two substations (Pinardville and Notre Dame). Switching options are limited currently by the size of the transformer at Notre Dame (3,750 KVA) and wire sizes on one of the circuits (1/0 AL Spacer). A new 12 kV substation with two additional 12 kV circuits would allow for greater switching flexibility and improved reliability due to additional back feeds and switching points. In service date of the new substation would be 2017.



## Accounting Policy Statement No. 2 Operations Project Authorization

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### **Business Process and / or Technical Improvements**

The project benefits include:

- 8,777 customers fed from five 12 kV circuits instead of just three circuits.
- Three substations totaling at least 39 MVA verses two at 22 MVA.
- Additional capacity would allow Distribution Automation capable of limiting outages to fewer than 1000 customers per event and eventually 500 per event.

### **Assumptions**

- All permits are obtained in 2016.
- The 4kV system at Blaine Street S/S is offloaded by the end of 2016.

### **Alternatives Considered**

Replace the 3,750 MVA transformer at Notre Dame S/S with a 12.5 MVA unit. This would provide more capacity but Blaine Street S/S's location and existing circuits are better positioned for the customer footprint. The Notre Dame's single circuit is not centrally located to the existing load base.

If the circuits are left as currently configured we would have the following issues:

- Loss of entire 18W1 would mean hitting 100% of emergency rating of 1/0 ACSR on Putnam St.
- Loss of entire 18W1 puts 18W3 breaker at 98% of Pick Up current level.
- Even with Distribution Automation installed there is the potential for large blocks of customers to be affected by a single outage.
- Total loss of Pinardville substation leaves over 4,500 customers without power and no backup available until a mobile S/S can be installed.

### **Project Schedule**

| Milestone/Phase Name           | Estimated Completion Date |
|--------------------------------|---------------------------|
| Scope Documents and Permitting | July 2016                 |
| Bid Switchgear                 | July 2016                 |
| IFC Drawings                   | February 2017             |
| Equipment Delivery             | July 2017                 |
| ISD                            | October 2017              |



Accounting Policy Statement No. 2  
Operations Project Authorization

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**Financial Evaluation**

| Direct Capital Costs (\$000)                    | Year 1 | Year 2  | Year 3+ | Total   |
|---|--------|---------|---------|---------|
| Straight Time Labor                             | \$22   | \$100   | \$      | \$122   |
| Overtime Labor                                  | \$     | \$      | \$      | \$      |
| Outside Services                                | \$175  | \$500   | \$      | \$675   |
| Materials                                       | \$     | \$1,400 | \$      | \$1,400 |
| Other, including contingency amounts (describe) | \$33   | \$25    | \$      | \$58    |
| Total   | \$230  | \$2,025 | \$      | \$2,255 |

| Indirect Capital Costs (\$000)        | Year 1 | Year 2 | Year 3+ | Total |
|---------------------------------------|--------|--------|---------|-------|
| Benefits / Loaders                    | \$56   | \$401  | \$      | \$458 |
| Capitalized interest or AFUDC, if any | \$3    | \$3    | \$      | \$6   |
| Total                                 | \$58   | \$405  | \$      | \$463 |

|                     |       |         |    |         |
|---------------------|-------|---------|----|---------|
| Total Capital Costs | \$288 | \$2,430 | \$ | \$2,718 |
|---------------------|-------|---------|----|---------|

|                 |    |    |    |    |
|-----------------|----|----|----|----|
| Total O&M Costs | \$ | \$ | \$ | \$ |
|-----------------|----|----|----|----|

|                                    |              |                |           |                |
|------------------------------------|--------------|----------------|-----------|----------------|
| <b>Total Project Costs (\$000)</b> | <b>\$288</b> | <b>\$2,430</b> | <b>\$</b> | <b>\$2,718</b> |
|------------------------------------|--------------|----------------|-----------|----------------|

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**Regulatory Approvals**

This project will require Manchester Planning and Zoning Board approvals.

**Risks and Risk Mitigation Plans**

The project risks are:

Permitting process is greater than expected – This will be mitigated by talking with the town early on the project to layout the requirements.

Environmental Issues cause a delay in construction – Testing of the soil, concrete and oil will be taken in the first quarter of 2016 so that construction can be sequenced accordingly.

### Eversource Project Funding Authorization Process Summary

Eversource's Project Management process follows several processes and procedures based on the widely accepted Project Management Institute's ("PMI") best practice Project Management Body of Knowledge ("PMBok"). This process utilizes the five phases of Project Management which are:

1. Initiate
2. Plan
3. Executing
4. Controlling
5. Closing

During each of these phases, project funding authorizations may be requested as the scope is identified and refined. As such, there are several types of estimates used by Eversource depending upon the stage of a capital project.

- Order of Magnitude Cost Estimate – these are used as a placeholder for evaluating alternatives and identifying preferred solutions for capital projects. This type of estimate is used early within the initiation phase of the project in which high level cost comparisons of alternative projects are needed. These estimates have an accuracy range of -50% and +200%.
- Conceptual Cost Estimate – these are used for budget purposes for capital projects. This type of estimate is used in the initial engineering phase of the project (in preparation for Eversource Project Approval Committee "EPAC" authorization). This estimate will be completed to assist the Solution Design Committee in determining the preferred alternative. These estimates have an accuracy range of - 25% and +50%.
- Planning Cost Estimates – are used to detail the cost of a project used in the planning phase of the project. These estimates are usually -/+25%.
- Engineering Cost Estimate – these are used to detail the cost of a project used in the approval and construction phase of the project. This estimate is used when at least 70-90% of the engineering is complete. Often times the pricing of major materials is known at this stage of a project. These estimates have an accuracy range of -10% to +10%.
- Construction Cost Estimate – Used to detail the cost of a project used in construction phase of the project. Service contracts for construction, testing and commissioning are generally in place at this stage. These estimates have an accuracy range of -10% to +10%.
- Actual Final Cost – actual costs incurred at project completion (after closeout).

The need for revised project funding authorization is part of the process throughout the project lifecycle. Below are a few examples of funding requests during the project lifecycle.

#### Initiate

Initiating a new project within Eversource typically involves the communication of a need from System Planning (load driven, compliance with standards, etc.) or Asset Management (aging infrastructure, equipment obsolescence, etc.). Initially, there may be several potential solutions to



address a need and conceptual engineering may be required to develop these options to a point where the alternatives can be evaluated. As part of the process in this stage, a site visit is conducted with high level stakeholders to begin to prepare conceptual plans/drawings to obtain approval for the project. Initial cost estimates are also developed to include preliminary engineering and the initial project planning cost. Consider this “seed” money to get the correct resources in place to begin the Planning Phase of the project. This would include consideration for hiring external resources if Eversource resources cannot handle the work load.

Once a preferred solution is selected, further conceptual engineering and analysis may be required to identify certain project specific risks e.g. likelihood of encountering subsurface ledge or other obstructions during excavation, contaminated soils, etc. At each stage of project development, additional detail is defined, risks are uncovered and where appropriate, mitigated. In parallel with the solution definition, the project’s estimated cost is developed and refined to a greater level of accuracy. During conceptual engineering, additional funding approval may be required to assess alternatives and, in some cases, approve physical work, for example soil borings, test pits and soil analysis. This is required to develop the preferred solution to a point where full project funding approval can be requested. Once a preferred solution is identified, Eversource’s Solution Design Committee evaluates the proposed solution against the viable alternatives and where appropriate recommends moving forward with project funding approval through EPAC. In other cases, the SDC may request additional work to develop other alternatives or refine the preferred alternative prior to approval.

A Project Authorization Form (PAF) is generated at this stage to obtain project approval from upper Management. The PAF includes an Executive Summary, Project Description, Overall Justification along with Alternatives Considered and a Preliminary Cost Estimate. The Cost Estimate is generated using recent completed projects with a similar scope. It also assumes pricing for known materials and service cost.

### Plan

Once project approval is obtained, the Planning Stage begins. The outcome of this stage is to prepare a guide through which the project travels. During this stage, several stake holders, including Eversource Engineering, conduct a site visit to begin developing the detailed scope document for the project. Among other things, the scope document is used to prepare bid documents for outsourcing engineering (or as a road map for internal engineering) as well as additional services as may be required. The contractors that are chosen for Request for Proposals (RFP) are selected by the project team and Eversource Procurement Department considering past experience and cost and schedule track records. When the proposals are received, they are reviewed by several members of the project team, including Eversource Engineering and the Procurement Department. Depending on the complexity of the project, the proposals can vary greatly from the Preliminary Cost Estimates provided in the PAF. Once the engineering resource is selected, 30% design packages are generated and used to obtain RFP’s for major materials, Lead Commissioning Engineer (LCE) and several other contractors as needed. During engineering, many unknowns begin to come to light and resource requirements are better understood which assist in the RFPs.

Historically, full project funding approval was provided based on the conceptual or planning cost estimate, but in recent years Eversource has transitioned to a staged project sanctioning approach with initial funding provided to develop the detailed engineering and risk mitigation. Once the scope is known in detail, full funding approval is requested which allows for the purchase of engineered equipment with long lead times and the placing of contracts for construction, testing and commissioning, etc. This stage-gate approval approach creates more certainty over actual final cost because the engineering is completed and firm pricing for major materials and when appropriate construction, test and commissioning is available.

Even with the staged approval process, during project execution it is not unusual for unforeseen issues to materialize. These issues include finding buried objects not identified on drawings, changes to approach based on feedback from local stakeholders, storms, equipment failures, emergent outage constraints, etc. To respond appropriately, the Project Manager may need to commit additional resources, identify alternative ways of working, etc. These deviations from the original scope can also affect the project cost estimate.

After receipt of all proposals, the known project costs are compared to the authorized full funding project estimate. If the pricing is in line with the full funding authorization, no requests are made for additional funding. However, if the cost exceeds the initial estimate, a Supplemental Request Form (SRF) may be required for supplementary funding. In circumstances where the project direct costs are forecast to exceed the authorized direct funding by 10% or more, Eversource's project controls require the Project Manager to request supplemental project approval by returning to EPAC and explaining the need for additional project resources be that additional internal labor, outside services, or materials.

When the planning is well underway, and the requested contracts are implemented, the Executing phase begins. During this phase, the work that was planned is carried out. In the early part of this stage, environmental testing is conducted to determine if there are any environmental hazards that need to be remediated. This is normally added as a risk in the PAF or SRF and a dollar value is applied. However, there are some instances where the amount of remediation is much more extensive than anticipated and the costs are much higher than identified as part of the risk. This may also be the case when civil and electrical construction is underway, and unknowns arise. Another submission of the SRF may be needed to capture these costs as well.

### Execute/Control

During the Executing Phase, the cost & schedule controls are put in place as part of the Controlling Phase. Weekly Project Meetings are held to discuss the construction progress and the remaining work to be done. From time to time, the weather, as well as storm related outages, can cause schedule delays. The outcomes of these delays can result in change orders from the contractor to cover additional time/resources needed to complete the projects. These change orders are reviewed by the project team to negotiate pricing and confirm that the request is indeed out of scope. Monthly cost meetings are also conducted which include the Eversource Project Management and Upper Management teams. During these cost meetings, the cost controls are discussed, reviewed and recommended corrective actions are implemented as needed. If, at any

time during the Executing Phase, the cumulative effect of project change or contract change orders results in a variance of 10% or greater in direct project cost, then an additional Supplemental Funding Request would be required.

No supplemental request should be required during the Closing Phase.

### Indirect Project Costs

All Eversource projects are assessed indirect costs from several overhead categories. These include, but are not limited to:

- Internal labor overheads (employee benefits, etc.)
- Stores (applied to materials ordered through our stock room)
- Engineering and Supervision (E&S)
- Misc. Distribution Expense (MDEC)
- Administrative (AS&E)
- AFUDC (cost of money)

Each of these overheads is assessed at a rate defined by the corporation and is applied to the appropriate category of direct costs charged to the project. These rates vary over time and are adjusted with some frequency.

Indirect costs are included in each type of project estimate and are based upon the rates at that time and the categories of direct costs anticipated at that time.

Variations in the value of indirect costs can come from four basic sources:

1. Variation in overhead rate – generally more of an influence on long duration projects
2. Increase (or decrease) in direct project costs – often seen as the project scope becomes more well defined and direct costs are known. This can be the result of increase in project scope or higher than expected contract service costs due to market conditions.
3. Change from internal resources to contracted (external) resources or vice versa – this would impact the internal labor overheads which are significant, but often comes with an increase or decrease to the direct cost for external labor, ie. true cost of internal labor shows up as a direct labor cost and a labor loader, whereas external labor does not get a labor loader (we are billed a “loaded” rate by vendors). Both will be assessed other applicable overheads such as E&S, MDEC and AS&E.
4. Change from owner furnished to contractor furnished materials – contractor furnished materials will not be assessed the Stores overhead, though usually include a contractor markup. Again, not a large overall difference in project cost, but potentially a noticeable variation in indirect costs.

Though variations (increases) in indirect project costs do not drive the need to secure additional project funding for distribution projects, they do contribute to overall project cost and are included in monthly project forecasting and reporting.

The E&S rate tends to be the most volatile and can result in large variations in overall indirect cost.

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**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 10/28/2019**

**Date of Response: 11/18/2019**

**Request No. TS 2-053**

**Page 1 of 3**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Joseph A. Purington, Lee G. Lajoie**

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**Request:**

Re: Blaine St SS add 34.5kV-12kV 10MVA, #A13C06, OCA 6-099A: Please provide the following information involving this project:

- a. Re: Justification at page 6: Did Eversource engineers conduct a site visit and site assessment during the initial scoping and designing of the project? If not, why not? Why were the costs for services (soil testing, soil removal, landscaping, etc.) overlooked during the original estimate? Were the design/scoping engineers interviewed by Management to determine the root cause for these omissions? If not, why not? If yes, what were the results of those discussions?
- b. Re: Additional Resources at page 6 and 7: Were some or all costs recovered from AZZ as referenced? If yes, please provide an accounting of amounts recovered. Please provide an itemized breakout of overheads, AFUDC, and other costs leading up to the variance.
- c. Re: Actions to prevent recurrence at page 8: At the time of construction, was it Eversource's policy that Project Managers work with project cost analysts to impede costs from exceeding the authorized budget? If not, why not? If yes, why was this policy not followed for this project? Given the monthly reports received by Management, why was Management not actively involved in controlling the cost escalation of this project?
- d. Was the Substation Constructability Walk Down Checklist used for this project? If yes, please provide a copy.
- e. Re: Attachment 12-045AS, Minutes 5/08/2018 at page 1: Provide the Lessons Learned attachment and the revised Supplement Justification referenced therein.

**Response:**

Clarifications and refinements to the scope and cost estimate in the normal evolution of the project are to be expected and do not constitute "omissions." Eversource Management is informed of such changes in the normal course of monthly project reporting. The preliminary engineering and original estimate did not "fail" to consider these items, nor were the items missed. The engineering and project-cost estimation process is iterative and involves graduated stages of information gathering, assessment, estimation and projections that are refined to a final pre-construction cost based on detailed project plans and detailed cost assessments. The cost estimates derived on the basis of conceptual-level engineering plans and preliminary cost projections are not intended to serve as the basis for final, pre-construction starting points for the project. Therefore, the premise that costs were "overlooked" is false.

- a) Please refer to Attachment TS 2-053 for a general summary of the project life cycle and Eversource project funding and authorization process at the time of the project. This document

includes reference to a recent transition to a staged sanctioning process where full project funding authorization is not granted until sufficient engineering and procurement information is available to develop a full project estimate of sufficient accuracy to minimize the need for incremental authorizations during construction.

A project kickoff meeting was held on August 19, 2016 and included internal engineering, consultant engineering, site design consultant, operations and field engineering. A site visit was conducted after the meeting.

The original project estimate and authorization was for full project funding and was developed prior to engaging a permitting consultant and conducting a permit needs assessment. Upon completion of the assessment and background research, it became apparent that there was the potential for contaminated soils on the site, requiring soil testing and disposal of excess contaminated soils. The permit assessment also revealed the need for a sound study and visual mitigation measures as conditions of site plan approval. Clarifications and refinements to the scope in the normal evolution of the project are to be expected and are not considered omissions. Eversource Management is informed of such changes in the normal course of monthly project reporting.

- b) Eversource incurred an estimated \$86,000 of costs due to the manufacturing deficiencies with the AZZ switchgear broken up as follows:

|                                       |          |
|---------------------------------------|----------|
| • Engineering – RLC Engineering       | \$12,580 |
| • Electrical Construction - ES Boulos | \$33,498 |
| • Testing – Eaton Electric            | \$20,528 |
| • Commissioning – EIG                 | \$20,150 |

After negotiating this claim with AZZ, a refund of \$68,000 was agreed upon and received from AZZ.

Refer to Attachment TS 2-053 for a general summary of the types and variability of indirect project costs.

The indirect cost variance is as follows:

|                         | Original PAF, \$k | Supplement, \$k |
|-------------------------|-------------------|-----------------|
| Direct Cost             | \$2,255           | \$3,151         |
| Indirect Cost           | \$458             | \$821           |
| Aggregate Indirect Rate | 20%               | 26%             |
| AFUDC                   | \$6               | \$15            |

The variance in indirect cost is driven primarily by an increase in direct cost of the project and to a lesser degree, increase in overhead rates.

- c) At the time this project was in execution, it was Eversource's practice to assign dedicated cost analysts to support project managers with cost control, analysis and forecasting for major transmission projects. At the time of this project, cost analyst support for distribution-only

projects did not perform all of these functions and was transitioning this practice to fully support major distribution-only projects.

This project was reviewed monthly at the Distribution Capital Project Review meeting. Cost control measures employed by project managers included budget forecasting, weekly and monthly reviews of the project cost, change order review and negotiations with contractors as well as presenting project financials at the monthly Distribution Capital Review and Major Project Group meetings. Project forecast changes were presented and justified to management at these meetings. Impacts to the annual distribution budgets were discussed with respect to cash flow adjustments from year to year. Required cost controls included a requirement to request and secure supplemental funding to complete the project.

- d) The Substation Constructability Walkdown Checklist, which was still in development at the time of this project and is still not in its final form, was not utilized on this project. The checklist formalizes the activities which are conducted as a process improvement initiative. The intended purpose of this checklist is to aid field construction resources in the transition of projects into the construction phase. The use of this checklist was an outcome of the Lessons Learned from a different project and was not in use on NH projects prior to that time.
- e) The supplemental funding request approved May 9, 2019 and included in the referenced attachment has the lessons learned on page 8 in a section titled Actions to Prevent Recurrence.

funding\_project A16C09

| accounting_work_order | accounting_work_order_descript      | cost_element_description                   | Description                    | year | Values<br>Sum of<br>quantity | Sum of amount |
|-----------------------|-------------------------------------|--|--------------------------------|------|------------------------------|---------------|
| 9Z621551              | 16-092: Circuit Tie - Relocate 3138 | Admin and Eng OH- Acct Use Only            |                                | 2016 | 0 \$                         | 16.17         |
|                       |                                     |  |                                | 2017 | 0 \$                         | (16.17)       |
|                       |                                     | AFUDC Debt                                 |                                | 2016 | 0 \$                         | 0.86          |
|                       |                                     |  |                                | 2017 | 0 \$                         | (0.86)        |
|                       |                                     | Engin and Super OH- Acct Use Only          |                                | 2016 | 0 \$                         | 210.96        |
|                       |                                     |  |                                | 2017 | 0 \$                         | (210.96)      |
|                       |                                     | Labor Straight Time Exempt                 |                                | 2016 | 21 \$                        | 912.76        |
|                       |                                     |  |                                | 2017 | -21 \$                       | (912.76)      |
|                       |                                     | Misc Dist Exp Capitalized OH-Acct Use Only |                                | 2016 | 0 \$                         | 0.14          |
|                       |                                     |  |                                | 2017 | 0 \$                         | (0.14)        |
|                       |                                     | Non Productive Time Loader- Acct Use Only  |                                | 2016 | 0 \$                         | 157.08        |
|                       |                                     |  |                                | 2017 | 0 \$                         | (157.08)      |
|                       |                                     | Payroll Benefit Loader- Acct Use Only      |                                | 2016 | 0 \$                         | 336.57        |
|                       |                                     |  |                                | 2017 | 0 \$                         | (336.57)      |
|                       |                                     | Vehicle Costs Clearing- Acct Use Only      |                                | 2016 | 0 \$                         | 96.12         |
|                       |                                     |  |                                | 2017 | 0 \$                         | (96.12)       |
| 9Z621551 Total        |                                     |  |                                |      | 0 \$                         | -             |
| A16C0901              | BLAINE ST SS 34.5-12.47KV ADDITI    | Admin and Eng OH- Acct Use Only            |                                | 2016 | 0 \$                         | 568.41        |
|                       |                                     |  |                                | 2017 | 0 \$                         | 17,231.93     |
|                       |                                     |  |                                | 2018 | 0 \$                         | 10,789.51     |
|                       |                                     |  |                                | 2019 | 0 \$                         | 687.23        |
|                       |                                     | AFUDC Debt                                 |                                | 2016 | 0 \$                         | 99.40         |
|                       |                                     |  |                                | 2017 | 0 \$                         | 3,105.38      |
|                       |                                     |  |                                | 2018 | 0 \$                         | 9,392.72      |
|                       |                                     | AFUDC Equity                               |                                | 2016 | 0 \$                         | 0.05          |
|                       |                                     | Alloc- E+S OH Subst- Acct Use Only         |                                | 2018 | 0 \$                         | 28,312.65     |
|                       |                                     |  |                                | 2019 | 0 \$                         | 10,127.70     |
|                       |                                     | Contractor Labor                           | RANDSTAD U                     | 2018 | 8 \$                         | 214.00        |
|                       |                                     |  | RANDSTAD US LP                 | 2017 | 140.5 \$                     | 10,407.53     |
|                       |                                     |  |                                | 2018 | 43 \$                        | 944.55        |
|                       |                                     | Contractor Materials                       | E S BOULOS COMPANY             | 2018 | 0 \$                         | 61,800.00     |
|                       |                                     | Contractor Services                        | E S BOULOS                     | 2018 | 0 \$                         | 145,800.00    |
|                       |                                     |  | E S BOULOS COMPANY             | 2017 | 0 \$                         | 436,185.00    |
|                       |                                     |  |                                | 2018 | 0 \$                         | 161,829.72    |
|                       |                                     |  | E.S. BOULO                     | 2018 | 0 \$                         | 3,960.00      |
|                       |                                     |  | E.S. BOULOS CO                 | 2017 | 0 \$                         | 3,960.00      |
|                       |                                     |  |                                | 2018 | 0 \$                         | (3,960.00)    |
|                       |                                     |  | SECURITAS                      | 2018 | 0 \$                         | 11,934.00     |
|                       |                                     |  | SECURITAS SECURITY SVCS USA IN | 2017 | 0 \$                         | 39,165.76     |
|                       |                                     |  |                                | 2018 | 0 \$                         | (11,232.00)   |
|                       |                                     | Contractor Services- Other                 | JCR CONSTR                     | 2018 | 0 \$                         | 3,859.08      |
|                       |                                     |  | JCR CONSTRUCTION CO INC        | 2018 | 0 \$                         | -             |
|                       |                                     | Contractor- Unit Price                     | JCR CONSTRUCTION CO INC        | 2018 | 0 \$                         | 2,136.00      |
|                       |                                     | Employee Expense Other                     |                                | 2018 | 0 \$                         | 2.00          |
|                       |                                     | Engin and Super OH- Acct Use Only          |                                | 2016 | 0 \$                         | 5,990.74      |
|                       |                                     |  |                                | 2017 | 0 \$                         | 197,290.49    |
|                       |                                     |  |                                | 2018 | 0 \$                         | 477,728.95    |
|                       |                                     | Engineering Design Services                |                                | 2017 | 0 \$                         | -             |
|                       |                                     |  | AZZ                            | 2018 | 0 \$                         | 3,804.00      |
|                       |                                     |  | RLC ENGINEERING LLC            | 2017 | 9 \$                         | 64,870.50     |
|                       |                                     |  |                                | 2019 | 0 \$                         | 7,944.28      |
|                       |                                     |  | TF MORAN INC                   | 2017 | 2 \$                         | 3,422.18      |
|                       |                                     | Environmental Outside Services             | MORAN ENVIRONMENTAL RECOVERY   | 2017 | 0 \$                         | 8,738.01      |
|                       |                                     |  | TRC LOCKBOX                    | 2017 | 0 \$                         | 1,037.77      |
|                       |                                     | Fees + Payments- Other                     | CITY OF MANCHESTER             | 2017 | 0 \$                         | 50.00         |
|                       |                                     |  |                                | 2018 | 0 \$                         | -             |
|                       |                                     |  | JP MORGAN CHASE BANK           | 2017 | 1 \$                         | 1.50          |
|                       |                                     | Fees and Payments                          | APRIL 2017 PCARD               | 2017 | 0 \$                         | -             |
|                       |                                     |  | JP MORGAN CHASE BANK           | 2017 | 11 \$                        | 177.50        |
|                       |                                     | Filing Fees                                | JP MORGAN CHASE BANK           | 2017 | 1 \$                         | 26.00         |
|                       |                                     | Gen Ser Co Benefit Loader- Acct Use Only   |                                | 2016 | 0 \$                         | 1,010.65      |
|                       |                                     |  |                                | 2017 | 0 \$                         | 4,238.62      |



Docket No. DE 19-057 Data  
Request STAFF 16-009  
Dated 3/20/2020  
Attachment STAFF 16-009  
K Page 2 of 4

| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|-----------------------------------|--|---|------|-----------------|---------------|
| A16C0901              | BLAINE ST SS 34.5-12.47kV ADDITI  | Gen Ser Co Benefit Loader- Acct Use Only   |   | 2018 | 0               | \$ 4,835.96   |
|                       |                                   |  |   | 2019 | 0               | \$ 882.31     |
|                       |                                   | Labor Overtime Non-Exempt                  |   | 2017 | 141.5           | \$ 10,465.50  |
|                       |                                   |  |   | 2018 | 153.25          | \$ 7,975.32   |
|                       |                                   |  |   | 2019 | 5               | \$ 307.73     |
|                       |                                   | Labor Premium and Special Exempt           |   | 2019 | 0               | \$ 450.00     |
|                       |                                   | Labor Straight Time Exempt                 |   | 2016 | 407.5           | \$ 22,483.07  |
|                       |                                   |  |   | 2017 | 1138.75         | \$ 58,655.93  |
|                       |                                   |  |   | 2018 | 736.45          | \$ 38,358.35  |
|                       |                                   |  |   | 2019 | 80              | \$ 3,975.11   |
|                       |                                   | Labor Straight Time Non-Exempt             |   | 2016 | 20              | \$ 603.78     |
|                       |                                   |  |   | 2017 | 51              | \$ 1,599.21   |
|                       |                                   |  |   | 2018 | 1025.25         | \$ 40,926.85  |
|                       |                                   |  |   | 2019 | 37.5            | \$ 1,386.88   |
|                       |                                   | Licensing and Permitting                   |   | 2017 | 0               | \$ -          |
|                       |                                   |  | DAVID G LARIVEE   | 2017 | 0               | \$ 15,000.00  |
|                       |                                   |  | GZA GEO ENVIRONMENTAL INC   | 2017 | 1               | \$ 19,483.27  |
|                       |                                   |  | GZA GEOENV  | 2018 | 0               | \$ 704.72     |
|                       |                                   |  | GZA GEOENVIRONMENTAL INC  | 2017 | 0               | \$ 21,975.86  |
|                       |                                   |  |   | 2018 | 0               | \$ (704.72)   |
|                       |                                   | Material Salvage                           |   | 2017 | 0               | \$ (845.04)   |
|                       |                                   | Materials- Purchased                       | JP MORGAN   | 2018 | 2               | \$ 213.09     |
|                       |                                   |  | JP MORGAN CHASE BANK  | 2018 | 14              | \$ 6,098.79   |
|                       |                                   |  | NWN CORPORATION   | 2018 | 0               | \$ 10,226.21  |
|                       |                                   |  | RLC ENGINEERING LLC   | 2016 | 5               | \$ 12,985.49  |
|                       |                                   |  |   | 2017 | 6               | \$ 18,860.67  |
|                       |                                   |  | TF MORAN INC  | 2016 | 2               | \$ 1,668.40   |
|                       |                                   |  |   | 2017 | 4               | \$ 12,478.69  |
|                       |                                   | Materials- Stores                          | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 10 IN, 8000 LB                      | 2018 | 8               | \$ 199.98     |
|                       |                                   |  | ARM,DAVIT, 6 FT 6 IN LG, 65 KSI, 15 DEG, 6150 LB VERTICAL LOAD, 5000 L  | 2018 | 0               | \$ -          |
|                       |                                   |  | ARRESTER, 25 PAIR PROTECTION BLOCK, FOR MODEM                           | 2018 | 1               | \$ 273.00     |
|                       |                                   |  | ARRESTER, LIGHTNING, 15 KV, FOR MODEM                                   | 2018 | 1               | \$ 268.00     |
|                       |                                   |  | BOLT, DOUBLE ARMING, 5/8 IN, 20 IN LG, ROLLED THREAD, STEEL, HOT T      | 2017 | 9               | \$ 22.01      |
|                       |                                   |  | BRACKET, 24 IN, AL, W/ SLOT, FOR CONDUIT STAND-OFF UP TO 6 IN CON       | 2017 | 8               | \$ 190.00     |
|                       |                                   |  | BRACKET,CONDUIT, STANDOFF, 12 IN LG, AL, FOR RISER POLE                 | 2017 | 4               | \$ 71.80      |
|                       |                                   |  | COMPUTER,SYSTEM, HMI PC, UNO 2473G, WINDOWS 10 OS, 64 GB MSATA          | 2018 | -1              | \$ (725.00)   |
|                       |                                   |  | CUBE,POWER, TIME, OFF DELAY, 90-150 VAC/DC, 0.2-30 MIN, 8 PIN, PLUG     | 2018 | 4               | \$ 275.53     |
|                       |                                   |  | MODEM, SHELF, 8 CARD  | 2018 | 1               | \$ 1,260.00   |
|                       |                                   |  | MODEM,POWER SUPPLY, 120 VAC / 129 VDC I/P                               | 2018 | 1               | \$ 541.00     |
|                       |                                   |  | MONITOR,COMPUTER, 19 IN TFT, COLOR, W/ RESISTIVE TOUCH SCREEN           | 2018 | 0               | \$ -          |
|                       |                                   |  | SIGN,DANGER, HARD HAT AREA, 10 X 14 IN, 0.125 IN POLYCARBONATE, R       | 2018 | 3               | \$ 72.79      |
|                       |                                   |  | SIGN,DANGER, HIGH VOLTAGE KEEP OUT..., 10 IN H, 14 LG, POLYCARBO        | 2018 | 6               | \$ 127.54     |
|                       |                                   |  | SIGN,DANGER, LOWER ANTENNA, 7 X 10 IN, 0.125 IN POLYCARBONATE W         | 2018 | 2               | \$ 34.67      |
|                       |                                   |  | SIGN,IDENTIFICATION, PHASE 1, 4 X 4 IN, WHITE ON RED, 4 EYELETS         | 2018 | 2               | \$ 6.89       |
|                       |                                   |  | SIGN,IDENTIFICATION, PHASE 2, 4 X 4 IN, BLUE ON WHITE, 4 HOLE           | 2018 | 2               | \$ 5.96       |
|                       |                                   |  | SIGN,IDENTIFICATION, PHASE 3, 4 X 4 IN, WHITE ON BLUE, 4 HOLE           | 2018 | 2               | \$ 6.89       |
|                       |                                   |  | SIGN,NOTICE, APPROVED FR CLOTHING REQUIRED FOR ENTRY..., 14 IN X        | 2018 | 3               | \$ 26.38      |
|                       |                                   |  | SIGN,NOTICE, SUBSTATION USE, CALL THE APPROPRIATE..., EVERSOURCE        | 2018 | 2               | \$ 25.94      |
|                       |                                   |  | SIGN,WARNING, POSITIVELY NO TRESPASSING, EVERSOURCE LOGO, 10 I          | 2018 | 5               | \$ 108.30     |
|                       |                                   |  | STATION,EYEWASH, FOR PURE FLOW 1000 EYEWASH STATION, SEE D20            | 2017 | 1               | \$ 270.37     |
|                       |                                   |  | WASHER,FLAT, SQUARE, 3 IN X 3 IN X 1/4 IN SQ, 13/16 IN ID, GALV, FOR 5/ | 2017 | 14              | \$ 19.49      |
|                       |                                   | Meals                                      |   | 2017 | 0               | \$ 393.45     |
|                       |                                   |  |   | 2018 | 44              | \$ 934.10     |
|                       |                                   |  |   | 2019 | 1               | \$ 10.00      |
|                       |                                   | Mileage                                    |   | 2016 | 24              | \$ 12.96      |
|                       |                                   |  |   | 2017 | 73              | \$ 39.06      |
|                       |                                   |  |   | 2018 | 58              | \$ 247.35     |
|                       |                                   |  |   | 2019 | 127             | \$ 73.66      |
|                       |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2016 | 0               | \$ 450.12     |
|                       |                                   |  |   | 2017 | 0               | \$ 17,149.45  |
|                       |                                   |  |   | 2018 | 0               | \$ 44,210.64  |
|                       |                                   |  |   | 2019 | 0               | \$ 340.73     |
|                       |                                   | Miscellaneous Accounting Adjustments       |   | 2019 | 0               | \$ -          |
|                       |                                   | Non Productive Time Loader- Acct Use Only  |   | 2016 | 0               | \$ 3,975.77   |
|                       |                                   |  |   | 2017 | 0               | \$ 11,076.59  |

| accounting_work_order | accounting_work_order_descript   | cost_element_description                   | Description  | year | Sum of quantity | Sum of amount |
|-----------------------|----------------------------------|--|--|------|-----------------|---------------|
| A16C0901              | BLAINE ST SS 34.5-12.47kV ADDITI | Non Productive Time Loader- Acct Use Only  |  | 2018 | 0 \$            | 12,413.51     |
|                       |                                  |  |  | 2019 | 0 \$            | 919.67        |
|                       |                                  | Other Outside Services                     |  | 2017 | 0 \$            | -             |
|                       |                                  |  | AZZ  | 2018 | 0 \$            | 551,226.00    |
|                       |                                  |  | BURNS & MCDONNELL  | 2018 | 0 \$            | 1,587.95      |
|                       |                                  |  | BURNS & MCDONNELL ENGINEERING  | 2018 | 0 \$            | 1,176.45      |
|                       |                                  |  | E S BOULOS COMPANY   | 2019 | 0 \$            | 5,520.64      |
|                       |                                  |  | EATON CORP   | 2018 | 0 \$            | 264,337.76    |
|                       |                                  |  |  | 2019 | 0 \$            | 1,476.84      |
|                       |                                  |  | ENERGY INITIATIVES GROUP LLC   | 2018 | 0 \$            | 121,896.55    |
|                       |                                  |  | GZA GEOENVIRONMENTAL INC   | 2017 | 0 \$            | 51,704.67     |
|                       |                                  |  | RLC ENGINEERING LLC  | 2017 | 0 \$            | 125,565.82    |
|                       |                                  |  |  | 2018 | 0 \$            | 66,098.01     |
|                       |                                  |  | TF MORAN INC   | 2017 | 0 \$            | 10,683.26     |
|                       |                                  |  |  | 2018 | 0 \$            | 11,876.75     |
|                       |                                  |  |  | 2019 | 0 \$            | -             |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |  | 2016 | 0 \$            | 8,000.85      |
|                       |                                  |  |  | 2017 | 0 \$            | 24,197.58     |
|                       |                                  |  |  | 2018 | 0 \$            | 31,688.69     |
|                       |                                  |  |  | 2019 | 0 \$            | 2,051.11      |
|                       |                                  | Police Services and Traffic Control        | NEW ENGLAND TRAFFIC CONTR SVCS                                       | 2017 | 0 \$            | 424.00        |
|                       |                                  | Property Taxes                             |  | 2017 | 0 \$            | 11,513.95     |
|                       |                                  |  |  | 2018 | 0 \$            | 45,582.41     |
|                       |                                  | Scrap Electric Equipment                   | G & S MOTOR EQUIPMENT COMPANY  | 2017 | 0 \$            | 26,999.99     |
|                       |                                  |  |  | 2018 | 0 \$            | -             |
|                       |                                  | Service Company Allocations- Acct Use Only |  | 2016 | 0 \$            | 0.00          |
|                       |                                  |  |  | 2017 | 0 \$            | (0.00)        |
|                       |                                  |  |  | 2018 | 0 \$            | 0.00          |
|                       |                                  |  |  | 2019 | 0 \$            | -             |
|                       |                                  | Spill Response and Disposal                | CLEAN HARBORS ENV SERVICES INC                                       | 2017 | 3 \$            | 6,956.47      |
|                       |                                  | Stores Loader- Acct Use Only               |  | 2017 | 0 \$            | 7,036.16      |
|                       |                                  |  |  | 2018 | 0 \$            | 6,374.83      |
|                       |                                  | Stores over 25K                            | CIRCUIT BREAKER, VACUUM, 38 KV, 1200 A, 200 KV BIL, W/ 1200/5 C400 B | 2017 | 1 \$            | 27,446.00     |
|                       |                                  |  | TRANSFORMER,POWER, 34.5-12.47 KV, 10/12.5 MVA , 65 DEG C RISE        | 2017 | 1 \$            | 447,720.40    |
|                       |                                  | Travel                                     |  | 2017 | 0 \$            | 887.74        |
|                       |                                  | UVL-Contractor Labor                       | 0105510 - UVL - PSM00 - 00013  | 2016 | 0 \$            | 13,931.94     |
|                       |                                  |  |  | 2017 | 0 \$            | (13,931.94)   |
|                       |                                  |  | 0106377 - UVL - PSM00 - 00013  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0107189 - UVL - ENG00 - 00083  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0107189 - UVL - ENG00 - 00095  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0107189 - UVL - ENG00 - 00104  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0107189 - UVL - PSM00 - 00013  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0108100 - UVL - ENG00 - 00083  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0108100 - UVL - ENG00 - 00095  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0108100 - UVL - ENG00 - 00104  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0108711 - UVL - ENG00 - 00013  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0108711 - UVL - ENG00 - 00083  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0108711 - UVL - ENG00 - 00095  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0108711 - UVL - ENG00 - 00104  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0109645 - UVL - ENG00 - 00013  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0109645 - UVL - ENG00 - 00083  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0109645 - UVL - ENG00 - 00095  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0109645 - UVL - ENG00 - 00104  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0109645 - UVL - PSM00 - 00023  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0110033 - UVL - ENG00 - 00013  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0110033 - UVL - ENG00 - 00083  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0110033 - UVL - ENG00 - 00095  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0110033 - UVL - ENG00 - 00104  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0110033 - UVL - PSM00 - 00023  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0112386 - P&C ENGINEERING SUPPORT                                    | 2017 | 0 \$            | -             |
|                       |                                  |  | 0120888 - UNBILLED SERVICES  | 2018 | 0 \$            | -             |
|                       |                                  |  | 0121636 - UNRECORDED INVOICE   | 2018 | 0 \$            | -             |
|                       |                                  |  | 0131417 - UNBILLED SERVICES  | 2019 | 0 \$            | -             |
|                       |                                  |  | 0132302 - UNBILLED SERVICES  | 2019 | 0 \$            | -             |
|                       |                                  |  | 0133082 - UNBILLED SERVICES  | 2019 | 0 \$            | -             |

| accounting_work_order | accounting_work_order_descript   | cost_element_description              | Description                 | year | Sum of quantity | Sum of amount          |
|-----------------------|----------------------------------|---------------------------------------|-----------------------------|------|-----------------|------------------------|
| A16C0901              | BLAINE ST SS 34.5-12.47kV ADDITI | UVL-Contractor Labor                  | 0133982 - UNBILLED SERVICES | 2019 | 0               | \$ -                   |
|                       |                                  |                                       | 0135765 - UNBILLED SERVICES | 2019 | 0               | \$ 4,722.00            |
|                       |                                  | Vehicle Costs Clearing- Acct Use Only |                             | 2016 | 0               | \$ 132.29              |
|                       |                                  |                                       |                             | 2017 | 0               | \$ 6,599.32            |
|                       |                                  |                                       |                             | 2018 | 0               | \$ 7,629.04            |
|                       |                                  |                                       |                             | 2019 | 0               | \$ 625.39              |
| <b>A16C0901 Total</b> |                                  |                                       |                             |      | <b>4455.7</b>   | <b>\$ 4,009,770.76</b> |
| <b>Grand Total</b>    |                                  |                                       |                             |      | <b>4455.7</b>   | <b>\$ 4,009,770.76</b> |

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## Public Service Co of New Hampshire Project Approval Information

|  |   |                   |
|--|---|-------------------|
| <b>Fund Project Number</b> A16C10                        | <b>Status</b> open                        | <b>Revision</b> 6 |
| <b>Project Title</b> JACKMAN - REPLACE OBSOLETE EQUIPMEN | <b>Operating Unit</b>                     |                   |
| <b>Initiated By</b> Randy Herk                           | <b>Initiated Date</b> 03/15/2016 13:10:22 |                   |

|                            |  |
|----------------------------|--|
| <b>Description of Work</b> | The replacement of obsolete equipment at Jackman Substation. |
| <b>Location</b>            | G3252 : JACKMAN S/S  |

| Project Schedule / Expenditures |        |                |                | Est Start Date : | 1/1/2016     | Est Complete Date : | 4/30/2018      |
|---------------------------------|--------|----------------|----------------|------------------|--------------|---------------------|----------------|
| 2014                            | 2015   | 2016           | 2017           | 2018             | Future Years | Total               |                |
| \$0.00                          | \$0.00 | \$1,730,919.26 | \$3,669,289.00 | \$1,755,051.00   | \$0.00       | <b>\$7,155,259</b>  |                |
| Cost Breakdown                  |        | Capital        | Expense        | Removal          | Retirements  | Credits             |                |
|                                 |        | \$7,155,259    | \$0            | \$0              | \$0          | \$0                 | \$7,155,259.26 |

**Reason For Work**

**Background Information**

### Approvals

| Level                      | Approver                  | Approval Limit | Date Approved |
|----------------------------|---------------------------|----------------|---------------|
| Project Manager            | Plante, David             | \$0            | 02/25/2018    |
| Plant Accounting           | Davis, Sean               | \$0            | 02/27/2018    |
| Manager - Trans Capital    | Menard, Erica             | \$100,000      | 02/27/2018    |
| Director - Transmission Pr | Dipaola-Tromba, John      | \$250,000      | 03/03/2018    |
| Director - Transmission Pr | Wegh, George              | \$250,000      | 03/01/2018    |
| VP - Transmission ProjEng  | Purington, Joseph         | \$1,000,000    | 03/12/2018    |
| VP - Transmission ProjEng  | Sullivan, Stephen         | \$1,000,000    | 03/08/2018    |
| President, Transmission    | Quinlan, William          | \$5,000,000    | 03/14/2018    |
| President, Transmission    | Shea_TERMINATED, Kathleen | \$5,000,000    | 03/13/2018    |
| Executive VP - COO         | Schweiger, Werner         | \$12,500,000   | 04/05/2018    |

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Funding Project Estimates - Summary A16C10 Current Total Authorized Amount: \$7,155,259

Title JACKMAN - REPLACE OBSOLETE EQUIPMEN

Project Number A16C10

Budget Version 2017 Working (inactive)

Revision

Revision Status Approved

Revision No. 6

Est Start Date 01/01/2016

Est Complete Date 04/30/2018

Est In Svc Date 04/30/2018

Capital \$7,155,259.26

Expense \$0.00

Jobbing \$0.00

Retirement \$0.00

Removal \$0.00

Total (excl. Rets.) \$7,155,259.26

Credits \$0.00

Net \$7,155,259.26

Revision Info Other Updates

Revision 4 of 6

Find Revision

Send for Approval

Show 'Budget Only' Revisions

Estimates:

Grid Estimates

Forecast

Summarize from WO

Copy Estimate

Edit:

New Revision

Delete Revision

Update

Update With Actuals

Import Estimates

Version Compare

Property Estimates:

Unit Estimates

Create As Built

Delete Used Estimates

Other:

Revision Comments

Released Dollars

Substitution

Slide

Cancel

Record 1 of 1

Audits

000099



APS 1 - Project Authorization Policy

Supplement Request Form

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**Supplement Request Form**  
**Approved at February 14, 2018 EPAC**  
[Link to Meeting Minutes](#)

|                                     |   |
|-------------------------------------|---|
| Date Prepared: February 8, 2018     | Project Title: Jackman Replace Obsolete Equipment     |
| Company/Companies: Eversource (NH)  | Project ID Number: A16C10 / A07X44B2                  |
| Organization: NH Operations         | Plant Class/(F.P.Type): Distribution Substation       |
| Project Initiator: Thelma Brown     | Project Type: Specific                                |
| Project Manager: Alan Roe           | Capital Investment Part of Original Operating Plan? Y |
| Project Sponsor: James Eilenberger  | O&M Expenses Part of the Original Operating Plan? No  |
| Current Authorized Amount: \$5,400k | Estimated in service date(s): April 30, 2018          |
| Supplement Request: \$1,755k        | Other:  |
| Total Request: \$7,155k             |   |

## Supplement Justification

### Background

The original Project Authorization Form ("PAF") for the Jackman Replace Obsolete Equipment project was approved in April 2016. At that time, the project was approved at a cost of \$4,557k with an in-service date of June 2017. The project estimate was based on direct costs of \$4,228k with indirect costs of \$325k and AFUDC of \$4k.

A supplemental Project Authorization Form was approved in April 2017 with an expected cost to complete the project of \$5,400k (direct costs - \$5,027; indirect costs - \$369k and AFUDC - \$4.5k). At that time the expected in-service date was November 2017.

### Project Status

At this point, all 34.5kV circuit breakers have been replaced and all relaying, controls and metering have been transferred over to the new control house. The final installation and commissioning of the capacitor bank and cap-switcher will occur in April 2018 (the first available outage) along with all 'punch list' and site restoration activities.

This supplemental Project Authorization Form requests approval of \$1,755K for a total request of \$7,155k. Since April 2017, direct costs have increased by \$869k and associated increases in Indirect costs are \$844k. AFUDC has increased \$43k. The reasons for these increases are explained below





APS 1 - Project Authorization Policy

Supplement Request Form

*Cumulative effect of Changes since April 2017*

|                                 | April 2017<br>(Current Authorized) | February 2018<br>(Total Request) | Difference<br>(Supplement Request) |
|---------------------------------|------------------------------------|----------------------------------|------------------------------------|
| 1. Eng./PM/Permitting           | \$850,007                          | \$900,218                        | \$50,212                           |
| 2. Construction                 | \$2,326,939                        | \$3,533,898                      | \$1,206,959                        |
| 3. Testing & Commissioning      | \$493,000                          | \$577,387                        | \$84,387                           |
| 4. Internal Labor / Exp.        | \$291,000                          | \$326,741                        | \$35,741                           |
| 5. Eversource Supplied Material | \$694,618                          | \$304,128                        | (\$390,490)                        |
| 6. Allowances / Contingency     | \$371,090                          | \$0                              | (\$371,090)                        |
| 7. Property Taxes               | \$0                                | \$173,753                        | \$173,753                          |
| 8. Misc. Other                  | \$0                                | \$79,554                         | \$79,554                           |
| Total Directs                   | \$5,026,654                        | \$5,895,662                      | \$869,008                          |
| 9. Indirect                     | \$369,012                          | \$1,212,861                      | \$843,849                          |
| 10. AFUDC                       | \$4,542                            | \$46,736                         | \$42,194                           |
| Total                           | \$5,400,208                        | \$7,155,259                      | \$1,755,051                        |

**Justification for Additional Resources**

1. Engineering / Project Management / Permitting

To increase the supplier base of Engineering design vendors, Altran, based in New Jersey, was awarded the contract to design the Jackman project. Unfortunately, Altran were not sufficiently experienced to complete the project to the required quality, they had insufficient experience working with Eversource design standards and they lost several key resources to other vendors during the project.

Because of a lack of confidence in Altran, it was decided by the Project team to request Leidos to complete the as-built drawings for the project, this incurred an additional \$48,606 which was not anticipated in April 2017. This plus minor forecasting changes result in an increase in Engineering / Project Management and Permitting of \$50,212. The project manager will contact Procurement to discuss the possibility of recovering the additional as-built drawing costs from Altran.

Total Incremental Request for Engineering / Project Management and Permitting: \$50,212

2. Construction

Because of Altran's lack of engineering design quality, a large amount of engineering in the field was required to meet the design intent and to comply with Eversource standards. This led to the installation contractor having to do additional work beyond what was included in their original scope. Construction costs also increased due to charges to the project that were not forecasted back in April 2017. Change orders, unforecasted charges and a difference in how materials were recorded resulted in an increase in Construction costs by \$1,206,959 (See item #5 below for corresponding decrease in Eversource supplied material costs).

Total Incremental Request for Construction: \$1,206,959

3. Testing and Commission

# EVERSOURCE

## APS 1 - Project Authorization Policy

## Supplement Request Form

During construction, it was necessary to extend outages on transformer TB33 and to work several weekends because outages of the 34.5k bus were not granted due to loss of customer load concerns. Weekend and overtime working meant the project incurred additional labor costs from the testing contractor, and lead commissioning engineer.

Total Incremental Request for testing and commissioning: \$84,387

### 4. Labor and Expenses

With the project delays, and additional effort needed to resolve issues with the Altran design, additional internal labor for engineering, site supervision and management was incurred. This includes time spent following one safety incident and one unwanted trip during construction.

Total Incremental Request for Labor and Expenses: \$35,741

### 5. Eversource Supplied Material

As noted in #2 above, some of the increases in Construction charges is offset by a reduction in the Eversource supplied materials forecast. Originally the materials were forecast as Eversource supplied at a cost of \$694,618 but much of this was supplied by the Construction contractor which is reflected in the increase in Construction costs above and a commensurate reduction in Eversource supplied materials.

Total Incremental Request for Materials: (\$390,490)

### 6. Allowances / Contingency

The April 2017 forecast included allowances of \$371,090 for weather related events, design uncertainty, unforeseen ground conditions and final site remediation costs. These allowances were used to offset the construction increases. The project team is now accounting for this spend in the construction category, so contingency amount in updated total forecast is now zero.

Total Incremental Request for Allowances / Contingency: (\$371,090)

### 7. Property Taxes

The original project estimate and the April 2017 forecast did not include an allowance for property taxes. To the end of 2017, the project has incurred \$119,753k in property taxes with an additional \$54,000 forecast through April 2018.

Total Incremental Request for property taxes: \$173,753

### 8. Miscellaneous Other

To the end of 2017, the project has incurred \$76,554 in Miscellaneous Distribution Expenses Capitalized Overheads ("MDEC"). These additional miscellaneous charges were not forecast in April 2017. Based on charges to date and a rate of 0.015 an additional \$3,000 is forecast until the end of April 2018.

Total Incremental Request for Miscellaneous Items: \$79,554

### 9. Indirect costs

In the April 2017 forecast, indirect costs were forecast to be \$369k based on the previous estimate in the April 2016 PAF of \$325k. To date, the project has incurred \$1,063k in adders and is expected to incur an additional \$150k to the end of the project. Both the original PAF estimate in April 2016 and Supplemental

# EVERSOURCE

## APS 1 - Project Authorization Policy

## Supplement Request Form

PAF estimate in April 2017 were low. Total increase in indirect costs for this supplement request is \$843K

### 10. AFUDC

in April 2017, AFUDC charges for the project were forecast as \$4k. Actual AFUDC charges incurred to date are \$35k with an additional \$12k forecast for the remainder of the project. Again it is clear that both the original AFUDC estimate and estimate in the April 2017 supplemental PAF were low. Total increase in AFUDC for this supplement request is \$42.2k

## Supplement Cost Summary

Note: Dollar values are in thousands:

|                              | Prior Authorized | Supplemental Request | Total          |
|------------------------------|------------------|----------------------|----------------|
| Capital Additions – Direct   | \$5,027          | \$868                | \$5,896        |
| Less Customer Contribution   | \$0              | \$0                  | \$0            |
| Removals net of Salvage %    | \$0              | \$0                  | \$0            |
| Total Direct Spending        | \$5,027          | \$868                | \$5,896        |
| Capital Additions – Indirect | \$369            | \$843                | \$1,213        |
| AFUDC                        | \$4.5            | \$42.5               | \$47           |
| O&M                          | \$0              | \$0                  | \$0            |
| <b>Total Request</b>         | <b>\$5,400</b>   | <b>\$1,755</b>       | <b>\$7,155</b> |

Note: Dollar values are in thousands:

Total Supplement Request by year view:

|                              | To Date        | Year 2018    | Year 2019  | Total          |
|------------------------------|----------------|--------------|------------|----------------|
| Capital Additions – Direct   | \$5,322        | \$574        | \$0        | \$5,896        |
| Less Customer Contribution   | \$0            | \$0          | \$0        | \$0            |
| Removals net of Salvage %    | \$0            | \$0          | \$0        | \$0            |
| Total Direct Spending        | \$5,322        | \$574        | \$0        | \$5,896        |
| Capital Additions – Indirect | \$1,063        | \$150        | \$0        | \$1,213        |
| AFUDC                        | \$34           | \$12         | \$0        | \$47           |
| O&M                          | \$0            | \$0          | \$0        | \$0            |
| <b>Total Request</b>         | <b>\$6,419</b> | <b>\$736</b> | <b>\$0</b> | <b>\$7,155</b> |



Project Authorization Policy  
 Operations Project Authorization

|   |  |
|---|--|
| Date Prepared: <b>January 31, 2017</b>        | Project Title: <b>Jackman Replace Obsolete Equipment</b>         |
| Company/Companies: <b>Eversource (NH)</b>     | Project ID Number: <b>A16C10 / A07X44B2</b>                      |
| Organization: <b>NH Operations</b>            | Plant Class/(F.P.Type): <b>Distribution</b>                      |
| Project Initiator: <b>Thelma Brown</b>        | Project Type: <b>Specific / Annual / Prelim Project / Parent</b> |
| Project Owner/Manager: <b>Alan Roe</b>        | Capital Investment Part of Original Operating Plan? <b>Y / N</b> |
| Project Sponsor: <b>James Eilenberger</b>     | O&M Expenses Part of the Original Operating Plan? <b>Y / N</b>   |
| Current Authorized Amount: <b>\$4,557,000</b> | Estimated in service date(s): <b>November 30, 2017</b>           |
| Supplement Request: <b>\$843,154</b>          | Other:   |
| Total Request: <b>\$5,400,154</b>             |  |

### Project Authorization Supplement Justification

The Project Authorization Form (PAF) for the Jackman Replace Obsolete Equipment project was approved in April 2016. At that time, the project was approved at a cost of \$4,557,000 with an in-service date of June 2017. The total project cost was based on direct costs of \$4,228,000 with indirect costs of \$325,000 and AFUDC of \$4,000.

The expected cost to complete the project is now \$5,400,154 which is \$843,154 above the approved project amount.

|            | PAF Approved Budget | Current Forecast |
|------------|---------------------|------------------|
| Direct     | \$4,228,000         | \$5,026,654      |
| Indirect   | \$325,000           | \$369,012        |
| AFUDC      | \$4,000             | \$4,542          |
| Total      | \$4,557,000         | \$5,400,154      |
| Difference | \$843,154           |                  |

At this stage in the project, the majority of Contracts are in place, with only the following contracts to be awarded:

- electrical testing (\$249,069 forecast based on best evaluated bid),
- installation and removal of the mobile substation (\$75,000 forecast based on a recent similar installation), and
- site security (\$82,000 forecast based on Securitas proposal)
- cost to complete includes \$85,000 of specific risk allowances e.g. weather, design uncertainty, site remediation.



Project Authorization Policy  
Operations Project Authorization

### **Justification for Additional Resources**

The project moved in to Construction at the beginning of January. Engineering design had a number of challenges (lack of available drawings, re-design of equipment, late changes to scope, etc.). Construction is also expected to be challenging due to the complexity of the project, the potential for buried equipment not shown on drawings, availability of outages, complex cut-over requirements, etc. The current planned in-service date is now November 2017 due to outage unavailability in the summer.

#### **Explanation for Cost Increase**

**Materials** - The main construction contract was awarded to ES Boulos as the best evaluated bidder following a formal bidding process. As is typical, construction pricing was requested based on the 70% design and bill of materials. Once the IFC drawings were issued a large difference between the bill of materials was identified.

Estimated Cost Increase \$261,090

**Lead Commissioning Engineer** - During the development of the project, the project team requested that an independent Lead Commissioning Engineer be brought onboard. The cut-over sequence from the old control house is extremely complex and an experienced commissioning engineer was considered prudent. Commissioning was included in the forecast, but the use of an LCE was not included in the original PAF estimate. After an RFP process, the T&M contract was awarded to EIG as the best evaluated bidder but prices for the LCE services came in much higher than anticipated.

Estimated Cost Increase \$150,000

**Contaminated Soils** - The main construction contract was awarded to ES Boulos as the best evaluated bidder following a formal bidding process. While the contract price was in-line with the anticipated cost an allowance of \$25,000 was also included in the PO amount for the removal of contaminated soils. The removal cost for the soils is now estimated to be \$40,000 (\$35,000 for transportation and \$5,000 for disposal).

Estimated Cost Increase \$15,000

**Site Security** - During the previous Transmission project at Jackman, there were three incidents of thefts of material from site. To reduce the risk during this project it was proposed to use a security guard during nights and weekends. This activity was not specifically included in the PAF forecast. Securitas has submitted a proposal for \$82,000 for this work. This contract is not yet awarded but is included in the current forecast. The risk of theft will be managed by securing material in locked Conex boxes and by arranging delivery of materials on a just-in-time basis.

Estimated Cost Increase \$82,000



Project Authorization Policy  
 Operations Project Authorization

**Owner's Engineer** - During the engineering design process, the P&C Engineering group requested that the services of an Owner's Engineer be contracted to review the P&C drawings due to a lack of internal resources. This work was directly awarded to one of the of-choice vendors (HDR). While the engineering reviews were included in the original direct labor costs the Owner's Engineer T&M contract increased the Outside Services element of the project.

Estimated Cost Increase \$50,000

**Mobile Substation** - During the development of the project, it was realized that the installation and removal of the mobile substation would be required to support the TB61 and TB33 outages. The cost to tap-up and remove the mobile substation was not included in the original PAF estimate and although the contract has yet to be let \$75,000 is forecast for this activity based on a similar recent installation at Whitefield. This is anticipated to be a fixed price contract.

Estimated Cost Increase \$75,000

**Additional Engineering** - During the engineering design process, a number of additional owner directed tasks were assigned to the Engineering vendor (Altran). One of the changes related to the provision of new revenue metering to support generation divestiture. This was not included in the original scope of work or the PAF estimate. Additional tasks such as an analysis of the station lighting and lightning protection was also requested as these studies were not available. The two Altran change orders together were \$77,150.

Estimated Cost Increase \$77,150

**Indirects / AFUDC** - In addition to the increase in direct costs, Indirect and AFUDC charges have also been estimated to increase by \$44,500 based on the ratio of direct and indirect costs in the original PAF estimate.

Estimated Cost Increase \$44,500

**Summary**

| Activity                    | Estimated Cost Increase |
|-----------------------------|-------------------------|
| Materials                   | \$261,090               |
| Lead Commissioning Engineer | \$150,000               |
| Contaminated Soils          | \$15,000                |
| Site Security               | \$82,000                |
| Owner's Engineer            | \$50,000                |
| Mobile Substation           | \$75,000                |
| Additional Engineering      | \$77,100                |
| Indirects / AFUDC           | \$44,500                |
| <b>Total</b>                | <b>\$754,690</b>        |



Project Authorization Policy  
Operations Project Authorization

The \$754,690 increase represents the worst case scenario at this stage. It assumes that:

- all additional materials cost is required;
- site security will be needed for the full duration of construction;
- HDR will charge to the full amount of their PO for design reviews;
- EIG will charge to the full amount of their PO for commissioning support;
- the mobile installation charges will be \$75,000; and
- soil removal transportation and disposal costs are capped at 1,000 tons.

### Project Authorization Supplement Cost Summary

*Note: Dollar values are in thousands:*

|                               | Prior<br>Authorized | Supplement<br>Request | Total               |
|-------------------------------|---------------------|-----------------------|---------------------|
| Capital Additions - Direct    | \$ 4,228,000        | \$ 798,600            | \$ 5,026,600        |
| Less Customer Contribution    | -                   | -                     | -                   |
| Removals net of Salvage ____% | -                   | -                     | -                   |
| Total Direct Spending         | \$ 4,228,000        | \$ 798,600            | \$ 5,026,600        |
| Capital Additions - Indirect  | 325,000.00          | 44,012.00             | 369,012.00          |
| AFUDC                         | 4,000.00            | 542.00                | 4,542.00            |
| Total Capital Request         | \$ 4,557,000        | \$ 843,154            | \$ 5,400,154        |
| O&M                           | -                   | -                     | -                   |
| <b>Total Request</b>          | <b>\$ 4,557,000</b> | <b>\$ 843,154</b>     | <b>\$ 5,400,154</b> |

*Note: Dollar values are in thousands:*

Total Supplement Request by year view:

|                               | Year 2017         | Year 20__   | Year 20__ + | Total             |
|-------------------------------|-------------------|-------------|-------------|-------------------|
| Capital Additions - Direct    | \$ 798,600        | \$ -        | \$ -        | \$ 798,600        |
| Less Customer Contribution    | -                 | -           | -           | -                 |
| Removals net of Salvage ____% | -                 | -           | -           | -                 |
| Total Direct Spending         | \$ 798,600        | \$ -        | \$ -        | \$ 798,600        |
| Capital Additions - Indirect  | 44,012.00         | -           | -           | 44,012.00         |
| AFUDC                         | 542.00            | -           | -           | 542.00            |
| Total Capital Request         | \$ 843,154        | \$ -        | \$ -        | \$ 843,154        |
| O&M                           | -                 | -           | -           | -                 |
| <b>Total Request</b>          | <b>\$ 843,154</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 843,154</b> |



Accounting Policy Statement No. 2  
Operations Project Authorization

## Project Authorization Form

### General Information

|  |  |
|--|--|
| Date Prepared: 02/18/2016                    | Project Title: Replace Jackman OCB                     |
| Company: Eversource NH                       | Project ID Number: A07X44A                             |
| Organization: NH Operations                  | Class(es) of Plant: Distribution                       |
| Project Initiator: Thelma Brown              | Project Category: Reliability                          |
| Project Owner/Manager: Alan Roe              | Project Type: Specific                                 |
| Project Sponsor: James Eilenberger           | Project Purpose: part of regulatory tracked program? N |
| Estimated in service date: 06/1/2017         | Capital Investment Part of Original Operating Plan? Y  |
| If Transmission Project: PTF / Non-PTF / N/A | Supplement to Existing Authorization? Y                |
|  | O&M Expenses Part of the Original Operating Plan? N    |

If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and Financial Planning and Analysis (FP&A)

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

### Executive Summary

This project addresses the replacement of obsolete equipment programs specifically replacing Oil Circuit Breakers (OCB). A total of ten (10) substation project work orders have been written under this project. Nine of the projects have been completed for \$4,030,544. The last work order for this project is for Jackman Substation. When the Jackman work order was initiated in 2014 the plan was to replace four oil circuit breakers, a capacitor switch, and two relays at Jackman for \$2,400,000.

In early 2015 the decision was made to divest from generation. Currently all relays and controls for the distribution equipment at Jackman SS is in the generation power house. Once divestiture was announced it was determined that the scope of the work at Jackman should be increased to include the removal of distribution relaying from the generation control house, replacement of electromechanical relays, reconfiguration of substation bus work, and building a new distribution control house.





Accounting Policy Statement No. 2  
 Operations Project Authorization

### Project Costs Summary

Note: Dollar values are in thousands

|                              | Prior Authorized* | Prior Spend* | 2016    | 2017+   | Totals  | Supplemental Authorization* |
|------------------------------|-------------------|--------------|---------|---------|---------|-----------------------------|
| Capital Additions - Direct   | \$                | \$           | \$3,303 | \$1,085 | \$4,388 | \$*                         |
| Customer Contribution        | \$                | \$           | \$0     | \$0     | \$0     | \$0                         |
| Removals net of Salvage      | \$                | \$           | \$33    | \$26    | \$59    | \$0                         |
| Total - Direct Spending      | \$                | \$           | \$3,337 | \$1,111 | \$4,448 | \$0                         |
| Capital Additions - Indirect | \$                | \$           | \$703   | \$286   | \$989   | \$0                         |
| Subtotal Request             | \$                | \$           | \$4,040 | \$1,397 | \$5,437 | \$7,656                     |
| AFUDC                        | \$                | \$           | \$0     | \$0     | \$0     | \$0                         |
| Total Request                | \$2,250 (1)       | \$4,469 (2)  | \$4,040 | \$1,397 | \$5,437 | \$7,656 (3)                 |

- (1) Only the total for the Prior Authorized amount is shown. The last approved revision for this project was for \$2,250,447 which was the 2015 budget amount authorized on 3/24/15
- (2) Only the total for the Prior Spend 2011 - 2015 amount is shown. The previous spending on this project was for ten separate work orders. A total of \$4,469,449 has been spent at ten substations to date.
- (3) Only the total request for the Supplemental Authorization is shown. This is the amount to complete the Jackman SS work order. The Total Request for the Supplemental Authorization is the amount spent and required for the Jackman work order above the amount approved in Power Plan 3/24/15. It is the amount above the currently authorized amount:  $\$4,469 + \$5,437 - \$2,250 = \$7,656$

\* to be completed if supplemental authorization is required

### Summary Project Description

#### Circuit Breaker Replacement

At Jackman substation four existing 34.5kV oil circuit breakers (313, 3173, 311 & 3140) will be removed and replaced with Siemens type SDV7 vacuum breakers. The table below shows the ages of the circuit breakers along with their replacement priority out of 127 breakers on the system.

| OCB               | Age | Rank |
|-------------------|-----|------|
| Line Breaker 313  | 60  | 28   |
| Line Breaker 3173 | 60  | 33   |
| Line Breaker 311  | 45  | 65   |
| Line Breaker 3140 | 41  | 91   |

To facilitate the future separation of generation and distribution assets, a new 34.5kV bay will be installed adjacent to the 313 line position and the 313 and 3173 line positions will each shift south one position. This shift will generate sufficient space to create a fenced compound for the existing GSU transformer.

#### Capacitor Switcher Replacement

In addition to the circuit breaker replacement, the existing C22 vacuum capacitor switcher will be removed, relocated and replaced with a new Southern States Cap-switcher along with two sets of new current transformers (CTs). The existing capacitor vacuum switcher outdoor relays and



## Accounting Policy Statement No. 2 Operations Project Authorization

outdoor relay cabinet will be removed and new protection equipment will be installed inside a new control house (see below). To provide better access to the site, the existing C22 cap bank will also be removed and relocated so that the existing overhead strain bus that feeds it can be removed. A replacement 5.4MVAR capacitor bank mounted on a 10.8MVAR rack will be installed.

The vacuum capacitor switch is part of a targeted program for replacement. Additionally, to separate the Distribution assets from generation assets the capacitor switch and bank need to be relocated. This relocation has the added benefit of opening up access to the yard on the north side of the substation.

To allow for the installation of a future bus tie breaker, the existing station service transformer will also be relocated to the ends of the 34.5kV bus.

### Construction of Control House

With the need to update the control equipment associated with the circuit breaker and capacitor switcher replacements and the need to provide new directional phase and ground overcurrent protection on line positions 313, 3173, 311 and 3140 it was decided that with the impending physical separation of the Eversource distribution and transmission equipment from the generation equipment that a new control house should be constructed.

The protection and control cabinets for the 313, 31713, 311 and 3140 feeder breakers, transformer TB33 & TB61, circuit switchers J33 & J61 and capacitor switcher C22 will be added in the new control house. The GSU transformer breaker TB9 protection and control cabinet will also be added in the new control house.

To accommodate the new control house, the existing TB61 34.5kV strain bus will be relocated using a new underground feed (2-1000kcmil Al).

A new annunciator/communication cabinet, GPS clock, Teletone line sharing switch, dial-up modem and communication processor will also be included in the new control house. A new GE type D20MX RTU cabinet will be installed to control the Distribution equipment, the existing RTU in the hydro control house will remain to control the hydro generation equipment.

### **Project Authorization**

| Approver           | Approver Name     | Approver Signature | Date |
|--------------------|-------------------|--------------------|------|
| Project Initiator  | Thelma Brown      |                    |      |
| Project Manager    | Alan Roe          |                    |      |
| Plant Accounting   | Frank Errato, Jr. |                    |      |
| Director           | James Eilenberger |                    |      |
| Sr. Vice President | Peter Clarke      |                    |      |

### **Overall Justification**



## Accounting Policy Statement No. 2 Operations Project Authorization

This project will address the replacement of targeted obsolete equipment – OCBs, electromechanical relays, and capacitor switchers. It is also required to address the divestiture of generation and separation from generation assets.

### Project Scope

Replace 4 Oil Circuit Breakers, electromechanical relays and capacitor switcher. Construct a new control house and reconfigure for separation of generation assets. Reconfiguration includes relocating one breaker and capacitor bank, including steel structure additions and removals.

### Project Objectives

Replace obsolete equipment, facilitate the segregation of generation assets, maintain reliability to customers. Reduce the amount of oil on site adjacent to the river.

### Business Process and / or Technical Improvements:

Targeted obsolete equipment replacement programs. Remove 4 of the 127 34.5kV oil circuit breakers on the system identified to be replaced.  
Generation divestiture. Separation of distribution assets from generation assets is targeted to be complete by the completion of divestiture in 2017.

### Assumptions

It is assumed that the proposed control house can be constructed by undergrounding the existing strain bus and extending the existing fence line. It is assumed that only local permitting is required and these permits will be readily granted.

### Alternatives Considered

There is a transmission control house that was built in 2008. Adding distribution relay and control equipment in the transmission control house was considered but this would require expansion of the control house. The transmission control house is situated alongside the river and there is insufficient room to expand plus the Transmission control house is located inside the 500 year flood zone. For these reasons it was decided to build a new distribution control house outside of the flood zone.

Only replace the OCB as a part of the targeted program. This would leave all relay and control functions in the generation control house. Additionally, the generation control house is small and crowded. Leaving Eversource equipment where it can be operated or damaged by the new generation owner is not preferred.

### Project Schedule

| Milestone/Phase Name | Estimated Completion Date |
|----------------------|---------------------------|
| Engineering RFP      | 02/01/16                  |
| Engineering Award    | 03/29/16                  |
| Engineering Complete | 08/29/16                  |
| Construction Start   | 09/01/16                  |
| In-service date      | 06/01/17                  |



Accounting Policy Statement No. 2  
 Operations Project Authorization

## Financial Evaluation

Note: Dollar values are in thousands

| <b>Direct Capital Costs</b>                     | <b>Year 1</b>  | <b>Year 2</b>  | <b>Year 3+</b> | <b>Total</b>   |
|---|----------------|----------------|----------------|----------------|
| Straight Time Labor                             | \$106          | \$81           | \$0            | \$187          |
| Overtime Labor                                  | \$0            | \$0            | \$0            | \$0            |
| Outside Services                                | \$2,501        | \$1,020        | \$0            | \$3,522        |
| Materials                                       | \$550          | \$0            | \$0            |                |
| Other, including contingency amounts (describe) | \$179          | \$10           | \$0            | \$186          |
| <b>Total</b>                                    | <b>\$3,337</b> | <b>\$1,111</b> | <b>\$0</b>     | <b>\$4,448</b> |

| <b>Indirect Capital Costs</b>            | <b>Year 1</b> | <b>Year 2</b> | <b>Year 3+</b> | <b>Total</b> |
|--|---------------|---------------|----------------|--------------|
| Indirects/Overheads (including benefits) | \$703         | \$286         | \$0            | \$989        |
| Capitalized interest or AFUDC, if any    | 0             | 0             | \$0            | \$0          |
| <b>Total</b>                             | <b>\$703</b>  | <b>\$286</b>  | <b>\$0</b>     | <b>\$989</b> |

|                            |                |                |            |                |
|----------------------------|----------------|----------------|------------|----------------|
| <b>Total Capital Costs</b> | <b>\$4,040</b> | <b>\$1,397</b> | <b>\$0</b> | <b>\$5,437</b> |
|----------------------------|----------------|----------------|------------|----------------|

|                            |          |          |            |            |
|----------------------------|----------|----------|------------|------------|
| <b>Total O&amp;M Costs</b> | <b>0</b> | <b>0</b> | <b>\$0</b> | <b>\$0</b> |
|----------------------------|----------|----------|------------|------------|

|                            |                |                |            |              |
|----------------------------|----------------|----------------|------------|--------------|
| <b>Total Project Costs</b> | <b>\$4,040</b> | <b>\$1,397</b> | <b>\$0</b> | <b>5,437</b> |
|----------------------------|----------------|----------------|------------|--------------|

Note: Explain unique payment provisions, if applicable

## Regulatory Approvals

Anticipated Permits:

- NHDES - Shoreland Permit
- Town of Hillsborough Planning Board - Site Plan Approval
- NH Public Utilities Commission - License to Construct and Maintain Electric Line over Public Waters

## Risks and Risk Mitigation Plans

There is a risk that local planning board approval is not forthcoming. To mitigate this risk we have engaged TF Moran to facilitate all of the permitting activities on behalf of Eversource.

The site is congested with little room for establishing site cabins, material laydown areas, etc. It is hoped that existing generation land could be used but in the event this is not available other local property may need to be leased for the duration of the project.



Accounting Policy Statement No. 2  
Operations Project Authorization

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The project timescales are short, any delays to the engineering design or review cycles may impact on the ability to meet the construction schedule. Regular project team meetings will track progress against milestones and the schedule or resources will be adjusted to meet schedule dates.

Funding Project Information

New Approval Type

Funding Project

Revision

A16C10

5

Approval Type

Amount

FP PSNH - Distribution - Eng

\$5,400,154.26

Status

Sent By

Date Sent

Date Appr

Approved

Herk, Randy

02/10/2017

04/07/2017

Budget Version

2017 Working (inactive)

Rev

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Send for Approval

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|                           | Approver           | Required | Date Approved | Authority Limit |
|---------------------------|--------------------|----------|---------------|-----------------|
| + Project Manager - - - - | Menard, Erica      | ✓        | 02/10/2017    | \$0             |
| + Plant Accounting - - -  | Roncaoli, TERMINAT | ✓        | 02/14/2017    | \$0             |
| + Manager - PSNH Dist     | Brown, Thelma      | ✓        | 02/14/2017    | \$100,000       |
| + Director - PSNH Dist    | Eilenberger, James | ✓        | 02/22/2017    | \$250,000       |
| + Sr. VP/President - Ops  | Clarke, TERMINATED | ✓        | 03/16/2017    | \$5,000,000     |
| + Executive VP - COO -    | Schweiger, Werner  | ✓        | 04/07/2017    | \$12,500,000    |

Details

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**Funding Project Estimates - Summary**    A16C10    Current Total Authorized Amount: \$7,155,259

Title: JACKMAN - REPLACE OBSOLETE EQUIPMEN  
Project Number: A16C10

**Budget Version:** 2017 Working (inactive)  
**Revision:**   
**Revision Status:** Approved  
**Revision No.:** 5  
**Est Start Date:** 01/01/2016  
**Est Complete Date:** 11/30/2017  
**Est In Srvc Date:** 11/30/2017  
**Capital:** \$5,380,154.26  
**Expense:** \$0.00  
**Jobbing:** \$0.00  
**Retirement:** \$0.00  
**Removal:** \$20,000.00  
**Total (excl. Ret.):** \$5,400,154.26  
**Credits:** \$0.00  
**Net:** \$5,400,154.26

**Revision Info:** Other Updates

**Revision:** 3 of 6    [K] [ < ] [ > ] [ I ]  
**Find Revision:**    Send for Approval

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**Estimates:**  
Grid Estimates  
Forecast  
Summarize from W/D  
Copy Estimate

**Property Estimates:**  
Unit Estimates  
Create As Built  
Delete Used Estimates

**Edit:**  
New Revision  
Delete Revision  
Update  
Update With Actuals  
Import Estimates  
Version Compare

**Other:**  
Revision Comments  
Released Dollars  
Substitution  
Slide  
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**Record:** 1 of 1    [K] [ < ] [ > ] [ I ]

**Audits**

000116



|   |  |
|---|--|
| Date Prepared: <b>February 9, 2017</b>        | Project Title: <b>Jackman Replace Obsolete Equipment</b>         |
| Company/Companies: <b>Eversource (NH)</b>     | Project ID Number: <b>A16C10 / A07X44B2</b>                      |
| Organization: <b>NH Operations</b>            | Plant Class/(F.P.Type): <b>Distribution</b>                      |
| Project Initiator: <b>Thelma Brown</b>        | Project Type: <b>Specific / Annual / Prelim Project / Parent</b> |
| Project Owner/Manager: <b>Alan Roe</b>        | Capital Investment Part of Original Operating Plan? <b>Y / N</b> |
| Project Sponsor: <b>James Eilenberger</b>     | O&M Expenses Part of the Original Operating Plan? <b>Y / N</b>   |
| Current Authorized Amount: <b>\$4,557,000</b> | Estimated in service date(s): <b>November 30, 2017</b>           |
| Supplement Request: <b>\$843,154</b>          | Other:   |
| Total Request: <b>\$5,400,154</b>             |  |

## Project Authorization Supplement Justification

The Project Authorization Form ("PAF") for the Jackman Replace Obsolete Equipment project was approved in April 2016. At that time, the project was approved at a cost of \$4,557,000 with an in-service date of June 2017. The project estimate was based on direct costs of \$4,228,000 with indirect costs of \$325,000 and AFUDC of \$4,000.

The expected cost to complete the project is now \$5,400,154 which is \$843,154 above the approved project amount.

| \$,000     | PAF Approved Budget | Current Forecast |
|------------|---------------------|------------------|
| Direct     | \$4,228             | \$5,027          |
| Indirect   | \$325               | \$369            |
| AFUDC      | \$4                 | \$4.5            |
| Total      | \$4,557             | \$5,400          |
| Difference | \$843               |                  |

At this stage in the project, the majority of Contracts are in place, with only the following contracts to be awarded:

- electrical testing (\$249,069 forecast based on best evaluated bid),
- installation and removal of the mobile substation (\$75,000 forecast based on a recent similar installation), and
- site security (\$82,000 forecast based on Securitas proposal)

## Justification for Additional Resources

The project moved in to Construction at the beginning of January. Engineering design had a number of challenges (lack of available drawings, re-design of equipment, late changes to scope, etc.). Construction is also expected to be challenging due to the complexity of the project, the potential for buried equipment not shown on drawings, availability of outages, complex cut-over requirements, etc. The current planned in-service date is now November 2017 due to outage unavailability in the summer.

### **Explanation for Cost Increase**

**Materials & Labor** - The main construction contract was awarded to ES Boulos as the best evaluated bidder following a formal bidding process. As is typical, construction pricing was requested based on the 70% design and bill of materials. Once the Issued for Construction ("IFC") drawings were issued a large difference between the bill of materials was identified leading to an increase in both material and installation costs (material \$93,454; installation \$167,636).

Estimated Cost Increase \$261,090

**Lead Commissioning Engineer** - During the development of the project, the project team requested that an independent Lead Commissioning Engineer be brought onboard. The cut-over sequence from the old control house is extremely complex and an experienced commissioning engineer was considered prudent. Commissioning was included in the forecast, but the use of an LCE was not included in the original PAF estimate. After an RFP process, the T&M contract was awarded to EIG as the best evaluated bidder but prices for the LCE services came in much higher than anticipated.

Estimated Cost Increase \$150,000

**Contaminated Soils** - The main construction contract was awarded to ES Boulos as the best evaluated bidder following a formal bidding process. While the contract price was in-line with the anticipated cost, an allowance of \$25,000 was also included in the PO amount for the removal of contaminated soils. The removal cost for the soils is now estimated to be \$40,000 (\$35,000 for transportation and \$5,000 for disposal).

Estimated Cost Increase \$15,000

**Site Security** - During the previous Transmission project at Jackman, there were three incidents of thefts of material from site. To reduce the risk during this project it was proposed to use a security guard during nights and weekends. This activity was not specifically included in the PAF forecast. Securitas has submitted a proposal for \$82,000 for this work. This contract is not yet awarded but is included in the current forecast. The risk of theft will be managed by securing material in locked Conex boxes and by arranging delivery of materials on a just-in-time basis.

Estimated Cost Increase \$82,000

**Owner's Engineer** - During the engineering design process, the P&C Engineering group requested that the services of an Owner's Engineer be contracted to review the P&C drawings due to a lack of internal resources. This work was directly awarded to one of the of-choice vendors (HDR). While the engineering reviews were included in the original direct labor costs the Owner's Engineer T&M contract increased the Outside Services element of the project.

Estimated Cost Increase \$50,000

**Mobile Substation** - During the development of the project, it was realized that the installation and removal of the mobile substation would be required to support the TB61 and TB33 outages. The cost to tap-up and remove the mobile substation was not included

in the original PAF estimate and although the contract has yet to be let \$75,000 is forecast for this activity based on a similar recent installation at Whitefield. This is anticipated to be a fixed price contract.

Estimated Cost Increase \$75,000

**Additional Engineering** – During the engineering design process, a number of additional owner directed tasks were assigned to the Engineering vendor (Altran). One of the changes related to the provision of new revenue metering to support generation divestiture. This was not included in the original scope of work or the PAF estimate. Additional tasks such as an analysis of the station lighting and lightning protection was also requested as these studies were not available. The two Altran change orders together were \$77,150

Estimated Cost Increase \$77,150

**Miscellaneous** – A small amount of contingency was included in the electrical / civil installation contract to cover foreseeable risks such as adverse weather, site remediation, design changes, etc.

Estimated Cost Increase \$88,454

**Indirects / AFUDC** - In addition to the increase in direct costs, Indirect and AFUDC charges have also been estimated to increase by \$44,500 based on the ratio of direct and indirect costs in the original PAF estimate.

Estimated Cost Increase \$44,500

### Summary

| Activity                    | Estimated Cost Increase |
|-----------------------------|-------------------------|
| Materials                   | \$261,090               |
| Lead Commissioning Engineer | \$150,000               |
| Contaminated Soils          | \$15,000                |
| Site Security               | \$82,000                |
| Owner's Engineer            | \$50,000                |
| Mobile Substation           | \$75,000                |
| Additional Engineering      | \$77,100                |
| Miscellaneous               | \$88,454                |
| Indirects / AFUDC           | \$44,500                |
| <b>Total</b>                | <b>\$843,154</b>        |

The \$843,154 increase represents the worst case scenario at this stage. It assumes that:

- all additional material and installation costs are required;
- site security will be needed for the full duration of construction;
- HDR will charge to the full amount of their PO for design reviews;
- EIG will charge to the full amount of their PO for commissioning support;
- the mobile installation charges will be \$75,000; and
- soil removal transportation and disposal costs are capped at 1,000 tons.

## Project Authorization Supplement Cost Summary

Note: Dollar values are in thousands:

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 4,228            | \$ 799                | \$ 5,027        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | -                   | -                     | -               |
| Total Direct Spending         | \$ 4,228            | \$ 799                | \$ 5,027        |
| Capital Additions - Indirect  | 325.00              | 44.00                 | 369.00          |
| AFUDC                         | 4.00                | 0.54                  | 4.54            |
| Total Capital Request         | \$ 4,557            | \$ 843                | \$ 5,400        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 4,557</b>     | <b>\$ 843</b>         | <b>\$ 5,400</b> |

Note: Dollar values are in thousands:

Total Supplement Request by year view:

|                               | Year 2017     | Year 20__   | Year 20__ + | Total         |
|-------------------------------|---------------|-------------|-------------|---------------|
| Capital Additions - Direct    | \$ 799        | \$ -        | \$ -        | \$ 799        |
| Less Customer Contribution    | -             | -           | -           | -             |
| Removals net of Salvage ____% | -             | -           | -           | -             |
| Total Direct Spending         | \$ 799        | \$ -        | \$ -        | \$ 799        |
| Capital Additions - Indirect  | 44.00         | -           | -           | 44.00         |
| AFUDC                         | 0.54          | -           | -           | 0.54          |
| Total Capital Request         | \$ 843        | \$ -        | \$ -        | \$ 843        |
| O&M                           | -             | -           | -           | -             |
| <b>Total Request</b>          | <b>\$ 843</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 843</b> |

Funding Project Information

New Approval Type

Funding Project

Revision

Approval Type

Amount

Status

Sent By

Date Sent

Date Appr

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Project Manager

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+

Plant Accounting

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+

Manager - PSNH Dist

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+

Director - PSNH Dist

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Sr. VP/President - Ops

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Menard, Erica

✓

04/05/2016

\$0

Roncaioi, TERMINAT

✓

04/06/2016

\$0

Brown, Thelma

✓

04/06/2016

\$100,000

Eilenberger, James

✓

04/06/2016

\$250,000

Clarke, TERMINATED

✓

04/12/2016

\$5,000,000

Budget Version

[2016 Working (inactive)]

Rev

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Tasks

Class Codes

Justification

Tax Status

Authorizations

User Comment

Review

Related FPs

Audits

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Cancel FP

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Estimates

Update

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**Funding Project Estimates - Summary**    A16C10    Current Total Authorized Amount: \$7,155,259

Title: JACKMAN - REPLACE OBSOLETE EQUIPMEN  
Project Number: A16C10

**Budget Version:** 2016 Working (inactive)  
**Revision:**   
**Revision Status:** Approved  
**Revision No.:** 3  
**Est Start Date:** 01/01/2014  
**Est Complete Date:** 06/01/2017  
**Est In Srvc Date:** 06/01/2017  
**Capital:** \$4,213,810.25  
**Expense:** \$0.00  
**Jobbing:** \$0.00  
**Retirement:** \$0.00  
**Removal:** \$343,000.00  
**Total (excl. Rets.):** \$4,556,810.25  
**Credits:** \$0.00  
**Net:** \$4,556,810.25

**Revision Info:** Other Updates

Revision: 1 of 6    < < > > |  
**Find Revision**    Send for Approval

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**Estimates:**  
Grid Estimates  
Forecast  
Summarize from WO  
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**Property Estimates:**  
Unit Estimates  
Create As Built  
Delete Used Estimates

**Edit:**  
New Revision  
Delete Revision  
Update  
Update With Actuals  
Import Estimates  
Version Compare

**Other:**  
Revision Comments  
Released Dollars  
Substitution  
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Record 1 of 1    < < > > |

Audits

Annual Estimates (Add Entry)

Fund Proj

AT&T-JACK

Revision

1

Credits

\$4,213,810.25

Expenses

\$0.00

Debits

\$0.00

Est Start Date

01/01/2014

Removals

\$142,000.00

Jobbing

\$0.00

Est End Date

06/30/2017

Selected Rows

Attachment OCA 6-100

Dated 8/13/2019

Page 28 of 34

| Fund Proj | Rev Exp Type | Est Change Type | Department            | Bu'dy PR Class | Work Order | Job Task | Description | Current        | Spended Factor | Total        | 2014           | 2015           | 2016         | 2017 |
|-----------|--------------|-----------------|-----------------------|----------------|------------|----------|-------------|----------------|----------------|--------------|----------------|----------------|--------------|------|
| AT&T-JACK |              |                 |                       |                |            |          |             | \$4,563,896.32 | \$3,094.71     | \$442,996.61 | \$3,145,891.00 | \$952,754.00   |              |      |
| Dollars   | 2            | Addition        | FP-Alloc 45-4 - 270   |                |            |          |             | \$9,521.56     | \$9.22         | \$3,822.26   |                | \$3,724.00     | \$1,396.00   |      |
| Dollars   | 3            | Addition        | FP-Alloc 45-4 - 270   |                |            |          |             | \$362,919.97   | \$33.91        | \$23,841.46  |                | \$47,774.00    | \$22,115.00  |      |
| Dollars   | 2            | Addition        | FP-Alloc Mat Inst 270 |                |            |          |             | \$11,905.00    | \$0.00         | \$0.00       |                | \$11,905.00    | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Alloc Mat Inst 270 |                |            |          |             | \$26,151.85    | \$0.00         | \$0,307.85   |                | \$12,541.00    | \$5,693.00   |      |
| Dollars   | 2            | Addition        | FP-Alloc Mat Inst 270 |                |            |          |             | \$15,119.40    | \$260.44       | \$14,120.96  |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Alloc Mat Inst 270 |                |            |          |             | \$166,006.56   | \$945.40       | \$11,911.16  |                | \$196,867.60   | \$45,400.00  |      |
| Dollars   | 2            | Addition        | FP-Exp                |                |            |          |             | \$7,208.07     | \$0.00         | \$2,973.77   |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Exp                |                |            |          |             | \$261.91       | \$42.96        | \$271.25     |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Exp                |                |            |          |             | \$508,832.95   | \$1,211.13     | \$15,426.79  |                | \$150,000.00   | \$68,000.00  |      |
| Dollars   | 3            | Addition        | FP-Exp                |                |            |          |             | \$279,722.00   | \$0.00         | \$17,423.88  |                | \$95,000.00    | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Other AT&T Exp     |                |            |          |             | \$1,100.00     | \$1.44         | \$1,782.45   |                | \$25.00        | \$20.00      |      |
| Dollars   | 3            | Addition        | FP-Other AT&T Exp     |                |            |          |             | \$2,282.95     | \$1.08         | \$2,373.90   |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Outside Svc. Cont  |                |            |          |             | \$3,294,657.77 | \$0.00         | \$146,557.77 |                | \$2,429,000.00 | \$178,000.00 |      |
| Dollars   | 3            | Addition        | FP-Outside Svc. Cont  |                |            |          |             | \$10,000.00    | \$0.00         | \$10,500.00  |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$143.52       | \$0.00         | \$143.52     |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 3            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.00         | \$0.00       |      |
| Dollars   | 2            | Addition        | FP-Vehicle V50        |                |            |          |             | \$0.00         | \$0.00         | \$0.00       |                | \$0.0          |              |      |



Accounting Policy Statement No. 2  
Operations Project Authorization

## Project Authorization Form

### General Information

|                                      |  |
|--------------------------------------|--|
| Date Prepared: 03/30/2016            | Project Title: Jackman – Replace Obsolete Equipment    |
| Company: Eversource NH               | Project ID Number: A16C10                              |
| Organization: NH Operations          | Class(es) of Plant: Distribution                       |
| Project Initiator: Thelma Brown      | Project Category: Reliability                          |
| Project Owner/Manager: Alan Roe      | Project Type: Specific                                 |
| Project Sponsor: James Eilenberger   | Project Purpose: Part of Regulatory Tracked Program? N |
| Estimated in service date: 06/1/2017 | Capital Investment Part of Original Operating Plan? Y  |
| If Transmission Project: N/A         | Supplement to Existing Authorization? Y                |
|                                      | O&M Expenses Part of the Original Operating Plan? N    |

If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and Financial Planning and Analysis (FP&A)

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

### Executive Summary

This project addresses Generation Divestiture issues and the replacement of obsolete equipment at Jackman S/S. When the Jackman S/S work order was originally initiated in 2014, the plan was to replace four oil circuit breakers under the annual OCB Breaker Replacement Project A07X44A for \$1,615,000 of direct charges. The replacement of a capacitor switch and two relays was also included as they are part of targeted obsolete equipment programs.

In early 2015 the decision was made to divest from generation. Currently all relays and controls for the distribution equipment at Jackman S/S are in the generation power house. Once divestiture was announced it was determined that the scope of the work at Jackman S/S should be increased to include the removal of distribution relaying from the generation control house, replacement of electromechanical relays, reconfiguration of some substation bus work and building a new distribution control house which will provide the desired physical separation between the generation facilities and distribution facilities. This additional work increased the cost of the project to \$4,557,000.

This project is being initiated in order to make the Jackman S/S project a stand-alone project and remove it from the annual OCB Breaker Replacement Project. Spending prior to 2016 (\$439K) was for preliminary engineering and materials (Circuit breakers) and was transferred to this new specific Project Number (A16C10).





Accounting Policy Statement No. 2  
Operations Project Authorization

### Project Costs Summary

Note: Dollar values are in thousands

|                              | Prior<br>Authorized* | Prior<br>Spend* | 2016    | 2017+ | Totals  | Supplemental<br>Authorization* |
|------------------------------|----------------------|-----------------|---------|-------|---------|--------------------------------|
| Capital Additions - Direct   | \$                   | \$ 372          | \$2,716 | \$797 | \$3,885 | \$0                            |
| Customer Contribution        | \$                   | \$              | \$0     | \$0   | \$0     | \$0                            |
| Removals net of Salvage      | \$                   | \$              | \$266   | \$77  | \$343   | \$0                            |
| Total - Direct Spending      | \$1,615              | \$ 372          | \$2,982 | \$874 | \$4,228 | \$3,205                        |
| Capital Additions - Indirect | \$                   | \$ 63           | \$183   | \$79  | \$325   | \$0                            |
| Subtotal Request             | \$                   | \$ 435          | \$3,165 | \$953 | \$4,553 | \$0                            |
| AFUDC                        | \$                   | \$ 4            | \$0     | \$0   | \$4     | \$0                            |
| Total Request                | \$                   | \$439           | \$3,165 | \$953 | \$4,557 | \$0                            |

\* to be completed if supplemental authorization is required

### Summary Project Description

#### Circuit Breaker Replacement

At Jackman S/S four existing 34.5kV oil circuit breakers (313, 3173, 311 & 3140) will be removed and replaced with Siemens type SDV7 vacuum breakers. The table below shows the ages of the circuit breakers along with their replacement priority out of 127 breakers left on the system.

| OCB               | Age | Rank |
|-------------------|-----|------|
| Line Breaker 313  | 60  | 28   |
| Line Breaker 3173 | 60  | 33   |
| Line Breaker 311  | 45  | 65   |
| Line Breaker 3140 | 41  | 91   |

To facilitate the future separation of generation and distribution assets, a new 34.5kV bay will be installed adjacent to the 313 line position and the 313 and 3173 line positions will each shift south one position. This shift will generate sufficient space to create a fenced compound for the existing GSU transformer.

#### Capacitor Switcher Replacement

The vacuum capacitor switch is part of a targeted program for replacement. Additionally, to separate the Distribution assets from generation assets the capacitor switch and bank need to be relocated. This relocation has the added benefit of opening up access to the yard on the north side of the substation. Therefore, the existing C22 vacuum capacitor switcher (Allis Chalmers VSC-34) will be removed, relocated and replaced with a new Southern States Cap-switcher along with two sets of new current transformers (CTs). The existing capacitor vacuum switcher outdoor relays and outdoor relay cabinet will be removed and new protection equipment will be installed inside a new control house (see below). Another reason the existing C22 cap bank needs to be removed and relocated is so that the existing overhead strain bus that feeds it can be removed. A replacement 5.4MVAR capacitor bank will be installed.

To allow for the installation of a future bus tie breaker, the existing station service transformer will also be relocated to the ends of the 34.5kV bus.



Accounting Policy Statement No. 2  
Operations Project Authorization

Construction of Control House

With the need to update the control equipment associated with the circuit breaker, capacitor switcher replacements and the need to provide new directional phase and ground overcurrent protection on line positions 313, 3173, 311 and 3140, it was decided that with the impending physical separation of the Eversource distribution and transmission equipment from the generation equipment that a new control house should be constructed.

The protection and control cabinets for the 313, 31713, 311 and 3140 feeder breakers, transformer TB33 & TB61, circuit switchers J33 & J61 and capacitor switcher C22 will be added in the new control house. The GSU transformer breaker TB9 protection and control cabinet will also be added in the new control house.

To accommodate the new control house, the existing TB61 34.5kV strain bus will be relocated using a new underground feed (2-1000kcmil Al).

A new annunciator/communication cabinet, GPS clock, Teletone line sharing switch, dial-up modem and communication processor will also be included in the new control house. A new GE type D20MX RTU cabinet will be installed to control the Distribution equipment, the existing RTU in the hydro control house will remain to control the hydro generation equipment.

Summary Project Description Table

| (\$000) | Total Project Costs | Amount in Operating Plan | Difference |
|---------|---------------------|--------------------------|------------|
| Capital | \$4,557             | \$5,437                  | (\$880)    |
| O&M     | \$0                 | \$0                      | \$0        |
| Total   | \$4,557             | \$5,437                  | (\$880)    |

The \$5,437K amount in the operating plan was for project #A07X44A, the annual OCB Breaker Replacement Project. This new project A16C10 reflects the funding for A07X44A being transferred in addition to the \$430K that was spent on the Jackman S/S work order prior to 2016.

Project Authorization

| Approver            | Approver Name     | Approver Signature | Date |
|---------------------|-------------------|--------------------|------|
| Project Initiator   | Thelma Brown      |                    |      |
| Project Manager     | Alan Roe          |                    |      |
| Plant Accounting    | Michele Roncaioli |                    |      |
| Manager- S/S Design | Thelma Brown      |                    |      |
| Director            | James Eilenberger |                    |      |
| Sr. Vice President  | Peter Clarke      |                    |      |



## Accounting Policy Statement No. 2 Operations Project Authorization

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### **Overall Justification**

This project addresses the replacement of targeted obsolete equipment including OCBs, electromechanical relays, and capacitor switchers. It is also required to address the divestiture of generation and separation of distribution and generation assets.

### **Project Scope**

Replace 4 Oil Circuit Breakers, electromechanical relays and capacitor switcher. Construct a new control house and reconfigure for separation of generation assets. Reconfiguration includes relocating one breaker and capacitor bank, including steel structure additions and removals.

### **Project Objectives**

Replace obsolete equipment, facilitate the segregation of generation assets, maintain reliability to customers. Reduce the amount of oil on site adjacent to the river.

### **Business Process and / or Technical Improvements**

**Targeted obsolete equipment replacement programs-** Remove 4 of the 127 34.5kV oil circuit breakers left on the system identified to be replaced and other obsolete equipment such as electro mechanical relays.

**Generation divestiture-** Separation of distribution assets from generation assets is targeted to be complete by the completion of divestiture in 2017.

### **Assumptions**

It is assumed that only local permitting is required and these permits will be readily granted.

### **Alternatives Considered**

1. There is a transmission control house that was built in 2008. Adding distribution relay and control equipment in the transmission control house was considered but this would require expansion of the control house. The transmission control house is situated alongside the river and there is insufficient room to expand plus the Transmission control house is located inside the 500 year flood zone. For these reasons it was decided to build a new distribution control house outside of the flood zone.
2. Only replace the OCB as a part of the targeted program. This would leave all relay and control functions in the generation control house. Additionally, the generation control house is small and crowded. Leaving Eversource equipment where it can be operated or damaged by the new generation owner is not preferred.



Accounting Policy Statement No. 2  
Operations Project Authorization

**Project Schedule**

| Milestone/Phase Name | Estimated Completion Date |
|----------------------|---------------------------|
| Engineering RFP      | 03/01/16                  |
| Engineering Award    | 03/29/16                  |
| Engineering Complete | 08/29/16                  |
| Construction Start   | 09/01/16                  |
| In-service date      | 06/01/17                  |

**Financial Evaluation**

| Direct Capital Costs (\$000)                    | Prior | 2016    | 2017  | Total   |
|---|-------|---------|-------|---------|
| Straight Time Labor                             | \$21  | \$192   | \$89  | \$302   |
| Overtime Labor                                  | \$0   | \$0     | \$0   | \$0     |
| Outside Services                                | \$147 | \$2,705 | \$785 | \$3,637 |
| Materials                                       | \$194 | \$85    | \$0   | \$279   |
| Other, including contingency amounts (describe) | \$10  | \$0     | \$0   | \$10    |
| Total   | \$372 | \$2,982 | \$874 | \$4,228 |

| Indirect Capital Costs (\$000)           | Prior | 2016  | 2017 | Total |
|--|-------|-------|------|-------|
| Indirects/Overheads (including benefits) | \$63  | \$183 | \$79 | \$325 |
| Capitalized interest or AFUDC, if any    | 4     | 0     | \$0  | \$4   |
| Total                                    | \$67  | \$183 | \$79 | \$329 |

|                     |       |         |       |         |
|---------------------|-------|---------|-------|---------|
| Total Capital Costs | \$439 | \$3,165 | \$953 | \$4,557 |
|---------------------|-------|---------|-------|---------|

|                 |   |   |     |     |
|-----------------|---|---|-----|-----|
| Total O&M Costs | 0 | 0 | \$0 | \$0 |
|-----------------|---|---|-----|-----|

|                            |              |                |              |              |
|----------------------------|--------------|----------------|--------------|--------------|
| <b>Total Project Costs</b> | <b>\$439</b> | <b>\$3,165</b> | <b>\$953</b> | <b>4,557</b> |
|----------------------------|--------------|----------------|--------------|--------------|



Accounting Policy Statement No. 2  
Operations Project Authorization

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### **Regulatory Approvals**

Anticipated Permits:

- NHDES - Shoreland Permit
- Town of Hillsborough Planning Board - Site Plan Approval
- NH Public Utilities Commission - License to Construct and Maintain Electric Line over Public Waters

### **Risks and Risk Mitigation Plans**

There is a risk that local planning board approval is not forthcoming. To mitigate this risk we have engaged TF Moran to facilitate all of the permitting activities on behalf of Eversource.

The site is congested with little room for establishing site cabins, material laydown areas, etc. It is hoped that existing generation land could be used but in the event this is not available other local property may need to be leased for the duration of the project.

The project timescales are short, any delays to the engineering design or review cycles may impact on the ability to meet the construction schedule. Regular project team meetings will track progress against milestones and the schedule or resources will be adjusted to meet schedule dates.

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 10/28/2019**

**Date of Response: 11/18/2019**

**Request No. TS 2-054**

**Page 1 of 2**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Joseph A. Purington, Lee G. Lajoie**

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**Request:**

Re: Jackman-Replace Obsolete Equipment, #A16C10, OCA 6-100. Please provide the following information for this project:

- a. Re: Justification for Additional Resources at pages 6-8 and pages 10-12: Did Eversource engineers conduct a site visit and site assessment during the initial scoping and designing of the project? If not, why not? Given the referenced complexity of the project, why did Eversource choose a new and inexperienced engineering vendor Altran as opposed to a known and experienced vendor? At what point during construction was Altran's inexperience discovered? Were some or all costs recovered from Altran? Why was the need for a Lead Commissioning Engineer unforeseen during the scoping and estimating process?
- b. Re: Justification for Additional Resources at pages 6-8 and pages 10-12 (continued): Explain why each of the cost items referenced were overlooked during the original scoping and estimating of the project? What specifically drove the indirect cost increase of \$843,000? Were the design/scoping engineers interviewed by Management to determine the root cause for these omissions? If not, why not? If yes, what were the results of those discussions?
- c. Please provide an itemized breakout of overheads, AFUDC, and other costs leading up to the variance.
- d. At any time did Project Managers work with project cost analysts to control cost escalation for this project? If not, why not? If yes, what were the results? Given the monthly reports received by Management, was Management actively involved in controlling the cost escalation of this project? If not why not? If yes, were cost controls put into place?

**Response:**

Clarifications and refinements to the scope and cost estimate in the normal evolution of the project are to be expected and do not constitute "omissions." Eversource Management is informed of such changes in the normal course of monthly project reporting. The preliminary engineering and original estimate did not "fail" to consider these items, nor were the items missed. The engineering and project-cost estimation process is iterative and involves graduated stages of information gathering, assessment, estimation and projections that are refined to a final pre-construction cost based on detailed project plans and detailed cost assessments. The cost estimates derived on the basis of conceptual-level engineering plans and preliminary cost projections are not intended to serve as the basis for final, pre-construction starting points for the project. Therefore, the premise that costs were "overlooked" is false.

- a) Eversource Engineers conducted many site visits during the initial scoping phase and prior to starting the detailed engineering design. Site visits took place with Leidos (engineering consultant)

prior to the original engineering design when the scope of the project was limited to the replacement of the 34.5kV circuit breakers. Once the scope of the project changed to include the Generation Divestiture scope, that design work was cancelled, and the engineering work was re-bid. Site visits were conducted during the re-bidding process and during the detailed engineering phase.

Eversource substation and civil engineers also visited the site to look at relocating the TB61 strain bus and mobile connection needed to relocate the Control House prior to bidding the engineering. During that visit, the Engineers also looked at removing/restructuring the 34.5kV structure near the gate closest to the Hydro building to gain access to all the structures. Eversource transmission line Engineers also conducted a site walk to determine what needed to happen to the structures across the river due to the shifting of conductor alignment.

A pre-bid meeting was held at the Pats Peak Banquet Center on November 16, 2016 (see Attachment TS 2-054 A for Jackman Pre Bid Notes dated 11/16/16) followed by a site visit prior to issuing the Construction contract. Eversource Engineers also visited site during construction as specific issues arose. Some of these visits include:

- TF Moran(site engineering consultant) and representatives from Eversource civil and substation engineering met on site on 2/3/16 to review the conceptual site layout and grading plan prior to submission to the Hillsborough Planning Board on 3/16/16.
- Once the project was handed over to Project Management, a site visit and project kick-off meeting was held on May 26, 2016 (see Attachment TS 2-054 B for the kick off meeting Minutes dated 05/26/16). Representatives from Eversource's Civil, Substation and P&C Engineering groups were present at that meeting along with representatives from Altran. A follow-up site visit with the Eversource engineers and Altran took place in June 2016.
- Eversource transmission line engineering met with TF Moran on 10/20/16 to discuss sag data and survey information needed to complete the river crossing license application.

Eversource had worked with Altran on a previous project in 2014 to install 30 pole top Viper recloser switches. Altran performed well on that project and there was no concern over their capabilities, which is why Altran was invited to participate in the Request for Proposals for the Jackman project.

A technical specification for the Engineering design (see Attachment TS 2-054 C for the Jackman Distribution 2016 Design Scope\_Rev3 dated 11/20/15) was issued to potential bidders in 2016 and six proposals were returned. Each of these proposals was evaluated on their technical merits by members of the project teams and given a score between 1 (does not meet expectations) through 5 (exceed expectations). The four bidders with the lowest prices were also evaluated using a similar scale on their past-experience, ability to meet schedule, proposed team and quality of their execution plan. Altran were chosen because they were the lowest priced, technically qualified bidder (refer to Attachment TS 2-054 D for the Altran MR Exec. Summary and Attachment TS 2-054 E for the Altran MR Request). Altran is a large, full-service Engineering design company that provides expertise in aerospace, automotive, defense, energy, finance, life sciences, railway and telecommunications. Altran employs some 47,000 employees in more than 30 countries. One of

the perceived benefits of using Altran was to increase the supplier base and increase competitive tension amongst engineering design vendors.

Altran's relative inexperience on Eversource projects was known from the outset. However, the project team proposed by Altran contained experienced individuals with strong resumes. As the Jackman project progressed several Altran individuals left the Company and joined Sargent & Lundy following the move of a senior manager from Altran to Sargent & Lundy. Towards the end of the project there were so few original Altran team members remaining from the original team that Eversource did not have confidence in Altran's ability to complete the as-built drawings to the required quality. That portion of Altran's original scope of work was subsequently awarded to TRC.

No cost recovery was sought from Altran. Altran was involved in the Jackman project all the way through engineering design, construction and commissioning. The only activity that was removed from their original scope of work was the production of the final as-built drawings. Based on Altran's bid form, their price for this work was \$3,864 and contractually that would have been the only sum we would be able to recover. It would not be cost effective to try and recover such a small sum (see Attachment TS 2-054 F for the Altran bid form for Jackman and Attachment TS 2-054 G for the Supplemental Approval Form, Section 1. Engineering / Project Management / Permitting).

During the Jackman project, Eversource introduced a change in the way commissioning was managed during capital projects to minimize human performance errors. The change included the requirement to include a Lead Commissioning Engineer ("LCE") on all major projects. The LCE acts as an agent for Eversource and has responsibility for writing commissioning plans, test energization plans and job sequence instructions for electrical Contractors responsible for installation, testing and commissioning activities in accordance with Transmission Acceptance Testing Procedure SUB 202. This requirement was introduced following several inadvertent trips during testing. Since this change, there has been a significant reduction in the number of inadvertent trips during the testing and commissioning of major capital projects.

- b) Refer to Attachment TS 2-054 H for a general summary of the project life cycle and Eversource project funding and authorization process at the time of the project. This document includes reference to a recent transition to a staged sanctioning process where full project funding authorization is not granted until sufficient engineering and procurement information is available to develop a full project estimate of sufficient accuracy to minimize the need for incremental authorizations during construction.

Construction – some of the designs that Altran created, while electrically sound and safe, did not conform to Eversource's standards or accepted custom and practice with regard to design quality. In those cases, an amount of re-work was done in the field. Examples include the installation of a larger cable pull-box to allow proper access, installation of additional parts to the exhaust fans and modifications to the Bus PT primary connections.

Testing and Commissioning – work on an integrated Transmission and Distribution system is always subject to the availability of outages. There are clear operational guidelines on when outages can be provided considering system operating conditions and the likelihood of loss of Customer load. It is not possible to identify which outages will and will not be available when



estimating the project. In the case of Jackman, the only available outages in some cases were on weekends which was outside of the planned Monday through Friday work schedule and hence overtime costs were incurred.

Labor and Expenses – the safety incident which occurred on March 3, 2017 in which a Contractor was injured and an inadvertent trip which occurred on May 31, 2017 both led to a suspension of work on site. Additional labor was incurred during the incident investigations and to recover the schedule. It is not practical to make allowances for this kind of incident during the initial project cost estimating.

Eversource Supplied material – this change is a reallocation of costs from one line-item to another with no overall change.

Allowances / Contingency – the original estimate included a line item of \$371,090 for specific contingency items i.e. weather-related events, design uncertainty, unforeseen ground conditions and final site remediation costs. As the project moved into Construction, the contingency amounts were allocated to the Construction line item as the contingency amounts were incurred.

Property Taxes – Company property taxes are allocated to projects on an overall company basis. This is a relatively new method of accounting for property tax assessments, so individual project estimates have not historically included that potential allocation.

Miscellaneous / Other – During any project, there can be minor miscellaneous charges that are incurred that cannot be forecast ahead of time. For example, in the case of the Jackman project, the need for pest control services. In addition, there are Miscellaneous Distribution Expenses Capitalized (“MDEC”) overheads that are also allocated to every distribution project. In the case of Jackman, these MDEC charges were included in the original project cost estimate but when the project budget was re-authorized in 2017 this line item was not included in the revised estimate.

Indirect Costs – All Eversource projects are assessed indirect costs from several overhead categories. These include, but are not limited to:

- Internal labor overheads (benefits, etc.)
- Stores (applied to materials ordered through our stock room)
- Engineering and Supervision (E&S)
- Administrative (AS&E)
- AFUDC (cost of money)

Each of these overheads is assessed at a rate defined by the corporation and is applied to the appropriate category of direct costs charged to the project. These rates vary over time and are adjusted with some frequency. Indirect costs are included in each type of project estimate and are based upon the rates at that time and the categories of direct costs anticipated at that time.

Variations in the value of indirect costs can come from four basic sources:

- Variation in overhead rate – generally more of an influence on long duration projects
- Increase (or decrease) in direct project costs – seen as the project scope becomes more well defined and direct costs are known. This can be the result of increase in project scope or higher than expected contract service costs due to market conditions.

- Change from internal resources to contracted (external) resources or vice versa – this would impact the internal labor overheads which are significant, but often comes with an increase or decrease to the direct cost for external labor, ie. true cost of internal labor shows up as a direct labor cost and a labor loader, whereas external labor does not get a labor loader (we are billed a “loaded” rate by vendors). Both will be assessed other applicable overheads such as E&S and AS&E.
- Change from owner furnished to contractor furnished materials – contractor furnished materials will not be assessed the Stores overhead, though usually include a contractor markup. Again, not a large overall difference in project cost, but potentially a noticeable variation in indirect costs.

Though variations (increases) in indirect project costs do not drive the need to secure additional project funding for distribution projects, they do contribute to overall project cost and are included in monthly project forecasting and reporting. The E&S rate tends to be the most volatile and can result in variations in overall indirect cost.

The majority of the contributors to the increase in cost are not related to initial scope development. Since clarifications and refinements to the execution plan or recovery from unplanned project events are not considered omissions.

- c) Refer to Attachment TS 2-054 H for a general summary of the types and variability of indirect project costs.

The indirect cost variance is as follows:

|                         | <b>March 2015<br/>Initial Estimate<br/>\$</b> | <b>February<br/>2016<br/>Full Funding<br/>\$</b> | <b>February 2017<br/>Supplemental<br/>\$</b> | <b>February<br/>2018<br/>Supplemental<br/>\$</b> |
|-------------------------|---|--|--|--|
| Direct Cost             | 1,737,000                                     | 4,228,000  | 5,026,654                                    | 5,895,662  |
| Indirect Cost           | 435,302                                       | 325,000  | 369,012                                      | 1,212,861  |
| Aggregate Indirect Rate | 25%   | 8%   | 7%   | 21%  |
| AFUDC                   | 13,469  | \$4,000  | 4,542  | 46,736   |

The variance in indirect cost from full funding authorization to final Supplemental authorization is driven primarily by an increase in overhead rates and to a lesser degree, increase in direct project cost. When compared to the initial estimate prepared in March 2015, the final indirect costs are more proportional to the direct project cost.

- d) The Project Manager works with all members of the project team including vendors to control the project cost, maintain schedule and ensure the quality of the project. The PM and Cost Analyst formally discuss all projects monthly and have regular on-going informal discussions as project forecasts change. Each invoice submitted is confirmed by the Project Manager, Construction Representative or Engineering as appropriate to confirm that the work is complete. The Cost Analyst confirms if the invoice is valid compared to the original PO amount or subsequent PO

amount following approved change orders. If the invoice is not valid, the invoice is rejected, corrected by the Contractor and re-submitted and reviewed a second time (or third, etc.) prior to approval for payment. Likewise, any change order request is either at the request of Eversource or where it is at the request of the Contractor the change order is reviewed to confirm it is valid and appropriate. When necessary, change order requests are rejected and/or renegotiated prior to approval.

This project was reviewed monthly at the Distribution Capital Project Review meeting. Cost control measures employed by project managers included budget forecasting, weekly and monthly reviews of the project cost, change order review and negotiations with contractors as well as presenting project financials at the monthly Distribution Capital Review and Major Project Group meetings. Project forecast changes were presented and justified to management at these meetings. Impacts to the annual distribution budgets were discussed with respect to cash flow adjustments from year to year. Required cost controls included a requirement to request and secure supplemental funding to complete the project.

funding\_project A16C10

| accounting_work_order |                                   |                                    |  |      | Values          |               |
|-----------------------|-----------------------------------|------------------------------------|--|------|-----------------|---------------|
| der                   | accounting_work_order_descript    | cost_element_description           | Description                                  | year | Sum of quantity | Sum of amount |
| A07X44B2              | Jackman Brkr & Capacitor Switch R | Admin and Eng OH- Acct Use Only    |  | 2014 | 0 \$            | 9.22          |
|                       |                                   |                                    |  | 2015 | 0 \$            | 3,832.36      |
|                       |                                   |                                    |  | 2016 | 0 \$            | 4,691.67      |
|                       |                                   |                                    |  | 2017 | 0 \$            | 74,848.76     |
|                       |                                   |                                    |  | 2018 | 0 \$            | 4,355.18      |
|                       |                                   |                                    |  | 2019 | 0 \$            | 410.30        |
|                       |                                   | AFUDC Debt                         |  | 2014 | 0 \$            | 1.46          |
|                       |                                   |                                    |  | 2015 | 0 \$            | 1,792.45      |
|                       |                                   |                                    |  | 2016 | 0 \$            | 4,723.09      |
|                       |                                   |                                    |  | 2017 | 0 \$            | 24,333.36     |
|                       |                                   |                                    |  | 2018 | 0 \$            | 22,485.47     |
|                       |                                   | AFUDC Equity                       |  | 2014 | 0 \$            | 1.05          |
|                       |                                   |                                    |  | 2015 | 0 \$            | 2,339.90      |
|                       |                                   |                                    |  | 2016 | 0 \$            | 1,245.17      |
|                       |                                   | Alloc- E+S OH Subst- Acct Use Only |  | 2018 | 0 \$            | 6,412.54      |
|                       |                                   |                                    |  | 2019 | 0 \$            | 3,715.08      |
|                       |                                   | Contractor Labor                   |  | 2017 | 0 \$            | -             |
|                       |                                   |                                    | COMENSURA INC                                | 2015 | -26 \$          | 523.44        |
|                       |                                   |                                    |  | 2017 | 61.5 \$         | 5,156.46      |
|                       |                                   |                                    | J P PEST SERVICES INC                        | 2017 | 0 \$            | 84.00         |
|                       |                                   |                                    | PRN #911111020656                            | 2017 | 0 \$            | -             |
|                       |                                   |                                    | PRN-911111020656                             | 2017 | 0 \$            | (2,737.26)    |
|                       |                                   |                                    | RANDSTAD US LP                               | 2017 | 414 \$          | 60,884.79     |
|                       |                                   | Contractor Materials               |  | 2017 | 0 \$            | -             |
|                       |                                   |                                    | E S BOULOS COMPANY                           | 2017 | 2.08 \$         | 719,446.16    |
|                       |                                   |                                    | EMPIRE SHEET METAL INC                       | 2017 | 2 \$            | 48,038.00     |
|                       |                                   | Contractor Services                | CITY OF LEBANON                              | 2017 | 0 \$            | 9,006.75      |
|                       |                                   |                                    | E S BOULOS COMPANY                           | 2017 | 2.24 \$         | 661,438.93    |
|                       |                                   |                                    |  | 2018 | 0 \$            | 142,506.99    |
|                       |                                   |                                    | ENERGY INITIATIVES GROUP LLC                 | 2017 | 0 \$            | 11,180.00     |
|                       |                                   |                                    | I C REED &                                   | 2018 | 0 \$            | 7,029.86      |
|                       |                                   |                                    | I C REED & SONS INC                          | 2015 | 1 \$            | 1,878.36      |
|                       |                                   |                                    |  | 2017 | 2 \$            | 51,070.77     |
|                       |                                   |                                    |  | 2018 | 0 \$            | (3,321.00)    |
|                       |                                   |                                    |  | 2019 | 0 \$            | 7,074.96      |
|                       |                                   |                                    | JOE BRIGHAM INC                              | 2018 | 0 \$            | 4,628.25      |
|                       |                                   |                                    | LOUIS P COTE INC                             | 2017 | 1 \$            | 1,222.25      |
|                       |                                   |                                    | VERMONT RECREATIONAL SURFACING & FENCING INC | 2017 | 2 \$            | 21,639.00     |
|                       |                                   |                                    |  | 2018 | 0 \$            | 27,588.00     |
|                       |                                   | Contractor Services- Other         | WAVEGUIDE INC                                | 2017 | 1 \$            | 3,518.04      |
|                       |                                   |                                    | JOE BRIGHA                                   | 2018 | 0 \$            | 3,628.28      |
|                       |                                   |                                    | JOE BRIGHAM INC                              | 2017 | 0 \$            | 3,628.28      |
|                       |                                   |                                    |  | 2018 | 0 \$            | (3,628.28)    |
|                       |                                   | Contractor- Unit Price             | E S BOULOS                                   | 2018 | 0 \$            | 25,000.00     |
|                       |                                   |                                    | E S BOULOS COMPANY                           | 2017 | 1.68 \$         | 1,342,954.14  |
|                       |                                   |                                    |  | 2018 | 0 \$            | 58,336.03     |
|                       |                                   |                                    | ENVIRONMENTAL SYSTEMS CORP                   | 2018 | 0 \$            | 30,422.76     |
|                       |                                   | Employee Expense Other             |  | 2015 | 0 \$            | 4.00          |
|                       |                                   |                                    |  | 2016 | 0 \$            | 9.00          |
|                       |                                   |                                    |  | 2017 | 0 \$            | 410.13        |
|                       |                                   |                                    |  | 2018 | 0 \$            | 14.00         |
|                       |                                   | Engin and Super OH- Acct Use Only  |  | 2014 | 0 \$            | 39.51         |
|                       |                                   |                                    |  | 2015 | 0 \$            | 22,561.46     |
|                       |                                   |                                    |  | 2016 | 0 \$            | 46,316.53     |
|                       |                                   |                                    |  | 2017 | 0 \$            | 688,257.27    |
|                       |                                   |                                    |  | 2018 | 0 \$            | 116,110.75    |
|                       |                                   | Engineering Design Services        |  | 2017 | 0 \$            | -             |
|                       |                                   |                                    | 0110168 - JACKMAN - SURVEY SVCS              | 2017 | 0 \$            | -             |
|                       |                                   |                                    | ALTRAN SOLUTIONS CORP                        | 2016 | 5 \$            | 256,038.25    |
|                       |                                   |                                    |  | 2017 | 2 \$            | 110,548.57    |
|                       |                                   |                                    | AMERICAN E                                   | 2018 | 0 \$            | 9,816.68      |
|                       |                                   |                                    | AMERICAN ELECTRICAL TESTING CO               | 2017 | 0 \$            | 248,397.72    |

000136

| accounting_work_order | accounting_work_order_description | cost_element_description                 | Description  | year | Sum of quantity | Sum of amount |
|-----------------------|-----------------------------------|--|--|------|-----------------|---------------|
| A07X44B2              | Jackman Brkr & Capacitor Switch R | Engineering Design Services              | AMERICAN ELECTRICAL TESTING CO                                     | 2018 | 0               | \$ (9,210.05) |
|                       |                                   |  | EATON CORP   | 2017 | 1               | \$ 8,302.42   |
|                       |                                   |  | EMPIRE SHEET METAL INC   | 2017 | 0               | \$ -          |
|                       |                                   |  | ENERGY INITIATIVES GROUP LLC                                       | 2015 | 8               | \$ 10,921.41  |
|                       |                                   |  |  | 2016 | 12              | \$ 40,524.51  |
|                       |                                   |  |  | 2017 | 5               | \$ 63,732.11  |
|                       |                                   |  | HDR ENGINEERING INC  | 2017 | 5               | \$ 108,840.08 |
|                       |                                   |  |  | 2018 | 0               | \$ 11,595.88  |
|                       |                                   |  | JACKMAN S/S - REBUILD PROJECT                                      | 2017 | 0               | \$ 17,245.75  |
|                       |                                   |  | JACKMAN S/S PHASE 2 STRUCTURAL STEEL                               | 2017 | 0               | \$ 4,977.00   |
|                       |                                   |  | LEIDOS ENG   | 2018 | 0               | \$ 831.98     |
|                       |                                   |  | LEIDOS ENGINEERING LLC   | 2015 | 7               | \$ 133,093.56 |
|                       |                                   |  |  | 2017 | 0               | \$ 11,106.00  |
|                       |                                   |  |  | 2018 | 0               | \$ 65,560.90  |
|                       |                                   |  | MIDSUN GROUP INC   | 2017 | 0               | \$ -          |
|                       |                                   |  | TF MORAN INC   | 2016 | 9               | \$ 43,405.48  |
|                       |                                   |  |  | 2017 | 11              | \$ 38,758.70  |
|                       |                                   |  |  | 2018 | 0               | \$ 2,964.00   |
|                       |                                   |  | TRC LOCKBOX  | 2015 | 0.01            | \$ 141.00     |
|                       |                                   | Exempt Hours Beyond Schedule-Unpaid      |  | 2016 | 3               | \$ 145.12     |
|                       |                                   | Gen Ser Co Benefit Loader- Acct Use Only |  | 2015 | 0               | \$ 72.25      |
|                       |                                   |  |  | 2016 | 0               | \$ 1,422.22   |
|                       |                                   |  |  | 2017 | 0               | \$ 6,406.67   |
|                       |                                   |  |  | 2018 | 0               | \$ 685.49     |
|                       |                                   |  |  | 2019 | 0               | \$ 177.49     |
|                       |                                   | Labor Overtime Non-Exempt                |  | 2016 | 4.5             | \$ 236.33     |
|                       |                                   |  |  | 2017 | 928.75          | \$ 50,894.34  |
|                       |                                   |  |  | 2018 | 114.75          | \$ 6,373.79   |
|                       |                                   | Labor Premium and Special Exempt         |  | 2017 | 6               | \$ 750.00     |
|                       |                                   | Labor Straight Time Exempt               |  | 2014 | 24              | \$ 1,211.17   |
|                       |                                   |  |  | 2015 | 334.5           | \$ 17,849.96  |
|                       |                                   |  |  | 2016 | 596             | \$ 34,140.45  |
|                       |                                   |  |  | 2017 | 1856.58         | \$ 93,390.15  |
|                       |                                   |  |  | 2018 | 432.5           | \$ 22,171.23  |
|                       |                                   |  |  | 2019 | 14.5            | \$ 830.91     |
|                       |                                   | Labor Straight Time Non-Exempt           |  | 2015 | 49.75           | \$ 1,576.82   |
|                       |                                   |  |  | 2016 | 77              | \$ 2,190.85   |
|                       |                                   |  |  | 2017 | 3169.25         | \$ 116,416.73 |
|                       |                                   |  |  | 2018 | 812.5           | \$ 29,161.53  |
|                       |                                   |  |  | 2019 | 24.5            | \$ 698.75     |
|                       |                                   | Materials- Purchased                     | DATA COMM FOR BUSINESS INC   | 2018 | 0               | \$ 59.26      |
|                       |                                   |  | DCB 3440 Channel Bank to Support Telecom Backhaul                  | 2018 | 1               | \$ 14,520.28  |
|                       |                                   |  | JP MORGAN  | 2018 | 4               | \$ 530.50     |
|                       |                                   |  | JP MORGAN CHASE BANK   | 2015 | 3               | \$ 284.87     |
|                       |                                   |  |  | 2017 | 13              | \$ 3,174.06   |
|                       |                                   |  |  | 2018 | 1               | \$ 320.00     |
|                       |                                   |  | SONET NODE   | 2018 | 1               | \$ 13,437.00  |
|                       |                                   |  | W B MASON CO INC   | 2017 | 7               | \$ 101.05     |
|                       |                                   | Materials- Stores                        | ANCHOR, SINGLE HELIX, 10,000#, 12 IN                               | 2017 | 2               | \$ 81.05      |
|                       |                                   |  | BALL, CLEVIS, Y, HOT LINE TYPE, LONG, GALV STEEL, 30000 LB         | 2017 | 6               | \$ 81.40      |
|                       |                                   |  | BOLT, MACHINE, 3/4 IN, 14 IN L, GALV STEEL, SQ HEAD, W/SQ NUT      | 2017 | 9               | \$ 14.65      |
|                       |                                   |  | BOLT, MACHINE, 3/4 IN, 16 IN L, GALV STEEL, SQ HEAD, W/SQ NUT      | 2017 | 6               | \$ 11.86      |
|                       |                                   |  | BOLT, MACHINE, 3/4 IN, 18 IN L, GALV STEEL, W/SQ NUT               | 2017 | 3               | \$ 6.53       |
|                       |                                   |  | BOLT, MACHINE, 7/8 IN, 14 IN LG, GALV, W/ SQUARE NUT               | 2017 | 2               | \$ 9.12       |
|                       |                                   |  | BREAKER, CIRCUIT, VACUUM TYPE, 38KV, 1200A, 200KV BIL, 1200/5 C400 | 2015 | 4               | \$ 109,784.00 |
|                       |                                   |  | CABINET, 48 FIBER, 4 RU SPLICE/TERM PATCH PANEL, W /SC CONN        | 2017 | 1               | \$ 784.39     |
|                       |                                   |  | CABLE, BARE, 19-#10 AWG, 27M, 19 STR, 3400 FT LG, ALUMOWELD        | 2017 | 737             | \$ 438.43     |
|                       |                                   |  |  | 2018 | -450            | \$ (278.66)   |
|                       |                                   |  | CABLE, BARE, ACSR/AW, 4/0 AWG, 6/1 STR, PENGUIN                    | 2017 | 50              | \$ 22.25      |
|                       |                                   |  | CABLE, BARE, GUY WIRE, 125 FT COIL, ALUMOWELD, ALUMINUM CLAD S     | 2017 | 125             | \$ 47.29      |
|                       |                                   |  | CABLE, BARE, GUY WIRE, 125 FT COIL, ALUMOWELD, ALUMINUM CLAD S     | 2017 | 0               | \$ 0.08       |
|                       |                                   |  | CABLE, COVERED, 62.5 MILS, POLYETHYLENE, SD COPPER, 4/0, (37 STR), | 2017 | 70              | \$ 234.08     |
|                       |                                   |  | CABLE, COVERED, DIST, EPR, 115 MIL, SD CU, 4/0 AWG, COMPRESSED 37  | 2017 | 525             | \$ 1,625.67   |
|                       |                                   |  | CABLE, INSULATED, 1 PH, TRXLPE, 35 KV, AL, 1000 KCMIL, W/CONCENTRI | 2017 | 2116            | \$ 14,150.04  |
|                       |                                   |  | CABLE, INSULATED, CONTROL, 4C, #10 AWG, 7 STR, 600 V, IPCEA METHO  | 2017 | 320             | \$ 499.80     |

| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|-----------------------------------|--|---|------|-----------------|---------------|
| A07X44B2              | Jackman Brkr & Capacitor Switch R | Materials- Stores                          | CLAMP, QUADRANT, ALUMINUM, 3/0 - 795 ACSR, .50 TO 1.20, W/ SOCKET         | 2017 | 6 \$            | 345.33        |
|                       |                                   |  | CLAMP, STRAIN, QUADRANT, 7/16 IN, 0.25-0.57 IN DIA, AL, FOR EHS STATIC    | 2017 | 2 \$            | 26.74         |
|                       |                                   |  | CLEVIS, DEADEND EYELET, GALV, 1-1/2 IN X 3/4 IN                           | 2017 | 3 \$            | 25.85         |
|                       |                                   |  | COMPUTER, SYSTEM, HMI PC, UNO 2473G, WINDOWS 10 OS, 64 GB MSATA           | 2017 | 1 \$            | 725.00        |
|                       |                                   |  | CONNECTOR, WEDGE TAP, SHELL DRIVEN, 556 AAC/ACSR OR 477 ACSR I            | 2017 | 3 \$            | 38.01         |
|                       |                                   |  | CONNECTOR, TEE, 4/0 TO 1113 MCM RUN, BOLTED, AL                           | 2017 | 6 \$            | 382.71        |
|                       |                                   |  | CONNECTOR, TEE, 45 DEG, 4 HOLE 4 IN NEMA PAD, 4/0 TO 1113 ACSR, AL        | 2017 | 6 \$            | 316.44        |
|                       |                                   |  | CONNECTOR, TEE, 477 TO 795 ACSR MAIN, 477 TO 795 ACSR TAP, BOLTED         | 2017 | 9 \$            | 552.87        |
|                       |                                   |  | CONNECTOR, WEDGE TAP, RUN 795 AAC COVERED, TAP 795 AAC COVERED            | 2017 | 3 \$            | 95.53         |
|                       |                                   |  | CONVERTER MODULE, 9-PIN, RS-232 TO RS-485, W/ TRIPLE ISOLATION            | 2017 | 4 \$            | 735.81        |
|                       |                                   |  | COVER, CABLE/BUS, ANIMAL PROTECTION SUBSTATION, 1 INCH INSIDE DIA         | 2017 | 50 \$           | 269.50        |
|                       |                                   |  | DEADEND, AUTOMATIC, LONG BAIL, FOR 7/16" STRAND, GALVANIZED STEEL         | 2017 | 4 \$            | 90.98         |
|                       |                                   |  | DEADEND, AUTOMATIC, SHORT BAIL, FOR 7/16" STRAND GALVANIZED STEEL         | 2017 | 4 \$            | 77.65         |
|                       |                                   |  | GUARD, ANIMAL, BUSHING, SILICONE RUBBER, LARGE                            | 2017 | 24 \$           | 1,321.99      |
|                       |                                   |  | GUARD, ANIMAL, FOR TRANSFORMERS OR TERMINATORS, HOT STICK ACCESS          | 2017 | 15 \$           | 68.62         |
|                       |                                   |  | GUARD, BIRD, DISC STYLE, 2.5 - 5 ID X 16 - 24 OD, GRAY, UV RESISTANT POLY | 2018 | 30 \$           | 2,965.50      |
|                       |                                   |  | INSULATOR, POST, (PINEAPPLE), TIE TOP, POLYETHYLENE, 35KV                 | 2017 | 9 \$            | 377.13        |
|                       |                                   |  | INSULATOR, STRAIN, FIBERGLASS, 78 IN, LT GRAY OR GREEN, ROLLER/C          | 2017 | 3 \$            | 56.91         |
|                       |                                   |  | INSULATOR, SUSPENSION, DEADEND, POLY, 23 IN LONG, 34.5 KV, 378 KV         | 2017 | 6 \$            | 293.65        |
|                       |                                   |  | LABEL, REFLECTIVE, SELF-ADHESIVE, NUMBER 1, 2-7/8 X 1-3/4 IN, YELLOW      | 2018 | 1 \$            | 0.50          |
|                       |                                   |  | LINK, STRAIGHT, GALV STEEL, 5/8 IN, 40,000 LB                             | 2017 | 12 \$           | 57.52         |
|                       |                                   |  | LOCKNUT, 7/8 IN   | 2017 | 2 \$            | 1.04          |
|                       |                                   |  | LUG, COMPRESSION, 5/16 IN STUD, 1/0 AWG STRANDED, 5/16 IN BOLT SIZE       | 2017 | 10 \$           | 9.52          |
|                       |                                   |  | MARKER, GUY, FULL ROUND, PLASTIC, 8 FT L, YELLOW, SPIRAL PIGTAIL          | 2017 | 6 \$            | 17.49         |
|                       |                                   |  | PIN, INSULATOR, LINE POST, 3/4" X 7" SHANK, 8-1/2" OVERALL LENGTH, 5      | 2017 | 9 \$            | 38.76         |
|                       |                                   |  | PLATE, GUY/ POLE EYE, 13/16 IN. BOLT HOLE- 9/16 IN. LAG HOLE, WITH C      | 2017 | 15 \$           | 90.08         |
|                       |                                   |  | RESISTOR, WIRE WOUND, TUBULAR, 25 W, 10 OHM, 5 TOLERANCE,                 | 2018 | 3 \$            | 15.22         |
|                       |                                   |  | ROD, ANCHOR, GALVANIZED STEEL, 1 IN DIA, 7 FT LG, TRIPLE STRAND E         | 2017 | 2 \$            | 44.83         |
|                       |                                   |  | SHACKLE, ANCHOR, 5/8 IN, BOLT/ NUT / KEY, GALV, SCREW PIN, 30,000 LB      | 2017 | 9 \$            | 57.27         |
|                       |                                   |  | SHACKLE, ANCHOR, SCREW PIN, 5/8 IN NOMINAL SIZE, STEEL, GALV, 3000        | 2017 | 2 \$            | 13.13         |
|                       |                                   |  | SIGN, IDENTIFICATION, PHASE, 1, 4 X 4 IN, WHITE ON RED, 4 EYELETS         | 2017 | 2 \$            | 14.68         |
|                       |                                   |  | SIGN, IDENTIFICATION, PHASE, 2, 4 X 4 IN, BLUE ON WHITE, 4 HOLE           | 2017 | 2 \$            | 14.68         |
|                       |                                   |  | SIGN, IDENTIFICATION, PHASE, 3, 4 X 4 IN, WHITE ON BLUE, 4 HOLE           | 2017 | 2 \$            | 14.68         |
|                       |                                   |  | SPEAKER, AMPLIFIED, 10 W, 12 VDC, 8 OHM                                   | 2017 | 2 \$            | 94.71         |
|                       |                                   |  |   | 2018 | 4 \$            | 189.40        |
|                       |                                   |  | SPEAKER, COMMUNICATION, EXTERNAL  | 2017 | 1 \$            | 22.60         |
|                       |                                   |  | SWITCH, CAPSWITCHER, WITH CURRENT TRANSFORMERS AND STEEL, 7               | 2015 | 1 \$            | 84,155.01     |
|                       |                                   |  | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 0.741-0.814 IN DIA, 35 KV, 1    | 2017 | 3 \$            | 2,146.72      |
|                       |                                   |  | SWITCH, DISCONNECT, IN LINE, 900 A CONTINUOUS, 35 KV, 200 KV BIL , 35     | 2017 | 3 \$            | 2,066.28      |
|                       |                                   |  | TAPE, INSULATING, TAPE, SILICONE, 2.5 IN W, 36 IN L, 30 MILS, GRAY        | 2017 | 10 \$           | 361.40        |
|                       |                                   |  | TEE, MOUNTING DEADEND, CURVED BASE, FOR ROUND WOOD                        | 2017 | 1 \$            | 21.84         |
|                       |                                   |  | TERMINAL, 4 HOLE NEMA PAD, 477 TO 795 ACSR MAIN TO 4 IN, BOLTED, C        | 2017 | 48 \$           | 1,853.75      |
|                       |                                   |  | TERMINATOR, CABLE, COLD SHRINK, 1000 MCM, 1.31-2.10 IN D, 35 KV, 2 H      | 2017 | 15 \$           | 2,307.68      |
|                       |                                   |  | TRANSFORMER, STATION SERVICE, CONVENTIONAL, 50KVA, HV, 34500G             | 2017 | 6 \$            | 14,154.00     |
|                       |                                   |  | WASHER, COIL SPRING, GALV STEEL, 3/4 IN                                   | 2017 | 12 \$           | 3.68          |
|                       |                                   |  | WASHER, SQUARE, CURVED, GALVANIZED, 3 IN X 3 IN X 1/4 IN F/ 5/8 OR 3/     | 2017 | 3 \$            | 1.60          |
|                       |                                   |  | WASHER, SQUARE, FLAT 3 X 3 IN X 1/4 IN, GALVANIZED, 13/16 IN HOLE FC      | 2017 | 9 \$            | 11.49         |
|                       |                                   |  | WASHER, SPRING, DOUBLE COIL, W-1, 7/8 IN, GALV, NU STD #MAT W-1           | 2017 | 2 \$            | 1.26          |
|                       |                                   |  | WASHER, SQUARE, CURVED, 7/8 IN BOLT, 4 IN X 4 IN X 1/4 IN SQ, GALV        | 2017 | 2 \$            | 3.08          |
|                       |                                   |  |   | 2016 | 0 \$            | 33.54         |
|                       |                                   |  |   | 2017 | 123 \$          | 2,980.19      |
|                       |                                   |  |   | 2018 | 7 \$            | 120.00        |
|                       |                                   |  |   | 2014 | 0 \$            | 42.56         |
|                       |                                   |  |   | 2015 | 0 \$            | 217.35        |
|                       |                                   |  |   | 2016 | 693 \$          | 481.14        |
|                       |                                   |  |   | 2017 | 943 \$          | 504.53        |
|                       |                                   |  |   | 2018 | 557 \$          | 382.03        |
|                       |                                   |  |   | 2019 | 62 \$           | 35.96         |
|                       |                                   |  |   | 2014 | 0 \$            | 980.44        |
|                       |                                   |  |   | 2015 | 0 \$            | 14,138.96     |
|                       |                                   |  |   | 2016 | 0 \$            | 9,866.77      |
|                       |                                   |  |   | 2017 | 0 \$            | 51,568.07     |
|                       |                                   |  |   | 2018 | 0 \$            | 11,959.92     |
|                       |                                   |  |   | 2019 | 0 \$            | 140.75        |
|                       |                                   |  |   | 2014 | 0 \$            | 183.37        |
|                       |                                   | Meals                                      |   |      |                 |               |
|                       |                                   | Mileage                                    |   |      |                 |               |
|                       |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |   |      |                 |               |
|                       |                                   | Non Productive Time Loader- Acct Use Only  |   |      |                 |               |

| accounting_work_order | accounting_work_order_desc                 | cost_element_description                  | Description  | year | Sum of quantity | Sum of amount   |
|-----------------------|--|---|--|------|-----------------|-----------------|
| A07X44B2              | Jackman Brkr & Capacitor Switch R          | Non Productive Time Loader- Acct Use Only |  | 2015 | 0               | \$ 3,062.46     |
|                       |  |   |  | 2016 | 0               | \$ 6,271.73     |
|                       |  |   |  | 2017 | 0               | \$ 42,494.97    |
|                       |  |   |  | 2018 | 0               | \$ 8,089.13     |
|                       |  |   |  | 2019 | 0               | \$ 221.16       |
|                       | Other Costs                                |   | CONTEST ANALYTICAL LABORATORY                                    | 2017 | 0               | \$ 49.63        |
|                       | Other Outside Services                     |   |  | 2017 | 0               | \$ -            |
|                       |  |   | AERIAL SITE COMMUNICATIONS INC                                   | 2018 | 0               | \$ 4,710.00     |
|                       |  |   | AMERICAN E   | 2018 | 0               | \$ 21,748.20    |
|                       |  |   | AMERICAN ELECTRICAL TESTING CO                                   | 2017 | 0               | \$ 35,924.53    |
|                       |  |   |  | 2018 | 0               | \$ 3,416.41     |
|                       |  |   | BURNS & MCDONNELL  | 2018 | 0               | \$ 48.86        |
|                       |  |   | BURNS & MCDONNELL ENGINEERING                                    | 2018 | 0               | \$ 153.45       |
|                       |  |   | CITY OF LEBANON  | 2017 | 0               | \$ 2,744.00     |
|                       |  |   | CON-TEST ANALYTICAL LABORATORY                                   | 2017 | 1               | \$ 40.53        |
|                       |  |   | EN ENGINEERING LLC   | 2019 | 0               | \$ 8,745.06     |
|                       |  |   | ENERGY INI   | 2018 | 0               | \$ 27,782.94    |
|                       |  |   | ENERGY INITIATIVES GROUP LLC                                     | 2017 | 4               | \$ 212,122.20   |
|                       |  |   |  | 2018 | 0               | \$ 58,791.82    |
|                       |  |   |  | 2019 | 0               | \$ 1,054.68     |
|                       |  |   | I C REED & SONS INC  | 2018 | 0               | \$ 2,299.11     |
|                       |  |   | NWN CORPORATION  | 2017 | 0               | \$ 16,055.30    |
|                       |  |   | PHOENIX COMMUNICATIONS INC                                       | 2018 | 0               | \$ 2,960.35     |
|                       |  |   | TRC ENGINEERS LLC  | 2019 | 0               | \$ 5,414.00     |
|                       |  |   | VERMONT RECREATIONAL SURFACING & FENCING INC                     | 2018 | 0               | \$ 7,077.00     |
|                       |  |   | WILLIAMS-SCOTSMAN  | 2018 | 0               | \$ 716.32       |
|                       | Other Outside Services- Other              |   | ENERGY INITIATIVES GROUP LLC                                     | 2015 | 0               | \$ -            |
|                       |  |   |  | 2016 | 0               | \$ -            |
|                       |  |   |  | 2017 | 0               | \$ -            |
|                       |  |   | LEIDOS ENGINEERING LLC   | 2015 | 0               | \$ -            |
|                       |  |   | TCI OF NY LLC  | 2017 | 0               | \$ 7,200.00     |
|                       |  |   |  | 2018 | 0               | \$ 7,200.00     |
|                       | Payroll Benefit Loader- Acct Use Only      |   |  | 2014 | 0               | \$ 619.03       |
|                       |  |   |  | 2015 | 0               | \$ 8,676.45     |
|                       |  |   |  | 2016 | 0               | \$ 12,800.89    |
|                       |  |   |  | 2017 | 0               | \$ 94,463.56    |
|                       |  |   |  | 2018 | 0               | \$ 22,182.62    |
|                       |  |   |  | 2019 | 0               | \$ 545.25       |
|                       | Property Taxes                             |   |  | 2016 | 0               | \$ 20,318.00    |
|                       |  |   |  | 2017 | 0               | \$ 99,435.28    |
|                       |  |   |  | 2018 | 0               | \$ 88,866.26    |
|                       | Refuse Removal and Recycling               |   | G & S MOTOR EQUIPMENT COMPANY                                    | 2018 | 0               | \$ 15,900.00    |
|                       | Service Company Allocations- Acct Use Only |   |  | 2015 | 0               | \$ -            |
|                       |  |   |  | 2016 | 0               | \$ (0.00)       |
|                       |  |   |  | 2017 | 0               | \$ 0.00         |
|                       |  |   |  | 2018 | 0               | \$ (0.00)       |
|                       |  |   |  | 2019 | 0               | \$ 0.00         |
|                       | Stores Loader- Acct Use Only               |   |  | 2015 | 0               | \$ 8,307.85     |
|                       |  |   |  | 2017 | 0               | \$ 3,945.94     |
|                       |  |   |  | 2018 | 0               | \$ 192.43       |
|                       | Stores over 25K                            |   | CAPACITOR, DISTRIBUTION, BANK, 35KV, 9.960KV, 125% OVERVOLTAGE I | 2017 | 1               | \$ 42,300.00    |
|                       | Unvouchered Liabilities                    |   | 0089213 - JACKMAN DIST.PROJ.MANAG.                               | 2015 | 0               | \$ -            |
|                       |  |   | 0101459 - UNBILLED SERVICES                                      | 2016 | 0               | \$ -            |
|                       |  |   | 0102216 - UNBILLED SERVICES                                      | 2016 | 0               | \$ -            |
|                       |  |   | 0103191 - UNBILLED SERVICES                                      | 2016 | 0               | \$ -            |
|                       |  |   | 0103894 - UNBILLED SERVICES                                      | 2016 | 0               | \$ -            |
|                       |  |   | 0104582 - UNBILLED SERVICES                                      | 2016 | 0               | \$ -            |
|                       |  |   | 0105270 - UNBILLED SERVICES                                      | 2016 | 0               | \$ 118,908.00   |
|                       |  |   |  | 2017 | 0               | \$ (118,908.00) |
|                       |  |   | 0106403 - UNBILLED SERVICES                                      | 2017 | 0               | \$ -            |
|                       |  |   | 0107261 - UNBILLED SERVICES                                      | 2017 | 0               | \$ -            |
|                       | UVL-Contractor Labor                       |   | 0089901 - JACKMAN DIST.PROJ.MANAG.                               | 2015 | 0               | \$ -            |
|                       |  |   | 0090465 - JACKMAN DIST.PROJ.MANAG.                               | 2015 | 0               | \$ -            |
|                       |  |   | 0091111 - JACKMAN DIST.PROJ.MANAG.                               | 2015 | 0               | \$ -            |
|                       |  |   | 0091966 - JACKMAN DIST.PROJ.MANAG.                               | 2015 | 0               | \$ -            |

| accounting_work_order | accounting_work_order_description | cost_element_description              | Description                              | year | Sum of quantity | Sum of amount   |
|-----------------------|-----------------------------------|---------------------------------------|--|------|-----------------|-----------------|
| A07X44B2              | Jackman Brkr & Capacitor Switch R | UVL-Contractor Labor                  | 0092483 - JACKMAN DIST.PROJ.MANAG.       | 2015 | 0 \$            | -               |
|                       |                                   |                                       | 0093186 - JACKMAN DIST.PROJ.MANAG.       | 2015 | 0 \$            | -               |
|                       |                                   |                                       | 0093903 - JACKMAN DIST.PROJ.MANAG.       | 2015 | 0 \$            | -               |
|                       |                                   |                                       | 0094464 - JACKMAN DIST.PROJ.MANAG.       | 2015 | 0 \$            | -               |
|                       |                                   |                                       | 0095295 - JACKMAN DIST.PROJ.MANAG.       | 2015 | 0 \$            | -               |
|                       |                                   |                                       | 0096990 - JACKMAN DIST.PROJ.MANAG.       | 2015 | 0 \$            | 5,280.00        |
|                       |                                   |                                       |  | 2016 | 0 \$            | (5,280.00)      |
|                       |                                   |                                       | 0097426 - JACKMAN DIST.PROJ.MANAG.       | 2016 | 0 \$            | -               |
|                       |                                   |                                       | 0097426 - JACKMAN S/S                    | 2016 | 0 \$            | -               |
|                       |                                   |                                       | 0106167 - JACKMAN S/S PHASE 1 STRUCTURAL | 2017 | 0 \$            | -               |
|                       |                                   |                                       | 0107000 - P&CE SETTINGS                  | 2017 | 0 \$            | -               |
|                       |                                   |                                       | 0109398 - P&C ENGINEERING SUPPORT        | 2017 | 0 \$            | -               |
|                       |                                   |                                       | 0109610 - UVL - ENG00 - 00009            | 2017 | 0 \$            | -               |
|                       |                                   |                                       | 0110006 - UVL - CST00 - 00000            | 2017 | 0 \$            | -               |
|                       |                                   |                                       | 0110006 - UVL - ENG00 - 00009            | 2017 | 0 \$            | -               |
|                       |                                   |                                       | 0110006 - UVL - ENG00 - 00039            | 2017 | 0 \$            | -               |
|                       |                                   |                                       | 0112386 - JACKMAN PHASE 2 STRUCTURAL STE | 2017 | 0 \$            | -               |
|                       |                                   |                                       | 0115414 - UNBILLED SERVICES              | 2017 | 0 \$            | 205,457.00      |
|                       |                                   |                                       |  | 2018 | 0 \$            | (205,457.00)    |
|                       |                                   |                                       | 0116276 - UNBILLED SERVICES              | 2018 | 0 \$            | -               |
|                       |                                   |                                       | 0117218 - UNBILLED SERVICES              | 2018 | 0 \$            | -               |
|                       |                                   |                                       | 0118162 - UNBILLED SERVICES              | 2018 | 0 \$            | -               |
|                       |                                   |                                       | 0119068 - UNBILLED SERVICES              | 2018 | 0 \$            | -               |
|                       |                                   |                                       | 0120094 - UNBILLED SERVICES              | 2018 | 0 \$            | -               |
|                       |                                   |                                       | 0120888 - UNBILLED SERVICES              | 2018 | 0 \$            | -               |
|                       |                                   |                                       | 0121636 - UNBILLED SERVICES              | 2018 | 0 \$            | -               |
|                       |                                   |                                       | 0123946 - UNBILLED SERVICES              | 2018 | 0 \$            | -               |
|                       |                                   |                                       | 0125814 - UNBILLED SERVICES              | 2018 | 0 \$            | 12,000.00       |
|                       |                                   |                                       |  | 2019 | 0 \$            | (12,000.00)     |
|                       |                                   |                                       | 0126558 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0127280 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0128354 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0129219 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0129830 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0130692 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0131417 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0132302 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0133082 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0133982 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0134634 - UNBILLED SERVICES              | 2019 | 0 \$            | -               |
|                       |                                   |                                       | 0135765 - UNBILLED SERVICES              | 2019 | 0 \$            | 1,933.00        |
|                       |                                   |                                       | Jackman Dist.Proj.Manag.                 | 2015 | 0 \$            | 5,280.00        |
|                       |                                   |                                       |  | 2016 | 0 \$            | (5,280.00)      |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only |  | 2016 | 0 \$            | 794.05          |
|                       |                                   |                                       |  | 2017 | 0 \$            | 32,783.37       |
|                       |                                   |                                       |  | 2018 | 0 \$            | 9,505.04        |
|                       |                                   |                                       |  | 2019 | 0 \$            | 1.41            |
|                       |                                   | Vehicles-Class 2                      |  | 2015 | 16 \$           | 143.52          |
|                       |                                   | Vehicles-Class 3                      |  | 2016 | 6 \$            | 114.36          |
| A07X44B2 Total        |                                   |                                       |  |      | 15333.59        | \$ 7,151,858.72 |
| Grand Total           |                                   |                                       |  |      | 15333.59        | \$ 7,151,858.72 |



## Public Service Co of New Hampshire Project Approval Information

|  |   |                    |
|--|---|--------------------|
| <b>Fund Project Number</b> A16E06          | <b>Status</b> in service                  | <b>Revision</b> 18 |
| <b>Project Title</b> West Rye S/S Re-build | <b>Operating Unit</b>                     |                    |
| <b>Initiated By</b> Lynne Godbout          | <b>Initiated Date</b> 11/30/2015 09:35:37 |                    |

|                            |   |
|----------------------------|---|
| <b>Description of Work</b> | West Rye Re-build. Build a new 34-12kV S/S where the 4kV West Rye S/S is now. Use VIPERs for the high and low side protection (Three VIPERs total, one for high side protection and one for each of the two circuits that would be fed out of the new sub). |
| <b>Location</b>            | DIST SUBS - NEW HAMPSHIRE   |

| Project Schedule / Expenditures |                |                | Est Start Date : | 1/1/2016    | Est Complete Date : | 3/31/2018          |
|---------------------------------|----------------|----------------|------------------|-------------|---------------------|--------------------|
| 2016                            | 2017           | 2018           | 2019             | 2020        | Future Years        | Total              |
| \$9,162.28                      | \$1,556,838.00 | \$1,100,118.00 | \$0.00           | \$0.00      | \$0.00              | <u>\$2,666,118</u> |
|                                 | Capital        | Expense        | Removal          | Retirements | Credits             |                    |
| <b>Cost Breakdown</b>           | \$2,616,118    | \$0            | \$50,000         | \$0         | \$0                 | \$2,666,118.28     |

Reason For Work

Background Information

### Approvals

| Level                       | Approver             | Approval Limit | Date Approved |
|-----------------------------|----------------------|----------------|---------------|
| Project Manager             | Brown, Thelma        | \$0            | 9/12/2018     |
| Plant Accounting            | Salbinski, Chris     | \$0            | 9/12/2018     |
| Manager - Investment Pla    | Menard, Erica        | \$50,000       | 9/13/2018     |
| Director - EPAC Chair       | Dipaola-Tromba, John | \$250,000      | 9/14/2018     |
| Director - EPAC Chair       | Wegh, George         | \$250,000      | 9/14/2018     |
| Vice President - Electric P | Purington, Joseph    | \$1,000,000    | 9/16/2018     |
| Sr. VP Electric Engineering | Khan, Aftab          | \$5,000,000    | 9/28/2018     |
| Sr. VP/President - Ops      | Quinlan, William     | \$5,000,000    | 9/28/2018     |



APS 1 - Project Authorization Policy

Supplement Request Form

**Supplement Request Form**  
**Approved at August 29, 2018 EPAC**  
**Link to Meeting Minutes**

|   |   |
|---|---|
| Date Prepared: August 10 <sup>th</sup> , 2018 | Project Title: West Rye Substation Re-build           |
| Company/Companies: Eversource, NH             | Project ID Number: A16E06                             |
| Organization: NH Operations                   | Plant Class/(F.P.Type): Substation                    |
| Project Initiator: Charles Christensen, PE    | Project Type: <i>Specific</i>                         |
| Project Manager: Thelma Brown/Natacha Morales | Capital Investment Part of Original Operating Plan? Y |
| Project Sponsor: James Eilenberger            | O&M Expenses Part of the Original Operating Plan? N/A |
| Current Authorized Amount: \$2,302,118        | In service date(s): 2/14/2018                         |
| Supplement Request: \$364,000                 | Other:  |
| Total Request: \$2,666,118                    |   |

**Supplement Justification**

This project is to replace the existing 1950's vintage 3MVA 34.5 – 4.16kV substation with a 10/12MVA 34.5 – 12.47kV substation. The substation was put in service in February 2018.

The latest supplement was approved in PowerPlan on 2/28 which brought the authorized budget to \$2,302,118,. As of end of June, the project has spent \$2,298,342. The last supplemental did not include the IC Reed's change order due to different factors:

1. The supplement was submitted for the first time in November. There were a couple of iterations to the document between EPAC and the Project team. The supplemental was approved on January 17<sup>th</sup> and approved in PowerPlan on February 28<sup>th</sup>.
2. IC Reed's change order was not submitted until February right before the substation went in service.
3. The change order had to be reviewed by the project team, procurement, steel fabricator, and outside engineering to understand the charges. These reviews were time consuming and were necessary to pursue any kind of refund from outside vendors that caused some of these charges in the change order.

During the last months of construction (Mid-December through February), there were significant issues with the steel for the substation (transformers and other equipment), materials ordered that had different specification from the prints, materials poor handling, and internal/external design. The following factors contributed to the issues mentioned above:

1. Engineering deficiencies both internal and external (\$138,000)
  - a. Switches on high side had unacceptable clearance.
  - b. Steel racks were not designed to hold the pole mounted reclosers.
  - c. Bus was not at correct elevation.
  - d. Poor design/review of the runs from riser to riser.
  - e. Pad design was based on wrong information from transformer vendor.
2. Poor fit of fabricated structural steel by vendor (\$23,000)
3. Installation of animal protection coverage, which was not part of the original scope of work. This directive was a late addition to the project by Operations Management (\$23,000)

# EVERSOURCE

## APS 1 - Project Authorization Policy

## Supplement Request Form

4. Discrepancies in stock coded materials ordered for the project resulting in parts delivered that were different than expected (\$11,500). Some of these materials include:
  - a. Connectors for reclosers.
  - b. Connectors for the bus switch taps.
  - c. Lightning arresters.
  - d. Station service Transformer.
5. Wiring discrepancies in pre-wired junction boxes ordered by Eversource. These junction boxes were ordered pre-wired to the original Eversource drawings which were subsequently redesigned. (\$11,500).
6. True up of P&C construction cost from bid docs to IFC scope, including re – IFC of P&C. The original contract was issued as fixed price for civil and electrical construction. After the IFC's were issued, there were additions to the P&C scope of work which resulted in a re – IFC of the P&C two (2) months later, extending the construction duration and delaying the completion of the project (\$75,000).

The following scope items were not included in the original proposal request:

- a. Installation of the fiber patch panel for communication.
- b. Antenna for radio communications.
- c. Re-wiring of reclosers for the 67W1 and 67W2 lines.
- d. Configuration of the auto – man – remote switch as well as voltage reduction.
- e. Configuration of the station monitoring system.
- f. Animal protection.

All of which were remedied during construction by the construction vendor.

The team and procurement have short paid the engineering firm to compensate for their deficient performance and the engineering firm has re-IFC'd at no cost. Materials management has been notified of the issue of multiple non-identical parts associated with the same stock code and how this can adversely affect project design and construction.

To remedy all the issues mentioned above, extra materials were procured by the contractor (\$26,890).

- Substation: Sheet metal, nuts, washers, pipe, bus support, animal protection.
- P&C: Wall mounted enclosure and latch, panels, couplings, channels, data cable, nylon cable, plastic bushings, conduit, galvanized steel, lighting.

|              |   |                  |
|--------------|---|------------------|
| Construction | <ul style="list-style-type: none"> <li>• Above grade construction (\$207,000)</li> <li>• P&amp;C extra construction (\$75,000)</li> <li>• Materials (\$26,890)</li> </ul> | \$308,890        |
| Loaders      |   | \$55,110         |
| <b>Total</b> |   | <b>\$364,000</b> |

# EVERSOURCE

APS 1 - Project Authorization Policy

Supplement Request Form

## Supplement Cost Summary

Note: Dollar values are in thousands:

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 1,973            | \$ 309                | \$ 2,282        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | 50                  |                       | 50              |
| Total Direct Spending         | \$ 2,023            | \$ 309                | \$ 2,332        |
| Capital Additions - Indirect  | 276                 | 55                    | 331             |
| AFUDC                         | 3                   |                       | 3               |
| Total Capital Request         | \$ 2,302            | \$ 364                | \$ 2,666        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 2,302</b>     | <b>\$ 364</b>         | <b>\$ 2,666</b> |

Note: Dollar values are in thousands:

Total Supplement Request by year view:

|                               | Year 2017   | Year 2018     | Year 20__+  | Total         |
|-------------------------------|-------------|---------------|-------------|---------------|
| Capital Additions - Direct    |             | \$ 309        |             | \$ 309        |
| Less Customer Contribution    | -           | -             | -           | -             |
| Removals net of Salvage ____% |             | -             |             | 50            |
| Total Direct Spending         | \$ -        | \$ 309        | \$ -        | \$ 309        |
| Capital Additions - Indirect  |             | 55            |             | 55            |
| AFUDC                         |             | -             |             | -             |
| Total Capital Request         |             | \$ 364        | \$ -        | \$ 364        |
| O&M                           | -           | -             | -           | -             |
| <b>Total Request</b>          | <b>\$ -</b> | <b>\$ 364</b> | <b>\$ -</b> | <b>\$ 364</b> |

### Actions to prevent recurrence:

The importance of monitoring the status of planned project spend and comparing against the authorized budget is reinforced to all project management staff at weekly staff meetings. Project Managers need to work with project cost analysts on a regular basis to impede projects from exceeding authorized budgets. A proactive approach in controlling project costs is imperative. Management receives reports on a regular basis to identify projects that are approaching authorized spend amounts to facilitate a proactive approach to controlling project costs. Some steps to improve on this:

1. Project Manager to be involved in the estimating process along with Engineering.
2. All DR's must be approved by the Project Manager.
3. Cost Analyst to make sure that overheads and loaders are up to date.
4. Contractors to provide UVL's and invoice in a timely manner.



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Supplement Request Form

5. Project Manager to request supplemental funds before approving any field changes that have not been budgeted in the approved estimate.

Project Manager will be more involved in the estimates created by Engineering as well as the scope of work for projects. Project costs and spend projections will be closely monitored, particularly once updated to include construction bids, bill of materials, and other vendor costs including permitting, environmental, monitoring, testing and commissioning. This will facilitate a more accurate budget for the project. Project Managers need to identify potential budgetary issues and resolve by appropriate means as early as possible. Project Manager will also be more involved in the "In Service Date" proposal with engineering, there needs to be a discussion when the project is in its early stages to discuss the availability of resources, weather, outages, etc. This will avoid having to rush the project deliverables and construction to meet the ISD.

**Minutes**  
**08-29-2018 Meeting**

19. A16E06 – West Rye Substation Re-build – N. Morales – APPROVED FOR \$2,666,118 WITHOUT COMMENTS

## Attendance

| EPAC Role                        | Required Members    | In-Person                           | Phone                               | Voting Designee |
|----------------------------------|---------------------|-------------------------------------|-------------------------------------|-----------------|
| Co-Chair                         | George Wegh         | <input type="checkbox"/>            | <input type="checkbox"/>            | Ray Gagnon      |
| Co-Chair                         | John Dipaola-Tromba | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                 |
| EPAC Administrator               | Farah Omokaro       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                 |
| Projects                         | Tim Revellese       | <input type="checkbox"/>            | <input type="checkbox"/>            | Joe Mayall      |
|                                  | Alexis Ané          | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                 |
| Project Controls                 | Raymond Gagnon      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                 |
| Engineering                      | James Eilenberger   | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | John Case           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
|                                  | John Zicko          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
|                                  | Robert Andrew       | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Rod Kalbfleisch     | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Swapan Dey          | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
| Siting & Compliance              | Robert Clarke       | <input type="checkbox"/>            | <input type="checkbox"/>            | Kate Shanley    |
| Investment Planning              | Leanne Landry       | <input type="checkbox"/>            | <input type="checkbox"/>            | Peter Neidhardt |
| Integrated Planning & Scheduling | Diana Mahoney       | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
| Compliance                       | Vicki O'Leary       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
| Transmission /System Ops         | Barry R. Bruun      | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Brian Dickie        | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
| Field Ops & Field Engineering    | Anthony A. Anzalone | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Rob Bouthiller      | <input type="checkbox"/>            | <input type="checkbox"/>            | Joe Nesdale     |
|                                  | Wayne Gagnon        | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Marc Geaumont       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
|                                  | Mark Blanchard      | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Saurabh Sahni       | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |

| EPAC Role                      | Required Attendees  | In-Person                           | Phone                               |
|--------------------------------|---------------------|-------------------------------------|-------------------------------------|
| Siting                         | Kate Shanley        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Siting & Construction Services | Michelle Gallicchio | <input type="checkbox"/>            | <input type="checkbox"/>            |
| Licensing & Permitting         | Mark Gardella       | <input type="checkbox"/>            | <input type="checkbox"/>            |
| Procurement                    | Craig Dikeman       | <input type="checkbox"/>            | <input type="checkbox"/>            |
|                                | Fran O'Keefe        | <input type="checkbox"/>            | <input type="checkbox"/>            |
| Substation Engineering         | Daniel Foley        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
|                                | Paul Melzen         | <input type="checkbox"/>            | <input type="checkbox"/>            |
|                                | Thelma Brown        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Protection & Controls          | Dennis Western      | <input type="checkbox"/>            | <input type="checkbox"/>            |
|                                | John Babu           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
|                                | Stuart Hollis       | <input type="checkbox"/>            | <input type="checkbox"/>            |
| T Line & Civil Engineering     | Chris Soderman      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
|                                | Mohsen Sahirad      | <input type="checkbox"/>            | <input type="checkbox"/>            |
|                                | Jim Bodkin          | <input type="checkbox"/>            | <input type="checkbox"/>            |
|                                | Jamil Abdullah      | <input type="checkbox"/>            | <input type="checkbox"/>            |
|                                | Donald Dibuono      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Transmission Capital Program   | Glenn Herman        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Budget & Investment            | Peter Neidhardt     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Outage & Ops Planning          | Oswaldo Ortega      | <input type="checkbox"/>            | <input type="checkbox"/>            |
|                                | David Cloutier      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Standards                      | Jen Hebsch          | <input type="checkbox"/>            | <input type="checkbox"/>            |



**Funding Project Information**

New Approval Type:

Budget Version: Working (inactive)

Funding Project: A16E06 Revision: 17

Rev:

Approval Type: FP Transmission - NU Amount: \$2,302,118.28

Status: Approved Sent By: Godbout, Lynne Date Sent: 1/25/2018 Date Appr: 2/28/2018

|                           | Approver             | Required                            | Date Approved | Authority Limit |
|---------------------------|----------------------|-------------------------------------|---------------|-----------------|
| + Project Manager         | Plante, David        | <input checked="" type="checkbox"/> | 1/26/2018     | \$0             |
| + Plant Accounting        | Davis, Sean          | <input checked="" type="checkbox"/> | 1/26/2018     | \$0             |
| + Manager - Trans Capit.  | Menard, Erica        | <input checked="" type="checkbox"/> | 1/26/2018     | \$100,000       |
| + Director - Transmissior | Dipaola-Tromba, John | <input checked="" type="checkbox"/> | 1/29/2018     | \$250,000       |
|                           | Wegh, George         | <input checked="" type="checkbox"/> | 1/29/2018     | \$250,000       |
| + VP - Transmission Proj  | Purington, Joseph    | <input checked="" type="checkbox"/> | 2/1/2018      | \$1,000,000     |
|                           | Sullivan, Stephen    | <input checked="" type="checkbox"/> | 2/2/2018      | \$1,000,000     |
| + President, Transmissio  | Quinlan, William     | <input checked="" type="checkbox"/> | 2/28/2018     | \$5,000,000     |
|                           | Shea_TERMINATED,     | <input checked="" type="checkbox"/> | 2/14/2018     | \$5,000,000     |

Record 1 of 1

**Details**  
 Accounts  
 Departments  
 Contacts  
 Tasks  
 Class Codes  
 Justification  
 Tax Status  
 Authorizations  
 User Comment  
 Review  
 Related FPs



APS 1 - Project Authorization Policy

Supplement Request Form

**Supplement Request Form**  
**Approved at January 17, 2018 EPAC**  
[Link to Meeting Minutes](#)

|   |   |
|---|---|
| Date Prepared: November 28 <sup>th</sup> , 2017 | Project Title: West Rye Substation Re-build           |
| Company/Companies: Eversource, NH               | Project ID Number: A16E06                             |
| Organization: NH Operations                     | Plant Class/(F.P.Type): Distribution Substation       |
| Project Initiator: Charles Christensen, PE      | Project Type: <i>Specific</i>                         |
| Project Manager: Thelma Brown/Natacha Morales   | Capital Investment Part of Original Operating Plan? Y |
| Project Sponsor: James Eilenberger              | O&M Expenses Part of the Original Operating Plan? N/A |
| Current Authorized Amount: \$1,590,000          | Estimated in service date(s): 2/1/2018                |
| Supplement Request: \$712,385                   | Other:  |
| Total Request: \$2,302,385                      |   |

**Supplement Justification**

This project is to replace the existing 1950's vintage 3MVA 34.5 – 4.16kV substation with a 10/12MVA 34.5 – 12.47kV substation.

The PAF for this project was approved in Powerplan in April 2016 for \$1,304,000. The original PAF is attached as well as the first supplemental which was approved in Powerplan in July of 2017 for a supplement request of \$286,000 and a new total request of \$1,590,000. The expected cost to complete the project is now \$2,302,385 which is \$712,385 above the approved project amount.

Since the first supplemental approval, there have been some engineering changes, construction contract was competitively bid and properly awarded and proposals for testing and commissioning have been received. Construction estimates (electrical, substation, P&C) were significantly low in the first supplemental (about \$500,000). Other projects with the same scope of work have averaged construction contracts between \$600,000 – \$750,000, the estimate for the first supplemental only had \$177,009. This was the most significant oversight on the first supplemental and the estimate did not include enough funding for test and commissioning (\$19,990).

ROW clearing and environmental monitoring were not accounted for in the previous supplemental. Please see table below for a breakdown of additional expenses from the first supplemental request.

The first supplemental was presented and written by someone other than the Project Manager and these oversights were not caught during the meeting, which resulted in this additional funding request.

As of the end of November, engineering is complete, major materials were received and the substation is under construction. The substation will be wired and ready for test and commissioning by the end of December. The ISD has been pushed out to the middle of February due to delays related to the 10/30 wind storm restoration and construction issues including steel delivery, transformer delivery, materials being altered in the field, parts of the transformer being replaced, and some wiring re-configurations.



APS 1 - Project Authorization Policy

Supplement Request Form

|                                       | Cost Summary for Supplemental Request  | Change           |
|---------------------------------------|--|------------------|
| Engineering (Internal)                | Design of tap poles to S/S.  | \$30,801         |
| Engineering (contractor)              | <ul style="list-style-type: none"> <li>Modification of GA elevations to include the 3105X line. (not in original scope of work)</li> <li>Additional strain bus off the 12kV mobile connection to provide a tap to the 12kV bus (not in original scope of work).</li> <li>Change of conductor specs.</li> <li>Relocation of reclosers.</li> <li>Additional conduits for powering reclosers (not in original scope of work).</li> <li>Modification of grounding.</li> <li>Equipment vendor information not available.</li> <li>Drawing modifications due to existing field conditions not being accurate on Eversource provided drawings.</li> </ul> | \$31,650         |
| Trimming & ROW clearing               |  | \$9,000          |
| Construction                          | Construction left out of the original estimate and underestimated in the first supplemental  | \$304,981        |
| Soil and sound testing                |  | \$41,000         |
| Permitting & environmental monitoring |  | \$29,000         |
| Surveying                             |  | \$7,500          |
| Testing and commissioning             | Estimate significantly higher than previous estimate   | \$240,100        |
| Loaders                               |  | \$72,034         |
| Materials                             |  | (\$24,079)       |
| PM                                    |  | (\$4,069)        |
| Contingency                           |  | (\$25,853)       |
| <b>Total Supplemental Request</b>     |  | <b>\$712,065</b> |

### Justification for Additional Resources

After engineering was completed and proposals received for construction, test and commissioning, it was apparent that the previous estimate significantly underestimated the value for these services.

### Explanation for Cost Increase

**Labor** – Most of the increase in labor was for construction as well as test and commissioning. The construction contract went through a competitive bidding process and it was awarded to IC Reed for a total amount of \$481,990. The first supplemental estimated construction to be \$177,009. The award is about \$304,981 more than estimated. Test and commissioning proposals total \$260,000. The cost for other outside services including tree clearing, ROW mowing, surveying and environmental monitoring was increased by \$86,500. Project Manager and support as well as contingency reduced by approximately \$30,000. After the start of construction, there were some changes in engineering which increased the

# EVERSOURCE

## APS 1 - Project Authorization Policy

## Supplement Request Form

engineering cost to approximately \$62,000. This covers both internal and external engineering. There were some field conditions that were not captured prior to issuing the IFCs.

**Materials** – This cost was decreased by \$24,000.

**Indirects/AFUDC** – Indirects and AFUDC have also increased by \$72,034. This increase is associated with direct labor and material stock which has overhead costs.

### Supplement Cost Summary

*Note: Dollar values are in thousands:*

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 1,385            | \$ 588                | \$ 1,973        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | -                   | 50.00                 | 50.00           |
| Total Direct Spending         | \$ 1,385            | \$ 638                | \$ 2,023        |
| Capital Additions - Indirect  | 204.00              | 72.00                 | 276.00          |
| AFUDC                         | 1.00                | 1.60                  | 2.60            |
| Total Capital Request         | \$ 1,590            | \$ 712                | \$ 2,302        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 1,590</b>     | <b>\$ 712</b>         | <b>\$ 2,302</b> |

*Note: Dollar values are in thousands:*

Total Supplement Request by year view:

|                               | Year 2017   | Year 20__     | Year 20__ + | Total         |
|-------------------------------|-------------|---------------|-------------|---------------|
| Capital Additions - Direct    |             | \$ 588        |             | \$ 588        |
| Less Customer Contribution    | -           | -             | -           | -             |
| Removals net of Salvage ____% | 50.00       | -             |             | ~50.00        |
| Total Direct Spending         | \$ -        | \$ 638        | \$ -        | \$ 638        |
| Capital Additions - Indirect  |             | 72.00         |             | 72.00         |
| AFUDC                         |             | 1.60          |             | 1.60          |
| Total Capital Request         | \$ -        | \$ 712        | \$ -        | \$ 712        |
| O&M                           | -           | -             | -           | -             |
| <b>Total Request</b>          | <b>\$ -</b> | <b>\$ 712</b> | <b>\$ -</b> | <b>\$ 712</b> |

**ESTIMATE SUMMARY**  
**PSNH**

Project Title: West Rye Substation 70H1 & 70H2 Transformer Replacement

Estimate By: MPD

Project Mgr/Lead: Natacha Morales

Date of Estimate: 11/07/17

Project Number: A16E06

ISD: 12/31/17

TAF # XYZ

Estimate # P17-040 Rev 1

**ESTIMATE SUMMARY**

**ESTIMATE TYPE: Engineering**

|                          | <b>TOTAL</b>                | <b>Prior</b>               | <b>2017</b>        | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021 and<br/>FUTURE</b> |
|--------------------------|-----------------------------|----------------------------|--------------------|-------------|-------------|-------------|----------------------------|
| CONSTRUCTION             | \$568,490                   | \$282,349                  | \$286,141          | \$0         | \$0         | \$0         | \$0                        |
| ENGINEERING/DESIGN       | \$323,509                   | \$323,509                  | \$0                | \$0         | \$0         | \$0         | \$0                        |
| LAND                     | \$0                         | \$0                        | \$0                | \$0         | \$0         | \$0         | \$0                        |
| MATERIAL                 | \$760,709                   | \$154,709                  | \$606,000          | \$0         | \$0         | \$0         | \$0                        |
| PROJECT MGR & SUPPORT    | \$60,642                    | \$60,642                   | \$0                | \$0         | \$0         | \$0         | \$0                        |
| REMOVAL                  | \$50,000                    | \$0                        | \$50,000           | \$0         | \$0         | \$0         | \$0                        |
| TEST                     | \$260,000                   | \$0                        | \$260,000          | \$0         | \$0         | \$0         | \$0                        |
| CONTINGENCY              | \$0                         | \$0                        | \$0                | \$0         | \$0         | \$0         | \$0                        |
| ESCALATION               | \$0                         | \$0                        | \$0                | \$0         | \$0         | \$0         | \$0                        |
| INDIRECTS                | \$276,367                   | \$190,928                  | \$85,439           | \$0         | \$0         | \$0         | \$0                        |
| AFUDC                    | \$2,667                     | \$1,080                    | \$1,587            | \$0         | \$0         | \$0         | \$0                        |
| <b>Total Cost</b>        | <b>\$2,302,385</b>          | <b>\$1,013,218</b>         | <b>\$1,289,167</b> | <b>\$0</b>  | <b>\$0</b>  | <b>\$0</b>  | <b>\$0</b>                 |
| <b>Engineering Range</b> | <b>-10%<br/>\$2,072,146</b> | <b>10%<br/>\$2,532,623</b> |                    |             |             |             |                            |

**COMMENTS:**

**Project Scope:**

Revision 1: Revised estimate for additional costs the result of higher costs than original yestimated for Construction, Testing, Commissioning and indirects.  
 Testing primarily with the addition of a Commissioning engineer increased \$240k from original estimate.  
 Construction with the addition of ROW-trimming, clearing and environmental monitoring and mitigation increased by \$390k above original estimate.  
 The indirect costs due to these increases are \$64k.

The West Rye Substation Rebuild project is being constructed in support of the recommendations presented from the Rye Area Distribution System Study dated March 01, 2013.

The existing West Rye substation currently referred to as #70 will be renamed to West Rye #67 due to a naming conflict with another 34.5-12.47kV substation currently called #70. The two 12.47kV lines emitting from West Rye substation will be named 67W1 & 67W2.

The existing configuration of West Rye substation consisting of two separate 34.5—4.16kV transformers will be replaced with a single 34.5—12.47kV 10/12.5 MVA transformer. The two existing 34.5kV taps of the 3105 line feeding the existing transformers will be removed and a single tap of the 3105X will feed the new transformer.

The station service for the substation will be provided from a single phase 34.5kV-120/240V pole mount transformer tapped to the 34.5kV bus.

**Assumptions:**

Engineering to be outsourced with in-house review, construction to be outsourced.  
 This estimate is based on Actual costs to date and bid costs from outside source contractors, engineers and testing and commissioning , actual quantities may vary during detailed engineering.  
 Material estimates based on actuals and vendor quotes..  
 Labor estimates based on actuals to date and vendor cost estimate quotes.  
 All new equipment will be installed within the confines of the existing fenced yard or ROW  
 No additional allowances have been added for aggressive outage recall times.  
 Estimate includes an average of 0% contingency on Construction direct costs which equates to 0% contingency of total cost.

Docket No. DE 19-057  
Data Request STAFF 12-045  
Dated 9/20/2019  
Attachment STAFF 12-045 AU  
Page 14 of 29

**Minutes**  
**01-17-2018**

11. West Rye Substation – N. Morales – APPROVED FOR \$712,385 (SUPPLEMENT) WITH COMMENTS
- Table on first page needs a title “Cost summary for Supplemental Request.

## Attendance

| EPAC Role                        | Required Members    | In-Person                           | Phone                               | Voting Designee |
|----------------------------------|---------------------|-------------------------------------|-------------------------------------|-----------------|
| Co-Chair                         | George Wegh         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
| Co-Chair                         | John Dipaola-Tromba | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                 |
| EPAC Administrator               | Farah Omokaro       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                 |
| Projects                         | Tim Revellese       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
| Engineering                      | James Eilenberger   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
|                                  | John Case           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                 |
|                                  | John Zicko          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
|                                  | Robert Andrew       | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Rod Kalbfleisch     | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
|                                  | Swapan Dey          | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
| Siting & Compliance              | Robert Clarke       | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
| Investment Planning              | Leanne Landry       | <input type="checkbox"/>            | <input type="checkbox"/>            | Glenn Herman    |
| Integrated Planning & Scheduling | Diana Mahoney       | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
| Compliance                       | Vicki O'Leary       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
| Transmission<br>/System Ops      | Barry R. Bruun      | <input type="checkbox"/>            | <input type="checkbox"/>            | Oswaldo Ortega  |
|                                  | Brian Dickie        | <input type="checkbox"/>            | <input type="checkbox"/>            | Dave Cloutier   |
| Field Ops & Field Engineering    | Anthony A. Anzalone | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Charles Fontenault  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |
|                                  | Donald Boudreau     | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Marc Geaumont       | <input type="checkbox"/>            | <input type="checkbox"/>            | Carol Burke     |
|                                  | Mark Blanchard      | <input type="checkbox"/>            | <input type="checkbox"/>            |                 |
|                                  | Saurabh Sahni       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                 |

| EPAC Role                      | Required Attendees  | In-Person                           | Phone                               | Designee         |
|--------------------------------|---------------------|-------------------------------------|-------------------------------------|------------------|
| Siting                         | Kate Shanley        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                  |
| Siting & Construction Services | Michelle Gallicchio | <input type="checkbox"/>            | <input type="checkbox"/>            | Patrice Tyrie    |
| Licensing & Permitting         | Mark Gardella       | <input type="checkbox"/>            | <input type="checkbox"/>            |                  |
| Procurement                    | Craig Dikeman       | <input type="checkbox"/>            | <input type="checkbox"/>            |                  |
|                                | Fran O'Keefe        | <input type="checkbox"/>            | <input type="checkbox"/>            |                  |
| Substation Engineering         | Daniel Foley        | <input type="checkbox"/>            | <input type="checkbox"/>            |                  |
|                                | Mark Bellandese     | <input type="checkbox"/>            | <input type="checkbox"/>            |                  |
|                                | Thelma Brown        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                  |
| Protection & Controls          | Dennis Western      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                  |
|                                | John Babu           | <input type="checkbox"/>            | <input type="checkbox"/>            | Dominick Fontana |
|                                | Stuart Hollis       | <input type="checkbox"/>            | <input type="checkbox"/>            |                  |
| T Line & Civil Engineering     | Chris Soderman      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                  |
|                                | Mohsen Sahirad      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                  |
|                                | Jim Bodkin          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                  |
|                                | Jamil Abdullah      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                  |
|                                | Donald Dibuno       | <input type="checkbox"/>            | <input type="checkbox"/>            |                  |
| Transmission Capital Program   | Glenn Herman        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                  |
| Budget & Investment            | Peter Neidhardt     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                  |
| Outage & Ops Planning          | Oswaldo Ortega      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                  |
|                                | David Cloutier      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                  |
| Standards                      | Jen Hebsch          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                  |

**Funding Project Information**

New Approval Type:

Budget Version: Working (inactive)

Funding Project: A16E06 Revision: 11

Approval Type: FP PSNH - Distribution - Eng Amount: \$1,590,000.28

Status: Approved Sent By: Herk, Randy Date Sent: 7/7/2017 Date Appr: 7/20/2017

Rev: |< < > >|

Buttons: Send for Approval, Refresh

|                          | Approver            | Required                            | Date Approved | Authority Limit |
|--------------------------|---------------------|-------------------------------------|---------------|-----------------|
| + Project Manager - - -  | Menard, Erica       | <input checked="" type="checkbox"/> | 7/10/2017     | \$0             |
| + Plant Accounting - - - | Salbinski, Chris    | <input checked="" type="checkbox"/> | 7/10/2017     | \$0             |
| + Manager - PSNH Dist    | Brown, Thelma       | <input checked="" type="checkbox"/> | 7/14/2017     | \$100,000       |
| + Director - PSNH Dist   | Eilenberger_TERMINA | <input checked="" type="checkbox"/> | 7/15/2017     | \$250,000       |
| + Sr. VP/President - Ops | Clarke_TERMINATED   | <input checked="" type="checkbox"/> | 7/20/2017     | \$5,000,000     |

Details  
 Accounts  
 Departments  
 Contacts  
 Tasks  
 Class Codes  
 Justification  
 Tax Status  
 Authorizations  
 User Comment  
 Review  
 Related FP's

Audits  
 Delete FP  
 Cancel FP  
 Suspend FP

Estimates  
 Update  
 Print  
 Cancel

Record 1 of 1 |< < > >|





APS 1 - Project Authorization Policy

Supplement Request Form

## Supplement Request Form

|  |   |
|--|---|
| Date Prepared: July 3, 2017                | Project Title: West Rye SS Rebuild                    |
| Company/Companies: Eversource NH           | Project ID Number: A16E06                             |
| Organization: NH Operations                | Plant Class/(F.P.Type):Substation                     |
| Project Initiator: Charles Christensen, PE | Project Type: Specific                                |
| Project Manager: Thelma Brown              | Capital Investment Part of Original Operating Plan? Y |
| Project Sponsor: James Eilenberger         | O&M Expenses Part of the Original Operating Plan? N/A |
| Current Authorized Amount:\$1,304,000      | Estimated in service date(s): 12/31/17                |
| Supplement Request: \$286,000              | Other:  |
| Total Request: \$1,590,000                 |   |

### Supplement Justification

This project is to replace the existing 1950's vintage 3MVA 34.5-4.16kV substation with a 10/12MVA 34.5-12.47kV substation

The PAF for this project was approved in Powerplan in April 2016 for \$1,304,000. The original PAF is attached. Removal and Addition one-lines are attached which confirm the scope of the project is the same but much more detail and engineering is complete.

The expected cost to complete the project is now \$1,590,000 which is \$286,000 above the approved project amount.

|            | PAF Approved Budget | Current Forecast |
|------------|---------------------|------------------|
| Direct     | \$1,040,000         | \$1,395,000      |
| Indirect   | \$246,000           | \$204,000        |
| AFUDC      | \$18,000            | \$1,000          |
| Total      | \$1,304,000         | \$1,590,000      |
| Difference | \$286,000           |                  |

The approved direct costs for this project were \$1,040,000. It is estimated that the final direct costs associated with this project will be \$1,395,000 or 134% of the approved estimate. This increase in direct costs are based on increased internal and external labor and higher than planned material costs.

### Justification for Additional Resources

The cost estimate for this project originally was based on all engineering in-house and minor changes to the site from what exists today. Engineering design has been completed by a contractor which is higher than the labor costs originally forecast. The site design went through several iterations and which also increased the amount of engineering contractor labor. The actual material costs are higher than originally budgeted. All major items were identified but many items such as steel and foundations were not in the original estimate.

Project Number: A16E06

UNESCALATED LINE ITEM DOLLAR

Project Title: West Rye Substation 70H1 & 70H2 Transformer Replacement

| Escalation Rate 3%                             |        | Prior   | 2017        | 2018        | 2019      | 2020    | 2021 and FUTURE | TOTAL       |
|--|--------|---------|-------------|-------------|-----------|---------|-----------------|-------------|
|  |        | MDYS    | MDYS        | MDYS        | MDYS      | MDYS    | MDYS            | MDYS        |
|  |        | DOLLARS | DOLLARS     | DOLLARS     | DOLLARS   | DOLLARS | DOLLARS         | DOLLARS     |
| <b>CSTXX-CONSTRUCTION</b>                      |        |         |             |             |           |         |                 |             |
| Electrical Construction                        | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| General Construction                           | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Transmission Automation                        | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Construction Repts                             | LT     | 0       | \$2,168     | 20          | \$8,329   | 0       | 0               | 20          |
| Support Switch/Tag                             | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| <b>LT Total</b>                                |        | 0       | \$2,168     | 20          | \$8,329   | 0       | 0               | 20          |
| Employee Expenses                              | AE 5%  |         | \$134       | \$416       | \$0       | \$0     | \$0             | \$550       |
| Construction Purchased Material                | AM 1%  |         | \$0         | \$2,730     | \$0       | \$0     | \$0             | \$2,730     |
| Construction Vendor                            | AQ     |         | \$270,112   | \$273,000   | \$0       | \$0     | \$0             | \$543,112   |
| Vehicles                                       | AV 20% |         | \$937       | \$1,660     | \$0       | \$0     | \$0             | \$2,597     |
| Fees and Payments                              | BF     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Rents and Leases                               | BR     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| <b>CSTXX Total</b>                             |        | 0       | \$282,340   | 20          | \$280,141 | 0       | 0               | \$562,481   |
| <b>ENRXX-TG ENGINEERING/DESIGN</b>             |        |         |             |             |           |         |                 |             |
| Project Services/Drafting                      | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Transmission Engineering/Design                | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Civil Engineering/Design                       | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Substation Engineering/Design                  | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Distribution SS Engineering/Design             | LT     | 0       | \$63,287    | 0           | 0         | 0       | 0               | \$63,287    |
| Protection & Controls Engineering              | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Survey Engineering                             | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Telecom Engineering                            | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| <b>LT Total</b>                                |        | 0       | \$63,287    | 0           | 0         | 0       | 0               | \$63,287    |
| Employee Expenses                              | AE 5%  |         | \$622       | \$0         | \$0       | \$0     | \$0             | \$622       |
| Contractor Engineering                         | AQ     |         | \$256,402   | \$0         | \$0       | \$0     | \$0             | \$256,402   |
| Vehicles                                       | AV 3%  |         | \$3,109     | \$0         | \$0       | \$0     | \$0             | \$3,109     |
| <b>ENRXX Total</b>                             |        | 0       | \$332,800   | 0           | 0         | 0       | 0               | \$332,800   |
| <b>LNDXX-TG LAND</b>                           |        |         |             |             |           |         |                 |             |
| Real Estate                                    | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Employee Expenses                              | AE 5%  |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Purchase Land                                  | AM     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Vehicles                                       | AV 3%  |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Fees and Payments                              | BF     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| <b>LNDXX Total</b>                             |        | 0       | \$0         | 0           | 0         | 0       | 0               | \$0         |
| <b>MATXX-TG MATERIAL</b>                       |        |         |             |             |           |         |                 |             |
| See attached                                   | AM     |         | \$142,309   | \$600,000   | \$0       | \$0     | \$0             | \$742,309   |
|  | AM     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
|  | AM     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Freight  | 0%     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Sales Tax                                      | 0%     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Stores Expense Allocation (ZC)                 | 1%     |         | \$12,400    | \$0,000     | \$0       | \$0     | \$0             | \$12,400    |
| <b>MATXX Total</b>                             |        |         | \$154,709   | \$600,000   | \$0       | \$0     | \$0             | \$754,709   |
| <b>PSMXX-PROJECT MANAGER &amp; SUPPORT</b>     |        |         |             |             |           |         |                 |             |
| Project Planning                               | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Project Management                             | LT     | 0       | \$10,408    | 0           | 0         | 0       | 0               | \$10,408    |
| Contracts/Purchasing                           | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Legal  | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Transmission Planning                          | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Environmental                                  | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| <b>LT Total</b>                                |        | 0       | \$10,408    | 0           | 0         | 0       | 0               | \$10,408    |
| Employee Expenses                              | AE 5%  |         | \$318       | \$0         | \$0       | \$0     | \$0             | \$318       |
| Legal Vendor                                   | AV 0%  |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Project Support Vendor Inc Sales Tax           | AQ     |         | \$44,794    | \$0         | \$0       | \$0     | \$0             | \$44,794    |
| Vehicles                                       | AV     |         | \$1,108     | \$0         | \$0       | \$0     | \$0             | \$1,108     |
| Include allowance for Property tax large proj. | AM     |         | \$3,065     | \$0         | \$0       | \$0     | \$0             | \$3,065     |
| Fees and Payments                              | BF     |         | \$250       | \$0         | \$0       | \$0     | \$0             | \$250       |
| <b>PSMXX Total</b>                             |        |         | \$60,642    | \$0         | \$0       | \$0     | \$0             | \$60,642    |
| <b>REMXX-TG REMOVAL</b>                        |        |         |             |             |           |         |                 |             |
| Engineering/Design                             | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| General Construction                           | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| <b>LT Total</b>                                |        | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Employee Expenses                              | AE 15% |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Outside Services                               | AO     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Contractor Labor                               | AQ     |         | \$0         | \$50,000    | \$0       | \$0     | \$0             | \$50,000    |
| Vehicles                                       | AV 20% |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Rents and Leases                               | BR     |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| <b>REMXX Total</b>                             |        |         | \$0         | \$50,000    | \$0       | \$0     | \$0             | \$50,000    |
| <b>TSTXX-TG TEST</b>                           |        |         |             |             |           |         |                 |             |
| Test Labor-In House                            | LT     | 0       | 0           | 0           | 0         | 0       | 0               | 0           |
| Employee Expense                               | AE 10% |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Contractor Test & Commissioning Labor          | AQ     |         | \$0         | \$260,000   | \$0       | \$0     | \$0             | \$260,000   |
| Vehicles                                       | AV 10% |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| <b>TSTXX Total</b>                             |        |         | \$0         | \$260,000   | \$0       | \$0     | \$0             | \$260,000   |
| Project Escalation                             |        |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| Project Contingency                            |        |         | \$0         | \$0         | \$0       | \$0     | \$0             | \$0         |
| <b>TOTAL PROJECT DIRECT COST</b>               |        |         | \$821,209   | \$1,202,141 | \$0       | \$0     | \$0             | \$2,023,350 |
| <b>INDIRECTS</b>                               |        |         |             |             |           |         |                 |             |
| Non-Productive Time Allocation (ZB)            | 17%    |         | \$12,657    | \$1,391     | \$0       | \$0     | \$0             | \$14,048    |
| Payroll Benefits Allocation (ZE)               | 32%    |         | \$26,373    | \$0         | \$0       | \$0     | \$0             | \$26,373    |
| Gen SVC CO OVRHD ALLOC (ZF)                    | 3%     |         | \$22,073    | \$202       | \$0       | \$0     | \$0             | \$22,365    |
| E&S Allocations (ZJ) (25%<20M<3%)              | 12%    |         | \$114,553   | \$71,008    | \$0       | \$0     | \$0             | \$185,561   |
| AS&E Allocations (ZJ)                          | 1%     |         | \$15,272    | \$12,748    | \$0       | \$0     | \$0             | \$28,020    |
| AFUDC (ZK)                                     | 0%     |         | \$1,080     | \$1,587     | \$0       | \$0     | \$0             | \$2,667     |
| <b>Indirects Subtotal</b>                      |        |         | \$192,008   | \$87,026    | \$0       | \$0     | \$0             | \$279,034   |
| <b>TOTAL PROJECT COST</b>                      |        |         | \$1,013,218 | \$1,289,167 | \$0       | \$0     | \$0             | \$2,302,385 |

# EVERSOURCE

APS 1 - Project Authorization Policy

## Supplement Request Form

The 34.5kV ROW work has also been added to the scope of the project. This includes building 4 new poles and associated equipment for a mobile SS high side connection.

### Explanation for Cost Increase

**Labor** – A consultant was utilized for all engineering and design. This costs more than utilizing internal engineering. Several site iterations also increased engineering, siting, and permitting costs. Internal labor did decrease by \$95,000. Outside services, including the contingency budget increased by \$245,000

Estimated Cost Increase \$150,000

**Material** – Major material was included in the original estimate but costs for the transformer, reclosers, and switches is higher than the \$589,000 budgeted. Station service, PTs, site expansion, fencing, grounding, and stoning was not included in the original estimate. Many of these items were identified throughout the design process

Estimated Cost Increase \$196,000

**Indirects / AFUDC** - Indirect and AFUDC charges have are estimated to decrease. Some of the decrease in indirects associated with direct labor. Material stock indirects decreased because of the direct material order items that are limited for overhead costs. Other decreases may be accounted for by calculations in the Powerplan system

Estimated Cost Decrease \$59,000

### Supplement Cost Summary

Note: Dollar values are in thousands:

|                               | Prior<br>Authorized | Supplement<br>Request | Total    |
|-------------------------------|---------------------|-----------------------|----------|
| Capital Additions - Direct    | \$ 1,040            | \$ 345                | \$ 1,385 |
| Less Customer Contribution    | -                   | -                     | -        |
| Removals net of Salvage ____% | -                   | -                     | -        |
| Total Direct Spending         | \$ 1,040            | \$ 345                | \$ 1,385 |
| Capital Additions - Indirect  | 246                 | (42)                  | 204      |
| AFUDC                         | 18                  | (17)                  | 1        |
| Total Capital Request         | \$ 1,304            | \$ 286                | \$ 1,590 |
| O&M                           | -                   | -                     | -        |
| Total Request                 | \$ 1,304            | \$ 286                | \$ 1,590 |

Note: Dollar values are in thousands:

# EVERSOURCE

APS 1 - Project Authorization Policy

## Supplement Request Form

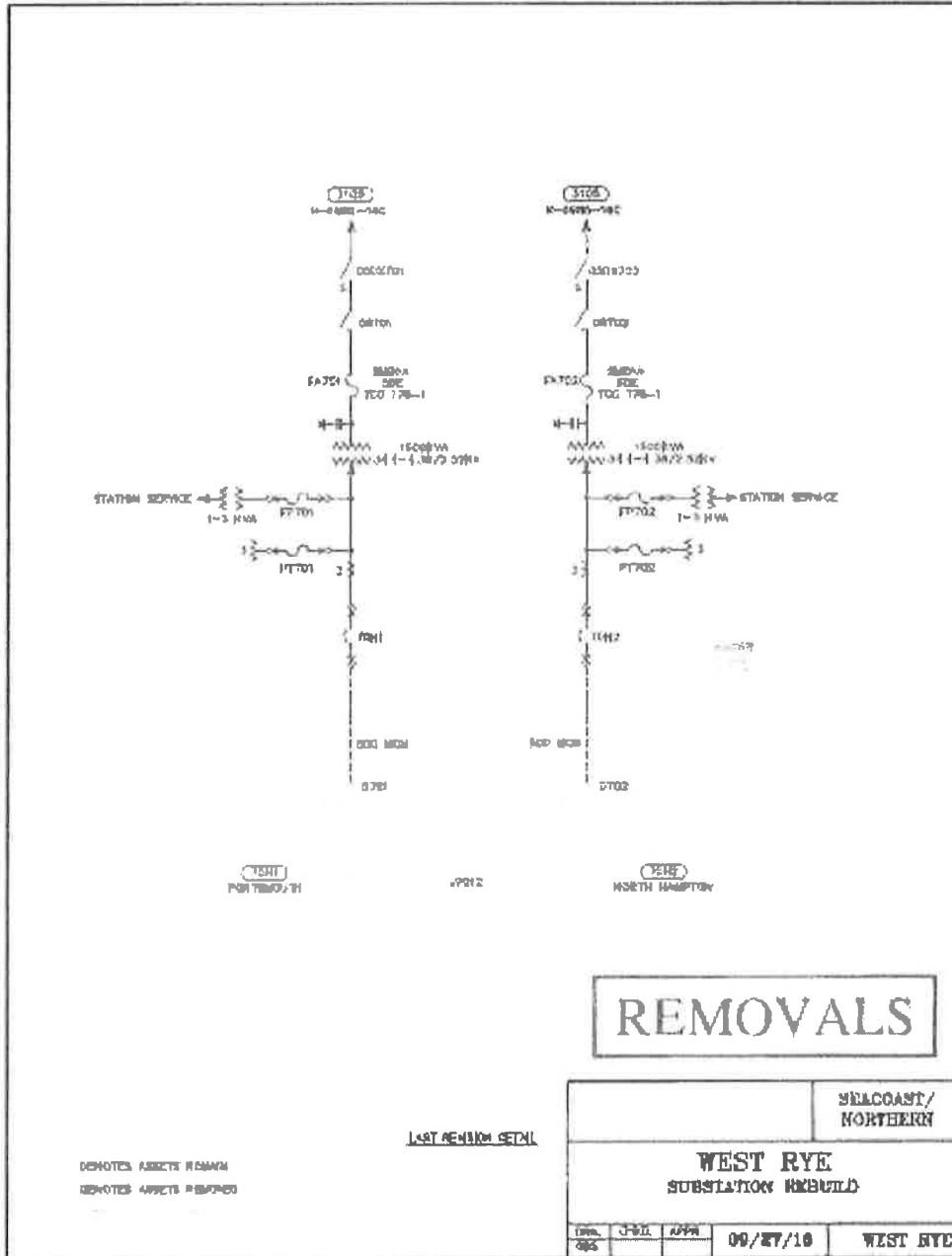
Total Supplement Request by year view:

|                               | Year 2017     | Year 20__   | Year 20__ + | Total         |
|-------------------------------|---------------|-------------|-------------|---------------|
| Capital Additions - Direct    | \$ 345        | \$ -        |             | \$ 345        |
| Less Customer Contribution    | -             | -           | -           | -             |
| Removals net of Salvage ____% | -             | -           | -           | -             |
| Total Direct Spending         | \$ 345        | \$ -        | \$ -        | \$ 345        |
| Capital Additions - Indirect  | (42)          | -           |             | (42)          |
| AFUDC                         | (17)          | -           |             | (17)          |
| Total Capital Request         | \$ 286        | \$ -        | \$ -        | \$ 286        |
| O&M                           | -             | -           | -           | -             |
| <b>Total Request</b>          | <b>\$ 286</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 286</b> |

# EVERSOURCE

APS 1 - Project Authorization Policy

## Supplement Request Form



# EVERSOURCE

APS 1 - Project Authorization Policy

## Supplement Request Form

ADDITIONS

|                                |          |                |
|--------------------------------|----------|----------------|
| WEST RYE<br>SUBSTATION REBUILD |          | NE/<br>EASTERN |
| DATE                           | 03/13/17 | WEST RYE       |

**Funding Project Information**

New Approval Type:

Budget Version: 2016 Working (inactive)

Funding Project: A16E06 Revision: 6

Rev: [K] [←] [→] [I]

Approval Type: FP PSNH - Distribution - Eng Amount: \$1,303,811.12

Status: Approved Sent By: Herk, Randy Date Sent: 3/29/2016 Date Appr: 4/12/2016

Buttons: Send for Approval, Refresh

|                          | Approver            | Required                            | Date Approved | Authority Limit |
|--------------------------|---------------------|-------------------------------------|---------------|-----------------|
| + Project Manager - - -  | Menard, Erica       | <input checked="" type="checkbox"/> | 3/29/2016     | \$0             |
| + Plant Accounting - - - | Roncalio_TERMINATI  | <input checked="" type="checkbox"/> | 4/6/2016      | \$0             |
| + Manager - PSNH Dist    | Brown, Thelma       | <input checked="" type="checkbox"/> | 4/6/2016      | \$100,000       |
| + Director - PSNH Dist   | Eilenberger_TERMINA | <input checked="" type="checkbox"/> | 4/6/2016      | \$250,000       |
| + Sr. VP/President - Ops | Clarke_TERMINATED   | <input checked="" type="checkbox"/> | 4/12/2016     | \$5,000,000     |

Details  
 Accounts  
 Departments  
 Contacts  
 Tasks  
 Class Codes  
 Justification  
 Tax Status  
 Authorizations  
 User Comment  
 Review  
 Related FPs

Audits  
 Delete FP  
 Cancel FP  
 Suspend FP

Estimates  
 Update  
 Print  
 Cancel

Record 1 of 1 [K] [←] [→] [I]



Accounting Policy Statement No. 2  
 Operations Project Authorization

## Project Authorization Form

### General Information

|  |  |
|--|--|
| Date Prepared: 02/26/16                | Project Title: West Rye S/S Rebuild                        |
| Company: Eversource - NH               | Project ID Number: A16E06                                  |
| Organization: NH Operations            | Class(es) of Plant: Distribution                           |
| Project Initiator: Mike Busby          | Project Category: Reliability                              |
| Project Owner/Manager: Celine Bilodeau | Project Purpose: part of regulatory tracked program?<br>No |
| Project Sponsor: Jim Eilenberger       | Project Type: Specific                                     |
| Estimated in service date: 12/31/17    | Capital Investment Part of Original Operating Plan?<br>Yes |
| If Transmission Project: No            | Supplement to Existing Authorization? No                   |
|  | O&M Expenses Part of the Original Operating Plan?<br>No    |

If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and Financial Planning and Analysis (FP&A)

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

### Executive Summary

The existing West Rye substation was built in the late 1950's and is a 34.5kV to 4kV substation with two 1.5MVA transformers and switchgear equipment that have exceeded their life expectancy. Replacement parts for the switchgear air breakers are no longer available. The 1.5MVA transformers have exceeded the 85% of maximum load (TFRAT) ratings and test indicate that gas has been generated within the transformers.

A study was completed for the area in March 2013 (Rye Area Study) which identified the area having loading, low voltage and coordination issues. In order to improve the reliability and voltage issues for the area the substation will be converted to a 34.5kV to 12kV substation. Converting from 4kV to 12kV increases the ability to provide contingent coverage for adjacent circuits. The study looked at maintaining the 4kV system but this was eliminated due to the cost of getting right-of-ways in this affluent area.

The scope of work includes installing a 10MVA transformer and three reclosers. One recloser will be installed on the high side of the transformer providing protection and fault isolation. Two reclosers will be installed on each outgoing 12kV circuit. The scope includes installing a RTU for Distribution Automation.

This PAF covers the substation portion of the overall project. A second PAF (A16E01) has been submitted to cover the line portion of the conversion for \$1,261,108.



| ESTIMATE SUMMARY  |                    |                            |                               |                                 |             |             |                            |
|---|--------------------|----------------------------|-------------------------------|---------------------------------|-------------|-------------|----------------------------|
| PSNH  |                    |                            |                               |                                 |             |             |                            |
| <u>Project Title: West Rye Substation 70H1 &amp; 70H2 Transformer Replacement</u>   |                    |                            |                               | <u>Estimate By: MPD</u>         |             |             |                            |
| <u>Project Mgr/Lead: Natacha Morales</u>  |                    |                            |                               | <u>Date of Estimate: 7/4/17</u> |             |             |                            |
| <u>Project Number: A16E06</u>   |                    |                            |                               | <u>ISD: 12/31/17</u>            |             |             |                            |
| <u>TAF # XYZ</u>  |                    |                            |                               | <u>Estimate # P17-940</u>       |             |             |                            |
| <b>ESTIMATE SUMMARY</b>   |                    |                            |                               |                                 |             |             |                            |
| <b>ESTIMATE TYPE: Engineering</b>   |                    |                            |                               |                                 |             |             |                            |
|   | <b>TOTAL</b>       | <b>Prior to<br/>6/1/17</b> | <b>2017 after<br/>5/31/17</b> | <b>2018</b>                     | <b>2019</b> | <b>2020</b> | <b>2021 and<br/>FUTURE</b> |
| CONSTRUCTION  | \$177,009          | \$2,398                    | \$174,611                     | \$0                             | \$0         | \$0         | \$0                        |
| ENGINEERING/DESIGN  | \$261,058          | \$239,166                  | \$21,892                      | \$0                             | \$0         | \$0         | \$0                        |
| LAND  | \$0                | \$0                        | \$0                           | \$0                             | \$0         | \$0         | \$0                        |
| MATERIAL  | \$784,788          | \$117,410                  | \$667,378                     | \$0                             | \$0         | \$0         | \$0                        |
| PROJECT MGR & SUPPORT   | \$64,711           | \$46,467                   | \$18,244                      | \$0                             | \$0         | \$0         | \$0                        |
| REMOVAL   | \$50,000           | \$0                        | \$50,000                      | \$0                             | \$0         | \$0         | \$0                        |
| TEST  | \$19,990           | \$0                        | \$19,990                      | \$0                             | \$0         | \$0         | \$0                        |
| CONTINGENCY   | \$25,853           | \$0                        | \$25,853                      | \$0                             | \$0         | \$0         | \$0                        |
| ESCALATION  | \$0                | \$0                        | \$0                           | \$0                             | \$0         | \$0         | \$0                        |
| INDIRECTS   | \$204,333          | \$79,015                   | \$125,318                     | \$0                             | \$0         | \$0         | \$0                        |
| AFUDC   | \$1,209            | \$216                      | \$993                         | \$0                             | \$0         | \$0         | \$0                        |
| <b>Total Cost</b>   | <b>\$1,588,952</b> | <b>\$484,672</b>           | <b>\$1,104,279</b>            | <b>\$0</b>                      | <b>\$0</b>  | <b>\$0</b>  | <b>\$0</b>                 |
|   | -10%               | 10%                        |                               |                                 |             |             |                            |
| <b>Engineering Range</b>  | <b>\$1,430,056</b> | <b>\$1,747,847</b>         |                               |                                 |             |             |                            |
| <b>COMMENTS:</b>  |                    |                            |                               |                                 |             |             |                            |
| <b>Project Scope:</b>   |                    |                            |                               |                                 |             |             |                            |
| The West Rye Substation Rebuild project is being constructed in support of the recommendations presented from the Rye Area Distribution System Study dated March 01, 2013.  |                    |                            |                               |                                 |             |             |                            |
| The existing West Rye substation currently referred to as #70 will be renamed to West Rye #67 due to a naming conflict with another 34.5-12.47kV substation currently called #70. The two 12.47kV lines emitting from West Rye substation will be named 67W1 & 67W2.  |                    |                            |                               |                                 |             |             |                            |
| The existing configuration of West Rye substation consisting of two separate 34.5-4.16kV transformers will be replaced with a single 34.5-12.47kV 10/12.5 MVA transformer. The two existing 34.5kV taps of the 3105 line feeding the existing transformers will be removed and a single tap of the 3105X will feed the new transformer. |                    |                            |                               |                                 |             |             |                            |
| The station service for the substation will be provided from a single phase 34.5kV-120/240V pole mount transformer tapped to the 34.5kV bus.  |                    |                            |                               |                                 |             |             |                            |
| <br>  |                    |                            |                               |                                 |             |             |                            |
| <b>Assumptions:</b>   |                    |                            |                               |                                 |             |             |                            |
| Engineering to be outsourced with in-house review, construction to be outsourced.   |                    |                            |                               |                                 |             |             |                            |
| This estimate is based on Project Scope Document only, actual quantities may vary during detailed engineering.  |                    |                            |                               |                                 |             |             |                            |
| Material estimates based on previous work, vendor quotes, and RS Means.   |                    |                            |                               |                                 |             |             |                            |
| Labor estimates based on previous work, J. Bifulco S/S labor units, R.S. Means, and NECA labor units.   |                    |                            |                               |                                 |             |             |                            |
| All new equipment will be installed within the confines of the existing fenced yard or ROW  |                    |                            |                               |                                 |             |             |                            |
| No additional allowances have been added for aggressive outage recall times.  |                    |                            |                               |                                 |             |             |                            |
| Estimate includes an average of 15% contingency on Construction direct costs which equates to 1.5% contingency of total cost.   |                    |                            |                               |                                 |             |             |                            |



Accounting Policy Statement No. 2  
 Operations Project Authorization

**Project Costs Summary**

|                              | Cost (\$000) | Prior<br>Authorized* | 2016 | 2017  | 2018 + | Totals |
|------------------------------|--------------|----------------------|------|-------|--------|--------|
| Capital Additions - Direct   |              |                      | 69   | 921   |        | 990    |
| Customer Contribution        |              |                      |      |       |        |        |
| Removals net of Salvage      |              |                      |      | 50    |        | 50     |
| Total - Direct Spending      | \$ -         |                      | 69   | 971   |        | 1,040  |
| Capital Additions - Indirect |              |                      | 13   | 233   |        | 246    |
| Subtotal Request             | \$ -         |                      | 81   | 1,204 |        | 1,285  |
| AFUDC (half-year convention) |              |                      | 1    | 18    |        | 18     |
| Total Request                | \$ -         |                      | 82   | 1,222 |        | 1,304  |

**Summary Project Description**

The reason for the work at West Rye is to remove the existing obsolete equipment, address the growth, improve the low voltage and reliability. The area will be converted from 4kV to 12kV in the footprint of the existing substation. The two 1.5MVA transformers will be replaced with a single 10/12 MVA transformer. Three (3) Reclosers will be installed; one for the high side transformer protection and one on each (renamed 70W1 & 70W2) 12kV circuits along with a RTU for Distribution Automation.

| Cost (\$000) | Total Project Costs | Amount in<br>Operating Plan | Difference |
|--------------|---------------------|-----------------------------|------------|
| Capital      | \$ 1,304            | \$1,304                     | \$0        |
| O&M          | \$                  | \$0                         | \$         |
| Total        | \$1,304             | \$1,304                     | \$0        |

**Project Authorization**

Project authorization below must be in accordance with the approval levels included in the Delegation of Authority Policy (DOA).

| Approver           | Approver Name      | Approver Signature | Date |
|--------------------|--------------------|--------------------|------|
| Project initiator  | Mike Busby         |                    |      |
| Project manager    | Celine Bilodeau    |                    |      |
| Plant Accounting   | Michelle Roncaioli |                    |      |
| Director           | James Eilenberger  |                    |      |
| Sr. Vice President | Peter Clarke       |                    |      |



Accounting Policy Statement No. 2  
Operations Project Authorization

### Overall Justification

The West Rye S/S is a 1955 vintage 34.5kV to 4.16kV nominal substation. The transformers, 70H1 & 70H2, at West Rye are loaded to 109.3% and 94.7% of their nameplate rating. The load exceeds the TFRAT threshold of 85% to 96% and 92% respectively. Both transformers have been generating gas within the transformers for a number of years.

70H1 (1955 Transformer's vintage) shows a sharp jump of carbon monoxide, & methane and high levels of ethane. Possibly due to a thermal fault of 300 to 700C.

70H2 (1955 Transformer's vintage) shows high levels of Ethylene, Acetylene, Nitrogen and Oxygen; possibly from contact heating.

These gas-in-oil results indicate both transformers potentially have internal concerns that may lead to failure. Based on the age, gassing and loading the transformers should be replaced.

The circuits in the area have been experiencing low voltages. The rebuilt substation will be 34.5kV to 12.47kV. Between the larger transformer and voltage conversion, the voltage issues will be addressed. This project removes obsolete equipment, converts the area to 12kV and adds Distribution Automation.

### Project Scope

Remove two (2) 1.5MVA, 34.4-4.36kV transformers  
Remove two (2) 4kV breakers  
Install one (1) 10/12 MVA, 34.5-12kV transformer  
Install three (3) Reclosers  
Install Distribution Automation

### Project Objectives

Increase capacity at the West Rye S/S  
Convert the substation from 4kV to 12kV  
Improve relay protection and coordination  
Remove obsolete equipment  
Add Distribution Automation

### Business Process and / or Technical Improvements:

Remove obsolete equipment  
Increase capacity  
Improve reliability  
Improve voltage levels  
Implement Distribution Automation

### Assumptions

Loads on the West Rye substation will be off loaded to other circuits during construction.



Accounting Policy Statement No. 2  
Operations Project Authorization

**Alternatives Considered**

Convert area to 34.5kV instead of 12kV; this option was eliminated because this is a heavily treed area with most roads designated as "Scenic" making it difficult to obtain the desired level of tree trimming clearance required for 34.5 kV circuits.

**Project Schedule**

Describe the project schedule and milestones. Include estimated start and end dates.

| Milestone/Phase Name   | Estimated Completion Date |
|------------------------|---------------------------|
| Engineering – start    | 5/1/16                    |
| Engineering – complete | 9/1/16                    |
| Construction - start   | 4/1/17                    |
| In Service             | 6/1/17                    |



Accounting Policy Statement No. 2  
 Operations Project Authorization

**Financial Evaluation**

| Direct Capital Costs (\$000)                    | 2016 | 2017  | 2018 | Total   |
|---|------|-------|------|---------|
| Straight Time Labor                             | \$15 | \$156 | \$   | \$170   |
| Overtime Labor                                  |      |       |      | \$      |
| Outside Services                                | \$   | \$50  | \$   | \$ 50   |
| Materials                                       | \$   | \$589 | \$   | \$589   |
| Other, including contingency amounts (describe) | \$54 | \$176 | \$   | \$230   |
| Total   | \$69 | \$971 | \$   | \$1,040 |

| Indirect Capital Costs (\$000)        | 2016 | 2017  | 2018 | Total |
|---------------------------------------|------|-------|------|-------|
| Benefits / Loaders                    | \$13 | \$233 | \$   | \$246 |
| Capitalized interest or AFUDC, if any | \$1  | \$18  | \$   | \$18  |
| Total                                 | \$13 | 251   | \$   | 264   |

|                     |      |         |    |         |
|---------------------|------|---------|----|---------|
| Total Capital Costs | \$82 | \$1,222 | \$ | \$1,304 |
|---------------------|------|---------|----|---------|

|                 |  |  |  |  |
|-----------------|--|--|--|--|
| Total O&M Costs |  |  |  |  |
|-----------------|--|--|--|--|

|                             |      |         |    |         |
|-----------------------------|------|---------|----|---------|
| Total Project Costs (\$000) | \$82 | \$1,222 | \$ | \$1,304 |
|-----------------------------|------|---------|----|---------|

The project includes contingency funds approximately 17% for cost of removing possible contaminated soils or hazardous foundations as well as the potential increase of contractor cost.

**Regulatory Approvals**

Permitting required by the Town of Rye, N.H.

**Risks and Risk Mitigation Plans**

The plan is to build the substation during the lightly loaded time of the year and off load to other circuits. A mobile substation can be installed if needed.

The soil will be tested near the sample valves for the transformers; cost of soil remediation is included in contingency costs.

The concrete foundations will be tested for asbestos and oil staining; cost of removals is included in the contingency costs.

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 10/28/2019**

**Date of Response: 11/18/2019**

**Request No. TS 2-055**

**Page 1 of 3**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Joseph A. Purington, Lee G. Lajoie**

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**Request:**

Re: West Rye S/S Re-build, #A16E06, 12-045AU: Please provide the following information for this project:

- a. Re: Justification at pages 2-3, 10-12, and 17-19: Explain how the costs listed, including construction costs, were overlooked during the original scoping and estimating for this project. Were the design/scoping engineers interviewed by Management to determine the root cause for these omissions? If not, why not? If yes, what were the results of those discussions? Why was a consultant/contractor engineer hired to perform the work as opposed to Eversource engineers? Was any reimbursement of costs obtained from the consultant engineer? If yes, please provide the supporting accounting information. If not, please explain.
- b. Please provide an itemized breakout of overheads, AFUDC, and other costs leading up to the variance.
- c. Did Eversource engineers conduct a site visit and site assessment during the initial scoping and designing of the project? If not, why not?
- d. At any time did Project Managers work with project cost analysts to control cost escalation for this project? If not, why not? If yes, what were the results? Given the monthly reports received by Management, was Management actively involved in controlling the cost escalation of this project? If not why not? If yes, were cost controls put into place?
- e. Was the Substation Constructability Walk Down Checklist used for this project? If yes, please provide a copy.

**Response:**

Clarifications and refinements to the scope and cost estimate in the normal evolution of the project are to be expected and do not constitute "omissions." Eversource Management is informed of such changes in the normal course of monthly project reporting. The preliminary engineering and original estimate did not "fail" to consider these items, nor were the items missed. The engineering and project-cost estimation process is iterative and involves graduated stages of information gathering, assessment, estimation and projections that are refined to a final pre-construction cost based on detailed project plans and detailed cost assessments. The cost estimates derived on the basis of conceptual-level engineering plans and preliminary cost projections are not intended to serve as the basis for final, pre-construction starting points for the project. Therefore, the premise that costs were "overlooked" is false.

- a) Please refer to Attachment TS 2-055 for a general summary of the project life cycle and Eversource project funding and authorization process at the time of the project. This document

includes reference to a recent transition to a staged sanctioning process where full project funding authorization is not granted until sufficient engineering and procurement information is available to develop a full project estimate of sufficient accuracy to minimize the need for incremental authorizations during construction.

This project went through several iterations of project scope and estimate development as well as funding authorization. The additional costs identified on pages 2-3 of Attachment Staff 12-045AU were largely the result of issues that arose during project execution (poor steel fab, material description redundancies, etc.). These costs could not have been anticipated during original scope development. The use of animal protection devices was not a standard practice when this project was initiated, but became standard during execution. It was determined that the new standard for animal protection would be applied to this project. Late in the process of P&C design but prior to construction, it was determined that several additional items were required to ensure proper functionality of the completed substation and these were added at that time. Situations like this are often encountered during the engineering process and are not considered to be omissions or failures on the part of engineers performing initial scope development.

The additional costs identified on pages 17-19 are related to changes in the resource plan for the project (outsourcing engineering), receipt of manufacturer pricing of major equipment, increased definition through engineering progress of other materials required for the project, and higher than expected cost for site design and permitting. This is not considered abnormal through the project evolution.

An engineering consultant was hired to perform the detailed engineering design for this project due to internal engineering resource constraints. Eversource does not staff its engineering organization to perform the engineering on all projects and routinely outsources design services when necessary.

Eversource did not seek cost reimbursement from the design consultant in this case. It was determined that there was accountability on the part of Eversource as well as the consultant, therefore no claim was warranted.

- b) Refer to Attachment TS 2-055 for a general summary of the types and variability of indirect project costs. The following table summarizes the indirect costs to the project:

|                | Original, \$k | SRF #1, \$k | SRF#2, \$k | SRF#3, \$k | SRF#4, \$k |
|----------------|---------------|-------------|------------|------------|------------|
| Direct Cost    | 1,040         | 1,383       | 2,023      | 2,332      | 2,581      |
| Indirect Cost  | 246           | 204         | 276        | 331        | 607        |
| Aggregate Rate | 24%           | 15%         | 14%        | 14%        | 23%        |
| AFUDC          | 18            | 1           | 3          | 2          | 3          |

The variance in indirect cost is driven primarily by an increase in direct project cost and to a lesser degree by change in individual overhead rates.

- c) A site visit was made by the Substation Engineering Supervisor prior to developing the initial project scope and budget for the project in August 2015. It is standard to conduct a site visit prior to scoping a project.
- d) At the time this project was in execution, it was Eversource's practice to assign dedicated cost analysts to support project managers with cost control, analysis and forecasting for major transmission projects. At the time of this project, cost analyst support for distribution-only projects did not perform all of these functions and was transitioning this practice to fully support major distribution-only projects.

This project was reviewed monthly at the Distribution Capital Project Review meeting. Cost control measures included budget forecasting, weekly and monthly reviews of the project cost, change order review and negotiations with contractors as well as attending the monthly Distribution Capital Review and Major Project Group meetings. Project forecast changes were presented and justified to management at these meetings. Impacts to the annual distribution budgets were discussed with respect to cash flow adjustments from year to year. Required cost controls included a requirement to request and secure supplemental funding to complete the project.

- e) The Substation Constructability Walkdown Checklist, which was still in development at the time of this project and is still not in its final form, was not utilized on this project. The checklist formalizes the activities which are conducted as a process improvement initiative. The intended purpose of this checklist is to aid field construction resources in the transition of projects into the construction phase. The use of this checklist was an outcome of the Lessons Learned from a different project and was not in use on NH projects prior to that time.



funding\_project A16E06

| accounting_work_order | accounting_work_order_description | cost_element_description                 | Description               | year | Values<br>Sum of<br>quantity | Sum of amount   |
|-----------------------|-----------------------------------|--|---------------------------|------|------------------------------|-----------------|
| A16E0601              | WEST RYE SS REBUILD               | Admin and Eng OH- Acct Use Only          |                           | 2016 | 0                            | \$ 90.54        |
|                       |                                   |  |                           | 2017 | 0                            | \$ 17,867.61    |
|                       |                                   |  |                           | 2018 | 0                            | \$ 5,986.01     |
|                       |                                   |  |                           | 2019 | 0                            | \$ 2,296.28     |
|                       |                                   | AFUDC Debt                               |                           | 2016 | 0                            | \$ 10.99        |
|                       |                                   |  |                           | 2017 | 0                            | \$ 1,509.38     |
|                       |                                   |  |                           | 2018 | 0                            | \$ 1,177.42     |
|                       |                                   | Alloc- E+S OH Subst- Acct Use Only       |                           | 2018 | 0                            | \$ 237.58       |
|                       |                                   |  |                           | 2019 | 0                            | \$ (43,998.02)  |
|                       |                                   | Contractor Labor                         |                           | 2018 | 0                            | \$ -            |
|                       |                                   |  | I C REED & SONS INC       | 2019 | 0                            | \$ -            |
|                       |                                   |  |                           | 2018 | 0                            | \$ -            |
|                       |                                   |  |                           | 2019 | 0                            | \$ -            |
|                       |                                   |  | TRC LOCKBOX               | 2017 | 0.04                         | \$ 770.63       |
|                       |                                   | Contractor Materials                     |                           | 2019 | 0                            | \$ -            |
|                       |                                   |  | I C REED &                | 2019 | 0                            | \$ 99,862.00    |
|                       |                                   |  | I C REED & SONS INC       | 2018 | 0                            | \$ 781.31       |
|                       |                                   |  |                           | 2019 | 0                            | \$ 102,912.55   |
|                       |                                   | Contractor Services                      |                           | 2018 | 0                            | \$ -            |
|                       |                                   |  |                           | 2019 | 0                            | \$ -            |
|                       |                                   |  | DOUCET SURVEY INC         | 2017 | 1                            | \$ 6,905.39     |
|                       |                                   |  | I C REED &                | 2018 | 0                            | \$ 211,284.00   |
|                       |                                   |  |                           | 2019 | 0                            | \$ (99,862.00)  |
|                       |                                   |  | I C REED & SONS INC       | 2017 | 0                            | \$ 408,914.00   |
|                       |                                   |  |                           | 2018 | 0                            | \$ 310,203.55   |
|                       |                                   |  |                           | 2019 | 0                            | \$ (102,912.55) |
|                       |                                   | Contractor Services- Other               |                           | 2019 | 0                            | \$ -            |
|                       |                                   |  | I C REED & SONS INC       | 2018 | 0                            | \$ 16,249.58    |
|                       |                                   |  |                           | 2019 | 0                            | \$ (13,066.52)  |
|                       |                                   | Contractor Vehicles + Equip              |                           | 2019 | 0                            | \$ -            |
|                       |                                   |  | I C REED & SONS INC       | 2018 | 0                            | \$ 4,889.48     |
|                       |                                   |  |                           | 2019 | 0                            | \$ (4,149.02)   |
|                       |                                   | Engin and Super OH- Acct Use Only        |                           | 2016 | 0                            | \$ 950.28       |
|                       |                                   |  |                           | 2017 | 0                            | \$ 165,745.57   |
|                       |                                   |  |                           | 2018 | 0                            | \$ 271,611.12   |
|                       |                                   |  |                           | 2019 | 0                            | \$ -            |
|                       |                                   | Engineering Design Services              |                           | 2017 | 0                            | \$ -            |
|                       |                                   |  |                           | 2018 | 0                            | \$ -            |
|                       |                                   |  |                           | 2019 | 0                            | \$ -            |
|                       |                                   |  | Animal Protection         | 2018 | 10497                        | \$ 10,496.75    |
|                       |                                   |  | ELECTRIC POWER SYSTEM INC | 2017 | 0                            | \$ 10,150.00    |
|                       |                                   |  |                           | 2018 | 0                            | \$ 39,249.00    |
|                       |                                   |  | LEIDOS ENGINEERING LLC    | 2017 | 4                            | \$ 274,856.50   |
|                       |                                   |  |                           | 2018 | 0                            | \$ 9,318.50     |
|                       |                                   |  | MIDSUN GROUP INC          | 2018 | 0                            | \$ (209.94)     |
|                       |                                   |  | TRC ENVIRONMENTAL CORP    | 2017 | 2                            | \$ 1,527.50     |
|                       |                                   |  | TRC LOCKBOX               | 2017 | 2                            | \$ 22,555.93    |
|                       |                                   |  |                           | 2018 | 0                            | \$ 3,995.00     |
|                       |                                   | Gen Ser Co Benefit Loader- Acct Use Only |                           | 2016 | 0                            | \$ 265.82       |
|                       |                                   |  |                           | 2017 | 0                            | \$ 4,746.12     |
|                       |                                   |  |                           | 2018 | 0                            | \$ 2,961.10     |
|                       |                                   |  |                           | 2019 | 0                            | \$ -            |
|                       |                                   | General Supplies                         |                           | 2019 | 0                            | \$ -            |
|                       |                                   |  | JP MORGAN CHASE BANK      | 2017 | 1                            | \$ 259.00       |
|                       |                                   | Labor Overtime Non-Exempt                |                           | 2017 | 56.25                        | \$ 3,187.96     |
|                       |                                   |  |                           | 2018 | 34.75                        | \$ 2,011.68     |
|                       |                                   |  |                           | 2019 | 0                            | \$ -            |
|                       |                                   | Labor Straight Time Exempt               |                           | 2016 | 26.5                         | \$ 1,398.73     |
|                       |                                   |  |                           | 2017 | 1519.75                      | \$ 66,390.51    |
|                       |                                   |  |                           | 2018 | 453.5                        | \$ 19,199.32    |
|                       |                                   |  |                           | 2019 | 0                            | \$ -            |
|                       |                                   | Labor Straight Time Non-Exempt           |                           | 2016 | 94.5                         | \$ 3,663.91     |

| accounting_work_order | accounting_work_order_description          | cost_element_description  | Description | year | Sum of quantity | Sum of amount |
|-----------------------|--|---|-------------|------|-----------------|---------------|
| A16E0601              | WEST RYE SS REBUILD                        | Labor Straight Time Non-Exempt  |             | 2017 | 796.75          | \$ 31,125.32  |
|                       |  |   |             | 2018 | 327.5           | \$ 12,628.21  |
|                       |  |   |             | 2019 | 0               | \$ -          |
|                       | Licensing and Permitting                   |   |             | 2017 | 0               | \$ -          |
|                       |  |   |             | 2019 | 0               | \$ -          |
|                       |  | GZA GEO ENVIRONMENTAL INC   |             | 2017 | 2               | \$ 35,425.56  |
|                       |  | GZA GEOENVIRONMENTAL INC  |             | 2017 | 0               | \$ 1,322.28   |
|                       | Materials- Purchased                       |   |             | 2019 | 0               | \$ -          |
|                       |  | JP MORGAN CHASE BANK  |             | 2017 | 1               | \$ 668.40     |
|                       |  | SIGN,WARNING, EVERSOURCE ENERGY SUBSTATION ADDRESS SIGN, BL           |             | 2018 | 1               | \$ 117.93     |
|                       | Materials- Stores                          |   |             | 2019 | 0               | \$ -          |
|                       |  | ADAPTER, COAXIAL, TNC MALE TO TNC FEMALE RIGHT ANGLE RF ADAP          |             | 2017 | 2               | \$ 11.01      |
|                       |  | ANTENNA, COAX CABLE ISOLATION, TYPE - "N", F/F, BULKHEAD CONNEC       |             | 2017 | 1               | \$ 31.88      |
|                       |  | ANTENNA, GPS, LOW PROFILE USED WITH DSCADA RADIO DEVICES              |             | 2017 | 1               | \$ 75.00      |
|                       |  | ANTENNA, JUMPER, CABLE, 3' TWS240NM COAX,ASSEMBLY BY TESSCO           |             | 2017 | 1               | \$ 17.95      |
|                       |  | ANTENNA, YAGI 216-226MHZ 6.5DB, W/C1005 HARDWARE, 25 FT RG213 NM      |             | 2017 | 1               | \$ 401.31     |
|                       |  | BRACKET, CLAMP SET, ANTENNA POLE MOUNT (1"-1.75" OD POLE)             |             | 2017 | 1               | \$ 57.84      |
|                       |  | BRACKET, MOUNT, FOR LOW PROFILE GPS ANTENNA                           |             | 2017 | 1               | \$ 10.88      |
|                       |  | BUSHING,ELECTRICAL, TYPE: O PLUS C II, INTERCHANGEABLE, 400/1200      |             | 2018 | 1               | \$ 1,983.00   |
|                       |  | CABINET, NEMA 4, SINGLE LOCK DOOR, 30"H X 24"WX10"D                   |             | 2017 | 1               | \$ 418.23     |
|                       |  | CABLE, BARE, EXTRA FLEXIBLE ROPE-LAY, #2 AWG CIR.MIL=66, STRAND       |             | 2018 | 10              | \$ 34.62      |
|                       |  | CABLE, C961 COAXIAL, FOR SEL-240 GPS CLOCK, 20 FT                     |             | 2017 | 1               | \$ 56.37      |
|                       |  | CABLE, DATA, DB9M/F, STRAIGHT 10 CONDUCTOR, 6' LENGTH                 |             | 2017 | 8               | \$ 278.47     |
|                       |  | CABLE, DB9M/M, 3 WIRE, DOUBLE SHIELDED, 6', 2-2, 3-3, 5-5             |             | 2017 | 1               | \$ 21.69      |
|                       |  | CABLE, FIBER OPTIC, OPTIC, ST-ST, 62.5 MM, 4 METER, DUPLEX            |             | 2017 | 1               | \$ 26.55      |
|                       |  | CABLE, FIBER OPTIC, SC-ST, MULTIMODE, 2 FIBER, 62.5 M.M., DUPLEX, ZII |             | 2017 | 5               | \$ 131.35     |
|                       |  | CONNECTOR, COAXIAL, BNC T CONNECTOR FEMALE-MALE-FEMALE                |             | 2017 | 10              | \$ 75.00      |
|                       |  | CONNECTOR, COAXIAL, BNC TO TSP CONVERTER, 1 FT LEAD                   |             | 2017 | 10              | \$ 110.00     |
|                       |  | FRAME, RECLOSER, SUBSTATION MOUNT, FOR NOVA TRIPLE SINGLE KN          |             | 2017 | 3               | \$ 5,133.12   |
|                       |  | INSULATOR, STATION POST, 200 KV BIL, W/ TR210                         |             | 2018 | 3               | \$ 218.50     |
|                       |  | INTERFACE, RTU, BASIC, FOR SEL-2401GPS, SEL-3505 AND 2505             |             | 2018 | -1              | \$ (1,257.67) |
|                       |  | INTERFACE, SEL RTU, BASIC, NEMA 4 CABINET, 24VDC UPS, SEL-2401GP      |             | 2017 | 2               | \$ 10,929.16  |
|                       |  | LUG,COMPRESSION, 2 AWG, LONG BARREL, 1 HOLE, TINNED CU                |             | 2018 | 10              | \$ 11.20      |
|                       |  | PIPE,SEAMLESS, BUS, 2 IN, 20 FT LG, SCH 40, AL ALLOY 6063-T6          |             | 2018 | 60              | \$ 218.67     |
|                       |  | RADIO, MOBILE, 215 TO 240 MHZ, VIPER SC PLUS                          |             | 2017 | 1               | \$ 1,370.29   |
|                       |  | RELAY, MODULE, SEL-3505, RTAC RTU, PANEL MOUNT, LOW POWER, AU         |             | 2017 | 1               | \$ 795.00     |
|                       |  | RELAY, TRANSCEIVER, EIA-232 TO FIBER OPTIC WITH IRIG-B, REQUIRES      |             | 2017 | 6               | \$ 774.00     |
|                       |  | RELAY, TRANSCEIVER, EIA-232 TO FIBER OPTIC WITH IRIG-B, REQUIRES      |             | 2017 | 6               | \$ 774.00     |
|                       |  | SIGN,DANGER, HARD HAT AREA, 10 X 14 IN, 0.125 IN POLYCARBONATE, R     |             | 2018 | 5               | \$ 128.65     |
|                       |  | SIGN,DANGER, HIGH VOLTAGE KEEP OUT..., 10 IN H, 14 LG, POLYCARBO      |             | 2018 | 8               | \$ 171.76     |
|                       |  | SIGN,DANGER, LOWER ANTENNA, 7 X 10 IN, 0.125 IN POLYCARBONATE W       |             | 2018 | 4               | \$ 71.84      |
|                       |  | SIGN,NOTICE, APPROVED FR CLOTHING REQUIRED FOR ENTRY..., 14 IN X      |             | 2018 | 5               | \$ 64.05      |
|                       |  | SIGN,WARNING, POSITIVELY NO TRESPASSING, EVERSOURCE LOGO, 10          |             | 2018 | 6               | \$ 154.38     |
|                       |  | SIGN,WARNING, SUBSTATION MINIMUM SAFE WORKING CLEARANCES, 18          |             | 2018 | 5               | \$ 101.05     |
|                       |  | SWITCH,DISCONNECT, 1200 A, 61 KA MOM, 34.5 KV, VERTICAL BREAK, AI     |             | 2017 | 2               | \$ 12,760.00  |
|                       |  | SWITCH,DISCONNECT, 2000 A, 100 KA MOM, 34.5KV, MANUAL OPERATED,       |             | 2017 | 1               | \$ 7,826.00   |
|                       |  | SWITCH,DISCONNECT, IN LINE, 900 A CONTINUOUS, 35 KV, 200 KV BIL, 4/C  |             | 2017 | 3               | \$ 2,040.48   |
|                       |  | TRANSFORMER, STATION SERVICE, CONVENTIONAL, 34500GRDY/19920 H         |             | 2017 | 3               | \$ 7,383.00   |
|                       | Meals                                      |   |             | 2018 | 1               | \$ 20.00      |
|                       |  |   |             | 2019 | 0               | \$ -          |
|                       | Mileage                                    |   |             | 2016 | 286             | \$ 154.44     |
|                       |  |   |             | 2017 | 1909            | \$ 1,099.82   |
|                       |  |   |             | 2018 | 169             | \$ 170.56     |
|                       |  |   |             | 2019 | 0               | \$ -          |
|                       | Misc Dist Exp Capitalized OH-Acct Use Only |   |             | 2016 | 0               | \$ 16.62      |
|                       |  |   |             | 2017 | 0               | \$ 12,547.33  |
|                       |  |   |             | 2018 | 0               | \$ 26,808.14  |
|                       |  |   |             | 2019 | 0               | \$ (6,599.70) |
|                       | Miscellaneous Accounting Adjustments       |   |             | 2019 | 0               | \$ (0.00)     |
|                       | Non Productive Time Loader- Acct Use Only  |   |             | 2016 | 0               | \$ 871.91     |
|                       |  |   |             | 2017 | 0               | \$ 16,155.77  |
|                       |  |   |             | 2018 | 0               | \$ 4,867.18   |
|                       |  |   |             | 2019 | 0               | \$ -          |
|                       | Other Outside Services                     |   |             | 2018 | 0               | \$ -          |
|                       |  |   |             | 2019 | 0               | \$ -          |

| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description  | year | Sum of quantity | Sum of amount   |
|-----------------------|-----------------------------------|--|--|------|-----------------|-----------------|
| A16E0601              | WEST RYE SS REBUILD               | Other Outside Services                     | BURNS & MCDONNELL  | 2018 | 0 \$            | 3,750.29        |
|                       |                                   |  | DOUCET SURVEY INC  | 2017 | 1 \$            | 1,515.61        |
|                       |                                   |  | ELECTRIC POWER SYSTEM INC  | 2018 | 0 \$            | 80,066.64       |
|                       |                                   |  | HIGH VOLTAGE MAINTENANCE   | 2018 | 0 \$            | 150,884.00      |
|                       |                                   | Other Outside Services- Other              |  | 2018 | 0 \$            | -               |
|                       |                                   |  |  | 2019 | 0 \$            | -               |
|                       |                                   |  | EMPIRE SHEET METAL INC   | 2017 | 0 \$            | 49,759.00       |
|                       |                                   | Other Outside Services- Tree Planned       |  | 2018 | 0 \$            | -               |
|                       |                                   |  |  | 2019 | 0 \$            | -               |
|                       |                                   |  | ASPLUNDH TREE EXPERT CO  | 2017 | 5 \$            | 12,077.62       |
|                       |                                   | Payroll Benefit Loader- Acct Use Only      |  | 2016 | 0 \$            | 1,732.06        |
|                       |                                   |  |  | 2017 | 0 \$            | 35,233.76       |
|                       |                                   |  |  | 2018 | 0 \$            | 11,759.25       |
|                       |                                   |  |  | 2019 | 0 \$            | -               |
|                       |                                   | Property Taxes                             |  | 2017 | 0 \$            | 5,306.59        |
|                       |                                   |  |  | 2018 | 0 \$            | 1,197.04        |
|                       |                                   |  |  | 2019 | 0 \$            | -               |
|                       |                                   | Scrap Electric Equipment                   |  | 2019 | 0 \$            | -               |
|                       |                                   |  | MERIDIAN RECYCLING LIMITED   | 2017 | 0 \$            | 8,500.00        |
|                       |                                   | Service Company Allocations- Acct Use Only |  | 2016 | 0 \$            | 0.00            |
|                       |                                   |  |  | 2017 | 0 \$            | 0.00            |
|                       |                                   |  |  | 2018 | 0 \$            | 0.00            |
|                       |                                   | Stores Loader- Acct Use Only               |  | 2017 | 0 \$            | 10,185.50       |
|                       |                                   |  |  | 2018 | 0 \$            | 761.68          |
|                       |                                   |  |  | 2019 | 0 \$            | 3,250.00        |
|                       |                                   | Stores over 25K                            |  | 2019 | 0 \$            | -               |
|                       |                                   |  | RECLOSER, VACUUM, ELECTRONIC, NOVA TRIPLE-SINGLE TYPE KNTS, T      | 2017 | 2 \$            | 54,855.60       |
|                       |                                   |  | RECLOSER, VACUUM, ELECTRONIC, NOVA TRIPLE-SINGLE TYPE KNTS, T      | 2017 | 1 \$            | 31,603.00       |
|                       |                                   |  | XFMR, PWR, LTC, ONAN/ONAF, 34.5 KV DELTA PRIM, 12.47 KV Y SEC, RAT | 2019 | 1 \$            | 523,817.00      |
|                       |                                   | UVL-Contractor Labor                       |  | 2018 | 0 \$            | -               |
|                       |                                   |  |  | 2019 | 0 \$            | -               |
|                       |                                   |  | 0106377 - UVL - PSM00 - 00001                                      | 2017 | 0 \$            | -               |
|                       |                                   |  | 0107189 - UVL - PSM00 - 00001                                      | 2017 | 0 \$            | -               |
|                       |                                   |  | 0108100 - UVL - ENG00 - 00142                                      | 2017 | 0 \$            | -               |
|                       |                                   |  | 0108711 - UVL - ENG00 - 00142                                      | 2017 | 0 \$            | -               |
|                       |                                   |  | 0109645 - UVL - ENG00 - 00142                                      | 2017 | 0 \$            | -               |
|                       |                                   |  | 0109645 - UVL - PSM00 - 00038                                      | 2017 | 0 \$            | -               |
|                       |                                   |  | 0110033 - UVL - ENG00 - 00142                                      | 2017 | 0 \$            | -               |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only      |  | 2016 | 0 \$            | 6.98            |
|                       |                                   |  |  | 2017 | 0 \$            | 7,862.40        |
|                       |                                   |  |  | 2018 | 0 \$            | 3,777.60        |
|                       |                                   |  |  | 2019 | 0 \$            | -               |
| A16E0601 Total        |                                   |  |  |      | 16384.54        | \$ 3,031,000.57 |
| A16E0602              | H3105X 34.5kv Line Construction   | Admin and Eng OH- Acct Use Only            |  | 2017 | 0 \$            | 1,168.86        |
|                       |                                   |  |  | 2018 | 0 \$            | 64.15           |
|                       |                                   |  |  | 2019 | 0 \$            | 153.22          |
|                       |                                   | AFUDC Debt                                 |  | 2017 | 0 \$            | 86.78           |
|                       |                                   |  |  | 2018 | 0 \$            | 60.77           |
|                       |                                   | Alloc- E+S OH Lines- Acct Use Only         |  | 2019 | 0 \$            | 12,911.66       |
|                       |                                   | Contractor Labor                           | I C REED & SONS INC  | 2019 | 0 \$            | -               |
|                       |                                   | Contractor Services                        |  | 2018 | 0 \$            | -               |
|                       |                                   |  | I C REED & SONS INC  | 2017 | 0 \$            | 26,664.04       |
|                       |                                   |  |  | 2018 | 0 \$            | 6,882.58        |
|                       |                                   | Contractor Services- Other                 |  | 2018 | 0 \$            | -               |
|                       |                                   |  | I C REED & SONS INC  | 2017 | 0 \$            | 27,608.69       |
|                       |                                   |  |  | 2019 | 0 \$            | 13,066.52       |
|                       |                                   | Contractor Vehicles + Equip                |  | 2018 | 0 \$            | -               |
|                       |                                   |  | I C REED & SONS INC  | 2017 | 0 \$            | 15,055.89       |
|                       |                                   |  |  | 2019 | 0 \$            | 4,149.02        |
|                       |                                   | Engin and Super OH- Acct Use Only          |  | 2017 | 0 \$            | 14,756.70       |
|                       |                                   |  |  | 2018 | 0 \$            | 3,205.26        |
|                       |                                   | Gen Ser Co Benefit Loader- Acct Use Only   |  | 2017 | 0 \$            | 74.35           |
|                       |                                   | Labor Straight Time Exempt                 |  | 2017 | 42 \$           | 1,925.55        |
|                       |                                   | Labor Straight Time Non-Exempt             |  | 2017 | 20.5 \$         | 675.63          |
|                       |                                   | Lobby Stock Loader-Acct Use Only           |  | 2017 | 0 \$            | 10,770.21       |

| accounting_work_order | accounting_work_order_description | cost_element_description         | Description  | year | Sum of quantity | Sum of amount |
|-----------------------|-----------------------------------|----------------------------------|--|------|-----------------|---------------|
| A16E0602              | H3105X 34.5kV Line Construction   | Lobby Stock Loader-Acct Use Only |  | 2018 | 0               | \$ 439.75     |
|                       |                                   | Materials- Purchased             |  | 2018 | 0               | \$ -          |
|                       |                                   |                                  | ANCHOR,ROD, 1 IN DIA , 7 FT LG, STEEL, GALV, FOR TRIPLE STRAND EYE       | 2017 | 8               | \$ 100.40     |
|                       |                                   |                                  | BOLT,MACHINE, SQUARE HEAD, 3/4 IN, 14 IN LG, STEEL, GALV, W/ SQUAR       | 2017 | 21              | \$ 26.02      |
|                       |                                   |                                  | BOLT,THRU, SQUARE HEAD, 5/8 IN, 10 IN LG, ROLLED THREAD, STEEL, H        | 2017 | 3               | \$ 1.69       |
|                       |                                   |                                  | BOLT,THRU, SQUARE HEAD, 5/8 IN, 12 IN LG, ROLLED THREAD, STEEL, H        | 2017 | 8               | \$ 9.04       |
|                       |                                   |                                  | BRACE, CONNECTOR,BRACKET, PUSH BRACE, PUSH BRACE, FOR 6 IN TC            | 2017 | 1               | \$ 29.67      |
|                       |                                   |                                  | CLEVIS, DEADEND EYELET, 1-1/2 IN X 3/4 IN, GALV                          | 2017 | 12              | \$ 107.52     |
|                       |                                   |                                  | CONNECTOR, PARALLEL GROOVE, 8 AWG STRANDED - 1/0 AWG RUN, 8 A            | 2017 | 16              | \$ 15.52      |
|                       |                                   |                                  | GRAYBAR ELECTRIC COMPANY INC   | 2017 | 275.2           | \$ 72.45      |
|                       |                                   |                                  | PIN, 4 X 4 X 13 IN, FOR POLE TOP, LINE POST, BRACKET, 35 KV              | 2017 | 5               | \$ 85.45      |
|                       |                                   |                                  | PIN,INSULATOR, SHORT STUD, 3/4 IN DIA, 1-3/4 IN LG, GALV STEEL           | 2017 | 5               | \$ 18.40      |
|                       |                                   |                                  | SCREW, ROLLED THREAD, LAG, 1/2 IN, 4 IN LG, STEEL, GALV, PILOT POIN      | 2017 | 22              | \$ 6.60       |
|                       |                                   |                                  | WASHER,FLAT, SQUARE, 3 IN X 3 IN X 1/4 IN SQ, 13/16 IN ID, GALV, FOR 5/8 | 2017 | 54              | \$ 46.44      |
|                       |                                   |                                  | WASHER,SPRING, COIL, 3/4 IN, STEEL, GALV                                 | 2017 | 40              | \$ 9.60       |
|                       |                                   |                                  | WASHER,SPRING, COIL, 5/8 IN, GALV  | 2017 | 8               | \$ 1.12       |
|                       |                                   |                                  | WASHER,SQUARE, 7/8 IN BOLT, 4 IN X 4 IN SQ, STEEL, GALV                  | 2017 | 4               | \$ 4.20       |
|                       |                                   |                                  | WASHER,SQUARE, CURVED, 3 IN X 3 IN X 1/4 IN SQ, GALV, FOR 5/8 IN OR :    | 2017 | 69              | \$ 33.12      |
|                       |                                   | Materials- Stores                |  | 2018 | 0               | \$ -          |
|                       |                                   |                                  | ANCHOR, SINGLE HELIX, 12 IN, 10000 LB                                    | 2017 | 5               | \$ 208.23     |
|                       |                                   |                                  | ANCHOR,ROD, 1 IN DIA , 7 FT LG, STEEL, GALV, FOR TRIPLE STRAND EYE       | 2017 | 9               | \$ 201.72     |
|                       |                                   |                                  | BOLT, DOUBLE ARMING, 3/4 IN, 24 IN LG, STEEL, GALV, W/ 4 SQUARE NUT      | 2017 | 6               | \$ 23.49      |
|                       |                                   |                                  | BOLT,EYE, 3/4 X 12 IN, STEEL, GALV                                       | 2017 | 8               | \$ 71.83      |
|                       |                                   |                                  | BOLT,MACHINE, 3/4 IN, 12 IN LG, STEEL, GALV, W/ SQUARE NUT               | 2017 | 10              | \$ 20.30      |
|                       |                                   |                                  | BOLT,MACHINE, 5/8 IN, 14 IN LG, STEEL, GALV, W/ SQUARE NUT               | 2017 | 6               | \$ 7.07       |
|                       |                                   |                                  | BOLT,MACHINE, SQUARE HEAD, 3/4 IN, 14 IN LG, STEEL, GALV, W/ SQUAR       | 2017 | 21              | \$ 34.30      |
|                       |                                   |                                  | BOLT,THRU, SQUARE HEAD, 5/8 IN, 10 IN LG, ROLLED THREAD, STEEL, H        | 2017 | 3               | \$ 2.75       |
|                       |                                   |                                  | BOLT,THRU, SQUARE HEAD, 5/8 IN, 12 IN LG, ROLLED THREAD, STEEL, H        | 2017 | 8               | \$ 8.61       |
|                       |                                   |                                  | BRACE, CONNECTOR,BRACKET, PUSH BRACE, PUSH BRACE, FOR 6 IN TC            | 2017 | 1               | \$ 29.55      |
|                       |                                   |                                  | BRACKET, CUTOUT AND ARRESTER, 24 IN LG, FIBERGLASS, FERR / ALUM          | 2017 | 1               | \$ 29.49      |
|                       |                                   |                                  | BRACKET, NEUTRAL OFFSET, 5/8 X 25 IN, STEEL, GALV                        | 2017 | 3               | \$ 64.69      |
|                       |                                   |                                  | CABLE, BARE, GUY WIRE, 18M, B416-93, ALUMOWELD, AL CLAD STEEL, 1         | 2017 | 500             | \$ 162.36     |
|                       |                                   |                                  | CLAMP,STRAIN, QUADRANT, 0.5-1.2 IN DIA, 3/0 AWG - 795 MCM ACSR, AL,      | 2017 | 9               | \$ 365.53     |
|                       |                                   |                                  | CLAMP,STRAIN, STRAIGHT LINE SIDE OPENING, 3/0 - 556.5 AWG, AL, W/ LI     | 2017 | 24              | \$ 133.05     |
|                       |                                   |                                  | CLEVIS, BALL Y, HOT LINE TYPE, 30000 LBS ULTIMATE STRENGTH , STEE        | 2017 | 30              | \$ 409.71     |
|                       |                                   |                                  | CLEVIS, DEADEND EYELET, 1-1/2 IN X 3/4 IN, GALV                          | 2017 | 12              | \$ 103.36     |
|                       |                                   |                                  | CONNECTOR, PARALLEL GROOVE, 8 AWG STRANDED - 1/0 AWG RUN, 8 A            | 2017 | 17              | \$ 16.49      |
|                       |                                   |                                  | CONNECTOR,WEDGE TAP, SHELL DRIVEN, 336 ACSR RUN, 336 ACSR TAP            | 2017 | 20              | \$ 260.56     |
|                       |                                   |                                  | CONNECTOR,WEDGE TAP, SHELL DRIVEN, 477 ACSR RUN 336 ACSR (18/1           | 2017 | 20              | \$ 255.50     |
|                       |                                   |                                  | CROSSARM, DEADEND, JUMBO, DISTRIBUTION, 3-5/8 X 4-5/8 IN, W/ JUMBO       | 2017 | 3               | \$ 765.99     |
|                       |                                   |                                  | CROSSARM, DISTRIBUTION, TANGENT, 3-5/8 X 4-5/8 IN, 10 FT LG , W/ CEN     | 2017 | 8               | \$ 847.72     |
|                       |                                   |                                  | CROSSARM, TANGENT, JUMBO, 3-5/8 X 4-5/8 IN, 10 FT LG, W/ JUMBO DRIL      | 2017 | 7               | \$ 819.21     |
|                       |                                   |                                  | CUTOUT, FUSE, OPEN, 100 A, 12 KA INTERRUPTING CURRENT ASYMMETRIC         | 2017 | 1               | \$ 66.85      |
|                       |                                   |                                  | GRIP,CABLE, SUPPORT, CLOSED, DOUBLE EYE, 4-4.5 IN DIA CABLE RANG         | 2018 | 4               | \$ 564.10     |
|                       |                                   |                                  | INSULATOR, POST, TIE TOP, 35 KV, POLYETHYLENE, PINEAPPLE                 | 2017 | 21              | \$ 878.87     |
|                       |                                   |                                  | INSULATOR, SPOOL, 750 V, CLASS 53-2                                      | 2017 | 3               | \$ 2.61       |
|                       |                                   |                                  | INSULATOR, SUSPENSION, DEADEND, 34.5 KV, 23 IN LG, 378 KV BIL, POLY      | 2017 | 24              | \$ 1,162.49   |
|                       |                                   |                                  | LINK, STRAIGHT, 5/8 IN, STEEL, GALV, 40000 LB                            | 2017 | 12              | \$ 57.51      |
|                       |                                   |                                  | LUG,COMPRESSION, CONNECTOR, 1000 KCMIL, 2 HOLE NEMA, AL                  | 2018 | 12              | \$ 356.04     |
|                       |                                   |                                  | MARKER,GUY, FULL ROUND, 8 FT LG, YELLOW, PLASTIC, SPIRAL PIGTAIL         | 2017 | 8               | \$ 23.42      |
|                       |                                   |                                  | NUT,EYE, OVAL, 3/4 IN, 10 TPI, FERROUS, ZINC COATED HOT DIPPED GAL       | 2017 | 20              | \$ 18.38      |
|                       |                                   |                                  | PIN, 4 X 4 X 13 IN, FOR POLE TOP, LINE POST, BRACKET, 35 KV              | 2017 | 5               | \$ 74.06      |
|                       |                                   |                                  | PIN,INSULATOR, LINE POST, 3/4 X 7 IN SHANK, 8-1/2 IN OAL, GALV STEEL     | 2017 | 18              | \$ 77.51      |
|                       |                                   |                                  | PIN,INSULATOR, SHORT STUD, 3/4 IN DIA, 1-3/4 IN LG, GALV STEEL           | 2017 | 5               | \$ 18.18      |
|                       |                                   |                                  | PLATE, GUY/POLE EYE, 9/16 IN LAG HOLE, 13/16 IN BOLT CIRCLE              | 2017 | 8               | \$ 48.73      |
|                       |                                   |                                  | POLE, 40 FT LG, CLASS 2, WESTERN RED CEDAR                               | 2017 | 2               | \$ 1,562.54   |
|                       |                                   |                                  | POLE, 45 FT LG, CLASS 2, WESTERN RED CEDAR                               | 2017 | 1               | \$ 931.83     |
|                       |                                   |                                  | POLE, 50 FT LG, CLASS 2, WESTERN RED CEDAR                               | 2017 | 2               | \$ 1,918.00   |
|                       |                                   |                                  | SCREW, ROLLED THREAD, LAG, 1/2 IN, 4 IN LG, STEEL, GALV, PILOT POIN      | 2017 | 22              | \$ 6.60       |
|                       |                                   |                                  | TERMINATOR,CABLE, 750 KCMIL, 1000 KCMIL, 1.08 - 1.80 IN CABLE DIA, W     | 2018 | 12              | \$ 888.11     |
|                       |                                   |                                  | WASHER,FLAT, SQUARE, 2-1/4 IN X 2-1/4 IN, 3/16 IN THK, GALV, FOR 5/8 IN  | 2017 | 16              | \$ 17.44      |
|                       |                                   |                                  | WASHER,FLAT, SQUARE, 3 IN X 3 IN X 1/4 IN SQ, 13/16 IN ID, GALV, FOR 5/8 | 2017 | 54              | \$ 82.12      |
|                       |                                   |                                  | WASHER,SPRING, COIL, 5/8 IN, GALV  | 2017 | 22              | \$ 3.96       |
|                       |                                   |                                  | WASHER,SQUARE, 7/8 IN BOLT, 4 IN X 4 IN SQ, STEEL, GALV                  | 2017 | 4               | \$ 6.77       |
|                       |                                   |                                  | WASHER,SQUARE, CURVED, 3 IN X 3 IN X 1/4 IN SQ, GALV, FOR 5/8 IN OR :    | 2017 | 70              | \$ 30.13      |

| accounting_work_order |                                 |  |  |      | Sum of      |                 |
|-----------------------|---------------------------------|--|--|------|-------------|-----------------|
| der                   | accounting_work_order_descript  | cost_element_description                   | Description  | year | quantity    | Sum of amount   |
| A16E0602              | H3105X 34.5kV Line Construction | Materials- Stores                          | WIRE,TIE, #4, SOLID, POLY COVERED JACKETED, AL, 25 LB COIL | 2017 | 1           | \$ 142.61       |
|                       |                                 |  | WIRE,TIE, 6 AWG, 25 LB, SOFT-DRAWN CU, SPOOL               | 2017 | 25          | \$ 106.98       |
|                       |                                 |  | WIRE,TIE, BARE, #4, SOFT-DRAWN AL, 50 LB COIL              | 2017 | 150         | \$ 450.13       |
|                       |                                 | Mileage                                    | 2017   | 102  | \$ 54.57    |                 |
|                       |                                 | Misc Dist Exp Capitalized OH-Acct Use Only | 2017   | 0    | \$ 1,092.01 |                 |
|                       |                                 |  | 2018   | 0    | \$ 206.48   |                 |
|                       |                                 |  | 2019   | 0    | \$ 516.47   |                 |
|                       |                                 | Miscellaneous Accounting Adjustments       | 2018   | 0    | \$ 0.00     |                 |
|                       |                                 |  | 2019   | 0    | \$ -        |                 |
|                       |                                 | Non Productive Time Loader- Acct Use Only  | 2017   | 0    | \$ 436.16   |                 |
|                       |                                 | Payroll Benefit Loader- Acct Use Only      | 2017   | 0    | \$ 938.25   |                 |
|                       |                                 | Service Company Allocations- Acct Use Only | 2017   | 0    | \$ -        |                 |
|                       |                                 | Stores Loader- Acct Use Only               | 2017   | 0    | \$ 1,559.07 |                 |
|                       |                                 |  | 2018   | 0    | \$ 287.52   |                 |
| A16E0602 Total        |                                 |  |  |      | 1968.7      | \$ 159,714.88   |
| Grand Total           |                                 |  |  |      | 18353.24    | \$ 3,190,715.45 |

## Public Service Co of New Hampshire Project Approval Information

|   |  |                   |
|---|--|-------------------|
| <b>Fund Project Number</b> A18E16             | <b>Status</b> open                       | <b>Revision</b> 3 |
| <b>Project Title</b> West Rd Overloaded Steps | <b>Operating Unit</b>                    |                   |
| <b>Initiated By</b> Lynne Godbout             | <b>Initiated Date</b> 12/8/2017 12:27:21 |                   |

|                            |  |
|----------------------------|--|
| <b>Description of Work</b> | West Rd Overloaded Steps. Replace 6600 feet of 1/0 ACSR with 477 spacer cable and convert to 34 kV to eliminate overloaded steps and create a circuit tie between 3102x1 and 3102x5 with 3102x |
| <b>Location</b>            | DIST MASS - NEW HAMPSHIRE  |

| Project Schedule / Expenditures |                |                | Est Start Date : | 1/1/2018           | Est Complete Date : | 6/1/2018           |
|---------------------------------|----------------|----------------|------------------|--------------------|---------------------|--------------------|
| 2018                            | 2019           | 2020           | 2021             | 2022               | Future Years        | Total              |
| \$1,408,801.00                  | \$0.00         | \$0.00         | \$0.00           | \$0.00             | \$0.00              | <u>\$1,408,801</u> |
| <b>Cost Breakdown</b>           | <b>Capital</b> | <b>Expense</b> | <b>Removal</b>   | <b>Retirements</b> | <b>Credits</b>      |                    |
|                                 | \$1,269,805    | \$0            | \$138,996        | \$0                | \$0                 | \$1,408,801.00     |

Reason For Work

Background Information

### Approvals

| Level                  | Approver           | Approval Limit | Date Approved |
|------------------------|--------------------|----------------|---------------|
| Project Manager        | Menard, Erica      | \$0            | 3/7/2019      |
| Plant Accounting       | Salbinski, Chris   | \$0            | 3/7/2019      |
| Manager - PSNH Dist    | Busby, Michael     | \$100,000      | 3/8/2019      |
| Director - PSNH Dist   | Eilenberger, James | \$250,000      | 3/10/2019     |
| Vice President - PSNH  | Purington, Joseph  | \$1,000,000    | 3/10/2019     |
| Sr. VP/President - Ops | Quinlan, William   | \$5,000,000    | 4/2/2019      |

Appendix 4  
Supplement Request Form

## **Supplement Request Form**

|                                       |   |
|---------------------------------------|---|
| Date Prepared: 1/23/2019              | Project Title: West Rd. Overloaded Step Transformers  |
| Company/Companies: NH                 | Project ID Number: A18E16                             |
| Organization: Field Engineering       | Plant Class(F.P.Type): Distribution                   |
| Project Initiator: Michael J. Busby   | Project Type: <i>Specific</i>                         |
| Project Manager: Michael J. Busby     | Capital Investment Part of Original Operating Plan? Y |
| Project Sponsor: James C. Eilenberger | O&M Expenses Part of the Original Operating Plan? Y   |
| Current Authorized Amount: \$746,000  | Estimated in service date(s): 6/1/2018                |
| Supplement Request: \$682,000         | Other:  |
| Total Request: \$1,428,000            |   |

## **Supplement Justification**

### **Justification for Additional Resources**

Total Requested amount of \$1,428,000 reflects the actual cost of this completed job.

There were two main reasons for the increase in costs. First, the manhours were significantly underestimated. When written in the work management system, this project was estimated at 1,900 manhours. Bids from the two lowest bidders estimated the project at approximately 4,500 manhours. These results were never input back into work management in order to re-estimate the job.

Additionally, working in and around the city of Portsmouth requires numerous permits and requirements along with extremely busy traffic conditions. There were numerous outages required due to the number of businesses affected. The temporary work to avoid shut downs for these businesses also factored into the cost increase.

The cost over-run can be summarized as follows:

Outside Services estimated at \$460,000; actual was \$917,000 for an increase of \$457,000  
Materials were estimated at \$93,000; actual was \$124,000 for an increase of \$31,000  
Overheads associated with the project increased due to the increased costs. Estimated at \$186,000, the actual was \$382,000 for an increase of \$196,000.

## Supplement Cost Summary

*Note: Dollar values are in thousands:*

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 487              | \$ 438                | \$ 925          |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | 49                  | 51                    | 100             |
| Total Direct Spending         | \$ 536              | \$ 489                | \$ 1,025        |
| Capital Additions - Indirect  | 186                 | 196                   | 382             |
| AFUDC                         | 5                   | (3)                   | 2               |
| Total Capital Request         | \$ 727              | \$ 682                | \$ 1,409        |
| O&M                           | 19                  | -                     | 19              |
| <b>Total Request</b>          | <b>\$ 746</b>       | <b>\$ 682</b>         | <b>\$ 1,428</b> |

*Note: Dollar values are in thousands:*

Total Supplement Request by year view:

|                               | Year 2018     | Year 20__   | Year 20__+  | Total         |
|-------------------------------|---------------|-------------|-------------|---------------|
| Capital Additions - Direct    | \$ 438        | \$ -        | \$ -        | \$ 438        |
| Less Customer Contribution    | -             | -           | -           | -             |
| Removals net of Salvage ____% | 51            | -           | -           | 51            |
| Total Direct Spending         | \$ 489        | \$ -        | \$ -        | \$ 489        |
| Capital Additions - Indirect  | 196           | -           | -           | 196           |
| AFUDC                         | (3)           | -           | -           | (3)           |
| Total Capital Request         | \$ 682        | \$ -        | \$ -        | \$ 682        |
| O&M                           | -             | -           | -           | -             |
| <b>Total Request</b>          | <b>\$ 682</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 682</b> |



## **Operations Project Authorization Form**

|  |  |
|--|--|
| <b>Date Prepared: 2/9/18</b>                 | <b>Project Title: West Rd. Overloaded Step Transformers</b>      |
| <b>Company/ies: NH</b>                       | <b>Project ID Number: A18E16</b>                                 |
| <b>Organization: Field Engineering</b>       | <b>Class(es) of Plant: Distribution</b>                          |
| <b>Project Initiator: Michael J. Busby</b>   | <b>Project Category: Distribution Line Capacity</b>              |
| <b>Project Manager: Michael J. Busby</b>     | <b>Project Type: Specific</b>                                    |
| <b>Project Sponsor: James C. Eilenberger</b> | <b>Project Purpose: Support Load growth, Improve Reliability</b> |
| <b>Estimated in service date: 6/1/2018</b>   | <b>If Transmission Project: PTF? N/A</b>                         |
| <b>Eng. /Constr. Resources Budgeted? Yes</b> | <b>Capital Investment Part of Original Operating Plan? Yes</b>   |
| <b>Authorization Type: Construction</b>      | <b>O&amp;M Expenses Part of the Original Operating Plan? Yes</b> |
| <b>Total Request: \$746,000</b>              |  |

### **Financial Requirements:**

#### **Project Authorization**

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

#### **Executive Summary**

This request is for full funding in the amount of \$746,000 for the construction of the project described. This project is included in the Eversource NH 2018 Capital Budget. This project eliminates a set of overloaded (115% of nameplate rating) 500 KVA stepdown transformers by converting the radially fed area from 12.47 to 34.5 kV. It also creates two new 34.5 kV circuit ties between the 3102X, the 3102X1, and the 3102X5. These new ties will bypass approximately 12 sections (2400') of the 3102X which is in tidal saltmarshes and are completely inaccessible via line trucks.

The cost also includes replacing numerous old live front padmount transformers, old direct buried 15 kV cable, and a couple of transformers that must be relocated due to NESC violations. Each of the above will require excavation to install conduit, splice pits, and transformer pads feeding new dead front transformers. In addition, the City of Portsmouth has planned a road widening project along Peverly Hill Rd in 2019 which will require the relocation of numerous poles. This will require excavation to install new conduit from relocated poles to existing transformer locations. This work will be integrated into this project to save the cost of relocating newly placed poles when the City's project takes place next year.

## Project Costs Summary

|                                | Prior<br>Authorized | 2018   | 20__ | 20__+ | Totals |
|--------------------------------|---------------------|--------|------|-------|--------|
| Capital Additions - Direct     | \$ -                | \$ 487 | \$ - | \$ -  | \$ 487 |
| Less Customer Contribution     | -                   | -      | -    | -     | -      |
| Removals net of Salvage ____ % | -                   | 49     | -    | -     | 49     |
| Total - Direct Spending        | \$ -                | \$ 536 | \$ - | \$ -  | \$ 536 |
| Capital Additions - Indirect   | -                   | 186    | -    | -     | 186    |
| Subtotal Request               | \$ -                | \$ 722 | \$ - | \$ -  | \$ 722 |
| AFUDC                          | -                   | 5      | -    | -     | 5      |
| Total Capital Request          | \$ -                | \$ 727 | \$ - | \$ -  | \$ 727 |
| O&M                            | -                   | 19     | -    | -     | 19     |
| Total Request                  | \$ -                | \$ 746 | \$ - | \$ -  | \$ 746 |

## Financial Evaluation

**Note: Dollar values are in thousands**

| Direct Capital Costs                            | Year 1 | Year 2 | Year 3+ | Total |
|---|--------|--------|---------|-------|
| Straight Time Labor                             | -      |        |         |       |
| Overtime Labor                                  | -      |        |         |       |
| Outside Services                                | 443    |        |         |       |
| Materials                                       | 93     |        |         |       |
| Other, including contingency amounts (describe) | -      |        |         |       |
| Total   | 536    |        |         |       |

| Indirect Capital Costs                   | Year 1 | Year 2 | Year 3+ | Total |
|--|--------|--------|---------|-------|
| Indirects/Overheads (including benefits) | 186    |        |         |       |
| Capitalized interest or AFUDC, if any    | 5      |        |         |       |
| Total                                    | 191    |        |         |       |

|                     |     |  |  |  |
|---------------------|-----|--|--|--|
| Total Capital Costs | 727 |  |  |  |
|---------------------|-----|--|--|--|

|                                  |   |  |  |  |
|----------------------------------|---|--|--|--|
| Less Total Customer Contribution | - |  |  |  |
|----------------------------------|---|--|--|--|

|                             |     |  |  |  |
|-----------------------------|-----|--|--|--|
| Total Capital Project Costs | 727 |  |  |  |
|-----------------------------|-----|--|--|--|

|                         |    |  |  |  |
|-------------------------|----|--|--|--|
| Total O&M Project Costs | 19 |  |  |  |
|-------------------------|----|--|--|--|

*Note: Explain unique payment provisions, if applicable*

### Future Financial Impacts: N/A

Provide below the estimated future costs that will result from the project:

*Note: Dollar values are in thousands:*

| Future Costs | Year 20__   | Year 20__   | Year20__    | Year 20__ + | Total Future Project Costs |
|--------------|-------------|-------------|-------------|-------------|----------------------------|
| Capital      | \$ -        | \$ -        | \$ -        | \$ -        | \$ -                       |
| O&M          | -           | -           | -           | -           | -                          |
| Other        | -           | -           | -           | -           | -                          |
| <b>TOTAL</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b>                |

Describe the estimated future Capital, O&M and/or Other costs noted above:

What functional area(s) will these future costs be funded in? \_\_\_\_\_

*A representative from the respective functional area is required to be included as a project approver.*

### If this is other than a Reliability Project, please complete the section below:

Provide below the estimated financial benefits that will result from the project:

*Note: Dollar values are in thousands:*

| Future Benefits | Year 20__   | Year 20__   | Year20__    | Year 20__ + | Total Future Project Benefits |
|-----------------|-------------|-------------|-------------|-------------|-------------------------------|
| Capital         | \$ -        | \$ -        | \$ -        | \$ -        | \$ -                          |
| O&M             | -           | -           | -           | -           | -                             |
| Other           | -           | -           | -           | -           | -                             |
| <b>TOTAL</b>    | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b>                   |

Describe the estimated future Capital, O&M and/or Other benefits noted above:

What functional area(s) will these benefits be reflected in? \_\_\_\_\_

*A representative from the respective functional area is required to be included as a project approver.*

### Asset Retirement Obligation (ARO) and/ or Environmental Cleanup Costs (Environmental Liabilities):

Is there an ARO associated with this project? If yes, please provide details: **No**

Are there other environmental cleanup costs associated with this project? **No**

## **Technical Justification:**

### **Project Need Statement**

This project eliminates a set of overloaded (115% of nameplate rating) 500 KVA stepdown transformers by converting the radially fed area from 12.47 to 34.5 kV. It also creates two new 34.5 kV circuit tie between the 3102X, the 3102X1, and the 3102X5. These new ties will bypass approximately 12 sections (2400') of the 3102X which is in tidal saltmarshes and are completely inaccessible via line trucks.

#### **Project description**

- Replace 15 sections (2600') of #2 Cu and 1/0 ACSR with 477 SPCA from pole 145/30 Peverly Hill Rd to P147/38 Elwyn Rd.
- Convert the Peverly Hill Rd and Mirona Rd stepdown area from 12.47 kV to 34.5 kV
- Install Nova Reclosers and ScadaMate devices per DA master plan.

### **Project Objectives**

This project eliminates overloaded step transformers by converting a radially fed pocket of 12 kV to 34.5 kV. It also creates a new circuit tie which allow the portion of the 3102 that passes through the tidal salt marshes to be bypassed should a contingency occur.

### **Project Scope**

This project replaces approximately 2,600 circuit feet of old 3 phase conductors with 477 SPCA, converts nine three phase overhead transformer banks, four single phase transformers, six three phase padmounted transformers, and one single phase padmounted transformer (approximately 70 commercial/industrial customers).

### **Background / Justification**

The 3102X2 West Rd 3 – 500 KVA stepdown transformers are currently loaded at 115% of nameplate. Recently the outside of the transformers started showing obvious signs of overloading (oil seeping, paint burning off, fins blackening). The stepdown area is a radial fed 12kV pocket surrounded by 34.5kV. Converting this area will create two new 34.5kV circuit ties. The new circuit ties would help backup a section of the 3102X circuit which normally supplies 4052 customers. The line section passes through a tidal salt marsh and cannot be accessed via line trucks.

### **Business Process and / or Technical Improvements:**

This project replaces three overloaded stepdown transformers and eliminates a 12 kV pocket. Eliminating the 12kV pocket allows for the creation of two new 34.5 kV circuit ties. The new circuit ties provide a means to bypass sections of the 3102X which is currently located in a tidal salt marshes and cannot be accessed by line trucks.

### **Alternatives Considered with Cost Estimates**

Installing parallel stepdown transformers were considered but every pole in this area of West Road has electrical equipment on it. The average span in this area is 75 feet and the City of Portsmouth will not license any new poles in the area. The existing step transformers are installed on a platform so parallel 500 KVA steps per phase is not an option.

## Project Schedule

| Milestone/Phase Name                 | Estimated Completion Date |
|--------------------------------------|---------------------------|
| Design Complete                      | 2/16/2018                 |
| Construction Complete and In-Service | 6/1/2018                  |
|                                      |                           |
|                                      |                           |
|                                      |                           |

## Regulatory Approvals

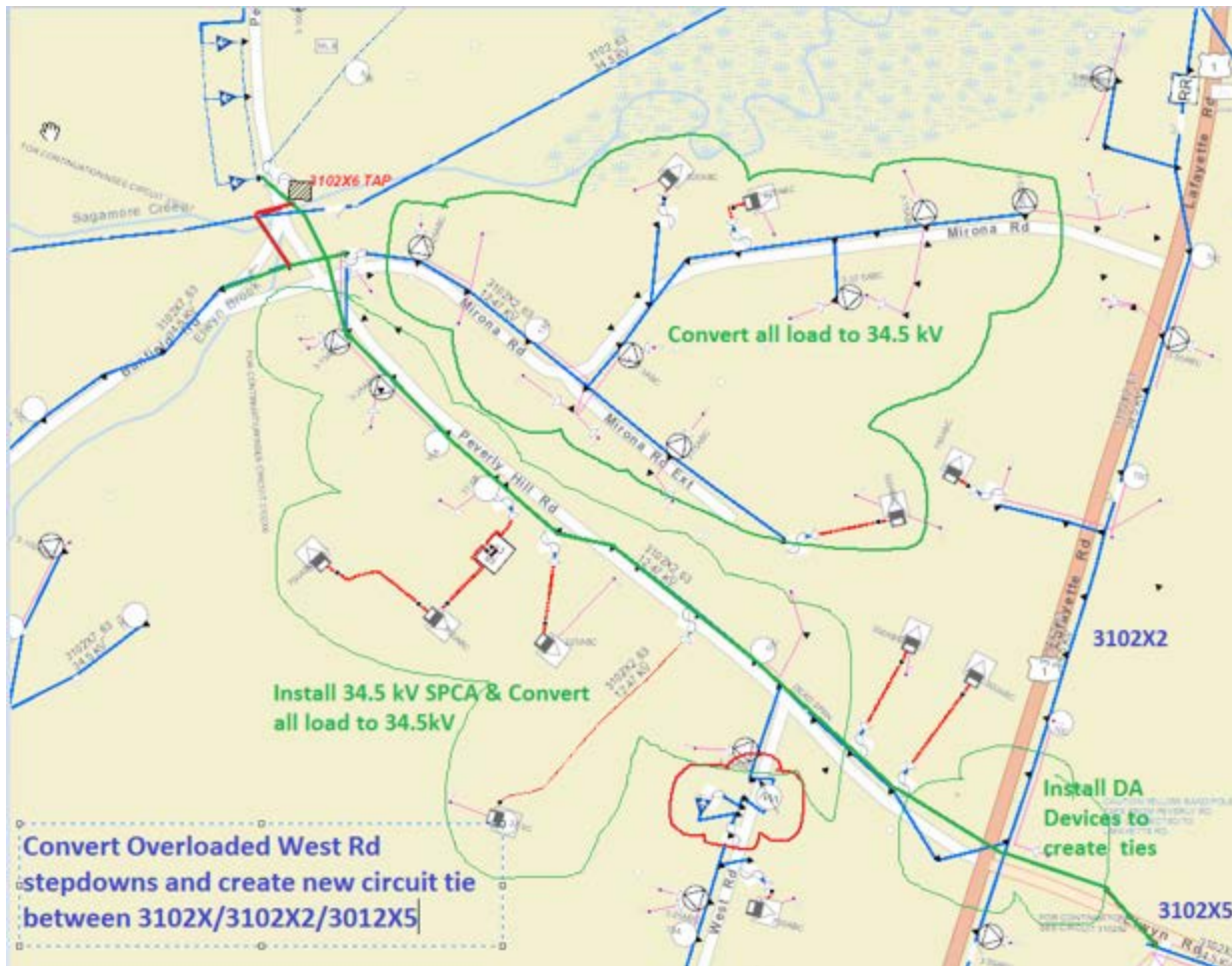
N/A

## Risks and Risk Mitigation Plans

Part of the conversion includes upgrading existing live front pad mount transformers. To replace these transformers, coordinated outages and underground work are required, creating minor scheduling and budget risks.

## References

## Attachments (One-Line Diagrams, Images, etc.)



Docket No. DE 19-057  
Data Request STAFF 12-045  
Dated 9/20/2019 Attachment  
STAFF 12-045 AZ  
Page 10 of 18

## **Cost Estimate Backup Details**

000187





## **Operations Project Authorization Form**

|  |  |
|--|--|
| <b>Date Prepared: 2/9/18</b>                 | <b>Project Title: West Rd. Overloaded Step Transformers</b>      |
| <b>Company/ies: NH</b>                       | <b>Project ID Number: A18E16</b>                                 |
| <b>Organization: Field Engineering</b>       | <b>Class(es) of Plant: Distribution</b>                          |
| <b>Project Initiator: Michael J. Busby</b>   | <b>Project Category: Distribution Line Capacity</b>              |
| <b>Project Manager: Michael J. Busby</b>     | <b>Project Type: Specific</b>                                    |
| <b>Project Sponsor: James C. Eilenberger</b> | <b>Project Purpose: Support Load growth, Improve Reliability</b> |
| <b>Estimated in service date: 6/1/2018</b>   | <b>If Transmission Project: PTF? N/A</b>                         |
| <b>Eng. /Constr. Resources Budgeted? Yes</b> | <b>Capital Investment Part of Original Operating Plan? Yes</b>   |
| <b>Authorization Type: Construction</b>      | <b>O&amp;M Expenses Part of the Original Operating Plan? Yes</b> |
| <b>Total Request: \$746,000</b>              |  |

### **Financial Requirements:**

#### **Project Authorization**

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

#### **Executive Summary**

This request is for full funding in the amount of \$746,000 for the construction of the project described. This project is included in the Eversource NH 2018 Capital Budget. This project eliminates a set of overloaded (115% of nameplate rating) 500 KVA stepdown transformers by converting the radially fed area from 12.47 to 34.5 kV. It also creates two new 34.5 kV circuit ties between the 3102X, the 3102X1, and the 3102X5. These new ties will bypass approximately 12 sections (2400') of the 3102X which is in tidal saltmarshes and are completely inaccessible via line trucks.

The cost also includes replacing numerous old live front padmount transformers, old direct buried 15 kV cable, and a couple of transformers that must be relocated due to NESC violations. Each of the above will require excavation to install conduit, splice pits, and transformer pads feeding new dead front transformers. In addition, the City of Portsmouth has planned a road widening project along Peverly Hill Rd in 2019 which will require the relocation of numerous poles. This will require excavation to install new conduit from relocated poles to existing transformer locations. This work will be integrated into this project to save the cost of relocating newly placed poles when the City's project takes place next year.

## Project Costs Summary

|                                | Prior<br>Authorized | 2018   | 20__ | 20__+ | Totals |
|--------------------------------|---------------------|--------|------|-------|--------|
| Capital Additions - Direct     | \$ -                | \$ 487 | \$ - | \$ -  | \$ 487 |
| Less Customer Contribution     | -                   | -      | -    | -     | -      |
| Removals net of Salvage ____ % | -                   | 49     | -    | -     | 49     |
| Total - Direct Spending        | \$ -                | \$ 536 | \$ - | \$ -  | \$ 536 |
| Capital Additions - Indirect   | -                   | 186    | -    | -     | 186    |
| Subtotal Request               | \$ -                | \$ 722 | \$ - | \$ -  | \$ 722 |
| AFUDC                          | -                   | 5      | -    | -     | 5      |
| Total Capital Request          | \$ -                | \$ 727 | \$ - | \$ -  | \$ 727 |
| O&M                            | -                   | 19     | -    | -     | 19     |
| Total Request                  | \$ -                | \$ 746 | \$ - | \$ -  | \$ 746 |

## Financial Evaluation

**Note:** Dollar values are in thousands

| Direct Capital Costs                            | Year 1 | Year 2 | Year 3+ | Total |
|---|--------|--------|---------|-------|
| Straight Time Labor                             | -      |        |         |       |
| Overtime Labor                                  | -      |        |         |       |
| Outside Services                                | 443    |        |         |       |
| Materials                                       | 93     |        |         |       |
| Other, including contingency amounts (describe) | -      |        |         |       |
| Total   | 536    |        |         |       |

| Indirect Capital Costs                   | Year 1 | Year 2 | Year 3+ | Total |
|--|--------|--------|---------|-------|
| Indirects/Overheads (including benefits) | 186    |        |         |       |
| Capitalized interest or AFUDC, if any    | 5      |        |         |       |
| Total                                    | 191    |        |         |       |

|                     |     |  |  |  |
|---------------------|-----|--|--|--|
| Total Capital Costs | 727 |  |  |  |
|---------------------|-----|--|--|--|

|                                  |   |  |  |  |
|----------------------------------|---|--|--|--|
| Less Total Customer Contribution | - |  |  |  |
|----------------------------------|---|--|--|--|

|                             |     |  |  |  |
|-----------------------------|-----|--|--|--|
| Total Capital Project Costs | 727 |  |  |  |
|-----------------------------|-----|--|--|--|

|                         |    |  |  |  |
|-------------------------|----|--|--|--|
| Total O&M Project Costs | 19 |  |  |  |
|-------------------------|----|--|--|--|

Note: Explain unique payment provisions, if applicable

### Future Financial Impacts: N/A

Provide below the estimated future costs that will result from the project:

*Note: Dollar values are in thousands:*

| Future Costs | Year 20__   | Year 20__   | Year20__    | Year 20__ + | Total Future Project Costs |
|--------------|-------------|-------------|-------------|-------------|----------------------------|
| Capital      | \$ -        | \$ -        | \$ -        | \$ -        | \$ -                       |
| O&M          | -           | -           | -           | -           | -                          |
| Other        | -           | -           | -           | -           | -                          |
| <b>TOTAL</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b>                |

Describe the estimated future Capital, O&M and/or Other costs noted above:

What functional area(s) will these future costs be funded in? \_\_\_\_\_

*A representative from the respective functional area is required to be included as a project approver.*

### If this is other than a Reliability Project, please complete the section below:

Provide below the estimated financial benefits that will result from the project:

*Note: Dollar values are in thousands:*

| Future Benefits | Year 20__   | Year 20__   | Year20__    | Year 20__ + | Total Future Project Benefits |
|-----------------|-------------|-------------|-------------|-------------|-------------------------------|
| Capital         | \$ -        | \$ -        | \$ -        | \$ -        | \$ -                          |
| O&M             | -           | -           | -           | -           | -                             |
| Other           | -           | -           | -           | -           | -                             |
| <b>TOTAL</b>    | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b>                   |

Describe the estimated future Capital, O&M and/or Other benefits noted above:

What functional area(s) will these benefits be reflected in? \_\_\_\_\_

*A representative from the respective functional area is required to be included as a project approver.*

### Asset Retirement Obligation (ARO) and/ or Environmental Cleanup Costs (Environmental Liabilities):

Is there an ARO associated with this project? If yes, please provide details: **No**

Are there other environmental cleanup costs associated with this project? **No**

## **Technical Justification:**

### **Project Need Statement**

This project eliminates a set of overloaded (115% of nameplate rating) 500 KVA stepdown transformers by converting the radially fed area from 12.47 to 34.5 kV. It also creates two new 34.5 kV circuit tie between the 3102X, the 3102X1, and the 3102X5. These new ties will bypass approximately 12 sections (2400') of the 3102X which is in tidal saltmarshes and are completely inaccessible via line trucks.

#### **Project description**

- Replace 15 sections (2600') of #2 Cu and 1/0 ACSR with 477 SPCA from pole 145/30 Peverly Hill Rd to P147/38 Elwyn Rd.
- Convert the Peverly Hill Rd and Mirona Rd stepdown area from 12.47 kV to 34.5 kV
- Install Nova Reclosers and ScadaMate devices per DA master plan.

### **Project Objectives**

This project eliminates overloaded step transformers by converting a radially fed pocket of 12 kV to 34.5 kV. It also creates a new circuit tie which allow the portion of the 3102 that passes through the tidal salt marshes to be bypassed should a contingency occur.

### **Project Scope**

This project replaces approximately 2,600 circuit feet of old 3 phase conductors with 477 SPCA, converts nine three phase overhead transformer banks, four single phase transformers, six three phase padmounted transformers, and one single phase padmounted transformer (approximately 70 commercial/industrial customers).

### **Background / Justification**

The 3102X2 West Rd 3 – 500 KVA stepdown transformers are currently loaded at 115% of nameplate. Recently the outside of the transformers started showing obvious signs of overloading (oil seeping, paint burning off, fins blackening). The stepdown area is a radial fed 12kV pocket surrounded by 34.5kV. Converting this area will create two new 34.5kV circuit ties. The new circuit ties would help backup a section of the 3102X circuit which normally supplies 4052 customers. The line section passes through a tidal salt marsh and cannot be accessed via line trucks.

### **Business Process and / or Technical Improvements:**

This project replaces three overloaded stepdown transformers and eliminates a 12 kV pocket. Eliminating the 12kV pocket allows for the creation of two new 34.5 kV circuit ties. The new circuit ties provide a means to bypass sections of the 3102X which is currently located in a tidal salt marshes and cannot be accessed by line trucks.

### **Alternatives Considered with Cost Estimates**

Installing parallel stepdown transformers were considered but every pole in this area of West Road has electrical equipment on it. The average span in this area is 75 feet and the City of Portsmouth will not license any new poles in the area. The existing step transformers are installed on a platform so parallel 500 KVA steps per phase is not an option.

## Project Schedule

| Milestone/Phase Name                 | Estimated Completion Date |
|--------------------------------------|---------------------------|
| Design Complete                      | 2/16/2018                 |
| Construction Complete and In-Service | 6/1/2018                  |
|                                      |                           |
|                                      |                           |
|                                      |                           |

## Regulatory Approvals

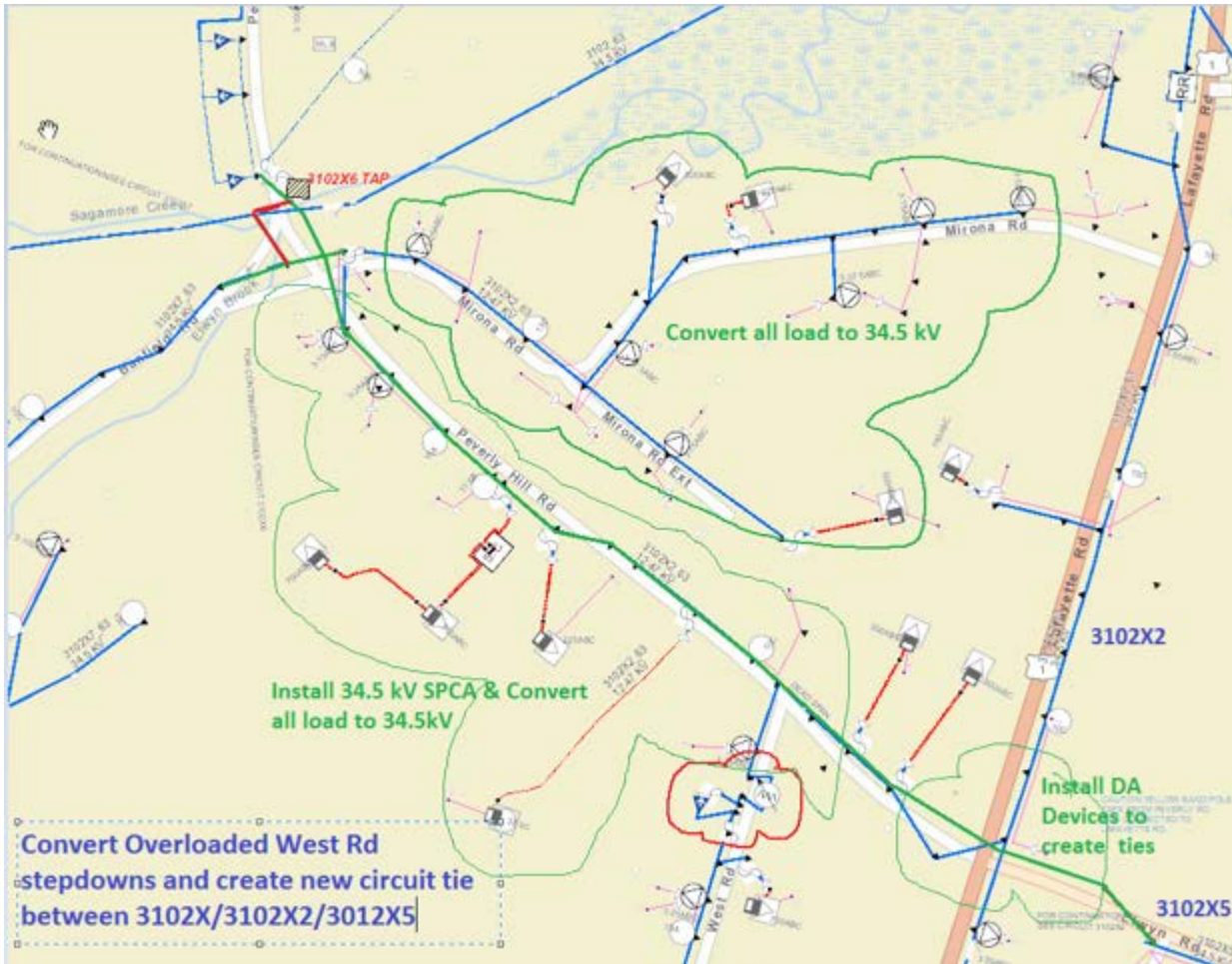
N/A

## Risks and Risk Mitigation Plans

Part of the conversion includes upgrading existing live front pad mount transformers. To replace these transformers, coordinated outages and underground work are required, creating minor scheduling and budget risks.

## References

## Attachments (One-Line Diagrams, Images, etc.)



Docket No. DE 19-057  
Data Request STAFF 12-045  
Dated 9/20/2019 Attachment  
STAFF 12-045 AZ  
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## **Cost Estimate Backup Details**

000195

funding\_project A18E16

| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description   | year | Values<br>Sum of<br>quantity | Sum of amount |
|-----------------------|-----------------------------------|--|---|------|------------------------------|---------------|
| 9P820205              | Mirona Rd Conversion              | Admin and Eng OH- Acct Use Only            |   | 2018 | 0 \$                         | 2,997.93      |
|                       |                                   |  |   | 2019 | 0 \$                         | (196.27)      |
|                       |                                   | AFUDC Debt                                 |   | 2018 | 0 \$                         | 557.62        |
|                       |                                   | Alloc- E+S OH Lines- Acct Use Only         |   | 2018 | 0 \$                         | 48,594.42     |
|                       |                                   |  |   | 2019 | 0 \$                         | (2,801.46)    |
|                       |                                   | Contractor Materials                       |   | 2019 | 0 \$                         | (0.00)        |
|                       |                                   |  | UTILITY SERVICE & ASSISTANCE  | 2018 | 0 \$                         | 133.20        |
|                       |                                   | Contractor Services                        |   | 2019 | 0 \$                         | -             |
|                       |                                   |  | CARUSO & MCGOVERN CONSTRUCTION  | 2018 | 0 \$                         | 55,177.67     |
|                       |                                   |  | MOORES CRANE RENTAL   | 2018 | 0 \$                         | 1,800.00      |
|                       |                                   | Contractor Services- Other                 |   | 2019 | 0 \$                         | -             |
|                       |                                   |  | GRATTAN LINE CONSTRUCTION CORP  | 2018 | 0 \$                         | 210,188.89    |
|                       |                                   |  | UTILITY SERVICE & ASSISTANCE  | 2018 | 0 \$                         | 19,895.08     |
|                       |                                   | Contractor Vehicles + Equip                |   | 2019 | 0 \$                         | -             |
|                       |                                   |  | GRATTAN LINE CONSTRUCTION CORP  | 2018 | 0 \$                         | 84,170.67     |
|                       |                                   |  | UTILITY SERVICE & ASSISTANCE  | 2018 | 0 \$                         | 11,243.50     |
|                       |                                   | Engin and Super OH- Acct Use Only          |   | 2018 | 0 \$                         | 85,876.64     |
|                       |                                   |  |   | 2019 | 0 \$                         | (4,950.79)    |
|                       |                                   | Labor Overtime Non-Exempt                  |   | 2018 | 7 \$                         | 370.10        |
|                       |                                   |  |   | 2019 | 0 \$                         | 0.00          |
|                       |                                   | Labor Straight Time Exempt                 |   | 2018 | 13 \$                        | 600.84        |
|                       |                                   |  |   | 2019 | 0 \$                         | -             |
|                       |                                   | Labor Straight Time Non-Exempt             |   | 2018 | 10.5 \$                      | 366.98        |
|                       |                                   |  |   | 2019 | 0 \$                         | (0.00)        |
|                       |                                   | Lobby Stock Loader-Acct Use Only           |   | 2018 | 0 \$                         | 1,215.13      |
|                       |                                   |  |   | 2019 | 0 \$                         | (980.23)      |
|                       |                                   | Materials- Stores                          | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 10 IN, 8000 LB                    | 2018 | 3 \$                         | 75.03         |
|                       |                                   |  | ARRESTER,ELBOW, LOADBREAK, 27 KV ARRESTER RATING, 22 KV MCOV          | 2018 | 9 \$                         | 2,114.71      |
|                       |                                   |  | ARRESTER,SURGE, DISTRIBUTION RISER POLE, METAL OXIDE VARISTOR         | 2018 | 15 \$                        | 1,305.75      |
|                       |                                   |  | BRACKET, CUTOUT AND ARRESTER, 12 IN W, 48 IN LG, FIBERGLASS, W/       | 2018 | 8 \$                         | 857.24        |
|                       |                                   |  | BRACKET, CUTOUT AND ARRESTER, 24 IN LG, FIBERGLASS, FERR / ALUM       | 2018 | 1 \$                         | 29.77         |
|                       |                                   |  | BRACKET,CABLE, TERMINATOR MOUNTED, AL, FOR 0.75 THRU 3.00 IN DI       | 2018 | 9 \$                         | 150.27        |
|                       |                                   |  | CABLE, BARE, ACSR/AW, 1/0 AWG, 6/1 STR, RAVEN                         | 2018 | 400 \$                       | 110.66        |
|                       |                                   |  | CABLE, COVERED, ACSR/AW, 1/C, 1/0 AWG, 6/1 STR, 35 KV, 75 DEG C, 315  | 2018 | 1710 \$                      | 2,130.49      |
|                       |                                   |  | CABLE, INSULATED, 3 PH, SECONDARY, 500 KCMIL, 600 V, W/ 350 KCMIL N   | 2018 | 201 \$                       | 779.48        |
|                       |                                   |  | CABLE, INSULATED, AERIAL, AAC, TRIPLEX, 1/0 AWG, 7 STR, 600 V, W/ 1/0 | 2018 | 170 \$                       | 134.19        |
|                       |                                   |  | CABLE, INSULATED, UG, 1/C, 500 KCMIL, 600 V, EPR INSULATED, CU        | 2018 | 645 \$                       | 5,201.66      |
|                       |                                   |  |   | 2019 | -645 \$                      | (4,649.54)    |
|                       |                                   |  | CABLE, INSULATED, UG, 3 PH , PRIMARY , 1/0 AWG, 35 KV, W/ CONCENTRI   | 2018 | 595 \$                       | 3,724.86      |
|                       |                                   |  | CABLE, INSULATED, UG, 4/C, 500 KCMIL, 600 V, W/ 4/0 AWG NEUTRAL, EPI  | 2018 | 645 \$                       | 16,612.29     |
|                       |                                   |  | CONDUIT,ELECTRICAL, 5 IN DIA, 10 FT LG, PVC, SCH 40, ONE BELLED ENI   | 2018 | 120 \$                       | 277.16        |
|                       |                                   |  | CONDUIT,ELECTRICAL, 5 IN DIA, 10 FT LG, PVC, SCH 80, ONE BELLED ENI   | 2018 | 30 \$                        | 95.51         |
|                       |                                   |  | CONNECTOR,ELBOW, LOADBREAK, 35 KV, 200 A, 1/0 AWG STRANDED,34         | 2018 | 9 \$                         | 775.94        |
|                       |                                   |  | CROSSARM, DISTRIBUTION, DEADEND, 3-5/8 X 4-5/8 IN, 10 FT LG , W/ CEN  | 2018 | 11 \$                        | 2,094.15      |
|                       |                                   |  | CROSSARM, DISTRIBUTION, TANGENT, 3-5/8 X 4-5/8 IN, 10 FT LG , W/ CEN  | 2018 | 9 \$                         | 961.62        |
|                       |                                   |  | CUTOUT, FUSE, OPEN, 100 A, 12 KA INTERRUPTING CURRENT ASYMMET         | 2018 | 34 \$                        | 2,244.28      |
|                       |                                   |  | MOUNT,CLUSTER, TRANSFORMER, MEDIUM, 5/8 X 2-1/2 IN, 37.5-167 KVA, /   | 2018 | 6 \$                         | 1,069.82      |
|                       |                                   |  | MOUNT,TRANSFORMER CLUSTER, LG, 5/8 X 2-1/2 IN, AL, NEMA TYPE C, G     | 2018 | 1 \$                         | 426.27        |
|                       |                                   |  | POLE, 45 FT LG, CLASS 2, SOUTHREN YELLOW PINE, CCA TREATED            | 2018 | 7 \$                         | 3,082.84      |
|                       |                                   |  | POLE, 50 FT LG, CLASS 1, SOUTHREN YELLOW PINE, CCA TREATED            | 2018 | 1 \$                         | 563.82        |
|                       |                                   |  | POLE, 50 FT LG, CLASS 2, SOUTHREN YELLOW PINE, CCA TREATED            | 2018 | 5 \$                         | 2,383.32      |
|                       |                                   |  | POLE, 55 FT LG , CLASS 2, SOUTHREN YELLOW PINE, CCA TREATED           | 2018 | 1 \$                         | 572.11        |
|                       |                                   |  | ROPE,SYNTHETIC, MULE TAPE, 1 IN DIA, 1000 FT, POLYESTER, SILICONE I   | 2018 | 1000 \$                      | 484.76        |
|                       |                                   |  | TERMINATOR,CABLE, COLD SHRINK, 1/0 AWG, 35 KV, W/ PIN TAP, JACKET     | 2018 | 9 \$                         | 1,085.33      |
|                       |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2018 | 0 \$                         | 11,203.88     |
|                       |                                   |  |   | 2019 | 0 \$                         | (645.90)      |
|                       |                                   | Miscellaneous Accounting Adjustments       |   | 2019 | 0 \$                         | (0.00)        |
|                       |                                   | Non Productive Time Loader- Acct Use Only  |   | 2018 | 0 \$                         | 177.76        |
|                       |                                   |  |   | 2019 | 0 \$                         | -             |
|                       |                                   | Other Outside Services- Other              |   | 2019 | 0 \$                         | 0.00          |
|                       |                                   |  | SUNBELT RENTALS INC   | 2018 | 0 \$                         | 10,998.63     |
|                       |                                   | Payroll Benefit Loader- Acct Use Only      |   | 2018 | 0 \$                         | 518.97        |



| accounting_work_order | accounting_work_order_description | cost_element_description              | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|-----------------------------------|---------------------------------------|---|------|-----------------|---------------|
| 9P820205              | Mirona Rd Conversion              | Payroll Benefit Loader- Acct Use Only |   | 2019 | 0 \$            | 0.00          |
|                       |                                   | Police Services and Traffic Control   |   | 2019 | 0 \$            | -             |
|                       |                                   |                                       | UTILITY SERVICE & ASSISTANCE                                      | 2018 | 0 \$            | 1,810.50      |
|                       |                                   | Property Taxes                        |   | 2018 | 0 \$            | 2,871.82      |
|                       |                                   |                                       |   | 2019 | 0 \$            | 0.00          |
|                       |                                   | Stores Loader- Acct Use Only          |   | 2018 | 0 \$            | 4,824.79      |
|                       |                                   |                                       |   | 2019 | 0 \$            | 146.55        |
|                       |                                   | UVL-Contractor Labor                  |   | 2018 | 0 \$            | -             |
|                       |                                   |                                       |   | 2019 | 0 \$            | -             |
|                       |                                   |                                       | 0119640 - WEST ROAD CONVERSION                                    | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0120720 - WEST ROAD CONVERSION                                    | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0121398 - WEST ROAD CONVERSION                                    | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0121398 - WEST ST/MIRONI/PEVERLY HILL NT                          | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0122022 - 11 MIRONA ROAD  | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0122022 - 131 MIRONA ROAD   | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0122022 - WEST ST/MIRONI/PEVERLY HILL NT                          | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0122848 - 11 MIRONA ROAD PORTSMOUTH                               | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0122848 - 11 MIRONA ROAD PORTSMOUTH                               | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0122848 - 131 MIRONA ROAD PORTSMOUTH                              | 2018 | 0 \$            | -             |
|                       |                                   |                                       | 0122848 - WEST ST MIRONI PEVERLY HILL NT                          | 2018 | 0 \$            | -             |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only |   | 2018 | 0 \$            | 158.14        |
|                       |                                   |                                       |   | 2019 | 0 \$            | (0.00)        |
| 9P820205 Total        |                                   |                                       |   |      | 5039.5 \$       | 591,018.85    |
| 9P820206              | EWR E17-118 Peverly Hill Rd Conve | Admin and Eng OH- Acct Use Only       |   | 2018 | 0 \$            | 4,064.71      |
|                       |                                   |                                       |   | 2019 | 0 \$            | (82.24)       |
|                       |                                   | AFUDC Debt                            |   | 2018 | 0 \$            | 1,022.29      |
|                       |                                   | Alloc- E+S OH Lines- Acct Use Only    |   | 2018 | 0 \$            | 15,588.13     |
|                       |                                   |                                       |   | 2019 | 0 \$            | (331.87)      |
|                       |                                   | Contractor Services                   |   | 2019 | 0 \$            | -             |
|                       |                                   |                                       | CARUSO & MCGOVERN CONSTRUCTION                                    | 2018 | 0 \$            | 8,157.22      |
|                       |                                   | Contractor Services- Other            |   | 2019 | 0 \$            | -             |
|                       |                                   |                                       | GRATTAN LINE CONSTRUCTION CORP                                    | 2018 | 0 \$            | 316,739.09    |
|                       |                                   |                                       | UTILITY SERVICE & ASSISTANCE                                      | 2018 | 0 \$            | 25,379.36     |
|                       |                                   | Contractor Vehicles + Equip           |   | 2019 | 0 \$            | -             |
|                       |                                   |                                       | GRATTAN LINE CONSTRUCTION CORP                                    | 2018 | 0 \$            | 116,954.28    |
|                       |                                   |                                       | SUNBELT RENTALS INC   | 2018 | 0 \$            | 27,107.06     |
|                       |                                   |                                       | UTILITY SERVICE & ASSISTANCE                                      | 2018 | 0 \$            | 13,289.45     |
|                       |                                   | Employee Expense Other                |   | 2018 | 0 \$            | 8.40          |
|                       |                                   |                                       |   | 2019 | 0 \$            | (0.00)        |
|                       |                                   | Engin and Super OH- Acct Use Only     |   | 2018 | 0 \$            | 162,457.37    |
|                       |                                   |                                       |   | 2019 | 0 \$            | (3,458.72)    |
|                       |                                   | Labor Overtime Non-Exempt             |   | 2018 | 21.5 \$         | 1,394.58      |
|                       |                                   |                                       |   | 2019 | 0 \$            | (0.00)        |
|                       |                                   | Labor Straight Time Exempt            |   | 2018 | 7 \$            | 323.54        |
|                       |                                   |                                       |   | 2019 | 0 \$            | 0.00          |
|                       |                                   | Labor Straight Time Non-Exempt        |   | 2018 | 46.5 \$         | 2,133.41      |
|                       |                                   |                                       |   | 2019 | 0 \$            | 0.00          |
|                       |                                   | Lobby Stock Loader-Acct Use Only      |   | 2018 | 0 \$            | 15,309.73     |
|                       |                                   |                                       |   | 2019 | 0 \$            | 115.26        |
|                       |                                   | Materials- Purchased                  |   | 2019 | 0 \$            | -             |
|                       |                                   |                                       | JP MORGAN CHASE BANK  | 2018 | 1 \$            | 79.96         |
|                       |                                   | Materials- Stores                     |   | 2019 | 0 \$            | (0.00)        |
|                       |                                   |                                       | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 10 IN, 8000 LB                | 2018 | 26 \$           | 658.78        |
|                       |                                   |                                       | ARRESTER,ELBOW, LOADBREAK, 27 KV ARRESTER RATING, 22 KV MCOV      | 2018 | 7 \$            | 1,632.24      |
|                       |                                   |                                       | ARRESTER,SURGE, DISTRIBUTION RISER POLE, METAL OXIDE VARISTOR     | 2018 | 19 \$           | 1,653.41      |
|                       |                                   |                                       | BAR, ANTI-SWAY, 24 IN, W/ CABLE SPACERS ON TANGENT CABLES, POL    | 2018 | 3 \$            | 49.41         |
|                       |                                   |                                       | BLADE,CONTACT, 300 A, 25/27 KV, BRONZE, SOLID DOOR, FITS CHANCE / | 2018 | 5 \$            | 169.40        |
|                       |                                   |                                       | BRACE, CONNECTOR,BRACKET, PUSH BRACE, PUSH BRACE, FOR 6 IN TC     | 2018 | 1 \$            | 29.37         |
|                       |                                   |                                       | BRACKET, ADAPTER, 4000 LB MAX LOAD, STEP TRANSFORMER, REGULA      | 2018 | 1 \$            | 48.53         |
|                       |                                   |                                       | BRACKET, CUTOUT AND ARRESTER, 12 IN W, 48 IN LG, FIBERGLASS, W/   | 2018 | 3 \$            | 321.47        |
|                       |                                   |                                       | BRACKET, CUTOUT AND ARRESTER, 24 IN LG, FIBERGLASS, FERR / ALUM   | 2018 | 4 \$            | 119.09        |
|                       |                                   |                                       | BRACKET,ANGLE, 38-1/2 IN LG, STEEL, GALV, EXTENDED TAP, FOR HEND  | 2018 | 13 \$           | 2,142.46      |
|                       |                                   |                                       | BRACKET,CABLE, TERMINATOR MOUNTED, AL, FOR 0.75 THRU 3.00 IN DI   | 2018 | 4 \$            | 66.79         |
|                       |                                   |                                       | BRACKET,TANGENT, SPACER, 24 IN, DI, HOT DIP GALV, USE: MESSENGER  | 2018 | 9 \$            | 642.05        |
|                       |                                   |                                       | CABLE, BARE, 336.4 MCM, 19 STR, AL, TULIP                         | 2019 | 90 \$           | 43.20         |

| accounting_work_order | accounting_work_order_description          | cost_element_description  | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|--|---|---|------|-----------------|---------------|
| 9P820206              | EWR E17-118 Peverly Hill Rd Conve          | Materials- Stores   | CABLE, BARE, ACSR, 336 KCMIL, 18/1 STR, MERLIN                          | 2018 | 90 \$           | 65.03         |
|                       |  |   |   | 2019 | -90 \$          | (65.03)       |
|                       |  |   | CABLE, BARE, ACSR/AW, 1/0 AWG, 6/1 STR, RAVEN                           | 2018 | 349.99 \$       | 96.83         |
|                       |  |   | CABLE, BARE, ACSR/AW, 4/0 AWG, 6/1 STR, PENGUIN                         | 2018 | 121 \$          | 56.96         |
|                       |  |   |   | 2019 | 999 \$          | 470.27        |
|                       |  |   | CABLE, BARE, ACSR/AW, 477 KCMIL, 18/1 STR, 0.814 IN DIA, PELICAN        | 2018 | 100 \$          | 90.08         |
|                       |  |   | CABLE, COVERED, ACSR/AW, 1/C, 1/0 AWG, 6/1 STR, 35 KV, 75 DEG C, 315    | 2018 | 1050 \$         | 1,230.24      |
|                       |  |   | CABLE, COVERED, SPACER, AAC, 1/C, 1/0 AWG, 7 STR, 35 KV, 90 DEG C, 3    | 2018 | 450 \$          | 463.50        |
|                       |  |   | CABLE, COVERED, SPACER, AAC, 477, 35 KV, 90 DEG C, 320 MILS POLY, A     | 2018 | -4903 \$        | (7,984.11)    |
|                       |  |   | CABLE, INSULATED, AERIAL, AAC, 4/0 AWG, 600 V, W/ 4/0 AWG ALLOY NEI     | 2018 | 160 \$          | 306.78        |
|                       |  |   | CABLE, INSULATED, AERIAL, AAC, TRIPLEX, 1/0 AWG, 7 STR, 600 V, W/ 1/0   | 2018 | 220 \$          | 173.66        |
|                       |  |   | CABLE, INSULATED, AERIAL, AAC, TRIPLEX, 4/0 AWG, 600 V, W/ 4/0 AWG 6    | 2018 | 1595 \$         | 2,075.84      |
|                       |  |   | CABLE, INSULATED, UG, 1 PH, PRIMARY, 1/0 AWG, 35 KV, W/ CONCENTRI       | 2018 | 800 \$          | 2,075.85      |
|                       |  |   | CABLE, INSULATED, UG, 3 PH, PRIMARY, 1/0 AWG, 35 KV, W/ CONCENTRI       | 2018 | 880 \$          | 5,526.82      |
|                       |  |   | CONDUIT,ELECTRICAL, 3 IN DIA, PVC, SCH 80, 2.9 IN ID, STRAIGHT          | 2018 | 10 \$           | 15.88         |
|                       |  |   | CONDUIT,ELECTRICAL, 3 IN, 10 FT LG, PVC, SCH 40, ONE BELLED END         | 2018 | 40 \$           | 39.20         |
|                       |  |   | CONDUIT,ELECTRICAL, 5 IN DIA, 10 FT LG, PVC, SCH 40, ONE BELLED ENI     | 2018 | 40 \$           | 77.93         |
|                       |  |   | CONDUIT,ELECTRICAL, 5 IN DIA, 10 FT LG, PVC, SCH 80, ONE BELLED ENI     | 2018 | 10 \$           | 31.84         |
|                       |  |   | CONNECTOR,ELBOW, LOADBREAK, 35 KV, 200 A, 1/0 AWG STRANDED,34           | 2018 | 16 \$           | 1,379.93      |
|                       |  |   | CROSSARM, DISTRIBUTION, DEADEND, 3-5/8 X 4-5/8 IN, 10 FT LG, W/ CEN     | 2018 | 5 \$            | 956.59        |
|                       |  |   | CROSSARM, DISTRIBUTION, TANGENT, 3-5/8 X 4-5/8 IN, 10 FT LG, W/ CEN     | 2018 | 8 \$            | 859.48        |
|                       |  |   | CROSSARM, TANGENT, JUMBO, 3-5/8 X 4-5/8 IN, 10 FT LG, W/ JUMBO DRIL     | 2018 | 3 \$            | 350.95        |
|                       |  |   | CUTOUT, FUSE, OPEN, 100 A, 12 KA INTERRUPTING CURRENT ASYMMETFI         | 2018 | 11 \$           | 675.48        |
|                       |  |   | CUTOUT, FUSE, OPEN, LOADBUSTER, 200 A, 25 KV, 150 KV BIL, W/ LOADE      | 2018 | 3 \$            | 247.91        |
|                       |  |   | EXTENSION,POLE TOP, 60 IN LG, STEEL, W/ SPACER CABLE, FINISH: GAL       | 2018 | 10 \$           | 1,809.50      |
|                       |  |   | FITTING,SIDEWALK GUY, CLAMP END, 2-1/2 IN, STEEL, GALV                  | 2018 | 2 \$            | 18.95         |
|                       |  |   | PIPE, 2-1/2 IN DIA, 10 FT LG, PLAIN ENDS, SCH 40, STEEL, GALV, FOR SIDE | 2018 | 10 \$           | 102.47        |
|                       |  |   | POLE, 45 FT LG, CLASS 2, SOUTHREN YELLOW PINE, CCA TREATED              | 2018 | 2 \$            | 872.27        |
|                       |  |   | POLE, 50 FT LG, CLASS 1, SOUTHREN YELLOW PINE, CCA TREATED              | 2018 | 3 \$            | 1,691.46      |
|                       |  |   | POLE, 50 FT LG, CLASS 2, SOUTHREN YELLOW PINE, CCA TREATED              | 2018 | 11 \$           | 5,287.32      |
|                       |  |   | POLE, 55 FT LG, CLASS 1, SOUTHREN YELLOW PINE, PENTA TREATED            | 2019 | 1 \$            | 670.35        |
|                       |  |   | POLE, 55 FT LG, CLASS 1, WESTERN RED CEDAR                              | 2018 | 1 \$            | 1,235.25      |
|                       |  |   | POLE, 55 FT LG, CLASS 2, SOUTHREN YELLOW PINE, CCA TREATED              | 2018 | 2 \$            | 1,144.23      |
|                       |  |   |   | 2019 | -1 \$           | (572.11)      |
|                       |  |   | POLE, 55 FT LG, CLASS 2, WESTERN RED CEDAR                              | 2018 | 1 \$            | 1,270.32      |
|                       |  |   | SIDEWALK GUY, FITTING, 2-1/2 IN, STEEL, GALV                            | 2018 | 2 \$            | 18.89         |
|                       |  |   | SPACER,CABLE, 46 KV, W/ CONDUCTOR CLAMPS, POLYETHYLENE, MFR:            | 2018 | 50 \$           | 1,340.42      |
|                       |  |   | SWITCH,DISCONNECT, IN LINE, 900 A CONTINUOUS, 35 KV, 1/0 ACSR, 0.36     | 2018 | 3 \$            | 2,844.31      |
|                       |  |   | SWITCH,DISCONNECT, IN LINE, 900 A CONTINUOUS, 35 KV, 200 KV BIL, 33     | 2018 | 12 \$           | 7,852.84      |
|                       |  |   | TERMINATOR,CABLE, COLD SHRINK, 1/0 AWG, 35 KV, W/ PIN TAP, JACKET       | 2018 | 3 \$            | 364.01        |
|                       |  |   | WIRE, MESSENGER, 052 AWA, FOR SPACER CABLE                              | 2018 | 1250 \$         | 1,165.51      |
|                       | Meals                                      |   |   | 2018 | 4 \$            | 40.00         |
|                       |  |   |   | 2019 | 0 \$            | (0.00)        |
|                       | Misc Dist Exp Capitalized OH-Acct Use Only |   |   | 2018 | 0 \$            | 14,820.32     |
|                       |  |   |   | 2019 | 0 \$            | (315.52)      |
|                       | Miscellaneous Accounting Adjustments       |   |   | 2019 | 0 \$            | 0.00          |
|                       | Non Productive Time Loader- Acct Use Only  |   |   | 2018 | 0 \$            | 502.09        |
|                       |  |   |   | 2019 | 0 \$            | -             |
|                       | Other Outside Services- Tree Planned       |   |   | 2019 | 0 \$            | -             |
|                       |  | ASPLUNDH TREE EXPERT CO   |   | 2018 | 8 \$            | 11,964.40     |
|                       | Payroll Benefit Loader- Acct Use Only      |   |   | 2018 | 0 \$            | 1,490.69      |
|                       |  |   |   | 2019 | 0 \$            | 0.00          |
|                       | Permits                                    |   |   | 2019 | 0 \$            | -             |
|                       |  | JP MORGAN CHASE BANK  |   | 2018 | 4 \$            | 284.33        |
|                       | Police Services and Traffic Control        |   |   | 2019 | 0 \$            | -             |
|                       |  | UTILITY SERVICE & ASSISTANCE  |   | 2018 | 0 \$            | 1,785.00      |
|                       | Property Taxes                             |   |   | 2018 | 0 \$            | 7,388.03      |
|                       |  |   |   | 2019 | 0 \$            | 0.00          |
|                       | Stores Loader- Acct Use Only               |   |   | 2018 | 0 \$            | 11,864.03     |
|                       |  |   |   | 2019 | 0 \$            | 57.38         |
|                       | Stores over 25K                            |   |   | 2019 | 0 \$            | -             |
|                       |  | CABLE, INSULATED, SPACER, AAC, 1/C, 477, 35 KV, 90 DEG C, 320 MILS PC |   | 2018 | 12598 \$        | 35,091.64     |
|                       | UVL-Contractor Labor                       |   |   | 2019 | 0 \$            | -             |
|                       |  | 0119640 - WEST ROAD CONVERSION  |   | 2018 | 0 \$            | -             |
|                       |  | 0120454 - MISC TREE TRIMMING  |   | 2018 | 0 \$            | -             |

| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description  | year | Sum of quantity | Sum of amount          |
|-----------------------|-----------------------------------|--|--|------|-----------------|------------------------|
| 9P820206              | EWR E17-118 Peverly Hill Rd Conve | UVL-Contractor Labor                       | 0120720 - WEST ROAD CONVERSION                                     | 2018 | 0 \$            | -                      |
|                       |                                   |  | 0121398 - WEST ST/MIRON/PEVERLY HILL NT                            | 2018 | 0 \$            | -                      |
|                       |                                   |  | 0122022 - WEST ST/MIRON/PEVERLY HILL NT                            | 2018 | 0 \$            | -                      |
|                       |                                   |  | 0123764 - 680 PEVERLY HILL RD PORTSMOUTH                           | 2018 | 0 \$            | -                      |
|                       |                                   |  | 0123764 - WEST ST MIRONA RD  | 2018 | 0 \$            | -                      |
|                       |                                   | UVL-Other Outside Serv-Tree Lump Sum       |  | 2019 | 0 \$            | -                      |
|                       |                                   |  | 0118504 - MISC TREE TRIMMING                                       | 2018 | 0 \$            | -                      |
|                       |                                   |  | 0121158 - TREE TRIMMING  | 2018 | 0 \$            | -                      |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only      |  | 2018 | 0 \$            | 1,032.47               |
|                       |                                   |  |  | 2019 | 0 \$            | 0.00                   |
| <b>9P820206 Total</b> |                                   |  |  |      | <b>16204.99</b> | <b>\$ 836,165.97</b>   |
| 9P820965              | Replace cutouts with inlines      | Admin and Eng OH- Acct Use Only            |  | 2018 | 0 \$            | 6.22                   |
|                       |                                   |  |  | 2019 | 0 \$            | 11.36                  |
|                       |                                   | AFUDC Debt                                 |  | 2018 | 0 \$            | 0.20                   |
|                       |                                   |  |  | 2019 | 0 \$            | 0.45                   |
|                       |                                   | Alloc- E+S OH Lines- Acct Use Only         |  | 2019 | 0 \$            | 957.25                 |
|                       |                                   | Labor Straight Time Non-Exempt             |  | 2019 | 16 \$           | 791.01                 |
|                       |                                   | Lobby Stock Loader-Acct Use Only           |  | 2018 | 0 \$            | (357.60)               |
|                       |                                   | Materials- Stores                          | SWITCH,DISTRIBUTION, OUTDOOR, LOADBUSTER, IN-LINE, 900 A, 35 KV, : | 2018 | 3 \$            | 936.00                 |
|                       |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |  | 2019 | 0 \$            | 38.29                  |
|                       |                                   | Miscellaneous Accounting Adjustments       |  | 2019 | 0 \$            | -                      |
|                       |                                   | Non Productive Time Loader- Acct Use Only  |  | 2019 | 0 \$            | 108.13                 |
|                       |                                   | Payroll Benefit Loader- Acct Use Only      |  | 2019 | 0 \$            | 377.19                 |
|                       |                                   | Stores Loader- Acct Use Only               |  | 2018 | 0 \$            | 59.61                  |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only      |  | 2019 | 0 \$            | 250.59                 |
| <b>9P820965 Total</b> |                                   |  |  |      | <b>19</b>       | <b>\$ 3,178.70</b>     |
| <b>Grand Total</b>    |                                   |  |  |      | <b>21263.49</b> | <b>\$ 1,430,363.52</b> |

## Public Service Co of New Hampshire Project Approval Information

|  |   |                    |
|--|---|--------------------|
| Fund Project Number <b>A07X45</b>            | Status <b>open</b>                      | Revision <b>45</b> |
| Project Title <b>REJECT POLE REPLACEMENT</b> | Operating Unit                          |                    |
| Initiated By <b>PWRPLANT</b>                 | Initiated Date <b>1/1/2001 00:00:00</b> |                    |

|                     |  |
|---------------------|--|
| Description of Work | <b>REJECT POLE REPLACEMENT ALL DIVISIONS</b> |
| Location            | <b>Distribution Line - New Hampshire</b>     |

|  |                        |                  |                      |                     |   |
|--|------------------------|------------------|----------------------|---------------------|---|
| <b>Project Schedule / Expenditures</b> |                        | Est Start Date : | <b>1/1/2018</b>      | Est Complete Date : | <b>12/31/2018</b>                         |
| 2011<br>\$0.00                         | 2012<br>\$0.00         | 2013<br>\$0.00   | 2014<br>\$0.00       | 2015<br>\$0.00      | Future Years<br>\$1,963,000.00            |
|  |                        |                  |                      |                     | <b>Total</b><br><b><u>\$1,963,000</u></b> |
| Cost Breakdown                         | Capital<br>\$1,668,278 | Expense<br>\$0   | Removal<br>\$294,722 | Retirements<br>\$0  | Credits<br>\$0                            |
|  |                        |                  |                      |                     | \$1,963,000.00                            |

Reason For Work

Background Information

### Approvals

| Level                  | Approver          | Approval Limit | Date Approved |
|------------------------|-------------------|----------------|---------------|
| Project Manager        | Menard, Erica     | \$0            | 3/8/2019      |
| Plant Accounting       | Davis, Sean       | \$0            | 3/13/2019     |
| Manager - PSNH Dist    | Lajoie, Lee       | \$100,000      | 3/13/2019     |
| Vice President - PSNH  | Purington, Joseph | \$1,000,000    | 3/14/2019     |
| Sr. VP/President - Ops | Quinlan, William  | \$5,000,000    | 4/2/2019      |

# EVERSOURCE

Project Authorization Form

## Supplement Request Form

|                                      |   |
|--------------------------------------|---|
| Date Prepared: 1/25/2019             | Project Title: Reject Pole Replacement (2018)         |
| Company/Companies: Eversource NH     | Project ID Number: A07X45                             |
| Organization: NH Operations          | Plant Class/(F.P.Type): Distribution                  |
| Project Initiator: Eric Sutton       | Project Type: Program                                 |
| Project Manager: Marc Geaumont       | Capital Investment Part of Original Operating Plan? Y |
| Project Sponsor: Joseph Purington    | O&M Expenses Part of the Original Operating Plan? Y   |
| Current Authorized Amount: \$850,000 | Estimated in service date(s): 12/31/2018              |
| Supplement Request: \$1,113,000      | Other:  |
| Total Request: \$1,963,000           |   |

## Supplement Justification

### Justification for Additional Resources

The Eversource Maintenance Program (EMP) and the Intercompany Operating Procedures (IOPs) both require all wood poles in Eversource maintenance territory to be inspected every 10 years. This project funds the replace of poles which are deemed "rejects" as part of the annual inspection program.

The initial budget for the reject pole replacement is funded based on historical spending and/or known future investment needed within the overall distribution budget constraints. Program spending is monitored throughout the year through a budget review committee. As work is identified throughout the year, the budget committee determines whether the additional investment needed can be funded by reducing funding in other projects or whether the additional investment must be deferred to a future year to stay within the budget.

Investment in the reject pole replacement program was higher than originally budgeted due to a higher than normal failure rate of the 2017 pole inspections. Eversource inspects approximately 35,000 wood poles each year as part of its annual pole inspection program with an average failure rate of 1.5-2% failure rate. 1,386 poles (or approximately 4%) were identified as requiring replacement as a result of the 2017 pole inspection program.

Additional investment in reject pole replacement was monitored and approved by the capital budget review committee during monthly project meetings.

# EVERSOURCE

Project Authorization Form

## Supplement Cost Summary

Note: Dollar values are in thousands:

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 567              | \$ 537                | \$ 1,104        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | 67                  | 116                   | 183             |
| Total Direct Spending         | \$ 634              | \$ 653                | \$ 1,287        |
| Capital Additions - Indirect  | 216                 | 459                   | 675             |
| AFUDC                         | -                   | 1                     | 1               |
| Total Capital Request         | \$ 850              | \$ 1,113              | \$ 1,963        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 850</b>       | <b>\$ 1,113</b>       | <b>\$ 1,963</b> |

Note: Dollar values are in thousands:

Total Supplement Request by year view:

|                               | Year 2018       | Year 20__   | Year 20__ + | Total           |
|-------------------------------|-----------------|-------------|-------------|-----------------|
| Capital Additions - Direct    | \$ 537          | \$ -        | \$ -        | \$ 537          |
| Less Customer Contribution    | -               | -           | -           | -               |
| Removals net of Salvage ____% | 116             | -           | -           | 116             |
| Total Direct Spending         | \$ 653          | \$ -        | \$ -        | \$ 653          |
| Capital Additions - Indirect  | 459             | -           | -           | 459             |
| AFUDC                         | 1               | -           | -           | 1               |
| Total Capital Request         | \$ 1,113        | \$ -        | \$ -        | \$ 1,113        |
| O&M                           | -               | -           | -           | -               |
| <b>Total Request</b>          | <b>\$ 1,113</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 1,113</b> |

**EVERSOURCE**  
APS-1 - Project Authorization Policy  
Delegation of Authority Signature Form

**Electric Distribution Project Approval Form**

|  |                                     |
|--|-------------------------------------|
| <b>Project Title:</b><br>REJECT POLE REPLACEMENT<br>(2018) | <b>Project ID Number:</b><br>A07X45 |
| <b>Authorization Amount:</b><br>\$850,000                  |                                     |

**Capital Project Authorizations, as defined in the Delegation of Authority policy**

| Position         | Approver Signature | Date Approved | Authority Limit              |
|------------------|--------------------|---------------|------------------------------|
| Manager          | <i>Eric Sutton</i> |               | \$100,000                    |
| Director         | <i>[Signature]</i> |               | \$250,000                    |
| Vice President   | <i>[Signature]</i> |               | \$1,000,000                  |
| Sr. VP/President |                    |               | \$5,000,000                  |
| Executive VP     |                    |               | \$12,500,000                 |
| CFO              |                    |               | \$20,000,000                 |
| CEO              |                    |               | \$25,000,000                 |
| Subsidiary Board |                    |               | Greater than<br>\$25,000,000 |

# EVERSOURCE

Project Authorization Form

## Operations Project Authorization Form

|   |   |
|---|---|
| <b>Date Prepared:</b>                       | <b>Project Title:</b> Reject Pole Replacement                   |
| <b>Company/ies:</b> Eversource NH           | <b>Project ID Number:</b> A07X45                                |
| <b>Organization:</b> NH Operations          | <b>Class(es) of Plant:</b> Distribution                         |
| <b>Project Initiator:</b> Eric Sutton       | <b>Project Category:</b> Reliability – Line                     |
| <b>Project Manager:</b> Marc Geaumont       | <b>Project Type:</b> Program                                    |
| <b>Project Sponsor:</b> Joseph Purington    | <b>Project Purpose:</b> Reject Pole Replacement                 |
| <b>Estimated in service date:</b> 12/31/18  | <b>If Transmission Project:</b> PTF? No                         |
| <b>Eng. /Constr. Resources Budgeted?</b> No | <b>Capital Investment Part of Original Operating Plan?</b> No   |
| <b>Authorization Type:</b> Full Funding     | <b>O&amp;M Expenses Part of the Original Operating Plan?</b> No |
| <b>Total Request:</b> \$850,000             |   |

### Financial Requirements:

#### Project Authorization

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

#### Executive Summary

The Eversource Maintenance Program (EMP) and the Intercompany Operating Procedures (IOPs) both require all wood poles in Eversource maintenance territory to be inspected every 10 years. This project funds the replace of poles which are deemed "rejects" as part of the annual inspection program.

#### Project Costs Summary

|                               | Prior<br>Authorized | 2018     | 20__ | 20__+ | Totals   |
|-------------------------------|---------------------|----------|------|-------|----------|
| Capital Additions - Direct    | \$ -                | \$ 567.0 | \$ - | \$ -  | \$ 567.0 |
| Less Customer Contribution    | -                   | -        | -    | -     | -        |
| Removals net of Salvage ____% | -                   | 67.0     | -    | -     | 67.0     |
| Total - Direct Spending       | \$ -                | \$ 634.0 | \$ - | \$ -  | \$ 634.0 |
| Capital Additions - Indirect  | -                   | 216.0    | -    | -     | 216.0    |
| Subtotal Request              | \$ -                | \$ 850.0 | \$ - | \$ -  | \$ 850.0 |
| AFUDC                         | -                   | -        | -    | -     | -        |
| Total Capital Request         | \$ -                | \$ 850.0 | \$ - | \$ -  | \$ 850.0 |
| O&M                           | -                   | -        | -    | -     | -        |
| Total Request                 | \$ -                | \$ 850.0 | \$ - | \$ -  | \$ 850.0 |



# EVERSOURCE

Project Authorization Form

## Financial Evaluation

**Note:** Dollar values are in thousands

| Direct Capital Costs                            | Year 1 | Year 2 | Year 3+ | Total   |
|---|--------|--------|---------|---------|
| Straight Time Labor                             | \$38   |        |         | \$38    |
| Overtime Labor                                  |        |        |         |         |
| Outside Services                                | \$536  |        |         | \$536   |
| Materials                                       | \$125  |        |         | \$122.9 |
| Other, including contingency amounts (describe) | -\$65  |        |         | -\$65   |
| Total   | \$634  |        |         | \$634   |

| Indirect Capital Costs                   | Year 1 | Year 2 | Year 3+ | Total |
|--|--------|--------|---------|-------|
| Indirects/Overheads (including benefits) | \$216  |        |         | \$216 |
| Capitalized interest or AFUDC, if any    | \$0    |        |         | \$0   |
| Total                                    | \$216  |        |         | \$216 |

|                     |       |  |  |       |
|---------------------|-------|--|--|-------|
| Total Capital Costs | \$850 |  |  | \$850 |
|---------------------|-------|--|--|-------|

|                                  |   |  |  |   |
|----------------------------------|---|--|--|---|
| Less Total Customer Contribution | 0 |  |  | 0 |
|----------------------------------|---|--|--|---|

|                             |       |  |  |       |
|-----------------------------|-------|--|--|-------|
| Total Capital Project Costs | \$850 |  |  | \$850 |
|-----------------------------|-------|--|--|-------|

|                         |  |  |  |  |
|-------------------------|--|--|--|--|
| Total O&M Project Costs |  |  |  |  |
|-------------------------|--|--|--|--|

**Note:** Explain unique payment provisions, if applicable

# EVERSOURCE

Project Authorization Form

## Future Financial Impacts:

Provide below the estimated future costs that will result from the project:

*Note: Dollar values are in thousands:*

| Future Costs | Year 20__   | Year 20__   | Year20__    | Year 20__ + | Total Future Project Costs |
|--------------|-------------|-------------|-------------|-------------|----------------------------|
| Capital      | \$ -        | \$ -        | \$ -        | \$ -        | \$ -                       |
| O&M          | -           | -           | -           | -           | -                          |
| Other        | -           | -           | -           | -           | -                          |
| <b>TOTAL</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b>                |

Describe the estimated future Capital, O&M and/or Other costs noted above:

What functional area(s) will these future costs be funded in? \_\_\_\_\_

*A representative from the respective functional area is required to be included as a project approver.*

## If this is other than a Reliability Project, please complete the section below:

Provide below the estimated financial benefits that will result from the project:

*Note: Dollar values are in thousands:*

| Future Benefits | Year 20__   | Year 20__   | Year20__    | Year 20__ + | Total Future Project Benefits |
|-----------------|-------------|-------------|-------------|-------------|-------------------------------|
| Capital         | \$ -        | \$ -        | \$ -        | \$ -        | \$ -                          |
| O&M             | -           | -           | -           | -           | -                             |
| Other           | -           | -           | -           | -           | -                             |
| <b>TOTAL</b>    | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b>                   |

Describe the estimated future Capital, O&M and/or Other benefits noted above:

What functional area(s) will these benefits be reflected in? \_\_\_\_\_

*A representative from the respective functional area is required to be included as a project approver.*

## Asset Retirement Obligation (ARO) and/ or Environmental Cleanup Costs (Environmental Liabilities):

Is there an ARO associated with this project? If yes, please provide details:

Are there other environmental cleanup costs associated with this project? If yes, please provide details:

# EVERSOURCE

Project Authorization Form

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## **Technical Justification:**

### **Project Need Statement**

Eversource inspects approximately 35,000 wood poles each year as part of its annual pole inspection program. As a result of the 2016 pole inspection program, 1,386 poles were identified as requiring replacement.

### **Project Objectives**

Replace poles that are identified as either a higher priority or normal priority reject during the annual inspection program.

### **Project Scope**

1,386 poles were identified as requiring replacement as a result of inspections that were completed by Smith Mountain Investments in 2016. Project A07X45 funds the replacement of the poles that are identified as deficient based on inspection criteria.

### **Background / Justification**

Eversource inspects its wood poles utilizing a 10 year inspection cycle. As a result of the 2016 pole inspection program, 1,386 poles were identified as requiring replacement.

### **Business Process and / or Technical Improvements:**

The annual pole inspection program typically identifies between 300 and 500 poles that require replacement. Almost 1,400 reject poles were identified during the 2016 inspection. This dramatic increase is the result of a business decision to replace poles that would have previously been braced or "restored" until the next inspection occurred 10 years later.

### **Alternatives Considered with Cost Estimates**

The alternative is to do nothing which does not help improve the company's reliability of electric service beyond where it is. There would be no financial cost to this option, although it would likely result in increased regulator scrutiny. Ignoring deteriorating poles conditions results in unsafe conditions.

### Project Schedule

| Milestone/Phase Name | Estimated Completion Date |
|----------------------|---------------------------|
| Project Completion   | 12/31/2018                |
|                      |                           |
|                      |                           |
|                      |                           |
|                      |                           |

### Regulatory Approvals

### Risks and Risk Mitigation Plans

### References

### Attachments (One-Line Diagrams, Images, etc.)

# EVERSOURCE

Project Authorization Form

## Project Checklist – Transmission and Substation

### INSTRUCTIONS:

It is the responsibility of the initiator to contact the area disciplines to determine if the project considerations contained in this list are applicable to their project. They should fill out the checklist and determine a transition plan for the purpose of project execution.

| Checklist for Studies and Processes of a Transmission & Substation Capital Project  |                |
|---|----------------|
| Project Name :  | PAF No:        |
| Facility Type: <input type="checkbox"/> BPS <input type="checkbox"/> BES <input type="checkbox"/> PTF <input type="checkbox"/> non-PTF <input type="checkbox"/> CIP <input type="checkbox"/> Distribution |                |
| PLANNING  |                |
| Is a NX-9 required?   | Choose an item |
| Is an ISO-NE PAC presentation required?   | Choose an item |
| Is a PPA required?  | Choose an item |
| Is a TCA Application Required?  | Choose an item |
| PLANNING/PROTECTION & CONTROLS  |                |
| Are RAS/SPS/UVLs affected?  | Choose an item |
| OPERATIONS  |                |
| Outage Required? <input type="checkbox"/> Primary Equipment (Power Transfer) <input type="checkbox"/> Secondary Equipment (P&C only) <input type="checkbox"/> Outage Not Required                         |                |
| Do SCLL Conditions Exist?   | Choose an item |
| Has an outage schedule been approved?   | Choose an item |
| Are Operations & Maintenance procedures/training required?  | Choose an item |
| STANDARDS   |                |
| Does the project include standard equipment and designs?  | Choose an item |
| SUBSTATION ENGINEERING  |                |
| Does this impact Revenue Metering   | Choose an item |
| Is preliminary short circuit/ breaker duty analysis required?   | Choose an item |
| Are there any changes to the baseline audible noise?  | Choose an item |
| Is there an impact to the existing ground grid?   | Choose an item |
| Is a Transient Over Voltage (TOV) analysis required?  | Choose an item |
| P&C ENGINEERING   |                |
| OP-22 - Are PMUs and DDR required?  | Choose an item |
| If BPS, is an NPCC Directory #4 presentation required?  | Choose an item |

# EVERSOURCE

Project Authorization Form

| Checklist for Studies and Processes of a Transmission & Substation Capital Project |                |
|--|----------------|
| Project Name :   | PAF No:        |
| <b>TRANSMISSION LINE ENGINEERING</b>   |                |
| Are there any changes that affect the baseline EMF?                                | Choose an item |
| Are there any changes that affect the baseline EMI?                                | Choose an item |
| Is there an impact to the existing ground grid?                                    | Choose an item |
| <b>SITING</b>  |                |
| Is a Siting filing required?   | Choose an item |
| <b>PERMITTING</b>  |                |
| Is there any permitting required?  | Choose an item |
| <b>Siting &amp; Construction Services (Outreach)</b>                               |                |
| What is the level of outreach expected?  | Choose an item |
| <b>INITIATOR</b>   |                |
| Has a field constructability review been completed?                                | Choose an item |

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**Cost Estimate Backup Details**

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 10/28/2019**

**Date of Response: 11/15/2019**

**Request No. TS 2-057**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Joseph A. Purington, Lee G. Lajoie**

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**Request:**

Re: Reject Pole Replacement, #A07X45, 12-045BB. Please provide the following information for this project:

- a. Please reiterate in writing the reasons discussed at the tech session of 10/29 for the significant increase (\$850,000 budget v. \$1.9 million) in pole replacement costs in 2018.
- b. Please confirm the total number of poles replaced including:
  - i. Total number of poles rejected by the pole inspection contractor.
  - ii. Total number of poles rejected by others – please indicate the number and identities of other contractors.
- c. How many of the defective wooden poles were replaced by steel, composite, or class 2 poles?
- d. Please provide an itemized breakout of overheads, AFUDC, and other costs leading up to the variance.

**Response:**

- a) Budgets are established based on historical spending. As stated on page 2 of 12 of Attachment Staff 12-045 BB, "Investment in the reject pole replacement program was higher than originally budgeted due to a higher than normal failure rate of the 2017 pole inspections. Eversource inspects approximately 35,000 wood poles each year as part of its annual pole inspection program with an average failure rate of 1.5-2% failure rate. 1,386 poles (or approximately 4%) were identified as requiring replacement as a result of the 2017 pole inspection program." Therefore, the higher than normal reject rate resulted in higher than normal expenditures. See also the response to OCA 6-050.
- b) All poles identified as requiring replacement were identified by the Company's pole inspection contractor. Contractors employed in the period 2007 through 2019 include Utility Pole Technologies (2007 through 2012), Osmose (2013), Alamon (2013), and Smith Mountain Investments (2014 – 2019).
- c) Three reject poles were replaced with steel poles, one each on the 316, 382, and 382X2 ROW lines. None were replaced with composite poles. One was replaced with a Class 1 pole. The remainder were replaced with Class 2 poles.
- d) See Attachment TS 2-057 for a summary of actual overheads, AFUDC, and other costs for this project.



| Project                        | Version | Charge Type          | Jan 2018  | Feb 2018  | Mar 2018   | Apr 2018   | May 2018  | Jun 2018   | Jul 2018  | Aug 2018  | Sep 2018   | Oct 2018 | Nov 2018  | Dec 2018   | Total 2018  |
|--------------------------------|---------|----------------------|-----------|-----------|------------|------------|-----------|------------|-----------|-----------|------------|----------|-----------|------------|-------------|
| A07X45:REJECT POLE REPLACEMENT | Actual  | Materials            | \$28,993  | \$28,426  | \$54,135   | \$26,046   | \$24,631  | \$7,993    | (\$937)   | \$6,604   | \$3,491    | \$15,288 | \$18,144  | \$12,087   | \$224,900   |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Other                | (\$19)    | (\$4,213) | (\$20,418) | (\$20,191) | (\$5,700) | (\$21,775) | (\$2,950) | (\$8,550) | (\$19,379) | (\$605)  | (\$1,162) | (\$3,720)  | (\$108,682) |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Outside Services     | \$209,329 | \$123,170 | \$59,731   | \$174,992  | \$130,556 | \$95,433   | \$105,671 | \$58,377  | \$17,761   | \$39,374 | \$30,230  | \$23,334   | \$1,067,957 |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Overtime Labor       | \$614     | \$16      | \$388      | (\$35)     | (\$66)    | \$445      | \$184     | \$47      | \$391      | \$1,628  | \$715     | \$211      | \$4,538     |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Straight Time Labor  | \$8,670   | \$13,666  | \$7,857    | \$9,348    | \$7,544   | \$8,813    | \$2,037   | \$5,060   | \$6,479    | \$4,633  | \$8,387   | \$15,678   | \$98,172    |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Total Direct Costs   | \$247,588 | \$161,064 | \$101,694  | \$190,159  | \$156,964 | \$90,909   | \$104,006 | \$61,539  | \$8,742    | \$60,317 | \$56,313  | \$47,590   | \$1,286,885 |
| A07X45:REJECT POLE REPLACEMENT | Actual  | AFUDC                | \$116     | \$136     | \$107      | \$126      | \$86      | \$41       | \$11      | \$19      | \$24       | \$46     | \$73      | \$85       | \$869       |
| A07X45:REJECT POLE REPLACEMENT | Actual  | AS&E                 | \$1,252   | \$1,666   | \$1,373    | \$1,115    | \$1,453   | \$792      | \$908     | \$505     | \$174      | \$334    | \$300     | \$429      | \$10,301    |
| A07X45:REJECT POLE REPLACEMENT | Actual  | E&S                  | \$86,225  | \$51,301  | \$28,140   | \$102,827  | \$74,155  | \$37,992   | \$37,133  | \$17,914  | \$7,953    | \$12,501 | \$14,092  | \$29,092   | \$499,325   |
| A07X45:REJECT POLE REPLACEMENT | Actual  | MDEC                 | \$6,718   | \$3,997   | \$2,110    | \$5,609    | \$4,043   | \$3,256    | \$3,183   | \$1,536   | \$719      | \$1,091  | \$807     | \$1,130    | \$34,200    |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Payroll              | \$5,032   | \$7,256   | \$4,593    | \$4,987    | \$3,968   | \$4,910    | \$1,181   | \$2,601   | \$3,596    | \$3,136  | \$4,678   | \$8,213    | \$54,150    |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Stores & Lobby Stock | \$10,442  | \$10,722  | \$8,808    | \$8,932    | \$8,531   | \$7,390    | \$1,185   | \$2,248   | (\$684)    | \$5,289  | \$6,282   | (\$25,433) | \$43,710    |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Vehicle              | \$1,870   | \$6,394   | \$1,577    | \$3,277    | \$2,088   | \$2,182    | \$1,035   | \$1,609   | \$2,513    | \$2,352  | \$2,792   | \$5,740    | \$33,429    |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Total Allocations    | \$111,654 | \$81,472  | \$46,708   | \$126,872  | \$94,323  | \$56,562   | \$44,636  | \$26,432  | \$14,295   | \$24,749 | \$29,023  | \$19,256   | \$675,983   |
| A07X45:REJECT POLE REPLACEMENT | Actual  | Total Costs          | \$359,242 | \$242,536 | \$148,402  | \$317,032  | \$251,287 | \$147,471  | \$148,642 | \$87,971  | \$23,037   | \$85,066 | \$85,337  | \$66,846   | \$1,962,868 |

## Public Service Co of New Hampshire Project Approval Information

|  |   |                    |
|--|---|--------------------|
| <b>Fund Project Number</b> A16C01          | <b>Status</b> open                        | <b>Revision</b> 10 |
| <b>Project Title</b> 3271 Line Reconductor | <b>Operating Unit</b>                     |                    |
| <b>Initiated By</b> Lynne Godbout          | <b>Initiated Date</b> 11/12/2015 17:14:48 |                    |

|                            |   |
|----------------------------|---|
| <b>Description of Work</b> | 3271 line - Reconductor 2.66 miles of #2 solid CU with 477 ACSR (Weare, Goffstown). Offload the circuits out of Gregg's substation to Weare substation. Reconductor 2.66 miles of #2 solid CU with 477 ACSR from recloser 71 to the 3271X1 tap on the 3271 line and move the 3-335 amp regulators from the existing location on the 3271 line to right after the Goffstown tap towards Gregg's substation for |
| <b>Location</b>            | Distribution Line - New Hampshire   |

|  |                |                         |                |                            |                           |
|--|----------------|-------------------------|----------------|----------------------------|---------------------------|
| <b>Project Schedule / Expenditures</b> |                | <b>Est Start Date :</b> | 1/1/2016       | <b>Est Complete Date :</b> | 12/1/2017                 |
| <b>2016</b>                            | <b>2017</b>    | <b>2018</b>             | <b>2019</b>    | <b>2020</b>                | <b>Future Years</b>       |
| \$140,576.37                           | \$2,364,664.92 | \$0.00                  | \$0.00         | \$0.00                     | \$0.00                    |
|  |                |                         |                |                            | <b>Total</b>              |
|  |                |                         |                |                            | <b><u>\$2,505,241</u></b> |
|  |                | <b>Capital</b>          | <b>Expense</b> | <b>Removal</b>             | <b>Retirements</b>        |
| <b>Cost Breakdown</b>                  | \$2,477,741    | \$0                     | \$27,500       | \$0                        | \$0                       |
|  |                |                         |                |                            | \$2,505,241.29            |

**Reason For Work**

**Background Information**

### Approvals

| Level                      | Approver                  | Approval Limit | Date Approved |
|----------------------------|---------------------------|----------------|---------------|
| Project Manager            | Morales, Natacha          | \$0            | 4/10/2017     |
| Plant Accounting           | Davis, Sean               | \$0            | 4/10/2017     |
| Manager - Trans Capital    | Herman, Glenn             | \$100,000      | 4/17/2017     |
| Director - Transmission Pr | Revellese, Timothy        | \$250,000      | 4/20/2017     |
| VP - Transmission ProjEnç  | Shea_TERMINATED, Kathleen | \$1,000,000    | 5/5/2017      |
| President, Transmission    | Clarke_TERMINATED, Peter  | \$5,000,000    | 5/9/2017      |



APS 1 - Project Authorization Policy

Appendix 5  
Subsidiary Board Approval Package Template

**Supplement Request Form**

|  |  |
|--|--|
| Date Prepared: March 23, 2017          | Project Title: Reconductor 3271 Line                             |
| Company/Companies: Eversource - NH     | Project ID Number: A16C01  |
| Organization: Engineering              | Plant Class/(F.P.Type): Distribution                             |
| Project Initiator: Matt Cosgro         | Project Type: <i>Specific / Annual / Prelim Project / Parent</i> |
| Project Manager: Natacha Morales       | Capital Investment Part of Original Operating Plan? Y / N        |
| Project Sponsor:                       | O&M Expenses Part of the Original Operating Plan? Y / N          |
| Current Authorized Amount: \$1,096,573 | Estimated in service date(s): August 1, 2017                     |
| Supplement Request: \$1,408,668        | Other:   |
| Total Request: \$2,505,241             |  |

**Supplement Justification**

The Rimmon Area Study completed in 2013 proposed two projects to solve loading, obsolescence and operational issues in the greater Manchester area which were 1) the installation of a second 115/34.5 kV transformer at Rimmon Substation and 2) Re-conductor a portion of the 3271 line (2.66 miles of #2Cu to 477) between Weare Substation and Greggs Substation. Among other benefits, the two projects would allow the removal of the obsolete distribution equipment at Greggs Substation including a transformer and a low side OCB which are both 66 years old. Since the original project approval in 2015, new design guideline considerations include the rebuild of Greggs S/S to eliminate the obsolete equipment but also to provide a larger transformer at Greggs and an improved ability to restore customers. The upgrade of the 3271 line allows the Greggs load to be fed from Weare for the loss of the Greggs transformer. The upgrade will also allow the Weare load to be served from Greggs once the Greggs rebuild is complete (ISD 2019). Both Weare and Greggs are single transformer substations.

Since the original project approval in 2015, the construction standard has changed from open wire to tree wire which has increased the total project forecast due to materials, design, construction as well as areas of impacted wetlands.

The original estimate did not account for compensatory mitigation to satisfy the Army Corps of Engineers (\$89,000) to be used for projects in the Merrimack River watershed. This project had to be submitted to NHDES as a Major Project since the project involves greater than 20,000 sq. ft. alteration to non-tidal wetlands as outlined in NHDES wetland rules (application fee \$18,000 for 36,000 sq.ft. of impacted wetlands)

A survey for archeological resources was not accounted for in the original estimate. Eversource has an agreement with DHR to perform these surveys in its Right – Of – Ways when there is any construction or earth movement taking place.

As part of our commitment to the abutters, there is a need to purchase an access easement to avoid the difficult terrain through an abutter's property. Also, there are stonewall property boundaries that will need to be matted to avoid disturbance increasing the project \$60,000.

**Justification for Additional Resources**

Re-design to Hendrix (tree wire) bundled has caused an increase of about \$17,730.

# EVERSOURCE

APS 1 - Project Authorization Policy

## Appendix 5 Subsidiary Board Approval Package Template

Materials for bundled Hendrix (tree wire) have caused an increase of about \$352,000.  
Outside services (wetland permitting, mitigation plans, line construction, wetland matting, and tree clearing) have caused an increase of about \$960,000.  
Commitments to abutters and outreach have caused an increase of about \$60,000.  
All the above increases have been caused by the change of design from open wire to Hendrix as well as the oversight of the hazardous trees and NHDES/ACOE conditions that needed to be addressed before construction.  
The total increase for this project is around \$1,409,000. Please see attached estimate.

### Supplement Cost Summary

Note: Dollar values are in thousands:

|                               | Prior<br>Authorized | Supplement<br>Request | Total        |
|-------------------------------|---------------------|-----------------------|--------------|
| Capital Additions - Direct    | 746                 | 1,422                 | 2,168        |
| Less Customer Contribution    | 0                   | 0                     | 0            |
| Removals net of Salvage ____% | 25                  | 0                     | 25           |
| Total Direct Spending         | 771                 | 1,422                 | 2,193        |
| Capital Additions - Indirect  | 318                 | -9                    | 309          |
| AFUDC                         | 8                   | -5                    | 3            |
| Total Capital Request         | 1,097               | 1,409                 | 2,505        |
| O&M                           | 0                   | 0                     | 0            |
| <b>Total Request</b>          | <b>1,097</b>        | <b>1,409</b>          | <b>2,505</b> |

Note: Dollar values are in thousands:

|                               | Year 2017       | Year 20__   | Year 20__ + | Total           |
|-------------------------------|-----------------|-------------|-------------|-----------------|
| Capital Additions - Direct    | \$ 1,422        | \$ -        | -           | \$ 1,422        |
| Less Customer Contribution    | -               | -           | -           | -               |
| Removals net of Salvage ____% | -               | -           | -           | -               |
| Total Direct Spending         | \$ 1,422        | \$ -        | \$ -        | \$ 1,422        |
| Capital Additions - Indirect  | \$ (9)          | -           | -           | (9.00)          |
| AFUDC                         | (5)             | -           | -           | (4.50)          |
| Total Capital Request         | \$ 1,409        | \$ -        | \$ -        | \$ 1,409        |
| O&M                           | -               | -           | -           | -               |
| <b>Total Request</b>          | <b>\$ 1,409</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 1,409</b> |

ESTIMATE SUMMARY  
PSNH

Project Title: Reconductor 3271 Line  
Project Mgr/Lead: Natacha a Morales  
Project Number: A19C01  
TAF # TBD

Estimate By: MPD  
Date of Estimate: 03-20-17  
ISD: 6/1/17  
Estimate #P17-009

ESTIMATE SUMMARY

ESTIMATE TYPE: Construction

|                       | TOTAL              | Prior            | 2017               | 2018       | 2019       | 2020       | 2021 and FUTURE |
|-----------------------|--------------------|------------------|--------------------|------------|------------|------------|-----------------|
| CONSTRUCTION          | \$1,327,655        | \$8,451          | \$1,319,204        | \$0        | \$0        | \$0        | \$0             |
| ENGINEERING/DESIGN    | \$63,247           | \$50,518         | \$12,730           | \$0        | \$0        | \$0        | \$0             |
| LAND                  | \$5,000            | \$0              | \$5,000            | \$0        | \$0        | \$0        | \$0             |
| MATERIAL              | \$361,597          | \$0              | \$361,597          | \$0        | \$0        | \$0        | \$0             |
| PROJECT MGR & SUPPORT | \$225,829          | \$102,904        | \$122,925          | \$0        | \$0        | \$0        | \$0             |
| REMOVAL               | \$25,000           | \$0              | \$25,000           | \$0        | \$0        | \$0        | \$0             |
| TEST                  | \$0                | \$0              | \$0                | \$0        | \$0        | \$0        | \$0             |
| CONTINGENCY           | \$184,646          | \$0              | \$184,646          | \$0        | \$0        | \$0        | \$0             |
| ESCALATION            | \$0                | \$0              | \$0                | \$0        | \$0        | \$0        | \$0             |
| INDIRECTS             | \$309,448          | \$35,997         | \$273,451          | \$0        | \$0        | \$0        | \$0             |
| AFUDC                 | \$2,819            | \$382            | \$2,437            | \$0        | \$0        | \$0        | \$0             |
| <b>Total Cost</b>     | <b>\$2,505,241</b> | <b>\$198,251</b> | <b>\$2,306,990</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b>      |

|              |             |             |
|--------------|-------------|-------------|
|              | -10%        | 10%         |
| Construction | \$2,254,717 | \$2,755,765 |

COMMENTS:

Project Scope:

Re-conductor 2.66 miles of #2 copper from Recloser 71 to the 3271X1 tap, remove the 3271 mainline regulators and install new regulators for the 3194X1 tap.

Allowances:

Clearing of access easement: \$25,000  
Bridge over stonewalls: \$50,000  
Added additional Matting \$52K  
Added Gates \$7.5k

Assumptions:

Engineering to be outsourced with in-house review, construction to be outsourced.  
This estimate is based on TAF, Actuals to date, Vendor quotes and allowances, quantities may vary during detailed engineering.  
Material estimates based on MR's..  
All new equipment will be installed within the confines of the existing fenced yard or ROW  
No additional allowances have been added for aggressive outage recall times.  
Estimate includes an average of 10% contingency on direct costs which equates to 7% contingency of total cost.  
See attached estimate checklist for other project information.

Estimating/Eng. Mgr

J.C. Case Date

S/S Engr Mgr

M J Bellandese Date

P&C Engr Mgr

G P Wegh Date

Proj Mgr/Lead

TBD Date

Project Number: A16C01

Project Title: Reconnector 3271 Line

Escalated Line Item Dollars

\$182,146

Docket No. DE 19-057  
Data Request STAFF 12-045  
Dated 9/20/2019  
Attachment STAFF 12-045 AF  
Page 5 of 12

| Escalation Rate 3%                               |          | Rate \$         | 418            | 0            | 1            | 2            | 3               | 4              |             |
|--|----------|-----------------|----------------|--------------|--------------|--------------|-----------------|----------------|-------------|
|  |          | Prior to 3/1/17 | 2017           | 2018         | 2019         | 2020         | 2021 and FUTURE | TOTAL          |             |
|  |          | MOYS DOLLARS    | MOYS DOLLARS   | MOYS DOLLARS | MOYS DOLLARS | MOYS DOLLARS | MOYS DOLLARS    | MOYS DOLLARS   |             |
| <b>CSTXX-CONSTRUCTION</b>                        |          |                 |                |              |              |              |                 |                |             |
| Electrical Construction                          | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| General Construction                             | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Transmission Automation                          | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Construction Raps                                | LT       | \$309           | 30 \$12,493    | \$0          | \$0          | \$0          | \$0             | 30 \$12,492    | \$0         |
| Support Switch/Tag                               | LT       | \$0             | 2 \$833        | \$0          | \$0          | \$0          | \$0             | 2 \$833        | \$0         |
| <b>LT Total</b>                                  |          | 0 \$309         | 32 \$13,326    | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 32 \$13,325    | \$0         |
| Employee Expenses                                | AE 5%    | \$0             | \$666          | \$0          | \$0          | \$0          | \$0             | \$0            | \$666       |
| Construction Purchased Material                  | AM 1%    | \$0             | \$12,847       | \$0          | \$0          | \$0          | \$0             | \$0            | \$12,847    |
| Construction Vendor Inc sales tax (AE)           | AQ 0.0%  | \$0             | \$1,284,700    | \$0          | \$0          | \$0          | \$0             | \$0            | \$1,284,700 |
| Vehicles   | AV 20%   | \$142           | \$2,065        | \$0          | \$0          | \$0          | \$0             | \$0            | \$2,807     |
| Fees and Payments                                | BF       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Rents and Leases                                 | BR       | \$8,000         | \$5,000        | \$0          | \$0          | \$0          | \$0             | \$0            | \$13,000    |
| <b>CSTXX Subtotal</b>                            |          | \$8,451         | \$1,319,204    | \$0          | \$0          | \$0          | \$0             | \$0            | \$1,327,655 |
| Contingency                                      | P1 10%   | \$0             | \$131,920      | \$0          | \$0          | \$0          | \$0             | \$0            | \$131,920   |
| <b>CSTXX Total</b>                               |          | 0 \$8,451       | 32 \$1,451,124 | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 32 \$1,459,575 | \$0         |
| <b>ENRXX-TG ENGINEERING/DESIGN</b>               |          |                 |                |              |              |              |                 |                |             |
| Project Services/Drafting                        | LT       | \$0             | \$1,249        | \$0          | \$0          | \$0          | \$0             | \$0            | \$1,249     |
| Transmission Engineering/Design                  | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Civil Engineering/Design                         | LT       | \$1,475         | \$2,483        | \$0          | \$0          | \$0          | \$0             | \$0            | \$3,958     |
| Substation Engineering/Design                    | LT       | \$201           | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$201       |
| Distribution SS Engineering/Design               | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Protection & Controls Engineering                | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Survey Engineering                               | LT       | \$687           | \$648          | \$0          | \$0          | \$0          | \$0             | \$0            | \$1,335     |
| Telecom Engineering                              | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| <b>LT Total</b>                                  |          | 0 \$2,543       | 9 \$4,380      | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 9 \$4,380      | \$0         |
| Employee Expenses                                | AE 5%    | \$0             | \$219          | \$0          | \$0          | \$0          | \$0             | \$0            | \$219       |
| Contractor Engineering Inc sales tax             | AQ 0.0%  | \$47,959        | \$8,000        | \$0          | \$0          | \$0          | \$0             | \$0            | \$55,959    |
| Vehicles   | AV 3%    | \$16            | \$131          | \$0          | \$0          | \$0          | \$0             | \$0            | \$147       |
| <b>ENRXX Subtotal</b>                            |          | \$50,518        | \$12,730       | \$0          | \$0          | \$0          | \$0             | \$0            | \$63,247    |
| Contingency                                      | P1 10%   | \$0             | \$1,273        | \$0          | \$0          | \$0          | \$0             | \$0            | \$1,273     |
| <b>ENRXX Total</b>                               |          | 0 \$50,518      | 9 \$14,003     | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 9 \$64,520     | \$0         |
| <b>LNOXX-TG LAND</b>                             |          |                 |                |              |              |              |                 |                |             |
| Real Estate                                      | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Employee Expenses                                | AE 5%    | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Purchase Land                                    | AM       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Vehicles   | AV 3%    | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Fees and Payments                                | BF       | \$0             | \$5,000        | \$0          | \$0          | \$0          | \$0             | \$0            | \$5,000     |
| <b>LNOXX Subtotal</b>                            |          | \$0             | \$5,000        | \$0          | \$0          | \$0          | \$0             | \$0            | \$5,000     |
| Contingency                                      | P1 10%   | \$0             | \$500          | \$0          | \$0          | \$0          | \$0             | \$0            | \$500       |
| <b>LNOXX Total</b>                               |          | 0 \$0           | 0 \$5,500      | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 0 \$5,500      | \$0         |
| <b>MATXX-TG MATERIAL</b>                         |          |                 |                |              |              |              |                 |                |             |
| See attached                                     | AM       | \$0             | \$258,537      | \$0          | \$0          | \$0          | \$0             | \$0            | \$258,537   |
|  | AM       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Freight  | 0%       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Sales Tax  | 0.0%     | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Stores Expense Allocation (ZC)                   | 16%      | \$0             | \$105,000      | \$0          | \$0          | \$0          | \$0             | \$0            | \$105,000   |
| <b>MATXX Subtotal</b>                            |          | \$0             | \$361,597      | \$0          | \$0          | \$0          | \$0             | \$0            | \$361,597   |
| Contingency                                      | P1 10%   | \$0             | \$36,159       | \$0          | \$0          | \$0          | \$0             | \$0            | \$36,159    |
| <b>MATXX Total</b>                               |          | 0 \$0           | 20 \$397,757   | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 20 \$397,757   | \$0         |
| <b>PSMXX-PROJECT MANAGER &amp; SUPPORT</b>       |          |                 |                |              |              |              |                 |                |             |
| Project Planning                                 | LT       | \$0             | \$1,666        | \$0          | \$0          | \$0          | \$0             | \$0            | \$1,666     |
| Project Management                               | LT       | \$0             | \$3,332        | \$0          | \$0          | \$0          | \$0             | \$0            | \$3,332     |
| Contracts/Purchasing                             | LT       | \$1,370         | \$416          | \$0          | \$0          | \$0          | \$0             | \$0            | \$1,786     |
| Legal  | LT       | \$2,623         | \$1,092        | \$0          | \$0          | \$0          | \$0             | \$0            | \$3,715     |
| Transmission Planning                            | LT       | \$0             | \$416          | \$0          | \$0          | \$0          | \$0             | \$0            | \$416       |
| Environmental                                    | LT       | \$0             | \$2,082        | \$0          | \$0          | \$0          | \$0             | \$0            | \$2,082     |
| <b>LT Total</b>                                  |          | \$3,993         | \$9,004        | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 0 \$0          | \$12,997    |
| Employee Expenses                                | AE 5%    | \$164           | \$450          | \$0          | \$0          | \$0          | \$0             | \$0            | \$614       |
| Legal Vendor                                     | AQ       | \$0             | \$1,500        | \$0          | \$0          | \$0          | \$0             | \$0            | \$1,500     |
| Project Support Vendor Inc Sales Tax             | AQ 0.0%  | \$98,712        | \$18,000       | \$0          | \$0          | \$0          | \$0             | \$0            | \$116,712   |
| Vehicles   | AV 3%    | \$16            | \$270          | \$0          | \$0          | \$0          | \$0             | \$0            | \$286       |
| Include allowance for Property tax (larger proj) | BR       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Fees and Payments                                | BF       | \$16            | \$101,701      | \$0          | \$0          | \$0          | \$0             | \$0            | \$101,717   |
| <b>PSMXX Subtotal</b>                            |          | \$102,904       | \$122,625      | \$0          | \$0          | \$0          | \$0             | \$0            | \$225,529   |
| Contingency                                      | P1 10%   | \$0             | \$12,262       | \$0          | \$0          | \$0          | \$0             | \$0            | \$12,262    |
| <b>PSMXX Total</b>                               |          | \$102,904       | 20 \$135,218   | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 20 \$238,122   | \$0         |
| <b>REMXX-TG REMOVAL</b>                          |          |                 |                |              |              |              |                 |                |             |
| Engineering/Design                               | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| General Construction                             | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| <b>LT Total</b>                                  |          | 0 \$0           | 0 \$0          | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 0 \$0          | \$0         |
| Employee Expenses                                | AE 15%   | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Outside Services Inc Sales Tax                   | AQ 0.0%  | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Contractor Labor Inc sales Tax                   | AQ 0.0%  | \$0             | \$25,000       | \$0          | \$0          | \$0          | \$0             | \$0            | \$25,000    |
| Vehicles   | AV 20%   | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Rents and Leases                                 | BR       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| <b>REMXX Subtotal</b>                            |          | \$0             | \$25,000       | \$0          | \$0          | \$0          | \$0             | \$0            | \$25,000    |
| Contingency                                      | P1 10%   | \$0             | \$2,500        | \$0          | \$0          | \$0          | \$0             | \$0            | \$2,500     |
| <b>REMXX Total</b>                               |          | 0 \$0           | 0 \$27,500     | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 0 \$27,500     | \$0         |
| <b>TSTXX-TG TEST</b>                             |          |                 |                |              |              |              |                 |                |             |
| Test Labor-in House                              | LT       | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Employee Expense                                 | AE 10%   | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Contractor Test & Commissioning Labor            | AQ 0.0%  | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Vehicles   | AV 10%   | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| <b>TSTXX Subtotal</b>                            |          | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| Contingency                                      | P1 10%   | \$0             | \$0            | \$0          | \$0          | \$0          | \$0             | \$0            | \$0         |
| <b>TSTXX Total</b>                               |          | 0 \$0           | 0 \$0          | 0 \$0        | 0 \$0        | 0 \$0        | 0 \$0           | 0 \$0          | \$0         |
| <b>TOTAL PROJECT DIRECT COST</b>                 |          | \$161,872       | \$2,031,101    | \$0          | \$0          | \$0          | \$0             | \$0            | \$2,192,973 |
| <b>INDIRECTS</b>                                 |          |                 |                |              |              |              |                 |                |             |
| Non-Productive Time Allocation (ZB)              | 58 10.7% | \$1,210         | \$4,461        | \$0          | \$0          | \$0          | \$0             | \$0            | \$5,670     |
| Payroll Benefits Allocation (ZE)                 | 59 32.1% | \$900           | \$9,990        | \$0          | \$0          | \$0          | \$0             | \$0            | \$10,890    |
| Gen SVC CO OVRHD ALLOC (ZF)                      | 60 26.0% | \$5,177         | \$40,061       | \$0          | \$0          | \$0          | \$0             | \$0            | \$45,238    |
| E&S Allocations (ZI) (25%<20M<3%)                | 01 27.0% | \$26,452        | \$201,805      | \$0          | \$0          | \$0          | \$0             | \$0            | \$228,257   |
| AS&E Allocations (ZJ)                            | 62 1.0%  | \$2,250         | \$17,128       | \$0          | \$0          | \$0          | \$0             | \$0            | \$19,378    |
| AFUDC (ZK)                                       | 63 0.1%  | \$362           | \$2,437        | \$0          | \$0          | \$0          | \$0             | \$0            | \$2,819     |
| <b>Indirects Subtotal</b>                        |          | \$36,379        | \$275,888      | \$0          | \$0          | \$0          | \$0             | \$0            | \$312,267   |
| <b>TOTAL PROJECT COST</b>                        |          | \$198,251       | \$2,306,989    | \$0          | \$0          | \$0          | \$0             | \$0            | \$2,505,241 |

6/16/2017 5:56 PM

ESTIMATE DETAIL SHEET

Project Number: A16C01

Project Title: Reconductor 3271 Line

Escalation Rate Material 3%  
Escalation Rate Labor 3%

| ITEM & DESCRIPTION                     | MATERIAL COST |     |           |           | LABOR COST |          |           |             | TOTAL COST  |
|--|---------------|-----|-----------|-----------|------------|----------|-----------|-------------|-------------|
|  | UNITS         | QTY | UNIT COST | MATERIAL  | UNIT MH    | TOTAL MH | MH RATE   | LABOR       |             |
| JCR Bid for construction               | LS            | 1   |           | \$0       | 1          | 1        | \$897,700 | \$897,700   | \$897,700   |
| MR 34136930                            | LS            | 1   | \$43,896  | \$43,896  | 1          | 1        |           | \$0         | \$43,896    |
| MR 01436930                            | LS            | 1   | \$174,300 | \$174,300 | 1          | 1        |           | \$0         | \$174,300   |
| MR 78646930                            | LS            | 1   | \$4,768   | \$4,768   | 1          | 1        |           | \$0         | \$4,768     |
| MR 51436930                            | LS            | 1   | \$26,572  | \$26,572  | 1          | 1        |           | \$0         | \$26,572    |
| ROW trimming and clearing              | LS            | 1   | \$0       | \$0       | 1          | 1        | \$260,000 | \$260,000   | \$260,000   |
| Allowance for clearing Access easement | LS            | 1   | \$0       | \$0       | 1          | 1        | \$25,000  | \$25,000    | \$25,000    |
| Allowance for bridge over stonewalls   | LS            | 1   |           |           | 1          | 1        | \$50,000  | \$50,000    | \$50,000    |
| Additional Matting                     | LS            | 1   |           |           | 1          | 1        | \$52,000  | \$52,000    | \$52,000    |
| Gates                                  | EA            | 2   | \$3,500   | \$7,000   |            |          |           |             | \$7,000     |
| REMOVAL                                |               |     |           |           |            |          |           |             |             |
| Removal old conductor and structures   | LS            | 0   | \$0       | \$0       | 1          | 1        | 25000     | \$25,000    | \$25,000    |
|  |               | 0   |           |           | 0          | 0        | 110       | \$0         | \$0         |
|  |               |     |           | \$0       |            |          |           | \$0         |             |
| INSTALLATION TOTAL                     |               |     |           | \$256,537 |            | 9        |           | \$1,284,700 | \$1,541,237 |
| REMOVAL TOTAL                          |               |     |           | \$0       |            | 1        |           | \$25,000    | \$25,000    |
| PAGE TOTAL                             |               |     |           | \$256,537 |            | 10       |           | \$1,309,700 | \$1,566,237 |

| Roll Up Activity      | Project Title: Reconductor 3271 Line |                  |          |          |          | Project Number: A16C01 |                  |
|-----------------------|--------------------------------------|------------------|----------|----------|----------|------------------------|------------------|
|                       | PRIOR                                | 2017             | 2018     | 2019     | 2020     | 2021 and FUTURE        | Total            |
| Engineering/PM/Siting | 153,421.08                           | 135,655          | -        | -        | -        | -                      | 289,076          |
| Material              | -                                    | 274,384          | -        | -        | -        | -                      | 274,384          |
| Construction          | 8,450.79                             | 1,331,357        | -        | -        | -        | -                      | 1,339,808        |
| Test                  | -                                    | -                | -        | -        | -        | -                      | -                |
| Indirects             | 35,997.23                            | 378,511          | -        | -        | -        | -                      | 414,508          |
| AFUDC                 | 381.97                               | 2,437            | -        | -        | -        | -                      | 2,819            |
| Contingency           | -                                    | 184,646          | -        | -        | -        | -                      | 184,646          |
| <b>Total</b>          | <b>\$198,251</b>                     | <b>2,306,990</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>               | <b>2,505,241</b> |

|       |               |           |   |   |   |   |           |
|-------|---------------|-----------|---|---|---|---|-----------|
| Check | \$ 198,251.07 | 2,306,990 | - | - | - | - | 2,505,241 |
|-------|---------------|-----------|---|---|---|---|-----------|

|  |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|
|  | - | - | - | - | - | - | - |
|--|---|---|---|---|---|---|---|



**Funding Project Information**

New Approval Type:

Budget Version: 2016 Working (inactive)

Funding Project: A16C01 Revision: 6

Rev: < < > >

Approval Type: FP PSNH - Distribution - Eng Amount: \$1,096,573.00

Status: Approved Sent By: Herk, Randy Date Sent: 3/10/2016 Date Appr: 3/21/2016

Send for Approval Refresh

|                           | Approver            | Required                            | Date Approved | Authority Limit |
|---------------------------|---------------------|-------------------------------------|---------------|-----------------|
| + Project Manager - - - - | Menard, Erica       | <input checked="" type="checkbox"/> | 3/10/2016     | \$0             |
| + Plant Accounting - - -  | Roncaioli_TERMINATI | <input checked="" type="checkbox"/> | 3/15/2016     | \$0             |
| + Manager - PSNH Dist     | Burke, Carol        | <input checked="" type="checkbox"/> | 3/16/2016     | \$100,000       |
| + Director - PSNH Dist    | Eilenberger_TERMINA | <input checked="" type="checkbox"/> | 3/16/2016     | \$250,000       |
| + Sr. VP/President - Ops  | Clarke_TERMINATED   | <input checked="" type="checkbox"/> | 3/21/2016     | \$5,000,000     |

Details  
Accounts  
Departments  
Contacts  
Tasks  
Class Codes  
Justification  
Tax Status  
Authorizations  
User Comment  
Review  
Related FPs

Audits  
Delete FP  
Cancel FP  
Suspend FP

Estimates  
Update  
Print  
Cancel

Record 1 of 1 < < > >



Accounting Policy Statement No. 2  
Operations Project Authorization

## Project Authorization Form

### General Information

|   |  |
|---|--|
| Date Prepared: August 20, 2015                  | Project Title: Reconductor 3271 line                   |
| Company: Eversource - NH                        | Project ID Number: A16C01                              |
| Organization: NH Operations                     | Class(es) of Plant: Distribution                       |
| Project Initiator: Matthew Cosgro               | Project Category: Reliability                          |
| Project Owner/Manager: Carol Burke/Marc Pilotte | Project Purpose: part of regulatory tracked program? N |
| Project Sponsor: James Eilenberger              | Project Type: Specific                                 |
| Estimated in service date: June 1, 2017         | Capital Investment Part of Original Operating Plan? Y  |
| If Transmission Project: N/A                    | Supplement to Existing Authorization? N                |
|   | O&M Expenses Part of the Original Operating Plan? Y    |

If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and Financial Planning and Analysis (FP&A)

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

### Executive Summary

The Rimmon Area Study completed in 2013 proposed two projects to solve loading issues in the Manchester area which were 1) the installation of a second 115/34.5 kV transformer at Rimmon Substation and 2) Re-conductor a portion of the 3271 line (2.66 miles) between Weare Substation and Greggs Substation to allow the removal of the obsolete distribution equipment at Greggs Substation including a transformer and a low side OCB which are both 66 years old. The Rimmon Substation upgrade project is scheduled for completion in September so this PAF will cover the re-conductoring of the 3271 line. The upgrade of the 3271 line will allow the capacity of Weare Substation to help support the Rimmon area and allow the removal of the obsolete Greggs Substation equipment which will be completed as a separate project once this project is completed in 2017.



## Accounting Policy Statement No. 2 Operations Project Authorization

### Project Costs Summary

Note: Dollar values are in thousands

| (\$000)                      | Prior<br>Authorized* | 2015 | 2016  | 2017+  | Totals   |
|------------------------------|----------------------|------|-------|--------|----------|
| Capital Additions - Direct   |                      | \$ - | \$ 70 | \$ 670 | \$ 741   |
| Customer Contribution        |                      | \$ - | \$ -  | \$ -   | \$ -     |
| Removals net of Salvage      |                      | \$ - | \$ -  | \$ 30  | \$ 30    |
| Total - Direct Spending      | \$ -                 | \$ - | \$ 70 | \$ 700 | \$ 771   |
| Capital Additions - Indirect |                      | \$ - | \$ 28 | \$ 290 | \$ 318   |
| Subtotal Request             | \$ -                 | \$ - | \$ 98 | \$ 991 | \$ 1,089 |
| AFUDC (half-year convention) |                      | \$ - | \$ 1  | \$ 7   | \$ 8     |
| Total Request                | \$ -                 | \$ - | \$ 99 | \$ 998 | \$ 1,097 |

\* to be completed if supplemental authorization is required

### Summary Project Description

Re-build 2.66 miles of the 3271 line including replacing the #2 solid copper wire with 477 ACSR from Recloser 71 to the 3271X1 tap. Also included is the removal of regulators on the 3271 mainline and installation of new regulators on the 3194X1 tap.

Note: Dollar values are in thousands

|         | Total Project Costs | Amount in<br>Operating Plan | Difference |
|---------|---------------------|-----------------------------|------------|
| Capital | \$1,097             | \$1,097                     | \$0        |
| O&M     | \$0                 | \$0                         | \$0        |
| Total   | \$1,097             | \$1,097                     | \$0        |

### Project Authorization

Project authorization below must be in accordance with the approval levels included in the Delegation of Authority Policy (DOA).

| Approver          | Approver Name     | Approver Signature | Date |
|-------------------|-------------------|--------------------|------|
| Project Initiator | Matthew Cosgro    |                    |      |
| Project Manager   | Carol Burke       |                    |      |
| Plant Accounting  | Michele Roncaioli |                    |      |
| Director          | James Eilenberger |                    |      |
| Vice President    | Peter Clarke      |                    |      |



## Accounting Policy Statement No. 2 Operations Project Authorization

### Overall Justification

As identified in the 2013 Rimmon Area Study, the re-conductoring of the 3271 line is necessary to create a major tie between Rimmon Substation and Weare Substation which brings the trapped capacity of Weare Substation down into the Greggs/Rimmon Substation area which will eventually allow the removal of a 66 year old transformer and OCB at Greggs Substation. The removal of the Greggs transformer resolves an ESCC Operations Top 10 Issue (ESC 2013-3, Greggs transformer fault locks out C1960, B1430, O1610, and BT30. No motor operator on J17 high side switch)

### Project Scope

Re-conductor 2.66 miles of #2 copper from Recloser 71 to the 3271X1 tap, remove the 3271 mainline regulators and install new regulators for the 3194X1 tap.

### Project Objectives

Develop a major tie between Rimmon and Weare Substations to bring trapped capacity from Weare Substation into the Greggs/Rimmon area which also allows the removal of aging and obsolete equipment from Greggs Substation.

### Business Process and / or Technical Improvements:

This project would remove all the #2 copper from the main line, bringing the 3271 in-line with the design standards specified in ED-3002.

### Assumptions

Rimmon Substation project is completed.

### Alternatives Considered

The Rimmon Area Study reviewed several area alternatives and recommended the addition of a second transformer at Rimmon Substation and the re-conductoring of the 3271 Line for 2.66 miles.

### Project Schedule

| Milestone/Phase Name | Estimated Completion Date |
|----------------------|---------------------------|
| Permitting           | December 1, 2016          |
| Re-conductoring      | June 1, 2017              |
|                      |                           |



Accounting Policy Statement No. 2  
Operations Project Authorization

## Financial Evaluation

Note: Dollar values are in thousands

| <b>Direct Capital Costs (\$000)</b>             | <b>2016</b> | <b>2017</b>  | <b>2018</b> | <b>Total</b> |
|---|-------------|--------------|-------------|--------------|
| Straight Time Labor                             | \$6         | \$50         | \$          | \$56         |
| Overtime Labor                                  | \$0         | \$0          | \$          | \$0          |
| Outside Services                                | \$50        | \$325        | \$          | \$375        |
| Materials                                       | \$0         | \$325        | \$          | \$325        |
| Other, including contingency amounts (describe) | \$15        | \$0          | \$          | \$15         |
| <b>Total</b>                                    | <b>\$70</b> | <b>\$700</b> | <b>\$</b>   | <b>\$770</b> |

| <b>Indirect Capital Costs (\$000)</b> | <b>2016</b> | <b>2017</b>  | <b>2018</b> | <b>Total</b> |
|---------------------------------------|-------------|--------------|-------------|--------------|
| Benefits / Loaders                    | \$28        | \$290        | \$          | \$318        |
| Capitalized interest or AFUDC, if any | \$1         | \$7          | \$          | \$8          |
| <b>Total</b>                          | <b>\$29</b> | <b>\$297</b> | <b>\$</b>   | <b>\$236</b> |

|                                    |             |              |           |                |
|------------------------------------|-------------|--------------|-----------|----------------|
| <b>Total Capital Costs</b>         | <b>\$99</b> | <b>\$998</b> | <b>\$</b> | <b>\$1,097</b> |
| <b>Total O&amp;M Costs</b>         | <b>\$0</b>  | <b>\$0</b>   | <b>\$</b> | <b>\$0</b>     |
| <b>Total Project Costs (\$000)</b> | <b>\$99</b> | <b>\$998</b> | <b>\$</b> | <b>\$1,097</b> |

Note: Explain unique payment provisions, if applicable

## Regulatory Approvals

None needed

## Risks and Risk Mitigation Plans

Typical permitting and wetland mitigation plans will need to be developed.

funding\_project A16C01

| accounting_work_order | accounting_work_order_descript | cost_element_description                 | Description   | year | Values<br>Sum of<br>quantity | Sum of amount |
|-----------------------|--------------------------------|--|---|------|------------------------------|---------------|
| A16C0101              | 3271 LINE RECONDUCTOR          | Admin and Eng OH- Acct Use Only          |   | 2016 | 0 \$                         | 1,367.15      |
|                       |                                |  |   | 2017 | 0 \$                         | 36,811.32     |
|                       |                                |  |   | 2018 | 0 \$                         | 0.32          |
|                       |                                | AFUDC Debt                               |   | 2016 | 0 \$                         | 196.55        |
|                       |                                |  |   | 2017 | 0 \$                         | 2,176.42      |
|                       |                                | Contractor- Fixed Price                  |   | 2018 | 0 \$                         | -             |
|                       |                                |  | NORTHERN LAND CLEARING INC  | 2017 | 0 \$                         | 335,869.90    |
|                       |                                | Contractor Services                      |   | 2017 | 0 \$                         | -             |
|                       |                                |  |   | 2018 | 0 \$                         | -             |
|                       |                                |  | JCR CONSTRUCTION CO INC   | 2017 | 1 \$                         | 964,255.05    |
|                       |                                |  | THOMAS LABRECQUE & KELLY LABRECQUE                                      | 2017 | 0 \$                         | 2,500.00      |
|                       |                                | Contractor Services- Other               |   | 2018 | 0 \$                         | -             |
|                       |                                |  | JCR CONSTRUCTION CO INC   | 2017 | 0.56 \$                      | 1,318.00      |
|                       |                                | Contractor Vehicles + Equip              |   | 2018 | 0 \$                         | -             |
|                       |                                |  | JCR CONSTRUCTION CO INC   | 2017 | 0.44 \$                      | 1,036.00      |
|                       |                                | Employee Expense Other                   |   | 2017 | 0 \$                         | 1.05          |
|                       |                                | Engin and Super OH- Acct Use Only        |   | 2016 | 0 \$                         | 18,301.82     |
|                       |                                |  |   | 2017 | 0 \$                         | 314,944.99    |
|                       |                                |  |   | 2018 | 0 \$                         | 17.46         |
|                       |                                | Engineering Design Services              |   | 2018 | 0 \$                         | -             |
|                       |                                |  | TRC LOCKBOX   | 2016 | 0.8 \$                       | 21,245.20     |
|                       |                                |  |   | 2017 | 3.22 \$                      | 39,833.66     |
|                       |                                | Environmental Outside Services           |   | 2018 | 0 \$                         | -             |
|                       |                                |  | VANASSE HANGEN BRUSTLIN INC   | 2017 | 1 \$                         | 16,789.35     |
|                       |                                | Fees + Payments- Other                   |   | 2017 | 0 \$                         | 15,550.70     |
|                       |                                |  | NHDES ARM FUND  | 2017 | 0 \$                         | 70,600.00     |
|                       |                                |  | SOUTH LAND TRUST OF NEW HAMPSHIRE                                       | 2017 | 0 \$                         | 15,550.70     |
|                       |                                |  | STATE OF NEW HAMPSHIRE TREASURER  | 2017 | 0 \$                         | 37.50         |
|                       |                                | Fees and Payments                        |   | 2017 | 0 \$                         | 16.00         |
|                       |                                | Filing Fees                              |   | 2017 | 1 \$                         | 1,348.57      |
|                       |                                | Gen Ser Co Benefit Loader- Acct Use Only |   | 2016 | 0 \$                         | 10,331.71     |
|                       |                                |  |   | 2017 | 0 \$                         | 18.34         |
|                       |                                |  |   | 2018 | 0 \$                         | 52.27         |
|                       |                                | Labor Overtime Non-Exempt                |   | 2016 | 1 \$                         | 102.87        |
|                       |                                |  |   | 2017 | 2 \$                         | -             |
|                       |                                |  |   | 2018 | 0 \$                         | -             |
|                       |                                | Labor Straight Time Exempt               |   | 2016 | 65 \$                        | 2,880.10      |
|                       |                                |  |   | 2017 | 728.75 \$                    | 31,381.25     |
|                       |                                |  |   | 2018 | 0.5 \$                       | 22.96         |
|                       |                                | Labor Straight Time Non-Exempt           |   | 2016 | 6 \$                         | 174.12        |
|                       |                                |  |   | 2017 | 46.5 \$                      | 1,449.70      |
|                       |                                |  |   | 2018 | 0 \$                         | -             |
|                       |                                | Licensing and Permitting                 |   | 2017 | 0 \$                         | -             |
|                       |                                |  |   | 2018 | 0 \$                         | -             |
|                       |                                |  | VANASSE HANGEN BRUSTLIN INC   | 2017 | 2 \$                         | 21,752.77     |
|                       |                                | Lobby Stock Loader-Acct Use Only         |   | 2017 | 0 \$                         | 37,909.42     |
|                       |                                | Material Salvage                         |   | 2017 | 0 \$                         | (29,320.74)   |
|                       |                                |  |   | 2018 | 0 \$                         | (1,635.14)    |
|                       |                                | Materials- Purchased                     |   | 2017 | 0 \$                         | (9,017.03)    |
|                       |                                |  | POLE, SYP, 40 FT, CL 2, CCA   | 2017 | -1 \$                        | (337.54)      |
|                       |                                |  | VANASSE HANGEN BRUSTLIN INC   | 2016 | 0 \$                         | -             |
|                       |                                | Materials- Stores                        |   | 2017 | 30 \$                        | 1,215.84      |
|                       |                                |  | ANCHOR, SINGLE HELIX, 10,000#, 12 IN                                    | 2017 | 18 \$                        | 1,573.13      |
|                       |                                |  | ARRESTER, SURGE, LIGHTNING, DISTRIBUTIO CLASS, 27 KV, POLYMER, 1        | 2017 | 39 \$                        | 529.12        |
|                       |                                |  | BALL, CLEVIS, Y, HOT LINE TYPE, LONG, GALV STEEL, 30000 LB              | 2017 | 43 \$                        | 707.18        |
|                       |                                |  | BAR, ANTI-SWAY, CABLE SPACERS ON TANGENT CABLES, POLYETHYLE             | 2017 | 22 \$                        | 86.75         |
|                       |                                |  | BOLT, DOUBLE ARM, 3/4 IN, 24 IN L, GALV STEEL, W/4 SQ NUTS              | 2017 | 20 \$                        | 79.99         |
|                       |                                |  | BOLT, DOUBLE ARM, 3/4 IN, 26 IN L, GALV STEEL, W/4 SQ NUTS              | 2017 | 10 \$                        | 54.65         |
|                       |                                |  | BOLT, DOUBLE ARM, 3/4 IN, 30 IN L, GALV STEEL, W/6 SQ NUTS              | 2017 | 5 \$                         | 44.89         |
|                       |                                |  | BOLT, EYE, 3/4 IN X 12 IN, GALV STEEL                                   | 2017 | 2 \$                         | 18.93         |
|                       |                                |  | BOLT, EYE, 3/4 IN X 14 IN, GALV STEEL                                   | 2017 | 6 \$                         | 19.16         |
|                       |                                |  | BOLT, EYE, 5/8 IN, 14 IN L, GALV STEEL, W/SQUARE NUT                    | 2017 | 32 \$                        | 17.43         |
|                       |                                |  | BOLT, MACHINE, 1/2 IN, 13 UNC-2A TPI, 10 IN L, GALV STEEL, HOT DIP GALV | 2017 | 27 \$                        | 11.36         |
|                       |                                |  | BOLT, MACHINE, 1/2 IN, 13 UNC-2A TPI, 2 IN, SS, HEX HEAD, GR 304        |      |                              |               |

| accounting_work_order | accounting_work_order_description | cost_element_description | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|-----------------------------------|--------------------------|---|------|-----------------|---------------|
| A16C0101              | 3271 LINE RECONDUCTOR             | Materials- Stores        | BOLT, MACHINE, 3/4 IN, 12 IN L, GALV STEEL, PER EEI STD TDJ-1, W/SQ NUT | 2017 | 8               | \$ 16.27      |
|                       |                                   |                          | BOLT, MACHINE, 3/4 IN, 14 IN L, GALV STEEL, SQ HEAD, W/SQ NUT           | 2017 | 134             | \$ 219.37     |
|                       |                                   |                          | BOLT, MACHINE, 3/4 IN, 16 IN L, GALV STEEL, SQ HEAD, W/SQ NUT           | 2017 | 20              | \$ 39.81      |
|                       |                                   |                          | BOLT, MACHINE, 5/8 IN, 10 IN L, GALV STEEL, W/SQ NUT                    | 2017 | 6               | \$ 5.49       |
|                       |                                   |                          | BOLT, MACHINE, 5/8 IN, 12 IN L, GALV STEEL, SQ HEAD, W/SQ NUT           | 2017 | 79              | \$ 85.03      |
|                       |                                   |                          | BOLT, MACHINE, 5/8 IN, 14 IN L, GALV STEEL, W/SQ NUT                    | 2017 | 14              | \$ 16.49      |
|                       |                                   |                          | BOLT, MACHINE, 5/8 IN, 7 IN L, GALV STEEL, W/SQ NUT                     | 2017 | 6               | \$ 4.14       |
|                       |                                   |                          | BRACE, 35 KV X FOR 10 FT SPACING, WOOD, 3-3/8 IN X 4-3/8 IN             | 2017 | 2               | \$ 923.84     |
|                       |                                   |                          | BRACE, CROSSARM, WOOD, 1-3/4 IN X 1-3/4 IN, 60 IN SPAN                  | 2017 | 8               | \$ 146.37     |
|                       |                                   |                          | BRACKET, ANGLE, EXTENDED TAP, HENDRIX, SPACER CABLE SINGLE CII          | 2017 | 5               | \$ 828.21     |
|                       |                                   |                          | BRACKET, CUTOOT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I          | 2017 | 1               | \$ 29.61      |
|                       |                                   |                          | BRACKET, CUTOOT & ARRESTER, FOR DE FIBERGLASS CROSSARM MOU              | 2017 | 18              | \$ 152.00     |
|                       |                                   |                          | BRACKET, TANGENT/ HENDRIX, 24 IN W/MC-2 MESSENGER CLAMP                 | 2017 | 43              | \$ 3,078.90   |
|                       |                                   |                          | BRACKET, TANGENT, SPACER, 24 IN, DI, HOT DIP GALV, USE: MESSENGER       | 2017 | 3               | \$ 214.55     |
|                       |                                   |                          | CABLE, BARE, 19-#10 AWG, 27M, 19 STR, 3400 FT LG, ALUMOWELD             | 2017 | -1400           | \$ (786.90)   |
|                       |                                   |                          | CABLE, BARE, ACSR, 477 KCMIL, 26/7 STR, HAWK                            | 2017 | -5705           | \$ (4,723.74) |
|                       |                                   |                          | CABLE, BARE, ACSR/AW, 4/0 AWG, 6/1 STR, PENGUIN                         | 2017 | 600             | \$ 241.00     |
|                       |                                   |                          | CABLE, BARE, ACSR/AW, 4/0 AWG, 6/1 STR, PENGUIN/AW                      | 2017 | 5825            | \$ 2,716.91   |
|                       |                                   |                          | CABLE, BARE, ALUMOWELD, 19-#10 AWG, (19 STR), 27M, 5000 FT REEL         | 2017 | 3429            | \$ 2,156.84   |
|                       |                                   |                          | CABLE, BARE, COPPER CLAD STEEL, #2, SOLID, 40%, 100 LBS, SOFT DRA       | 2017 | 500             | \$ 1,751.94   |
|                       |                                   |                          | CABLE, BARE, CU MHD, 2/0, 7 STR   | 2017 | 122             | \$ 211.18     |
|                       |                                   |                          | CABLE, BARE, HAWK, ACSR, 477 KCMIL, 26/7 STR                            | 2017 | 12540           | \$ 10,383.11  |
|                       |                                   |                          | CABLE, BARE, SD/ANNEALED, CU, #2, 7 STR                                 | 2017 | 54              | \$ 40.63      |
|                       |                                   |                          | CABLE, COVERED, 60 MILS, POLYETHYLENE, MHD COPPER, #4, (7 STR), U       | 2017 | 330             | \$ 223.08     |
|                       |                                   |                          | CABLE, INSULATED, SPACER, AAC, 1/C, 477, 35 KV, 90 DEG C, 320 MILS P    | 2017 | 0               | \$ (70.02)    |
|                       |                                   |                          | CABLE, INSULATED, SPACER, POLY, 35 KV, AL, 477 AAC, 320 MIL, 1/C, 90 I  | 2017 | 0               | \$ (129.55)   |
|                       |                                   |                          | CLAMP, ANGLE, #4 - 4/0 RANGE  | 2017 | 5               | \$ 53.02      |
|                       |                                   |                          | CLAMP, QUADRANT, ALUMINUM, 3/0 - 795 ACSR, .50 TO 1.20, W/ SOCKET       | 2017 | 42              | \$ 2,426.98   |
|                       |                                   |                          | CLAMP, STRAIN, STRT SIDE OPENING, 3/0 - 556.5 AL, W/LIFTING EYE         | 2017 | 56              | \$ 649.20     |
|                       |                                   |                          | CLAMP, SUSPENSION, 0.7-1.118 IN, AL, W/ SOCKET EYE                      | 2017 | 6               | \$ 131.55     |
|                       |                                   |                          | CLEVIS, DEADEND EYELET, GALV, 1-1/2 IN X 3/4 IN                         | 2017 | 24              | \$ 206.76     |
|                       |                                   |                          | CLEVIS, EYE 90 DEGREE, COTTER KEY TO HAVE 1-3/8 IN OVERALL LENG         | 2017 | 5               | \$ 149.84     |
|                       |                                   |                          | CLEVIS, THIMBLE, GALV STEEL, 36K  | 2017 | 6               | \$ 57.56      |
|                       |                                   |                          | CONNECTOR, GROUND, ROD, 5/8 IN, #8 TO 1/0                               | 2017 | 59              | \$ 84.51      |
|                       |                                   |                          | CONNECTOR, PARALLEL GROVE, AL, RUN : 3/0 TO 397.5 ACSR, TAP : #6 T      | 2017 | 14              | \$ 49.55      |
|                       |                                   |                          | CONNECTOR, PARALLEL GROVE, ALUMINUM, #1 SOL TO 336 ACSR RUN, i          | 2017 | 59              | \$ 90.83      |
|                       |                                   |                          | CONNECTOR, SPLIT BOLT, COPPER, #4 SOL                                   | 2017 | 18              | \$ 11.24      |
|                       |                                   |                          | CROSSARM, 29 FT RA DRILLING, LAMINATED, 5-1/2 X 7-1/2 NEW TYPE TO I     | 2017 | 2               | \$ 1,147.82   |
|                       |                                   |                          | CROSSARM, DISTRIBUTION, DEADEND, 3-5/8 X 4-5/8 IN, 10 FT LG , W/ CEN    | 2017 | -5              | \$ (958.94)   |
|                       |                                   |                          | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT DEADEND, JUMBO, BRO           | 2017 | 12              | \$ 3,061.96   |
|                       |                                   |                          | CROSSARM, DISTRIBUTION, TANGENT, 3-5/8 X 4-5/8 IN, 10 FT LG , W/ CEN    | 2017 | -2              | \$ (211.93)   |
|                       |                                   |                          | CROSSARM, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, WITH CENTER M       | 2017 | 6               | \$ 1,159.85   |
|                       |                                   |                          | CROSSARM, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN, WITH CENTER      | 2017 | 7               | \$ 738.80     |
|                       |                                   |                          | CROSSARM, FIBERGLASS, 10 FT TANGENT, JUMBO, BROWN, WITH JUMB            | 2017 | 21              | \$ 2,358.09   |
|                       |                                   |                          | CROSSARM, TANGENT, JUMBO, 3-5/8 X 4-5/8 IN, 10 FT LG, W/ JUMBO DRIL     | 2017 | -16             | \$ (1,806.88) |
|                       |                                   |                          | CUTOOT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100       | 2017 | 0               | \$ (2.49)     |
|                       |                                   |                          | EYELET, STANDARD, LONG, PER ANSI C135.5, GALVANIZED STEEL, FOR 3        | 2017 | 12              | \$ 35.64      |
|                       |                                   |                          | EYELET, THROUGH BOLT/ NOT THREADED, GALVANIZED STEEL, FOR 5/8           | 2017 | 12              | \$ 25.11      |
|                       |                                   |                          | EYENUT, FOR 3/4 IN BOLT, GALVANIZED STEEL                               | 2017 | 58              | \$ 96.94      |
|                       |                                   |                          | EYENUT, SINGLE STRAND, GALVANIZED STEEL, FOR 3/4 IN BOLT                | 2017 | 8               | \$ 18.45      |
|                       |                                   |                          | GRIP, GUY, PREFORMED, FOR ALUMOWELD CABLE, 19-#10 AWG GREEN             | 2017 | 68              | \$ 1,168.41   |
|                       |                                   |                          | GRIP, PREFORMED DEADEND, FOR 0000127 AWA MESSENGER                      | 2017 | 6               | \$ 803.67     |
|                       |                                   |                          | GUARD, ELECTRICAL, PRIMARY CONDUCTOR /TREE/BRANCH, 8 FT. LG, 1          | 2017 | 6               | \$ 159.50     |
|                       |                                   |                          | INSULATOR, PIN, POLY, VISE TOP, 35 KV, 1 IN. PIN, COVERED CONDUCTO      | 2017 | 36              | \$ 777.30     |
|                       |                                   |                          | INSULATOR, POST, (PINEAPPLE), TIE TOP, POLYETHYLENE, 35KV               | 2017 | 49              | \$ 2,060.67   |
|                       |                                   |                          | INSULATOR, STRAIN, FIBERGLASS, 78 IN, ROLLER CLEVIS, 30,000 LB, NO      | 2017 | 16              | \$ 558.50     |
|                       |                                   |                          | INSULATOR, SUSPENSION, COMPOSITE, SILICONE, 35 KV, NOT ENGINEER         | 2017 | 81              | \$ 948.21     |
|                       |                                   |                          | INSULATOR, SUSPENSION, DEADEND, POLY, 23 IN LONG, 34.5 KV, 378 KV       | 2017 | 39              | \$ 1,908.73   |
|                       |                                   |                          | LINK, ROLLER, ASSY, TYPE 1 GUY LINK, RUS TG-92                          | 2017 | 32              | \$ 725.36     |
|                       |                                   |                          | LINK, STRAIGHT, GALV STEEL, 5/8 IN, 40,000 LB                           | 2017 | 36              | \$ 172.55     |
|                       |                                   |                          | LINK, STRIRRRUP, FOR SPACER CABLE TANGENT BRACKET                       | 2017 | 43              | \$ 372.94     |
|                       |                                   |                          | LINK, ASSEMBLY, ROLLER, GUY, RUS TG-92, TYPE 1                          | 2017 | -14             | \$ (317.34)   |
|                       |                                   |                          | MARKER, GUY, FULL ROUND, PLASTIC, 8 FT L, YELLOW, SPIRAL PIGTAIL        | 2017 | 32              | \$ 93.26      |
|                       |                                   |                          | MOLDING, F/GROUND WIRE, HIGH DENSITY POLY, BLACK, 8 FT L, 1/2 IN W      | 2017 | 2000            | \$ 673.20     |
|                       |                                   |                          | NUT, HEX, FINISHED, 1/2 IN, 13 UNC-2B TPI, STS, GR 18-8                 | 2017 | 18              | \$ 2.00       |

| accounting_work_order | accounting_work_order_description          | cost_element_description | Description  | year | Sum of quantity | Sum of amount |
|-----------------------|--|--------------------------|--|------|-----------------|---------------|
| A16C0101              | 3271 LINE RECONDUCTOR                      | Materials- Stores        | PIN, INSULATOR, CROSSARM, 5/8" X 6-1/4" SHANK, 1" THRD, 8", GALV. ST     | 2017 | 21 \$           | 274.19        |
|                       |  |                          | PIN, INSULATOR, FOR SPCR CABLE BKT, 3/4" X 2-3/8" SHANK, 1" THRD, 7"     | 2017 | 15 \$           | 227.72        |
|                       |  |                          | PIN, INSULATOR, LINE POST, 3/4" X 7" SHANK, 8-1/2" OVERALL LENGTH, 1/2"  | 2017 | 43 \$           | 185.17        |
|                       |  |                          | PIN, INSULATOR, SHORT STUD, 3/4 IN D, 1-3/4 IN L, GALV STEEL             | 2017 | 4 \$            | 14.54         |
|                       |  |                          | PIN, POLE TOP, LINE POST, BRACKET, 4 X 4 X 13 IN, 35 KV                  | 2017 | 4 \$            | 59.44         |
|                       |  |                          | PLATE, GUY/ POLE EYE, 13/16 IN. BOLT HOLE- 9/16 IN. LAG HOLE, WITH C     | 2017 | 24 \$           | 144.51        |
|                       |  |                          | POLE, WESTERN RED CEDAR, 40 FT, CL 2                                     | 2017 | 2 \$            | 1,619.66      |
|                       |  |                          | POLE, WESTERN RED CEDAR, 45 FT L, CL 1                                   | 2017 | 12 \$           | 11,457.22     |
|                       |  |                          | POLE, WESTERN RED CEDAR, 45 FT, CL 2                                     | 2017 | 16 \$           | 15,054.70     |
|                       |  |                          | POLE, WESTERN RED CEDAR, 50 FT L, CL 1                                   | 2017 | 6 \$            | 6,643.54      |
|                       |  |                          | POLE, WESTERN RED CEDAR, 50 FT, CL 2                                     | 2017 | 6 \$            | 5,909.70      |
|                       |  |                          | POLE, WESTERN RED CEDAR, 55 FT L, CL 1                                   | 2017 | 9 \$            | 12,575.69     |
|                       |  |                          | POLE, WESTERN RED CEDAR, 55 FT L, CL 2                                   | 2017 | 1 \$            | 1,193.16      |
|                       |  |                          | POLE, WESTERN RED CEDAR, 60 FT L, CL 2                                   | 2017 | 4 \$            | 6,533.66      |
|                       |  |                          | ROD, ANCHOR, GALVANIZED STEEL, 1 IN DIA, 7 FT LG, TRIPLE STRAND E        | 2017 | 30 \$           | 672.41        |
|                       |  |                          | ROD, GROUND, HOT DIPPED GALVANIZED, MINIMUM 5/8 IN DIA, 8 FT LG          | 2017 | 59 \$           | 295.17        |
|                       |  |                          | SCREW, LAG, 1/2 IN, 4 IN LG, STEEL, GALVANIZED, TWIST DRIVE PILOT PC     | 2017 | 89 \$           | 26.72         |
|                       |  |                          | SHACKLE, ANCHOR, 5/8 IN, BOLT/ NUT / KEY, GALV, SCREW PIN, 30,000 LI     | 2017 | 20 \$           | 131.12        |
|                       |  |                          | SPACER, CABLE, HENDRIX - 46KV, POLYETHYLENE W/CONDUCTOR CLAM             | 2017 | 400 \$          | 10,638.78     |
|                       |  |                          | STAPLE, SQUARE SHANKED, BARBED, 2 IN L X 5/8 IN X 0.165 IN THK, 160/l    | 2017 | 1600 \$         | 411.92        |
|                       |  |                          | STAPLE, WIRE, SQUARE SHANKED BARDED, 3/8 X 1-1/2 IN L X 0.131 IN THI     | 2017 | 36 \$           | 4.66          |
|                       |  |                          | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 0.846-0.883 DIA, 35 KV, 900    | 2017 | 6 \$            | 4,191.43      |
|                       |  |                          | THIMBLE, CLEVIS, FOR PREFORMED GRIPS ON SPACER CABLE, STEEL, C           | 2017 | 18 \$           | 194.33        |
|                       |  |                          | TURNBUCKLE, CLEVIS/EYE, CIRCULAR EYE, 15/16 IN OPENING, 35,000 LB        | 2017 | 3 \$            | 296.83        |
|                       |  |                          | WASHER, COIL SPRING, GALV STEEL, 1/2 IN                                  | 2017 | 16 \$           | 2.22          |
|                       |  |                          | WASHER, COIL SPRING, GALV STEEL, 3/4 IN                                  | 2017 | 133 \$          | 40.82         |
|                       |  |                          | WASHER, COIL SPRING, GALVANIZED, 5/8 IN                                  | 2017 | 136 \$          | 24.24         |
|                       |  |                          | WASHER, FLAT, 1/2 IN NOM, 1-3/8 IN OD, STEEL, ROUND, HOT DIP GALVAN      | 2017 | 16 \$           | 1.11          |
|                       |  |                          | WASHER, LOCKING, EXTERNAL TEETH, 3/4 OR 1 IN NOM, STEEL, GALV, SI        | 2017 | 18 \$           | 4.18          |
|                       |  |                          | WASHER, LOCKING, REGULAR HELICAL SPRING, 1/2 IN NOM, SS, GR 304          | 2017 | 18 \$           | 1.39          |
|                       |  |                          | WASHER, SQUARE, 2-1/4 IN X 2-1/4 IN, FLAT, FLAT, FOR 5/8 IN & 3/4 IN DIA | 2017 | 34 \$           | 7.47          |
|                       |  |                          | WASHER, SQUARE, CURVED, GALVANIZED, 3 IN X 3 IN X 1/4 IN F/ 5/8 OR 3/    | 2017 | 350 \$          | 187.09        |
|                       |  |                          | WASHER, SQUARE, FLAT 3 X 3 IN X 1/4 IN, GALVANIZED, 13/16 IN HOLE FC     | 2017 | 160 \$          | 211.16        |
|                       |  |                          | WASHER, SQUARE, FLAT, GALVANIZED, 1/2 IN BOLT                            | 2017 | 16 \$           | 3.49          |
|                       |  |                          | WASHER, SQUARE, FLAT, STEEL, 4 X 4 IN (FOR 7/8 IN BOLT), GALV            | 2017 | 28 \$           | 47.40         |
|                       |  |                          | WASHER, SQUARE, FLAT, STEEL, FOR 5/8 IN BOLT, 3.5 IN X 3.5 IN X 0.25 IN  | 2017 | 21 \$           | 37.63         |
|                       |  |                          | WIRE, TIE, BARE, ALUMINUM, #4, (50 LB COILS) SOFT DRAWN ONLY             | 2017 | 50 \$           | 90.47         |
|                       |  |                          | WIRE, TIE, COPPER, SOFT DRAWN, 6 AWG, 25 LB / SPOOL                      | 2017 | 50 \$           | 210.46        |
|                       |  |                          | WIREHOLDER, GROUND, NYLON, 2-1/4 IN SCREW, GRAY                          | 2017 | 24 \$           | 77.64         |
|                       | Mileage                                    |                          |  | 2016 | 57 \$           | 30.78         |
|                       |  |                          |  | 2017 | 1098 \$         | 587.48        |
|                       | Misc Dist Exp Capitalized OH-Acct Use Only |                          |  | 2016 | 0 \$            | 1,491.33      |
|                       |  |                          |  | 2017 | 0 \$            | 17,842.45     |
|                       |  |                          |  | 2018 | 0 \$            | 1.37          |
|                       | Miscellaneous Accounting Adjustments       |                          |  | 2018 | 0 \$            | 0.00          |
|                       | Non Productive Time Loader- Acct Use Only  |                          |  | 2016 | 0 \$            | 537.95        |
|                       |  |                          |  | 2017 | 0 \$            | 5,712.11      |
|                       |  |                          |  | 2018 | 0 \$            | 4.06          |
|                       | Other Outside Services                     |                          |  | 2017 | 0 \$            | -             |
|                       |  |                          |  | 2018 | 0 \$            | -             |
|                       |  |                          | M&S TRAILERS INC   | 2017 | 4 \$            | 1,827.50      |
|                       |  |                          | VANASSE HANGEN BRUSTLIN INC  | 2016 | 16 \$           | 90,777.59     |
|                       |  |                          |  | 2017 | 9 \$            | 50,030.85     |
|                       |  |                          |  | 2018 | 0 \$            | -             |
|                       | Other Outside Services- Other              |                          |  | 2018 | 0 \$            | -             |
|                       |  |                          | DEAN & THERESA GIBSON  | 2017 | 0 \$            | 5,000.00      |
|                       |  |                          | JMC COMPANY LLC  | 2017 | 0 \$            | 8,000.00      |
|                       |  |                          | THOMAS LABRECQUE & KELLY LABRECQUE                                       | 2017 | 0 \$            | 4,500.00      |
|                       | Other Outside Services- Tree Planned       |                          |  | 2018 | 0 \$            | -             |
|                       |  |                          | JOHN BROWN & SONS INC  | 2017 | 2 \$            | 6,992.81      |
|                       | Payroll Benefit Loader- Acct Use Only      |                          |  | 2016 | 0 \$            | 461.95        |
|                       |  |                          |  | 2017 | 0 \$            | 7,424.94      |
|                       |  |                          |  | 2018 | 0 \$            | -             |
|                       | Property Taxes                             |                          |  | 2017 | 0 \$            | 11,830.42     |
|                       |  |                          |  | 2018 | 0 \$            | -             |



| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description  | year | Sum of quantity | Sum of amount   |
|-----------------------|-----------------------------------|--|--|------|-----------------|-----------------|
| A16C0101              | 3271 LINE RECONDUCTOR             | Service Company Allocations- Acct Use Only |  | 2016 | 0               | \$ (0.00)       |
|                       |                                   |  |  | 2017 | 0               | \$ (0.00)       |
|                       |                                   |  |  | 2018 | 0               | \$ 0.00         |
|                       |                                   | Stores Loader- Acct Use Only               |  | 2017 | 0               | \$ 16,934.31    |
|                       |                                   | Stores over 25K                            | CABLE, BARE, 0000127 AWA MESSENGER FOR 795 SPACER CABLE                | 2017 | 13775           | \$ 32,187.62    |
|                       |                                   |  | CABLE, INSULATED, SPACER, POLY, 35 KV, AL, 477 AAC, 320 MIL, 1/C, 90 I | 2017 | 41568           | \$ 110,234.95   |
|                       |                                   | UVL-Contractor Labor                       |  | 2018 | 0               | \$ -            |
|                       |                                   |  | 0105510 - UVL - ENG00 - 00023  | 2016 | 0               | \$ 516.00       |
|                       |                                   |  |  | 2017 | 0               | \$ (516.00)     |
|                       |                                   |  | 0105510 - UVL - ENG00 - 00041  | 2016 | 0               | \$ 1,145.00     |
|                       |                                   |  |  | 2017 | 0               | \$ (1,145.00)   |
|                       |                                   |  | 0107189 - UVL - ENG00 - 00041  | 2017 | 0               | \$ -            |
|                       |                                   |  | 0108100 - UVL - ENG00 - 00041  | 2017 | 0               | \$ -            |
|                       |                                   |  | 0108711 - UVL - ENG00 - 00032  | 2017 | 0               | \$ -            |
|                       |                                   |  | 0108711 - UVL - ENG00 - 00041  | 2017 | 0               | \$ -            |
|                       |                                   |  | 0108868 - MISC CONTRACTOR WORK   | 2017 | 0               | \$ -            |
|                       |                                   |  | 0109464 - 3271 ROW/LINE  | 2017 | 0               | \$ -            |
|                       |                                   |  | 0109645 - UVL - CST00 -  | 2017 | 0               | \$ -            |
|                       |                                   |  | 0109645 - UVL - ENG00 - 00032  | 2017 | 0               | \$ -            |
|                       |                                   |  | 0110019 - 3271 ROW RECONDUCTOR   | 2017 | 0               | \$ -            |
|                       |                                   |  | 0110033 - UVL - CST00 -  | 2017 | 0               | \$ -            |
|                       |                                   |  | 0110033 - UVL - ENG00 - 00032  | 2017 | 0               | \$ -            |
|                       |                                   |  | 0110891 - GOFFSTOWN TO WEARE ROWOFF-ROAD                               | 2017 | 0               | \$ -            |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only      |  | 2016 | 0               | \$ 49.99        |
|                       |                                   |  |  | 2017 | 0               | \$ 8,098.19     |
|                       |                                   |  |  | 2018 | 0               | \$ 2.04         |
| A16C0101 Total        |                                   |  |  |      | 80638.77        | \$ 2,427,609.91 |
| Grand Total           |                                   |  |  |      | 80638.77        | \$ 2,427,609.91 |

## Public Service Co of New Hampshire Project Approval Information

Docket No. DE 19-057  
Data Request STAFF  
12-045 Dated 9/20/2019  
Attachment STAFF 12-045  
AJ Page 1 of 13

|   |  |                   |
|---|--|-------------------|
| <b>Fund Project Number</b> NHRMTR17                 | <b>Status</b> open                       | <b>Revision</b> 4 |
| <b>Project Title</b> NH Remote Disconnect 2017-2018 | <b>Operating Unit</b>                    |                   |
| <b>Initiated By</b> flangga                         | <b>Initiated Date</b> 1/11/2017 15:32:47 |                   |

|                            |  |
|----------------------------|--|
| <b>Description of Work</b> | NH Remote Disconnect Project 2017-2018 |
| <b>Location</b>            | General Plant - New Hampshire          |

| Project Schedule / Expenditures |                | Est Start Date : |                | 1/1/2017           | Est Complete Date : |                           | 12/31/2017 |
|---------------------------------|----------------|------------------|----------------|--------------------|---------------------|---------------------------|------------|
| 2017                            | 2018           | 2019             | 2020           | 2021               | Future Years        | Total                     |            |
| \$1,985,629.00                  | \$0.00         | \$0.00           | \$0.00         | \$0.00             | \$0.00              | <b><u>\$1,985,629</u></b> |            |
| <b>Cost Breakdown</b>           | <b>Capital</b> | <b>Expense</b>   | <b>Removal</b> | <b>Retirements</b> | <b>Credits</b>      |                           |            |
|                                 | \$1,985,629    | \$0              | \$0            | \$0                | \$0                 | \$1,985,629.00            |            |

Reason For Work

Background Information

### Approvals

| Level                      | Approver           | Approval Limit | Date Approved |
|----------------------------|--------------------|----------------|---------------|
| Project Manager            | Thibodeau, Randall | \$0            | 2/15/2019     |
| Plant Accounting           | Davis, Sean        | \$0            | 2/15/2019     |
| Manager - Operation Serv   | Bowen, Martin      | \$100,000      | 2/19/2019     |
| Director - Operation Servi | Van Dam, William   | \$250,000      | 2/27/2019     |
| Vice President - Operatio  | Driscoll, Stephen  | \$1,000,000    | 4/3/2019      |
| Executive VP - COO         | Schweiger, Werner  | \$12,500,000   | 7/9/2019      |

# EVERSOURCE

APS 1 - Project Authorization Policy

Appendix 4  
 Supplement Request Form

## Supplement Request Form

|                                       |   |
|---------------------------------------|---|
| Company/Companies: PSNH New Hampshire | Project Title: Remote Disconnect Plus                 |
| Organization: Distribution Operations | Project ID Number: NHRMTR17                           |
| Project Initiator: Martin Bowen III   | Plant Class/(F.P.Type): PSNH – Pre-Cap Assets: Meters |
| Project Manager: Martin Bowen III     | Project Type: <i>Specific</i>                         |
| Project Sponsor: William Van Dam      | Capital Investment Part of Original Operating Plan? Y |
| Current Authorized Amount: \$918,793  | O&M Expenses Part of the Original Operating Plan? N/A |
| Supplement Request: \$1,066,836       | Estimated in service date(s): 12/31/2017              |
| Total Request: \$1,985,629            | Other:  |

### Supplement Justification

*Supplement Request Forms must be completed for projects in accordance with the Project Authorization Policy and approval levels in the Delegation of Authority Policy (DOA) as follows:*

For Corporate Shared Services Projects:

*For projects \$500K to \$10M - An increase in total authorized cost > 15% or;  
 For projects > \$10M - An increase in total authorized cost > \$1.5M*

For Distribution Operations Projects:

*For projects <= \$250K - An increase in direct costs >= \$25K or;  
 For projects >\$250K - An increase in direct costs >10%*

For Transmission Operations Projects:

*For projects <= \$500K – An increase in total authorized cost >= \$75K  
 For projects \$500K to \$16.5M- An increase in total authorized cost > 15% or;  
 For projects > \$16.5M - An increase in total authorized cost > \$2.5M*

### Justification for Additional Resources

The initial authorized amount of \$918,793 was included in the 2017 Remote Disconnect Plus Meter project authorization form (PAF). The additional funding of \$1,066,836 is requested by Meter Operations to accept the charges to replace manually probed interval meters in New Hampshire for a total capital expenditure in the amount of \$1,985,629. The Remote Disconnect Plus project in New Hampshire was originally scheduled to be a 2-year capital meter project beginning in 2017 and ending in 2018. Meter Operations decided to take full advantage of its accessible resources which include cash, meters and associated meter materials available from the vendors, and Eversource manual labor to complete this project in 2017. The preliminary budget number of \$316,825 for 2018 will be transferred to fund the second-year portion of the Remote Disconnect Plus Meter project in Eastern Massachusetts in 2018. By completing the New Hampshire Remote Disconnect Plus project a year in advance, it ensures a more accurate, reliable, and cost-effective metering plant operation while achieving O&M reductions and preventing the loss of stored data.

Docket No. DE 19-057  
Data Request STAFF  
12-045 Dated 9/20/2019  
Attachment STAFF 12-045  
AJ Page 3 of 13

**Funding Project Information**

New Approval Type

Budget Version **2016 Working (inactive)**

Funding Project **NHRMTR17** Revision **1**

Approval Type **FP Operation Services** Amount **\$1,235,618.00**

Status **Approved** Sent By **Thibodeau, Randall** Date Sent **1/20/2017** Date Appr **2/22/2017**

Rev **K** **<** **>** **>I**

**Send for Approval**

**Refresh**

|                            | Approver           | Required                            | Date Approved | Authority Limit |
|----------------------------|--------------------|-------------------------------------|---------------|-----------------|
| + Project Manager - - - -  | Thibodeau, Randall | <input checked="" type="checkbox"/> | 1/20/2017     | \$0             |
| + Plant Accounting - - - - | Davis, Sean        | <input checked="" type="checkbox"/> | 1/20/2017     | \$0             |
| + Manager - Operation S    | Bowen, Martin      | <input checked="" type="checkbox"/> | 1/24/2017     | \$100,000       |
| + Director - Operation Se  | Van Dam, William   | <input checked="" type="checkbox"/> | 1/25/2017     | \$250,000       |
| + Vice President - Opera   | Driscoll, Stephen  | <input checked="" type="checkbox"/> | 2/10/2017     | \$1,000,000     |
| + Executive VP - COO -     | Schweiger, Werner  | <input checked="" type="checkbox"/> | 2/22/2017     | \$12,500,000    |

**Details**

**Accounts**

**Departments**

**Contacts**

**Tasks**

**Class Codes**

**Justification**

**Tax Status**

**Authorizations**

**User Comment**

**Review**

**Related FPs**

**Audits**

**Delete FP**

**Cancel FP**

**Suspend FP**

**Estimates**

**Update**

**Print**

**Cancel**

Record **1** of **1**

**K** **<** **>** **>I**

Accounting Policy Statement No. 1  
Corporate / Shared Services Project Authorization

## Project Authorization Form

### General Information

Date Prepared: October, 2016

Project Title: Remote Disconnect Plus

Class(es) of Plant: Hardware

Project Initiator: Anna Rankin

Project Owner/Manager: Barbara Moreira, William Van Dam

Project Sponsor: Jessica B Cain, Steve Driscoll

Project ID Number: TBD

Organization: Customer Operations

Company: Eversource (EMA, CT, NH)

Part of Original Operating Plan? Yes/ No  
If no, offset by elimination of another budgeted amount? Yes / No

O&M Expenses Part of the Original Operating Plan? Yes / No

Authorization for additional resources? Yes / No  
If so obtain required VP approval

Is this PAF for a transfer of a significant amount? Yes/ No

If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and financial evaluation completed with the designated representative of the Chief Financial Officer (CFO) organization.

ERM \_\_\_\_\_  
CFO \_\_\_\_\_

Timing of project 2017 - 2018

Estimated in service date Ongoing during project time period

Project X\*\* Annual \_\_\_\_\_ Preliminary \_\_\_\_\_

**\*\*The current assumptions for remote-disconnect meter replacement in E-MA and CT, as well as the remaining manually probed interval meters in NH and remaining electromechanical meters in E-MA and CT have been estimated in advance of requirements gathering. If required, a supplemental PAF will be submitted for review and approval based upon completion of the detailed requirements.**

Accounting Policy Statement No. 1  
 Corporate / Shared Services Project Authorization

## Executive Summary

### Project Costs Summary

|                         | Prior Authorized Amount (if applicable) | Amount of This Authorization | Total Project Cost  |
|-------------------------|---|------------------------------|---------------------|
| Capital (details below) | \$                                      | \$39,000,000                 | \$39,000,000        |
| O&M                     | \$                                      | \$-                          | \$-                 |
| <b>Total</b>            | <b>\$</b>                               | <b>\$39,000,000</b>          | <b>\$39,000,000</b> |

Provide in the table below estimated details of total Capital spending above:

| Cost Components               | Description of the Cost Component  | Estimated Cost       |
|-------------------------------|--|----------------------|
| Material                      | Meters, locking bands  | \$ 18,800,000        |
| Labor                         | Cost of First Install, NH meter exchange system update processing, Warrant costs | \$ 18,500,000        |
| Outside Services              | Televox campaign plus 2 mailings   | \$ 150,000           |
| Software                      | N/A  | \$ 0                 |
| Hardware                      | N/A  | \$ 0                 |
| Other (please list):          | Socket Upgrade Program Contingency (2.9%)  | \$ 1,069,000         |
| <b>Total Capital Spending</b> |  | <b>\$ 39,000,000</b> |

By Entity, by project breakdown:

| State        | Project ID | 2017                | 2018                | Total Project Cost  |
|--------------|------------|---------------------|---------------------|---------------------|
| MA (East)    | ETRMTR17   | \$20,949,413        | \$7,223,936         | \$28,173,349        |
| CT           | CTRMTR17   | \$7,131,794         | \$2,459,239         | \$9,591,033         |
| NH           | NHRMTR17   | \$918,793           | \$316,825           | \$1,235,618         |
| <b>Total</b> |            | <b>\$29,000,000</b> | <b>\$10,000,000</b> | <b>\$39,000,000</b> |

Accounting Policy Statement No. 1  
Corporate / Shared Services Project Authorization

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### Summary Project Description

The primary goal of this project is to address hard-to-access meters that are preventing bad debt reductions and further savings achievable by installing a meter with remote disconnect functionality. In support of the Customer Group's Credit Strategy and the exchanges of E-MA lifecycle meters, this project will:

- In E-MA, replace 21,000 hard to access (CGI) credit meters, 51,000 non-credit meters in the same hard to access (CGI) locations along with an additional 18,000 indoor meters at credit premises over an 18 month period in E-MA with remote disconnect meter technology.
- In CT, prioritize the replacement of 13,300 credit CGI electric meters along with 26,500 meters at those premises and/or in 2 man zone areas with remote disconnect meter technology.

This project also aims to achieve O&M reductions and prevent loss of stored data by eliminating the final manually read Eversource meters, including:

- In NH, replace 1,800 manually probed interval meters
- In CT & E-MA, replace 180 remaining mechanical meters with AMR meter technology.

Accounting Policy Statement No. 1  
 Corporate / Shared Services Project Authorization

## Project Authorization

*Project authorization below must be obtained from each approver listed below in accordance with the approval levels included in the Delegation of Authority Policy (DOA).*

| Approver   | Approver Name                    | Approver Signature | Date |
|--|----------------------------------|--------------------|------|
| Project initiator  | Anna Rankin                      |                    |      |
| Project Manager EMA &NH  | Paul DiChiara                    |                    |      |
| Project Manager CT & WMA   | Noel Grant                       |                    |      |
| Project Manager Materials  | Martin Bowen III                 |                    |      |
| Plant Accounting   |                                  |                    |      |
| Budgeting and Internal Reporting*  | Randy Thibodeau                  |                    |      |
| Investment Planning**  | N/A                              |                    |      |
| DOA  | Barbara Moreira, William Van Dam |                    |      |
| DOA  | Jessica B Cain, Steve Driscoll   |                    |      |
| CIO or VP, Supply Chain, Environmental Affairs and Property Management or their designee *** | N/A                              |                    |      |

\* For Corporate / Shared Services projects only

\*\* For Massachusetts Operations projects only

\*\*\* For IT or Facilities and Environmental projects only



Accounting Policy Statement No. 1  
Corporate / Shared Services Project Authorization

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## Overall Justification

### Problem statement

Mitigating a population of hard-to-reach meters will lead to increased operational savings, decreased write-offs and further bad debt reduction.

### Project objectives

1. Reduce bad debt
2. Eliminate manual reading of final non-AMR meters
3. Reduce time spent performing disconnects/reconnects
4. Continue to replace hard to access, end-of-life meters with remote disconnect meters

### Project scope

The project will facilitate the deployment of 132,000 electric meters with remote disconnect/reconnect functionality. 90,000 meters have been identified in E-MA (of which 65,000 are at end-of-life). 40,000 credit, hard-to-access or 2 man zone meters have been identified in CT. In addition, 1800 manually probed interval data meters in NH will be replaced with remote read functionality, and the final 180 non-AMR mechanical meters in CT and E-MA will be replaced with AMR meters.

This project assumes an outbound customer call campaign, as well as to two standard mail notifications prior to meter exchange.

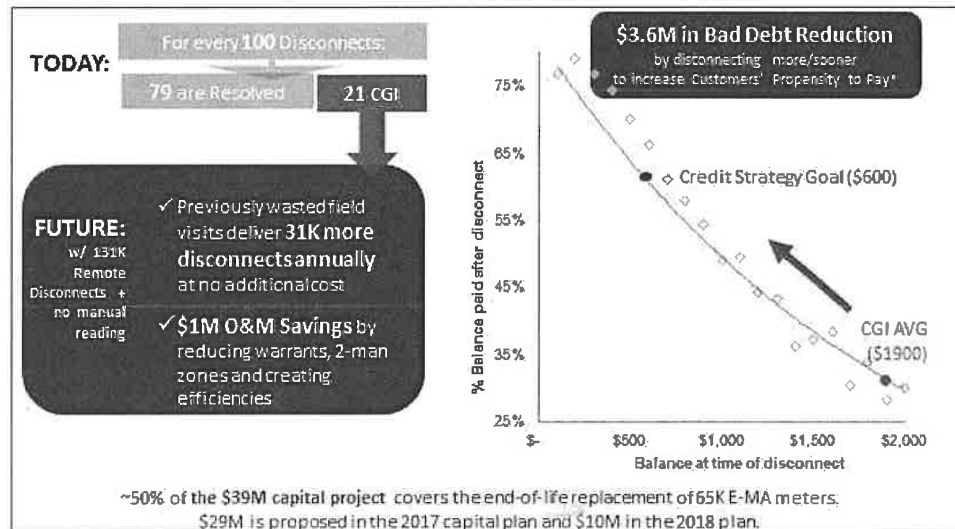
In addition to the cost of the meters, Cost of First Install was calculated for CT, NH and E-MA, which includes meter programming, travel to and from site, installation time, and assumes multiple visits for inside locations.

Additional cost assumptions include a 10% rate for a warrant to access the premise in E-MA, 100% utilization of heavy-duty locking bands, meter population percentages by type and state and a "socket upgrade program" for a known population of meters that cannot be exchanged without a service upgrade or repair.

## Accounting Policy Statement No. 1 Corporate / Shared Services Project Authorization

### Benefits

Total steady state benefits of \$4.6M, includes reduction in bad debt, O&M savings from reduced amount of time for disconnect, reduced amount of time to perform a reconnect, disconnects and reconnects performed by drive-by-AMR and savings from two-person zones. The ratio of bad debt and O&M savings may change depending on the greatest benefit to the company by optimizing labor versus bad debt value.



### Alternatives considered

The following alternatives were considered for the project.

- Replacing all indoor meters with remote disconnect meters
- Replacing high-risk CGI ("Can't Get In") meters with remote disconnect meters by area work center
- Replacing credit customers with indoor meters with remote disconnect meters
- Replacing credit customers with indoor meters with remote disconnect meters plus outside meters in both E-MA and CT

While the impact to the total incremental avoided write-off changes in each scenario, the solution chosen was decided based on corporate business strategy, cost and schedule.

### Assessment of solutions utilized by and applicability to other Eversource Companies

The solution chosen is fully aligned with the existing type of technologies used for metering in Eversource's tri-state territory.

### Safety assessments

Accounting Policy Statement No. 1  
 Corporate / Shared Services Project Authorization

Increased personal safety of field meter resources.

## Financial Evaluation

*Describe the project schedule and milestones*

| Milestones and Actions  | Responsible Party | Completion Date |
|---|-------------------|-----------------|
|   |                   | (MM/YYYY)       |
| <b>Deployment Phase 1A:</b><br>54k E-MA meters which will include 21,000 CGI, credit meters, 18,000 indoor credit meters, 51,000 non-credit meters at CGI locations inclusive of life cycle replacement meters at visited locations | Meter Operations  | 12/2018         |
| <b>Deployment Phase 1B:</b><br>40k CT meters (all); exchanged for remote disconnect meters  | Meter Operations  | 12/2017         |
| <b>Deployment Phase 1C:</b><br>1800 NH probed interval meters exchanged for remote read capability  | Meter Operations  | 12/2017         |
| <b>Deployment Phase 1D:</b><br>180 electro-mechanical meters for AMR meters in E-MA and CT Electric   | Meter Operations  | 12/2018         |

*Explain unique payment provisions, if applicable*

There are no unique payment provisions for this project at this time, unless contractors are utilized within CT.

*Provide the following financial information (attach additional detail if summarized items are significant or additional information is needed)*

| Direct Capital Costs           | 2017                | 2018               | Total               |
|--------------------------------|---------------------|--------------------|---------------------|
| Labor                          | TBD                 | TBD                | \$18,500,000        |
| Outside services (non-payroll) | TBD                 | TBD                | \$ 150,000          |
| Materials                      | TBD                 | TBD                | \$ 18,800,000       |
| IT Supplier Costs              | N/A                 | N/A                |                     |
| Software                       | N/A                 | N/A                |                     |
| <b>Total</b>                   | <b>\$28,400,000</b> | <b>\$9,500,000</b> | <b>\$37,900,000</b> |

| Indirect Capital Costs            | 2017 | 2018 | Total |
|-----------------------------------|------|------|-------|
| Benefits<br>17% Non Prod          | TBD  | TBD  |       |
| Loaders – Gen Svcs Co (Indirects) | N/A  | N/A  | N/A   |

Accounting Policy Statement No. 1  
 Corporate / Shared Services Project Authorization

|  |                  |                  |                    |
|--|------------------|------------------|--------------------|
| Capitalized interest or AFUDC, if any  | N/A              | N/A              | N/A                |
| Other, including contingency amounts (describe)<br>Socket Repair Program<br>2.9% Contingency | \$569,000        | \$500,000        | \$1,069,000        |
| <b>Total</b>   | <b>\$569,000</b> | <b>\$500,000</b> | <b>\$1,069,000</b> |

|                            |                     |                     |                     |
|----------------------------|---------------------|---------------------|---------------------|
| <b>Total Capital Costs</b> | <b>\$29,000,000</b> | <b>\$10,000,000</b> | <b>\$39,000,000</b> |
|----------------------------|---------------------|---------------------|---------------------|

|                 |     |     |     |
|-----------------|-----|-----|-----|
| Total O&M Costs | N/A | N/A | N/A |
|-----------------|-----|-----|-----|

|                            |                     |                     |                     |
|----------------------------|---------------------|---------------------|---------------------|
| <b>Total Project Costs</b> | <b>\$29,000,000</b> | <b>\$10,000,000</b> | <b>\$39,000,000</b> |
|----------------------------|---------------------|---------------------|---------------------|

|   |     |     |     |
|---|-----|-----|-----|
| Vendor software payments (indicate whether or not included in the above)* | N/A | N/A | N/A |
|---|-----|-----|-----|

\*Accounting for vendor software payments for SaaS or other agreements involving the right to use software is to be determined by a separate analysis, and approval by Plant Accounting and Budgeting and Internal Reporting is required. Plant Accounting maintains a checklist to aid in this analysis.

*Provide below and describe the estimated future costs that will result from the project*

| Future Costs     | 2017       | 2018       | Total Future Project Costs |
|------------------|------------|------------|----------------------------|
| O&M              | \$23,500   | \$47,000   | \$47,000 Annually          |
| Capital          |            |            |                            |
| Other (describe) |            |            |                            |
| <b>Total</b>     | <b>\$X</b> | <b>\$X</b> | <b>\$X</b>                 |

*Compare these future costs to amounts that are in the approved Operating Plan*

\$47,000 is the annual expense of telephony in NH to remotely read the exchanged interval meters. For the 1<sup>st</sup> year our assumption includes 6 months of telephony charges.

*Provide below and describe the estimated financial benefits (reductions from current year Operating Plan) that will result from the project*

| Financial Benefits | 2017 | 2018      | Total Financial Benefits |
|--------------------|------|-----------|--------------------------|
| O&M                | \$ - | \$900,000 | \$900,000                |

Accounting Policy Statement No. 1  
 Corporate / Shared Services Project Authorization

|                                     |                  |                    |                    |
|-------------------------------------|------------------|--------------------|--------------------|
| Capital                             |                  |                    |                    |
| Revenues                            |                  |                    |                    |
| Other (describe) Bad Debt Reduction | \$200,000        | \$2,400,000        | \$3,600,000        |
| <b>Total</b>                        | <b>\$200,000</b> | <b>\$3,300,000</b> | <b>\$4,500,000</b> |

Include the benefits going forward using current year Operating Plan amounts

Benefit:

What is the project's IRR?

\_\_\_\_\_

What is the project's NPV?

\_\_\_\_\_

What is the project's payback period?

\_\_\_\_\_

Use appropriate discount rate by company (can be provided by Budgeting and Internal Reporting).

If the above items are not applicable, explain why (e.g., if negative but there are other reasons to proceed)

## Regulatory Approvals

Indicate what regulatory approvals are needed for the project

Regulatory approvals are not needed for this project.

## Risks and Risk Mitigation Plans

Describe the applicable risks and associated risk mitigation plans: e.g., construction, customer, reputational, schedule, financial, regulatory, environmental and IT risks. Indicate discussions with relevant subject matter experts.

| CATEGORY  | RISK DESCRIPTION   | MITIGATION STEPS  |
|-----------|--|---|
| Business  | The same resources for this project will be working on other initiatives simultaneously. | Work together with the team on managing the schedules and goals. Set realistic expectations.                  |
| Customer  | Entering customer premise  | Project assumes customer outreach program, 10% warrant rate for E-MA as well as total "cost of first install" |
| Financial | Budget adherence   | Reviews of estimate and actual costs throughout the project life  |
| Financial | Accelerated Depreciation on  |   |

Accounting Policy Statement No. 1  
 Corporate / Shared Services Project Authorization

|                           |  |   |
|---------------------------|--|---|
|                           | replaced meters  |   |
| Schedule                  | Dependencies include meter manufacture lead times, component issues, current meter reading, disconnect and reconnect targets, as well as cooperation with other departments                    |   |
| Technical                 | Implementation/upgrade of FCS to include security features. Network (3G-4G) and MV-90 upgrades.  |   |
| Labor Strategy Assessment | Potential use of contractors in CT for exchanges; potential reduction in E-MA OT if performed over 3 years; potential labor issues with elimination of two-man zones for disconnect/reconnects | Advance notification to appropriate teams |
| Regulatory                | Regulatory pushback  |   |
|                           |  |   |
|                           |  |   |

Docket No. DE 19-057  
Data Request TS 2-061  
Dated 10/28/2019  
Attachment TS 2-061  
Page 1 of 1

|                                       |                  |
|---------------------------------------|------------------|
| <b>NH Remote Disconnect 2017-2018</b> |                  |
| <b>All Charge types</b>               | <b>1,985,629</b> |
| <b>Direct Costs</b>                   | <b>1,556,067</b> |
| Other Misc Acct (CT_A01)              | 44,387           |
| Other AFUDC-Debt (CT_AF1)             | 3,977            |
| Employee Expenses (CT_EE0)            | 10               |
| Labor (CT_L01)                        | 402,294          |
| Overtime Labor (CT_L25)               | 4,991            |
| Materials-Stores (CT_M12)             | 1,111,062        |
| Outside Services (CT_OS0)             | (10,654)         |
| <b>Allocations</b>                    | <b>429,562</b>   |
| Alloc-AS&E (CT_Z90)                   | 28,830           |
| Alloc-Misc Costs Cap (CT_Z92)         | 5,992            |
| Alloc-PR Load (CT_Z93)                | 152,427          |
| Alloc-E+S (CT_Z96)                    | 160,288          |
| Alloc-Veh Clear (CT_Z98)              | 14,014           |
| Non-Productive (CT_ZNP)               | 68,011           |

000243

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 10/28/2019**

**Request No. TS 2-061**

**Request from: New Hampshire Public Utilities Commission Staff**

**Date of Response: 11/26/2019**

**Page 1 of 2**

**Witness: Erica L. Menard, Penelope Conner**

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**Request:**

Re: NH Remote Disconnect 2017-2018, #NHRMTR17, 12-045AJ. Please provide the following information for this project:

- a. Re: Justification for additional Resources at page 2: Explain the justification and purpose of Meter Operations' request to replace the manually probed interval meters at an additional cost of \$1 million.
- b. Explain the shifting of funds in the amount of \$316,825 out of the NH budget to the Remote Disconnect Plus Meter project in eastern Massachusetts.
- c. Please provide an itemized break-out of overheads, AFUDC, and other costs leading up to the variance.
- d. Did Project Managers work with project cost analysts to control cost escalation for this project? If not, why not? If yes, what were the results? Given the monthly reports received by Management, was Management actively involved in controlling the cost escalation of this project? If not why not? If yes, were cost controls put into place?

**Response:**

- a. These meters were also manually read meters, and therefore the company had intended to replace them since the time the AMR project analysis in support of the business case was conducted. The justification for replacing these meters is the same as the justification for the meters replaced in the AMR Project as provided in the "Decisional Considerations" section of the response to Staff 10-003. Those primary drivers were the end-of-life meter reading system and handheld equipment used to read the meters, the non-standard meter-to-bill process and method for getting the data to the NH interval billing system, the cost savings, efficiencies, safety and environmental benefits of remote reading over manual reading and the qualitative non-monetary customer benefits of more timely readings with reduced potential for estimated reads. While options for addressing the manually read probed meters in NH were being considered a project in MA & CT was initiated to purchase and install modem equipped remote disconnect meters in targeted locations. This was a suitable solution for the NH probed meters as well, and since there aren't any simple AMR options for Time of Use meters and the technology needed - cellular capable meters that can meter TOU data - is not inexpensive, a decision was made to take full advantage of that project and its accessible resources (which included funding, meters and associated meter materials available from the vendors, and Eversource manual labor) to include the replacement of what was about 1800 manually read probed meters in NH. This solution would also provide billing process efficiencies by enabling the prompt identification of meter issues and a response to address them while the monthly manually read probed meters would only provide insight to issues at month end and the Company would apply correction going



forward but the missing data was lost and would be another contributing factor to estimated reads.

- b. The NH Remote Disconnect Plus project was originally expected to take 2 years to complete. Since the project was completed in the first year, the preliminary budget amount of \$316,825 for the 2018 portion of the NH Remote Disconnect Plus project was transferred to fund the second-year portion of the Remote Disconnect Meter project in Eastern Massachusetts in 2018.
- c. See Attachment TS 2-061 for a summary of actual overheads, AFUDC, and other costs for this project.
- d. Cost analysts provided standard monthly reports to the management team, however; the cost analysts do not dictate spending or modifications to the initial capital meter plan. The management team's decision to exceed the original budget occurred since they were able to take full advantage of the labor and material resources. The availability of resources enabled Meter Operations to complete the two year project in one year.

funding\_project NHRMTR17

| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description  | year | Values<br>Sum of<br>quantity | Sum of amount  |
|-----------------------|-----------------------------------|--|--|------|------------------------------|----------------|
| NHRMTR17              | NH 2017 REMOTE DISCONNECT ME      | Admin and Eng OH- Acct Use Only            |  | 2017 | 0                            | \$ 28,829.82   |
|                       |                                   |  |  | 2018 | 0                            | \$ 71.41       |
|                       |                                   | AFUDC Debt                                 |  | 2017 | 0                            | \$ 3,977.08    |
|                       |                                   | Contractor Labor                           |  | 2018 | 0                            | \$ -           |
|                       |                                   |  | 0107680 - WORK FOR THELMA BROWN                                  | 2017 | 0                            | \$ -           |
|                       |                                   |  | 0108350 - WORK FOR THELMA BROWN                                  | 2017 | 0                            | \$ -           |
|                       |                                   |  | 0109104 - WORK FOR THELMA BROWN                                  | 2017 | 0                            | \$ -           |
|                       |                                   |  | EATON CORP   | 2017 | -5.55112E-17                 | \$ 0.00        |
|                       |                                   |  | I C REED & SONS INC  | 2017 | 0                            | \$ 0.00        |
|                       |                                   | Contractor Materials                       | I C REED & SONS INC  | 2017 | 8.32667E-17                  | \$ -           |
|                       |                                   | Contractor Vehicles + Equip                | I C REED & SONS INC  | 2017 | 2.77556E-17                  | \$ -           |
|                       |                                   | Engin and Super OH- Acct Use Only          |  | 2017 | 0                            | \$ 160,287.88  |
|                       |                                   |  |  | 2018 | 0                            | \$ -           |
|                       |                                   | Engineering Design Services                | I C REED & SONS INC  | 2017 | 0                            | \$ -           |
|                       |                                   |  | TRC LOCKBOX  | 2017 | 4.44089E-16                  | \$ (0.00)      |
|                       |                                   | IT Outside Services                        |  | 2018 | 0                            | \$ -           |
|                       |                                   |  | Charges to Cap Proj from Base                                    | 2018 | 0                            | \$ 1,074.67    |
|                       |                                   |  | Correct cost for a capital project                               | 2018 | 0                            | \$ 13,207.42   |
|                       |                                   | Labor Overtime Non-Exempt                  |  | 2017 | 1                            | \$ 4,990.89    |
|                       |                                   | Labor Straight Time Exempt                 |  | 2017 | 115                          | \$ 9,417.02    |
|                       |                                   |  |  | 2018 | 0                            | \$ -           |
|                       |                                   |  | BRIDGE TOU INSTALL FOR MARCH 31 2017 JE                          | 2017 | 175                          | \$ 23,460.50   |
|                       |                                   |  | METER INSTALLATIONS FOR JANUARY 31 2017 JE                       | 2017 | 8010                         | \$ 220,441.41  |
|                       |                                   |  | TOU  | 2017 | 1096                         | \$ 131,113.04  |
|                       |                                   |  | XFR CG LABOR TO NH METER OPS BRIDGE PROJ                         | 2017 | 106                          | \$ 4,416.13    |
|                       |                                   | Labor Straight Time Non-Exempt             |  | 2017 | 26                           | \$ 7,048.91    |
|                       |                                   |  |  | 2018 | 0                            | \$ -           |
|                       |                                   |  | XFR CG LABOR TO NH METER OPS BRIDGE PROJ                         | 2017 | 218                          | \$ 6,396.97    |
|                       |                                   | Materials- Purchased                       | APRIL 2017 PCARD   | 2017 | 0                            | \$ -           |
|                       |                                   |  | ELSTER SOLUTIONS LLC   | 2017 | 0                            | \$ 1,305.68    |
|                       |                                   |  | ITRON INC  | 2017 | 0                            | \$ (640.50)    |
|                       |                                   |  | JP MORGAN CHASE BANK   | 2017 | 1                            | \$ 121.50      |
|                       |                                   |  | METER, WATTHOUR, MULTIFUNCTION, TRANSFORMER RATED, FORM 9S,      | 2017 | 24                           | \$ 15,120.00   |
|                       |                                   |  | METER,WATTHOUR, SELF CONTAINED RATED, 120 - 480 V, CL 200, FORM: | 2017 | 24                           | \$ 12,595.20   |
|                       |                                   |  | NWN CORPORATION  | 2017 | 0                            | \$ -           |
|                       |                                   |  | POWERSOLVE INC   | 2017 | 0.3                          | \$ 2,811.51    |
|                       |                                   | Materials- Stores                          |  | 2017 | 2985                         | \$ 528,421.32  |
|                       |                                   |  | BATTERY, LITHIUM, 3.6 NOM. VOLTAGE, 1 AH, MBY WAFER CELL, UL REC | 2017 | 180                          | \$ 1,102.47    |
|                       |                                   |  | METER, WATTHOUR, TYPE KV2SM, FORM 2S, 240 VOLT, CLASS 320        | 2017 | 4                            | \$ 2,260.00    |
|                       |                                   |  | METER,WATTHOUR, TRANSFORMER RATED, 120 - 480 V, CL 20, FORM: 9S  | 2017 | -36                          | \$ (18,968.76) |
|                       |                                   |  | POWERSUPPLY, DIN MOUNT, 24V OUTPUT, 2.5 CURRENT OUTPUT           | 2017 | 1                            | \$ 167.04      |
|                       |                                   | Mileage                                    |  | 2017 | 18                           | \$ 9.63        |
|                       |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |  | 2017 | 0                            | \$ 5,991.72    |
|                       |                                   | Miscellaneous Accounting Adjustments       |  | 2017 | 0                            | \$ -           |
|                       |                                   |  |  | 2018 | 0                            | \$ (0.00)      |
|                       |                                   | Miscellaneous Journal Entries              |  | 2018 | 0                            | \$ -           |
|                       |                                   |  | CAT ID # 0000459677 FROM 186H2                                   | 2017 | 0                            | \$ 20,880.00   |
|                       |                                   |  | CAT ID # 0000459891 FROM 186H2                                   | 2017 | 0                            | \$ 2,736.00    |
|                       |                                   | Non Productive Time Loader- Acct Use Only  |  | 2017 | 0                            | \$ 68,010.87   |
|                       |                                   |  |  | 2018 | 0                            | \$ -           |
|                       |                                   | Payroll Benefit Loader- Acct Use Only      |  | 2017 | 0                            | \$ 152,427.34  |
|                       |                                   |  |  | 2018 | 0                            | \$ -           |
|                       |                                   | Property Taxes                             |  | 2017 | 0                            | \$ 20,771.40   |
|                       |                                   |  |  | 2018 | 0                            | \$ -           |
|                       |                                   | Stores over 25K                            | METER, WATTHOUR, MULTIFUNCTION, TRANSFORMER RATED, FORM 9S,      | 2017 | 576                          | \$ 362,880.00  |
|                       |                                   |  | METER, WATTHOUR, TRANSFORMER RATED, FROM 9S, 120-480 VOLT, CL    | 2017 | 192                          | \$ 101,166.72  |
|                       |                                   |  | METER, WATTHOUR, TYPE KV2SM, FORM 2S, 240 VOLT, CLASS 200        | 2017 | 192                          | \$ 102,720.00  |
|                       |                                   | UVL-Contractor Labor                       |  | 2018 | 0                            | \$ -           |
|                       |                                   |  | 0105287 - MK STATION METERING PHASE 2                            | 2017 | 0                            | \$ (10,653.75) |
|                       |                                   |  | 0106167 - MK STATION METERING PHASE 2                            | 2017 | 0                            | \$ -           |
|                       |                                   |  | 0107000 - MK STATION METERING PHASE 2                            | 2017 | 0                            | \$ -           |
|                       |                                   |  | 0107704 - MK STATION METERING PHASE 2                            | 2017 | 0                            | \$ -           |

Docket No. DE 19-057  
Data Request STAFF 16-009  
Dated 3/20/2020  
Attachment STAFF 16-009 R  
Page 2 of 2

| accounting_work_order | accounting_work_order_description  | cost_element_description              | Description   | year | Sum of quantity | Sum of amount          |
|-----------------------|------------------------------------|---------------------------------------|---|------|-----------------|------------------------|
| NHRMTR17              | NH 2017 REMOTE DISCONNECT ME       | UVL-Contractor Labor                  | 0108574 - MK STATION METERING PHASE 2                           | 2017 | 0               | \$ -                   |
|                       |                                    |                                       | 0108875 - MK STATION MAXSYS METER REPLC                         | 2017 | 0               | \$ -                   |
|                       |                                    |                                       | 0109398 - MK STATION METERING PHASE 2                           | 2017 | 0               | \$ -                   |
|                       |                                    | Vehicle Costs Clearing- Acct Use Only |   | 2017 | 0               | \$ 14,014.44           |
|                       |                                    |                                       |   | 2018 | 0               | \$ -                   |
| <b>NHRMTR17 Total</b> |                                    |                                       |   |      | <b>13908.3</b>  | <b>\$ 1,999,982.98</b> |
| NHRMTR18              | NH Remote Disconnect install credi | Admin and Eng OH- Acct Use Only       |   | 2018 | 0               | \$ 1,410.28            |
|                       |                                    | Miscellaneous Accounting Adjustments  |   | 2019 | 0               | \$ -                   |
|                       |                                    | Stores over 25K                       | METER,WATTHOUR, 240 V, CL 200, FORM: 2S                         | 2018 | 316             | \$ 130,305.76          |
|                       |                                    |                                       | METER,WATTHOUR, TRANSFORMER RATED, 120 - 480 V, CL 20, FORM: 9S | 2018 | 288             | \$ 151,750.08          |
| <b>NHRMTR18 Total</b> |                                    |                                       |   |      | <b>604</b>      | <b>\$ 283,466.12</b>   |
| <b>Grand Total</b>    |                                    |                                       |   |      | <b>14512.3</b>  | <b>\$ 2,283,449.10</b> |

000247

# EVERSOURCE



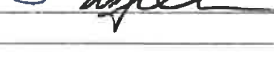
APS 1 - Project Authorization Policy

Delegation of Authority Signature Form

## Electric Distribution Project Approval Form

|   |                                   |
|---|-----------------------------------|
| <b>Project Title:</b><br>Distribution Line Right of Way<br>Program (2017) | <b>Project ID Number:</b><br>DL9R |
| <b>Authorization Amount:</b><br>\$2,356,100                               |                                   |

Capital Project Authorizations, as defined in the Delegation of Authority Policy

| Position         | Approver  | Date<br>Approved | Authority Limit              |
|------------------|---|------------------|------------------------------|
| Manager          | Carol Burke   |                  | \$100,000                    |
| Director         |  |                  | \$250,000                    |
| Vice President   |  |                  | \$1,000,000                  |
| Sr. VP/President |  |                  | \$5,000,000                  |
| Executive VP     |   |                  | \$12,500,000                 |
| CFO              |   |                  | \$20,000,000                 |
| CEO              |   |                  | \$25,000,000                 |
| Subsidiary Board |   |                  | Greater than<br>\$25,000,000 |

# Minutes

## NH Project Approval Committee

March 28, 2019

10:00 a.m. – 11:30 a.m. – Granite State 2/East – Energy Park

Conference Dial: Meet Me 634-3866

N:\TRC\_CPAC\NH\EPAC NH

|                                 |                    |
|---------------------------------|--------------------|
| Attendance:                     | Guests/Presenters: |
| Thelma Brown                    | Laura Benson       |
| Jim Eilenberger                 | Sam Bosse          |
| Russel Johnson                  | Tom Davis          |
| Lee Lajoie                      | Bob Krewson        |
| Erica Menard                    | Marc Pilotte       |
| Chris Wayland (for Eric Sutton) |                    |

### Distribution Project Approvals

- **Project A18X01** – Maple Hill Acres URD Replacement –  
Approved, subject to determining how the 2018 work was funded when the project had not yet been approved and inserting this information into the PAF.
- **Project A19E39** - Replace Failed Cable Rye –  
Tabled pending information Erica has requested from Plant Accounting about re-linking the STORMS request to the new project. Excavation work was done a couple years ago but the cable has not been installed. Mike Busby to provide more detail on the project scope as it seems to have expanded to include several transformer replacements which were not part of the original PAF.
- **Project A19N09** - Relocate 1W1 Main Line onto Route 3 –  
Approved as presented, subject to taking O&M out of financial tables and the Total Request field
- **DH9N 9N520810**- 3445X Exit 7 Pole Relocations For City of Nashua  
Approved as presented
- **DK9Z 9Z820839**- 3194X1 Regulator Installation  
Tabled, pending revisions to the reasons for the cost over-runs including removal of the remark about 104 hours of labor charged by one person.
- **Project GT9R** – Tools and Equipment- Troubleshooters  
Approved as presented
- **Project A19C42** - Myrtle South Back Conversion  
Approved as presented

### Distribution Supplemental Project Approval

- **Project DL9R** - Distribution ROW Annual -2017 Supplemental  
Approved as presented
- **GX9R 2018** - Tools & Equipment Program – Field Operations Supplemental  
Approved as presented

- 
- **Project A18W22** – Peterborough Road and Bridge Project Supplemental  
Supplemental was withdrawn, as it appears direct charges are expected to be only 4% over the approved amount
  - **Project R15SSAI** - REP3 4 and 12 kV Substations Supplemental  
Approved as presented
-



## APS 1 - Project Authorization Policy

 Appendix 4  
 Supplement Request Form

## Supplement Request Form

|  |   |
|--|---|
| Date Prepared:                         | Project Title: Distribution Line Right of Way Program   |
| Company/Companies: Eversource NH       | Project ID Number: DL9R                                 |
| Organization: NH Operations            | Plant Class/(F.P.Type): Distribution                    |
| Project Initiator: Carol Burke         | Project Type: Program                                   |
| Project Manager: Marc Geaumont         | Capital Investment Part of Original Operating Plan? Yes |
| Project Sponsor: Joseph Purington      | O&M Expenses Part of the Original Operating Plan? Yes   |
| Current Authorized Amount: \$1,644,500 | Estimated in service date(s): 12/31/17                  |
| Supplement Request: \$711,600          | Other:  |
| Total Request: \$2,356,100             |   |

## Supplement Justification

### Justification for Additional Resources

The Distribution Right of Way program is for specific work not identified during the budget cycle but is a result of monitoring the system throughout the year. The program covers planned, proactive replacement of equipment in the Right of Way. Emergent equipment failure in the ROW is covered under project DS9RE.

The initial budget for the asset replacement in rights of way program is funded based on historical spending and/or known future investment needed within the overall distribution budget constraints. Program spending is monitored throughout the year through a budget review committee. As work is identified throughout the year, the budget committee determines whether the additional investment needed can be funded by reducing funding in other projects or whether it must be deferred to a future year to stay within the budget.

Investment in the distribution right of way program was higher than originally budgeted due to more work being performed on the system than anticipated to improve overall reliability of the system.

In 2017 there were 152 Cascade maintenance orders for repairs completed under this project. 115 of those work requests were pole replacements and the remaining 32 were crossarm or brace repairs, line insulator repairs or overhead line repairs.

**EVERSOURCE**

## APS 1 - Project Authorization Policy

Appendix 4  
Supplement Request Form**Supplement Cost Summary***Note: Dollar values are in thousands:*

|                               | <b>Prior<br/>Authorized</b> | <b>Supplement<br/>Request</b> | <b>Total</b>      |
|-------------------------------|-----------------------------|-------------------------------|-------------------|
| Capital Additions - Direct    | \$ 1,224.4                  | \$ 645.2                      | \$ 1,869.6        |
| Less Customer Contribution    | -                           | -                             | -                 |
| Removals net of Salvage ____% | 15.4                        | (15.4)                        | -                 |
| Total Direct Spending         | \$ 1,239.8                  | \$ 629.8                      | \$ 1,869.6        |
| Capital Additions - Indirect  | 336.7                       | 136.4                         | 473.1             |
| AFUDC                         | 68.0                        | (54.6)                        | 13.4              |
| Total Capital Request         | \$ 1,644.5                  | \$ 711.6                      | \$ 2,356.1        |
| O&M                           | -                           | -                             | -                 |
| <b>Total Request</b>          | <b>\$ 1,644.5</b>           | <b>\$ 711.6</b>               | <b>\$ 2,356.1</b> |

*Note: Dollar values are in thousands:*

Total Supplement Request by year view:

|                               | <b>Year 2017</b> | <b>Year 20</b> | <b>Year 20 +</b> | <b>Total</b>    |
|-------------------------------|------------------|----------------|------------------|-----------------|
| Capital Additions - Direct    | \$ 645.2         | \$ -           | \$ -             | \$ 645.2        |
| Less Customer Contribution    | -                | -              | -                | -               |
| Removals net of Salvage ____% | (15.4)           | -              | -                | (15.4)          |
| Total Direct Spending         | \$ 629.8         | \$ -           | \$ -             | \$ 629.8        |
| Capital Additions - Indirect  | 136.4            | -              | -                | 136.4           |
| AFUDC                         | (54.6)           | -              | -                | (54.6)          |
| Total Capital Request         | \$ 711.6         | \$ -           | \$ -             | \$ 711.6        |
| O&M                           | -                | -              | -                | -               |
| <b>Total Request</b>          | <b>\$ 711.6</b>  | <b>\$ -</b>    | <b>\$ -</b>      | <b>\$ 711.6</b> |





Project Authorization Policy  
Operations Project Authorization

## Project Authorization Form

|  |   |
|--|---|
| Date Prepared: December 12, 2016         | Project Title: Distribution ROW Annual Program                |
| Company/ies: Eversource NH               | Project ID Number: DL9R                                       |
| Organization: NH Operations              | Class(es) of Plant: Distribution                              |
| Project Initiator: Erica Menard          | Project Category: Reliability – Distribution Line Reliability |
| Project Owner/Manager: Marc Gagne        | Project Type: Annual  |
| Project Sponsor: Joseph Purington        | Project Purpose: part of regulatory tracked program? No       |
| Estimated in service date: 12/31/2017    | If Transmission Project: NA                                   |
| Supplement to Existing Authorization? No | Capital Investment Part of Original Operating Plan? Yes       |
| Eng./Constr. Resources Budgeted? Yes     | O&M Expenses Part of the Original Operating Plan? Yes         |

### Project Authorization

*Project authorization must be in accordance with the approval levels included in the Delegation of Authority Policy (DOA).*

*If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and Financial Planning and Analysis (FP&A)*

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

### Executive Summary

An annual program includes many similar, small, and/or routine capital jobs performed over the course of a year for which one project authorization form can be prepared. This project authorization form is being prepared for the distribution line reliability ROW program across New Hampshire.

If a single work order within an Annual Project exceeds the applicable threshold established in Accounting Policy Statement 2 (APS-02), the work order shall be included with a project authorization form and approved as a specific project.

An approval of \$1.6 million is requested for the 2017 Distribution ROW annual program. The specific work is not identified during the budget cycle but is a result of monitoring the system throughout the year. The program covers planned, proactive replacement of equipment in the Right of Way. Emergent equipment failure in the ROW is covered under project DS9RE.



Project Authorization Policy  
Operations Project Authorization

## Project Costs Summary

Note: Dollar values are in thousands

|                              | Prior<br>Authorized* | 2016  | 2017      | 2018+ | Totals    |
|------------------------------|----------------------|-------|-----------|-------|-----------|
| Capital Additions - Direct   | \$0.0                | \$0.0 | \$1,224.4 |       | \$1,224.4 |
| Less Customer Contribution   |                      |       | \$0.0     |       | \$0.0     |
| Removals net of Salvage      |                      |       | \$15.4    |       | \$15.4    |
| Total - Direct Spending      | \$0.0                | \$0.0 | \$1,239.8 | \$0.0 | \$1,239.8 |
| Capital Additions - Indirect |                      | \$0.0 | \$336.7   |       | \$336.7   |
| Subtotal Request             | \$0.0                | \$0.0 | \$1,576.5 | \$0.0 | \$1,576.5 |
| AFUDC                        |                      |       | \$68.0    |       | \$68.0    |
| Total Request                | \$0.0                | \$0.0 | \$1,644.5 | \$0.0 | \$1,644.5 |

\* to be completed if supplemental authorization is required

## Financial Evaluation

Note: Dollar values are in thousands

| Direct Capital Costs                            | 2016 | 2017      | 2018+ | Total     |
|---|------|-----------|-------|-----------|
| Straight Time Labor                             |      | \$143.0   |       | \$143.0   |
| Overtime Labor                                  |      | \$1.4     |       | \$1.4     |
| Outside Services                                |      | \$888.6   |       | \$888.6   |
| Materials                                       |      | \$60.4    |       | \$60.4    |
| Other, including contingency amounts (describe) |      | \$146.4   |       | \$146.4   |
| Total   |      | \$1,239.8 |       | \$1,239.8 |

| Indirect Capital Costs                   | 2016 | 2017    | 2018+ | Total   |
|--|------|---------|-------|---------|
| Indirects/Overheads (including benefits) |      | \$336.7 |       | \$336.7 |
| Capitalized interest or AFUDC, if any    |      | \$68.0  |       | \$68.0  |
| Total                                    |      | \$404.7 |       | \$404.7 |

|                     |  |           |  |           |
|---------------------|--|-----------|--|-----------|
| Total Capital Costs |  | \$1,644.5 |  | \$1,644.5 |
|---------------------|--|-----------|--|-----------|

|                                  |  |       |  |       |
|----------------------------------|--|-------|--|-------|
| Less Total Customer Contribution |  | \$0.0 |  | \$0.0 |
|----------------------------------|--|-------|--|-------|

|                                    |  |           |  |           |
|------------------------------------|--|-----------|--|-----------|
| <b>Total Capital Project Costs</b> |  | \$1,644.5 |  | \$1,644.5 |
|------------------------------------|--|-----------|--|-----------|

|                                    |  |        |  |        |
|------------------------------------|--|--------|--|--------|
| <b>Total O&amp;M Project Costs</b> |  | \$12.4 |  | \$12.4 |
|------------------------------------|--|--------|--|--------|

Note: Explain unique payment provisions, if applicable



Project Authorization Policy  
Operations Project Authorization

## Technical Authorization Form

|                                       |   |
|---------------------------------------|---|
| Date Prepared: December 12, 2016      | Project Title: Distribution ROW Annual Program                |
| Company/ies: Eversource NH            | Project ID Number: DL9R                                       |
| Organization: NH Operations           | Class(es) of Plant: Distribution                              |
| Project Initiator: Erica Menard       | Project Category: Reliability – Distribution Line Reliability |
| Project Owner/Manager: Marc Gagne     | Project Type: Annual  |
| Project Sponsor: Joseph Purington     | Project Purpose: part of regulatory tracked program? No       |
| Estimated in service date: 12/31/2017 | If Transmission Project: NA                                   |
| Authorization Type: Annual            | Authorization Amount: \$1,644,501                             |

### **Project Need Statement** (*Description of Issue*)

The Distribution ROW annual program covers planned, proactive replacement of equipment in the Right of Way.

### **Project Objectives**

This project is intended to provide funding for the Proactive replacement of aging equipment in the right of way to avoid future failures, and/or comply with regulatory, statutory, and intracompany requirements and agreements.

### **Project Scope**

#### **Distribution ROW Annual Program (DL9R) - \$1.6 million**

This project addresses statewide issues with the distribution system assets in the ROW. Approval of the Distribution ROW (DL9R) annual program covers authorization of statewide distribution ROW work orders. Actual charges will accumulate in the individual area work center work orders.

### **Background / Justification**

This is an annual project which is required to maintain the integrity of the Company's distribution system.

### **Business Process and / or Technical Improvements:**

Asset renewal and planned obsolescence.

### **Cost Estimate and Assumptions**

Annual expenditures vary, depending on the frequency of equipment failures and proactive reliability-based initiatives. Annual budgets were developed using historical spending and/or known spending levels.

### **Alternatives Considered with Cost Estimates**

Not applicable



Project Authorization Policy  
Operations Project Authorization

## Project Schedule

| Milestone/Phase Name      | Estimated Completion Date |
|---------------------------|---------------------------|
| Annual program completion | 12/31/2017                |

## Regulatory Approvals

The construction budget is submitted to the New Hampshire Public Utilities Commission in accordance with Rule Puc 308.07 using Form E-22. Also on a quarterly basis projects not previously reported in the annual construction budget that have exceeded \$100,000 are reported to the New Hampshire Public Utilities Commission.

## Risks and Risk Mitigation Plans

On a monthly basis, capital project spending is reviewed and any risks are identified and managed during that meeting.

## References

Not applicable

## One-Line Diagrams, Attachments, and Images

Not applicable

# EVERSOURCE

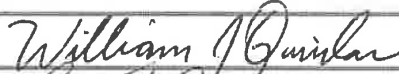
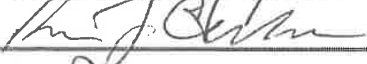


Project Authorization Policy

Appendix 5  
Subsidiary Board Approval Package Template

## Operations Project Authorization Form

|   |                                   |
|---|-----------------------------------|
| <b>Project Title:</b><br>Distribution Right of Way Line<br>Reliability Annual Program | <b>Project ID Number:</b><br>DLQR |
|---|-----------------------------------|

Authorizations, as defined in the Authority and Signature Delegation Policy

| Employee Name (printed) | Employee Number | Approval (employee signature)  | Date    |
|-------------------------|-----------------|--|---------|
| William J. Quintan      | 004721          |  | 1/12/17 |
| Peter J. Clarke         | 019549          |  | 1/12/17 |
| Joseph A. Purington     | 049536          |   | 1/31/17 |
| Marc Geaumont           | 050892          |  | 2/1/17  |
|                         |                 |  |         |
|                         |                 |  |         |
|                         |                 |  |         |
|                         |                 |  |         |
|                         |                 |  |         |

**Funding Project Information**

**New Approval Type**

**Budget Version** 2017 Working (inactive)

**Funding Project** DL9R **Revision** 43 **Rev**

**Approval Type** Auto Approve **Amount** \$1,656,901.00

**Status** Approved **Sent By** Menard, Erica **Date Sent** 2/8/2017 **Date Appr** 2/8/2017

|                | Approver         | Required                            | Date Approved |
|----------------|------------------|-------------------------------------|---------------|
| + Auto Approve | Butler, Linda Jo | <input checked="" type="checkbox"/> | 2/8/2017      |

**Details**  
**Accounts**  
**Departments**  
**Contacts**  
**Tasks**  
**Class Codes**  
**Justification**  
**Tax Status**  
**Authorizations**  
**User Comment**  
**Review**  
**Related FPs**

**Audits**  
**Delete FP**  
**Cancel FP**  
**Suspend FP**

**Estimates**  
**Update**  
**Print**  
**Cancel**

**Record** 1 **of 1**

| Project                    | Version | Charge Type          | Jan 2018  | Feb 2017    | Mar 2017   | Apr 2017  | May 2017   | Jun 2017   | Jul 2017   | Aug 2017   | Sep 2017 | Oct 2017 | Nov 2017   | Dec 2017 | Total 2017  |
|----------------------------|---------|----------------------|-----------|-------------|------------|-----------|------------|------------|------------|------------|----------|----------|------------|----------|-------------|
| DL9R:DIST LINE ROW PROGRAM | Actual  | Materials            | \$49,510  | \$34,514    | \$33,969   | \$41,969  | \$18,210   | \$6,462    | \$0        | (\$986)    | \$0      | \$0      | \$0        | \$0      | \$183,648   |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Other                | \$100     | \$3,633     | \$18,787   | \$16,329  | \$8,767    | \$7,021    | \$5,811    | \$6,352    | \$6,735  | \$5,529  | \$5,352    | \$5,723  | \$90,139    |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Outside Services     | \$175,772 | \$1,028,427 | \$403,479  | \$39,403  | (\$57,369) | (\$19,631) | (\$16,571) | (\$14,937) | \$26,913 | \$337    | (\$11,296) | \$12,131 | \$1,566,660 |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Overtime Labor       | \$0       | \$0         | \$164      | \$2,512   | \$514      | \$0        | \$0        | \$0        | \$0      | \$0      | \$0        | \$505    | \$3,695     |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Straight Time Labor  | \$9,070   | \$5,021     | \$4,686    | \$9,694   | \$5,461    | \$2,111    | \$93       | \$0        | \$0      | \$0      | \$0        | \$3,503  | \$39,638    |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Total Direct Costs   | \$234,452 | \$1,071,595 | \$461,085  | \$109,907 | (\$24,417) | (\$4,037)  | (\$10,667) | (\$9,571)  | \$33,648 | \$5,866  | (\$5,944)  | \$21,862 | \$1,883,780 |
| DL9R:DIST LINE ROW PROGRAM | Actual  | AFUDC                | \$67      | \$424       | \$903      | \$1,172   | \$1,344    | \$1,431    | \$1,436    | \$1,444    | \$1,456  | \$1,470  | \$1,475    | \$748    | \$13,370    |
| DL9R:DIST LINE ROW PROGRAM | Actual  | AS&E                 | \$3,477   | \$20,446    | \$9,987    | \$5,153   | \$5,895    | (\$394)    | \$509      | \$26       | \$393    | \$59     | \$66       | \$154    | \$45,771    |
| DL9R:DIST LINE ROW PROGRAM | Actual  | E&S                  | \$27,748  | \$226,316   | \$90,052   | \$12,415  | (\$12,229) | (\$3,641)  | (\$3,784)  | (\$3,520)  | \$6,020  | \$66     | (\$3,200)  | \$6,290  | \$342,533   |
| DL9R:DIST LINE ROW PROGRAM | Actual  | MDEC                 | \$19      | \$10,287    | \$4,093    | \$564     | (\$556)    | (\$165)    | (\$172)    | (\$240)    | \$410    | \$5      | (\$240)    | \$490    | \$14,495    |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Payroll              | \$5,002   | \$2,718     | \$2,625    | \$6,606   | \$3,234    | \$1,142    | \$50       | \$0        | \$0      | \$0      | \$0        | \$2,066  | \$23,444    |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Stores & Lobby Stock | \$20,197  | \$12,716    | (\$11,133) | \$15,902  | \$6,042    | (\$1,018)  | \$0        | (\$69)     | (\$759)  | \$0      | \$0        | \$0      | \$41,878    |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Vehicle              | \$4,515   | \$2,236     | \$855      | \$3,477   | \$2,185    | \$600      | \$42       | \$0        | \$0      | \$0      | \$0        | \$784    | \$14,695    |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Total Allocations    | \$61,025  | \$275,143   | \$97,383   | \$45,289  | \$5,916    | (\$2,046)  | (\$1,919)  | (\$2,359)  | \$7,520  | \$1,601  | (\$1,899)  | \$10,532 | \$496,186   |
| DL9R:DIST LINE ROW PROGRAM | Actual  | Total Costs          | \$295,478 | \$1,346,738 | \$558,468  | \$155,197 | (\$18,500) | (\$6,083)  | (\$12,586) | (\$11,930) | \$41,169 | \$7,467  | (\$7,843)  | \$32,393 | \$2,379,966 |

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 10/28/2019**

**Date of Response: 11/18/2019**

**Request No. TS 2-062**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Joseph A. Purington, Lee G. Lajoie**

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**Request:**

Re: Distribution Line Right of Way, #DL9R, 12-045AM. Please provide the following information for this project:

- a. Re: Supplement Request Form at page 4: Explain why the current authorized amount of \$1.644 million differs from Revised Estimated Costs of \$1.869 million referenced on line 5 of Attachment ELM-3, at Bates page 1285?
- b. Re: Justification for Additional Resources: Provide a detailed explanation as to why the work performed was greater than anticipated thus leading to costs exceeding the amount originally budgeted. Given that spending under this program is monitored by the budget review committee, did Project Managers work with project cost analysts to control cost escalation for this project? If not, why not? If yes, what were the results? Given the monthly reports received by Management, was Management actively involved in controlling the cost escalation of this project? If not why not? If yes, were cost controls put into place?
- c. Please provide an itemized break-out of overheads, AFUDC, and other costs leading up to the variance.

**Response:**

- a) The current authorized amount of \$1,644,500 is the total original authorized amount as shown in page 7 of Attachment Staff 12-045 AM. The direct portion of the original authorization was \$1,239,800. That is shown in Column E on Bates Page 1285 in Attachment ELM-3. The supplemental authorized amount is \$2,356,100 total costs and \$1,869,600 direct costs as shown on page 5 in Attachment Staff 12-045 AM. The direct portion of the supplemental authorization is also shown on Column F on Bates Page 1285 in Attachment ELM-3.
- b) Project funding is based on historical expenditures. A large quantity of work was identified in 2016 and executed at the start of 2017. The Company's pole inspection program identified poles to be replaced on distribution ROW lines. Field checks were performed to verify the inspection results and identify ROW access points. Adjacent structures of similar age and condition were also reviewed for replacement to maximize the efficient use of wetlands matting and mobilization and access costs. Through this effort additional poles and associated equipment were identified for replacement, including insulators, crossarms, and poles. The work scope was identified and managed by Eversource employees and performed by off road contractor crews. Project oversight was provided by monthly meetings involving senior management where scope of work and project costs were monitored. The results of this monitoring process were the allocation of additional funds from other projects in the budget. Management was actively involved in monitoring and controlling costs through these monthly capital budget meetings.
- c) See Attachment TS 2-062 for a summary of actual overheads, AFUDC, and other costs for this project.



funding\_project DL9R

| year | accounting_work_order | accounting_work_order_d<br>escript | cost_element_description                   | Description   | Values          |                     |
|------|-----------------------|------------------------------------|--|---|-----------------|---------------------|
|      |                       |                                    |  |   | Sum of quantity | Sum of amount       |
| 2017 | 9N721804              | Switching for installation of      | Admin and Eng OH- Acct Use Only            |   | 0               | \$ 114.74           |
|      |                       |                                    | AFUDC Debt                                 |   | 0               | \$ 7.44             |
|      |                       |                                    | Contractor Services- Other                 | UTILITY SERVICE & ASSISTANCE  | 0               | \$ 7,495.76         |
|      |                       |                                    | Contractor Vehicles + Equip                | UTILITY SERVICE & ASSISTANCE  | 0               | \$ 3,139.00         |
|      |                       |                                    | Engin and Super OH- Acct Use Only          |   | 0               | \$ 6,244.32         |
|      |                       |                                    | Labor Overtime Non-Exempt                  |   | 8               | \$ 523.44           |
|      |                       |                                    | Labor Straight Time Exempt                 |   | 21              | \$ 1,105.00         |
|      |                       |                                    | Labor Straight Time Non-Exempt             |   | 60.5            | \$ 2,443.45         |
|      |                       |                                    | Misc Dist Exp Capitalized OH-Acct Use Only |   | 0               | \$ 486.57           |
|      |                       |                                    | Non Productive Time Loader- Acct Use Only  |   | 0               | \$ 600.60           |
|      |                       |                                    | Payroll Benefit Loader- Acct Use Only      |   | 0               | \$ 1,498.47         |
|      |                       |                                    | Vehicle Costs Clearing- Acct Use Only      |   | 0               | \$ 783.31           |
|      | <b>9N721804 Total</b> |                                    |  |   | <b>89.5</b>     | <b>\$ 24,442.10</b> |
|      | DL7TD115              | Distribution line annual - 20      | Admin and Eng OH- Acct Use Only            |   | 0               | \$ 1,475.59         |
|      |                       |                                    | Contractor Labor                           | COMENSURA INC   | 1.5             | \$ 10.77            |
|      |                       |                                    |  | I C REED & SONS INC   | -1              | \$ (31,907.22)      |
|      |                       |                                    | Contractor Services- Other                 | I C REED & SONS INC   | 2.68            | \$ 51,707.25        |
|      |                       |                                    |  | JCR CONSTRUCTION CO INC   | 1.55            | \$ 4,739.56         |
|      |                       |                                    |  | UTILITY SERVICE & ASSISTANCE  | 2.79            | \$ 20,464.06        |
|      |                       |                                    | Contractor- Unit Price                     | JCR CONSTRUCTION CO INC   | 1               | \$ 3,894.00         |
|      |                       |                                    | Contractor Vehicles + Equip                | I C REED & SONS INC   | 2.33            | \$ 64,873.24        |
|      |                       |                                    |  | JCR CONSTRUCTION CO INC   | 0.76            | \$ 5,943.82         |
|      |                       |                                    |  | UTILITY SERVICE & ASSISTANCE  | 1.23            | \$ 10,804.50        |
|      |                       |                                    | Engin and Super OH- Acct Use Only          |   | 0               | \$ (12,792.12)      |
|      |                       |                                    | Labor Straight Time Exempt                 |   | 4               | \$ 182.12           |
|      |                       |                                    | Lobby Stock Loader-Acct Use Only           |   | 0               | \$ 3,559.53         |
|      |                       |                                    | Materials- Purchased                       | JP MORGAN CHASE BANK  | 3               | \$ 511.06           |
|      |                       |                                    | Materials- Stores                          | ANCHOR, SINGLE HELIX, 10,000#, 12 IN                                | 10              | \$ 415.74           |
|      |                       |                                    |  | BALL, CLEVIS, Y, HOT LINE TYPE, LONG, GALV STEEL, 30000 LB          | 9               | \$ 123.26           |
|      |                       |                                    |  | BOLT, DOUBLE ARM, 3/4 IN, 24 IN L, GALV STEEL, W/4 SQ NUTS          | 3               | \$ 12.26            |
|      |                       |                                    |  | BOLT, DOUBLE ARM, 3/4 IN, 26 IN L, GALV STEEL, W/4 SQ NUTS          | 3               | \$ 12.74            |
|      |                       |                                    |  | BOLT, DOUBLE ARM, 7/8 IN, 24 IN L, GALV STEEL                       | 3               | \$ 36.78            |
|      |                       |                                    |  | BOLT, EYE, 3/4 IN X 14 IN, GALV STEEL                               | 5               | \$ 47.32            |
|      |                       |                                    |  | BOLT, EYE, 3/4 IN X 16 IN, GALV STEEL                               | 5               | \$ 49.90            |
|      |                       |                                    |  | BOLT, MACHINE, 3/4 IN, 12 IN L, GALV STEEL, PER EEI STD TDJ-1, W/SQ | 2               | \$ 3.60             |
|      |                       |                                    |  | BOLT, MACHINE, 3/4 IN, 14 IN L, GALV STEEL, SQ HEAD, W/SQ NUT       | 51              | \$ 83.30            |
|      |                       |                                    |  | BOLT, MACHINE, 3/4 IN, 16 IN L, GALV STEEL, SQ HEAD, W/SQ NUT       | 2               | \$ 4.15             |
|      |                       |                                    |  | BOLT, MACHINE, 3/4 IN, 18 IN L, GALV STEEL, W/SQ NUT                | 5               | \$ 10.89            |
|      |                       |                                    |  | BOLT, MACHINE, 5/8 IN, 14 IN L, GALV STEEL, W/SQ NUT                | 4               | \$ 4.78             |
|      |                       |                                    |  | BRACE, 35 KV X FOR 10 FT SPACING, WOOD, 3-3/8 IN X 4-3/8 IN         | 0               | \$ 125.55           |
|      |                       |                                    |  | BRACE, CROSSARM, WOOD, 1-3/4 IN X 1-3/4 IN, 60 IN SPAN              | 2               | \$ 36.59            |
|      |                       |                                    |  | BRACKET, BAND, CROSSARM, 5-3/4 X 7-3/4 INCH, GALV STEEL             | 3               | \$ 174.85           |
|      |                       |                                    |  | BRACKET, NEUTRAL OFFSET, 5/8 IN X 25 IN, GALV                       | 8               | \$ 172.95           |
|      |                       |                                    |  | CABLE, BARE, ALUMOWELD, 19-#10 AWG, (19 STR), 27M                   | -2600           | \$ (1,455.55)       |
|      |                       |                                    |  | CABLE, BARE, GUY WIRE, 125 FT COIL, ALUMOWELD, ALUMINUM CLAI        | 125             | \$ 53.33            |
|      |                       |                                    |  | CABLE, BARE, GUY WIRE, 125 FT COIL, ALUMOWELD, ALUMINUM CLAI        | 500             | \$ 207.13           |
|      |                       |                                    |  | CLAMP, QUADRANT, ALUMINUM, 3/0 - 795 ACSR, .50 TO 1.20, W/ SOCKI    | 6               | \$ 346.88           |
|      |                       |                                    |  | CLAMP, SUSPENSION, W/SOCKET CONNECTOR, AL, FOR 556.5 AL/ACS         | 3               | \$ 57.08            |
|      |                       |                                    |  | CLEVIS, BALL, GALV STEEL, 30K                                       | 6               | \$ 33.01            |
|      |                       |                                    |  | CLEVIS, DEADEND EYELET, GALV, 1-1/2 IN X 3/4 IN                     | 6               | \$ 51.78            |
|      |                       |                                    |  | CLEVIS, SHORT, 'Y' BALL, 30 K, GALV STEEL                           | 6               | \$ 49.56            |
|      |                       |                                    |  | CLIP, ANTI-STATIC GROUND WIRE ZP 1/0 STR, GALV, STL, 1/0 STR MA     | 180             | \$ 59.27            |
|      |                       |                                    |  | CONNECTOR, BOOSTER CARTRIDGE, BURNDY WEJ TAP, BLUE                  | 25              | \$ 43.43            |
|      |                       |                                    |  | CONNECTOR, GROUND, ROD, 3/4 IN, #8 TO 1/0                           | 12              | \$ 29.94            |
|      |                       |                                    |  | CONNECTOR, PARALLEL GROVE, AL, RUN : 3/0 TO 397.5 ACSR, TAP : #     | 42              | \$ 148.74           |
|      |                       |                                    |  | CONNECTOR, WEDGE TAP, SHELL DRIVEN, 266.8 TO 4/0 STR, BLUE          | 6               | \$ 25.17            |
|      |                       |                                    |  | CONNECTOR, WEDGE TAP, SHELL DRIVEN, 336 ACSR RUN, 336 ACSR          | 10              | \$ 126.51           |
|      |                       |                                    |  | CONNECTOR, WEDGE TAP, SHELL DRIVEN, 4/0 RUN, 4/0 TAP, BLUE          | 6               | \$ 11.74            |
|      |                       |                                    |  | CONNECTOR, WEDGE TAP, SHELL DRIVEN, 477 ACSR RUN 336 ACSR (         | 10              | \$ 124.45           |
|      |                       |                                    |  | CONNECTOR, WEDGE TAP, SHELL DRIVEN, 556 AAC/ACSR OR 477 AC          | 10              | \$ 126.05           |
|      |                       |                                    |  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT DEADEND, JUMBO, B         | 4               | \$ 1,018.27         |
|      |                       |                                    |  | CROSSARM, FIBERGLASS, 10 FT TANGENT, JUMBO, BROWN, WITH JU          | 20              | \$ 2,216.15         |

000261

000262

| year | accounting_work_order | accounting_work_order_d       | cost_element_description  | Description  | Sum of quantity   | Sum of amount   |
|------|-----------------------|-------------------------------|---|--|---|---|
| 2017 | DL7TD115              | Distribution line annual - 20 | UVL- Police Serv + Traffic Cntrl<br>UVL-Contractor Labor  | 0106237 - MISC CONTRACTOR WORK<br>0104985 - 3525X2 LINE (BERLIN)<br>0104985 - 3525X2 LINE (CHOCORUA)<br>0104985 - LANCASTER OFF-ROAD CKT PATROL<br>0104985 - MISC CONTRACTOR WORK<br>0104985 - OFF-ROAD REPAIRS LANCASTER<br>0104985 - REPLACING DAVIT ARMS (TILTON)<br>0106237 - MISC CONTRACTOR WORK<br>0106973 - MISC CONTRACTOR WORK<br>0111735 - 318 LINE ROW WORK<br>0112698 - 318 LINE ROW WORK<br>0113396 - 318 LINE ANTRIM  | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  | \$ -<br>\$ (8,000.00)<br>\$ (16,000.00)<br>\$ (4,000.00)<br>\$ (62,524.83)<br>\$ (112,000.00)<br>\$ (4,000.00)<br>\$ -<br>\$ -<br>\$ -<br>\$ -<br>\$ -  |
|      |                       |                               | Vehicle Costs Clearing- Acct Use Only   |  | 0   | \$ 85.01  |
|      | DL7TD115 Total        |                               |   |  | 1317.05   | \$ (60,823.87)  |
|      | DL7TD116              | NH: Distribution line annua   | Admin and Eng OH- Acct Use Only<br>Contractor Services- Other<br>Contractor Vehicles + Equip<br>Engin and Super OH- Acct Use Only<br>Misc Dist Exp Capitalized OH-Acct Use Only<br>Travel   | JCR CONSTRUCTION CO INC<br>JCR CONSTRUCTION CO INC<br><br><br>JCR CONSTRUCTION CO INC  | 0<br>2.24<br>2.74<br>0<br>0<br>0.02   | \$ 707.98<br>\$ 13,398.49<br>\$ 15,104.82<br>\$ 6,270.73<br>\$ 285.03<br>\$ 340.00  |
|      | DL7TD116 Total        |                               |   |  | 5   | \$ 36,107.05  |
|      | DL7TD117              | NH Distribution line annual   | Admin and Eng OH- Acct Use Only<br>AFUDC Debt<br>Contractor Labor<br><br>Contractor Materials<br><br>Contractor Services- Other<br><br>Contractor- Unit Price<br>Contractor Vehicles + Equip<br><br>Engin and Super OH- Acct Use Only<br>Filing Fees<br>Labor Overtime Non-Exempt<br>Labor Straight Time Exempt<br>Labor Straight Time Non-Exempt<br>Lobby Stock Loader-Acct Use Only<br>Materials- Purchased | COMENSURA INC<br>I C REED & SONS INC<br>UTILITY SERVICE & ASSISTANCE<br>I C REED & SONS INC<br>UTILITY SERVICE & ASSISTANCE<br>I C REED & SONS INC<br>JCR CONSTRUCTION CO INC<br>UTILITY SERVICE & ASSISTANCE<br>JCR CONSTRUCTION CO INC<br>I C REED & SONS INC<br>JCR CONSTRUCTION CO INC<br>UTILITY SERVICE & ASSISTANCE<br>CHASE  | 6.5<br>0<br>0<br>2<br>0<br>5.32<br>11.49<br>10.98<br>0<br>15.38<br>12.42<br>7.78<br>0<br>50.25<br>452<br>369.75<br>0<br>0               | \$ 75.56<br>\$ -<br>\$ -<br>\$ 10,064.76<br>\$ 8.80<br>\$ 222,166.31<br>\$ 189,819.07<br>\$ 232,889.48<br>\$ -<br>\$ 517,778.92<br>\$ 231,040.31<br>\$ 175,185.00<br>\$ 342,810.53<br>\$ -<br>\$ 3,190.06<br>\$ 21,454.07<br>\$ 14,576.83<br>\$ 34,457.58<br>\$ -   |
|      |                       |                               | Materials- Stores   | APRIL 2017 PCARD<br>JP MORGAN CHASE BANK<br>MILL METALS CORP<br>REDIMIX COMPANIES INC<br>ANCHOR, SCREW, DOUBLE HELIX, 6000#, 1 3/8IN CORE, 10IN<br>ANCHOR, SCREW, TRIPLE HELIX, TWIN EYE FITTING, 10 - 12 - 14 INCH<br>ANCHOR, SINGLE HELIX, 10,000#, 12 IN<br>ARRESTER, SURGE, LIGHTNING, DISTRIBUTIO CLASS, 27 KV, POLYME<br>BALL, CLEVIS, Y, HOT LINE TYPE, LONG, GALV STEEL, 30000 LB<br>BALL, Y CLEVIS, SHORT, GALV STEEL, 30000 LB<br>BOLT, DOUBLE ARM, 3/4 IN, 24 IN L, GALV STEEL, W/4 SQ NUTS<br>BOLT, DOUBLE ARM, 3/4 IN, 26 IN L, GALV STEEL, W/4 SQ NUTS<br>BOLT, DOUBLE ARM, 7/8 IN, 24 IN L, GALV STEEL<br>BOLT, EYE, 3/4 IN X 14 IN, GALV STEEL<br>BOLT, EYE, 3/4 IN X 16 IN, GALV STEEL<br>BOLT, MACHINE, 3/4 IN, 12 IN L, GALV STEEL, PER EEI STD TDJ-1, W/S<br>BOLT, MACHINE, 3/4 IN, 14 IN L, GALV STEEL, SQ HEAD, W/SQ NUT<br>BOLT, MACHINE, 3/4 IN, 16 IN L, GALV STEEL, SQ HEAD, W/SQ NUT<br>BOLT, MACHINE, 5/8 IN, 14 IN L, GALV STEEL, W/SQ NUT<br>BOLT, MACHINE, 7/8 IN, 14 IN L, GALV, W/SQ NUT<br>BOLT, MACHINE, 7/8 IN, 16 IN L, GALV STEEL, W/SQ NUT<br>BOLT, MACHINE, 7/8 IN, 18 IN L, GALV STEEL, W/SQ NUT<br>BRACE, 35 KV X FOR 10 FT SPACING, WOOD, 3-3/8 IN X 4-3/8 IN<br>BRACE, CROSSARM, WOOD, 1-3/4 IN X 1-3/4 IN, 60 IN SPAN | 0<br>6<br>2.33<br>1<br>4<br>5<br>41<br>3<br>81<br>5<br>50<br>50<br>10<br>32<br>40<br>52<br>313<br>91<br>106<br>12<br>26<br>16<br>4<br>7 | \$ -<br>\$ 1,453.99<br>\$ 2,208.90<br>\$ 528.50<br>\$ 197.89<br>\$ 822.43<br>\$ 1,699.84<br>\$ 263.36<br>\$ 1,100.39<br>\$ 41.34<br>\$ 203.47<br>\$ 199.98<br>\$ 122.17<br>\$ 296.35<br>\$ 399.17<br>\$ 99.77<br>\$ 511.63<br>\$ 182.92<br>\$ 125.73<br>\$ 51.03<br>\$ 140.08<br>\$ 98.26<br>\$ 1,618.66<br>\$ 124.28 |

| year | accounting_work_order | accounting_work_order_d     | cost_element_description | Description  | Sum of quantity | Sum of amount |
|------|-----------------------|-----------------------------|--------------------------|--|-----------------|---------------|
| 2017 | DL7TD117              | NH Distribution line annual | Materials- Stores        | BRACE, X FOR 14 FT SPACING, WOOD                                     | 14              | \$ 5,175.32   |
|      |                       |                             |                          | BRACKET, BAND, CROSSARM, 5-3/4 X 7-3/4 INCH, GALV STEEL              | 3               | \$ 174.85     |
|      |                       |                             |                          | BRACKET, NEUTRAL OFFSET, 5/8 IN X 25 IN, GALV                        | 27              | \$ 579.21     |
|      |                       |                             |                          | BRACKETS, SADDLE, 34 FT ROUND WOOD DESIGN, TO HOLD PHASES            | 3               | \$ 95.56      |
|      |                       |                             |                          | CABLE, BARE, ALUMOWELD, 19-#10 AWG, (19 STR), 27M                    | 140             | \$ 78.54      |
|      |                       |                             |                          | CABLE, BARE, ALUMOWELD, 19-#10 AWG, (19 STR), 27M, 5000 FT REEL      | 654             | \$ 367.60     |
|      |                       |                             |                          | CABLE, BARE, COPPER CLAD STEEL, #2, SOLID, 40%, 100 LBS, SOFT D      | 100             | \$ 354.64     |
|      |                       |                             |                          | CABLE, BARE, COPPERWELD, COPPER, #2, SOLID, 40%, 100#, SD            | 100             | \$ 354.64     |
|      |                       |                             |                          | CABLE, BARE, GUY WIRE, 125 FT COIL, ALUMOWELD, ALUMINUM CLAD         | 1625            | \$ 635.08     |
|      |                       |                             |                          | CABLE, BARE, GUY WIRE, 125 FT COIL, ALUMOWELD, ALUMINUM CLAD         | 0               | \$ 8.11       |
|      |                       |                             |                          | CABLE, BARE, HAWK, ACSR, 477 KCMIL, 26/7 STR                         | 120             | \$ 99.36      |
|      |                       |                             |                          | CABLE, COVERED, 2 LAYER POLY, 150 MIL, 90 C, AAC, 477 KCMIL, 19 S    | 992             | \$ 1,726.41   |
|      |                       |                             |                          | CABLE, COVERED, 60 MILS, POLYETHYLENE, MHD COPPER, #4, (7 STR        | 330             | \$ 223.36     |
|      |                       |                             |                          | CLAMP, QUADRANT, ALUMINUM, 3/0 - 795 ACSR, .50 TO 1.20, W/ SOCKI     | 12              | \$ 692.12     |
|      |                       |                             |                          | CLAMP, QUADRANT, STATIC- FOR 7/16 IN EHS STATIC WIRE, ALUM, 0.2      | 4               | \$ 53.60      |
|      |                       |                             |                          | CLAMP, STRAIN, STRT SIDE OPENING, 3/0 - 556.5 AL, W/LIFTING EYE      | 20              | \$ 231.23     |
|      |                       |                             |                          | CLAMP, STRAIN, STRT SIDE OPENING, AL, #6-2/0 AL/ACSR, W/LIFTING      | 6               | \$ 32.04      |
|      |                       |                             |                          | CLAMP, SUSP, AL, 0.70 TO 1.118, W/ SOCKET EYE                        | 3               | \$ 65.83      |
|      |                       |                             |                          | CLAMP, SUSPENSION, W/ SOCKET CONNECTOR, AL, FOR 4/0 AL - 336.4       | 6               | \$ 106.20     |
|      |                       |                             |                          | CLEVIS, BALL, GALV STEEL, 30K  | 14              | \$ 77.02      |
|      |                       |                             |                          | CLEVIS, DEADEND EYELET, GALV, 1-1/2 IN X 3/4 IN                      | 24              | \$ 207.07     |
|      |                       |                             |                          | CLEVIS, SHORT, 'Y' BALL, 30 K, GALV STEEL                            | 32              | \$ 263.95     |
|      |                       |                             |                          | CLEVIS, THIMBLE, GALV STEEL, 36K                                     | 30              | \$ 287.07     |
|      |                       |                             |                          | CLIP, ANTI-STATIC GROUND WIRE ZP 1/0 STR, GALV, STL, 1/0 STR MA      | 160             | \$ 57.60      |
|      |                       |                             |                          | CONNECTOR, BOOSTER CARTRIDGE, YELLOW, BURNDY WEJTAP                  | 25              | \$ 43.91      |
|      |                       |                             |                          | CONNECTOR, GROUND, ROD, 3/4 IN, #8 TO 1/0                            | 42              | \$ 82.34      |
|      |                       |                             |                          | CONNECTOR, PARALLEL GROVE, AL, RUN : 3/0 TO 397.5 ACSR, TAP : #      | 10              | \$ 35.41      |
|      |                       |                             |                          | CONNECTOR, WEDGE TAP, SHELL DRIVEN, 556 AAC/ACSR OR 477 AC           | 12              | \$ 152.45     |
|      |                       |                             |                          | CROSSARM, 29 FT RA DRILLING, LAMINATED, 5-1/2 X 7-1/2 NEW TYPE       | 8               | \$ 4,577.58   |
|      |                       |                             |                          | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT DEADEND, JUMBO, B          | -4              | \$ (1,018.27) |
|      |                       |                             |                          | CROSSARM, DOUGLAS FIR, 5-3/4 X 7-3/4 IN X 34 FT, 110 KV              | 1               | \$ 615.40     |
|      |                       |                             |                          | CROSSARM, FIBERGLASS, 10 FT TANGENT, JUMBO, BROWN, WITH JU           | 98              | \$ 10,445.39  |
|      |                       |                             |                          | DEADEND, AUTOMATIC, LONG BAIL, FOR 7/16" STRAND, GALVANIZED          | 63              | \$ 1,441.92   |
|      |                       |                             |                          | DEADEND, AUTOMATIC, SHORT BAIL, FOR 7/16" STRAND GALVANIZED          | 25              | \$ 485.30     |
|      |                       |                             |                          | EXTENSION, ANCHOR ROD, SWAMP, 1-1/2 X 1-1/2 X 60 IN                  | 17              | \$ 814.36     |
|      |                       |                             |                          | EYENUT, FOR 3/4 IN BOLT, GALVANIZED STEEL                            | 53              | \$ 88.15      |
|      |                       |                             |                          | GRIP, CABLE, SUPPORT, CLOSED TYPE SINGLE EYE, 1.75 - 1.99 IN         | 2               | \$ 51.54      |
|      |                       |                             |                          | GRIP, GUY, PREFORMED, FOR ALUMOWELD CABLE, 19-#10 AWG GREI           | 24              | \$ 412.36     |
|      |                       |                             |                          | HOLDER, 1" POLE TAGS, HOLDS 8 TAGS, ALUMINUM                         | 78              | \$ 182.53     |
|      |                       |                             |                          | INSULATOR, POST, (PINEAPPLE), TIE TOP, POLYETHYLENE, 35KV            | 264             | \$ 11,068.37  |
|      |                       |                             |                          | INSULATOR, SPOOL, CLASS 53-2, 750V                                   | 40              | \$ 34.77      |
|      |                       |                             |                          | INSULATOR, STRAIN, FIBERGLASS, 78 IN, LT GRAY OR GREEN, ROLLE        | 69              | \$ 1,308.55   |
|      |                       |                             |                          | INSULATOR, STRAIN, FIBERGLASS, 78 IN, ROLLER CLEVIS, 30,000 LB, I    | 9               | \$ 314.13     |
|      |                       |                             |                          | INSULATOR, SUSPENSION, DEADEND, POLY, 23 IN LONG, 34.5 KV, 378       | 60              | \$ 2,937.07   |
|      |                       |                             |                          | LINK, ROLLER, ASSY, TYPE 1 GUY LINK, RUS TG-92                       | 2               | \$ 45.93      |
|      |                       |                             |                          | LINK, STRAIGHT, GALV STEEL, 5/8 IN, 40,000 LB                        | 9               | \$ 43.15      |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "1", BLK ON YELLOW, .060 AL W/GROMM    | 6               | \$ 90.57      |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "2", BLK ON YELLOW, .060 AL W/GROMM    | 5               | \$ 67.75      |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "3", BLK ON YELLOW, .060 AL W/GROMM    | 9               | \$ 125.02     |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "4", BLK ON YELLOW, .060 AL W/GROMM    | 6               | \$ 74.68      |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "5", BLK ON YELLOW, .060 AL W/GROMM    | 63              | \$ 866.85     |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "6" or "9", BLK ON YELLOW, .060 AL W/G | 8               | \$ 108.72     |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "7", BLK ON YELLOW, .060 AL W/GROMM    | 3               | \$ 41.48      |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "8", BLK ON YELLOW, .060 AL W/GROMM    | 6               | \$ 81.11      |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "O", BLK ON YELLOW, .060 AL W/GROMM    | 10              | \$ 131.13     |
|      |                       |                             |                          | MARKER, AERIAL, 5 IN X 10 IN, "X", BLK ON YELLOW, .060 AL W/GROMM    | 15              | \$ 213.05     |
|      |                       |                             |                          | MARKER, GUY, FULL ROUND, PLASTIC, 8 FT L, YELLOW, SPIRAL PIGTA       | 123             | \$ 361.63     |
|      |                       |                             |                          | MOLDING, F/GROUND WIRE, HIGH DENSITY POLY, BLACK, 8 FT L, 1 IN       | 408             | \$ 339.30     |
|      |                       |                             |                          | NUT, LOCKING, 7/8 IN, GS   | 4               | \$ 2.23       |
|      |                       |                             |                          | PIN, INSULATOR, LINE POST, 3/4" X 7" SHANK, 8-1/2" OVERALL LENGTH    | 206             | \$ 887.11     |
|      |                       |                             |                          | PIN, INSULATOR, SHORT STUD, 3/4 IN D, 1-3/4 IN L, GALV STEEL         | 51              | \$ 184.60     |
|      |                       |                             |                          | PIN, POLE TOP, LINE POST, BRACKET, 4 X 4 X 13 IN, 35 KV              | 86              | \$ 1,282.37   |
|      |                       |                             |                          | PLATE, CLAMP, CENTER, FOR X BRACE ASSEMBLIES, FOR POLE SPAC          | 8               | \$ 139.77     |
|      |                       |                             |                          | PLATE, GUY/ POLE EYE, 13/16 IN. BOLT HOLE- 9/16 IN. LAG HOLE, WITH   | 83              | \$ 498.75     |
|      |                       |                             |                          | PLATE, YOKE, 8 IN TRIANGLE, 30K, 4 HOLE, GUYING                      | 1               | \$ 73.96      |

| year | accounting_work_order | accounting_work_order_desc  | cost_element_description                   | Description   | Sum of quantity | amount       |
|------|-----------------------|-----------------------------|--|---|-----------------|--------------|
| 2017 | DL7TD117              | NH Distribution line annual | Materials- Stores                          | POLE, 50 FT LG, CLASS 2, WESTERN RED CEDAR                          | -1              | \$ (985.88)  |
|      |                       |                             |  | POLE, TRANSMISSION, WOOD LAMINATED, 70FT LG, CL 1                   | 1               | \$ 2,720.00  |
|      |                       |                             |  | POLE, TRANSMISSION, WOOD LAMINATED, 75 FT LG, CLASS 3               | 1               | \$ 3,102.00  |
|      |                       |                             |  | POLE, TRANSMISSION, WOOD LAMINATED, 75 FT LONG, CL H1W              | 2               | \$ 9,158.00  |
|      |                       |                             |  | POLE, WESTERN RED CEDAR, 40 FT L, CL 3                              | 9               | \$ 5,841.72  |
|      |                       |                             |  | POLE, WESTERN RED CEDAR, 40 FT, CL 2                                | 48              | \$ 38,974.14 |
|      |                       |                             |  | POLE, WESTERN RED CEDAR, 45 FT, CL 2                                | 16              | \$ 15,057.32 |
|      |                       |                             |  | POLE, WESTERN RED CEDAR, 50 FT, CL 2                                | 5               | \$ 4,912.21  |
|      |                       |                             |  | POLE, WESTERN RED CEDAR, 60 FT L, CL 2                              | 1               | \$ 1,938.07  |
|      |                       |                             |  | POLE, WESTERN RED CEDAR, 75 FT L, CL H-2                            | 3               | \$ 16,792.03 |
|      |                       |                             |  | POWERSUPPLY, TRANSMISSION, POWER SUPPLY 30W 24V OUTPUT 8            | 0               | \$ -         |
|      |                       |                             |  | ROD, ANCHOR, GALVANIZED STEEL, 1 IN DIA, 7 FT LG, TRIPLE STRAND     | 49              | \$ 1,098.26  |
|      |                       |                             |  | ROD, GROUND, HOT DIPPED GALVANIZED, MINIMUM 5/8 IN DIA, 8 FT L      | 60              | \$ 299.77    |
|      |                       |                             |  | SCREW, LAG, 1/2 IN, 4 IN LG, STEEL, GALVANIZED, TWIST DRIVE PILOT   | 35              | \$ 10.50     |
|      |                       |                             |  | SCREW, LAG, 1/4 IN, 3 IN LG, STEEL, HOT DIPPED GALVANIZED, HEX H    | 100             | \$ 8.91      |
|      |                       |                             |  | SHACKLE, ANCHOR, 3/4 IN, BOLT/ NUT / KEY, GALVANIZED, 60,000 LBS    | 2               | \$ 24.41     |
|      |                       |                             |  | SHACKLE, ANCHOR-CLEVIS, GALVANIZED STEEL, 3/4" THROAT, 2-1/2 "      | 105             | \$ 414.79    |
|      |                       |                             |  | SOCKET, EYE 1/2 IN DIA - GALV. STEEL, 20,000# RATING                | 18              | \$ 103.96    |
|      |                       |                             |  | SOCKET, EYE, DUCTILE IRON, 13/16 IN D, 2-1/16 IN L, GALVANIZED, 30, | 3               | \$ 24.96     |
|      |                       |                             |  | SOCKET, Y-CLEVIS, GALV HEAT TREATED, 30 000 LB, HOT LINE TYPE       | 6               | \$ 148.86    |
|      |                       |                             |  | SPLICE, COMPRESSION, 850.8 45/7, (30AH & 10SH)                      | 3               | \$ 171.92    |
|      |                       |                             |  | STAPLE, SQUARE SHANKED, BARBED, 2 IN L X 5/8 IN X 0.165 IN THK, 14  | 160             | \$ 41.24     |
|      |                       |                             |  | TAG, IDENTIFICATION, EVERSOURCE, ALUMINUM, 1-1/8 IN X 8 IN, .016    | 100             | \$ 74.25     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "-", (DASH), INJECTION MOLDED,     | 25              | \$ 6.25      |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "/", INJECTION MOLDED, POLYPR      | 100             | \$ 25.18     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "0," INJECTION MOLDED, POLYPR      | 50              | \$ 12.80     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "2," INJECTION MOLDED, POLYPR      | 75              | \$ 19.50     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "3," INJECTION MOLDED, POLYPR      | 101             | \$ 26.31     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "4," INJECTION MOLDED, POLYPR      | 100             | \$ 25.40     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "5," INJECTION MOLDED, POLYPR      | 75              | \$ 19.30     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "6" OR "9" INJECTION MOLDED, P     | 100             | \$ 25.60     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "7," INJECTION MOLDED, POLYPR      | 50              | \$ 12.98     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "8," INJECTION MOLDED, POLYPR      | 50              | \$ 12.89     |
|      |                       |                             |  | TAG, IDENTIFICATION, HORIZONTAL, "X," INJECTION MOLDED, POLYPR      | 50              | \$ 12.57     |
|      |                       |                             |  | TEE, DEADEND, DOUBLE GUYING TEE, 9 INCH HOLE SPACING, 35K           | 12              | \$ 693.85    |
|      |                       |                             |  | TEE, MOUNTING DEADEND, FOR 7/8 IN BOLTS                             | 15              | \$ 320.18    |
|      |                       |                             |  | TERMINAL, TAP LUG, BRONZE, #6 - 350 MCM, TWO CABLE TO FLAT          | 0               | \$ -         |
|      |                       |                             |  | TURNBUCKLE, CLEVIS/EYE, CIRCULAR EYE, 15/16 IN OPENING, 35,000      | 9               | \$ 890.48    |
|      |                       |                             |  | WASHER, COIL SPRING, GALV STEEL, 3/4 IN                             | 833             | \$ 255.58    |
|      |                       |                             |  | WASHER, COIL SPRING, GALVANIZED, 5/8 IN                             | 239             | \$ 42.61     |
|      |                       |                             |  | WASHER, DOUBLE COIL SPRING, GALVANIZED, 7/8 IN, NU STD #MAT V       | 72              | \$ 44.12     |
|      |                       |                             |  | WASHER, SQUARE, CURVED, GALVANIZED, 3 IN X 3 IN X 1/4 IN F/ 5/8 O   | 1004            | \$ 537.24    |
|      |                       |                             |  | WASHER, SQUARE, CURVED, GALVANIZED, 4 IN X 4 IN X 1/4 IN F/ 7/8 IN  | 20              | \$ 30.71     |
|      |                       |                             |  | WASHER, SQUARE, FLAT 3 X 3 IN X 1/4 IN, GALVANIZED, 13/16 IN HOLE   | 380             | \$ 506.06    |
|      |                       |                             |  | WASHER, SQUARE, FLAT, STEEL, 4 X 4 IN (FOR 7/8 IN BOLT), GALV       | 21              | \$ 29.31     |
|      |                       |                             |  | WIRE, TIE, BARE, ALUMINUM, #4, (50 LB COILS) SOFT DRAWN ONLY        | 150             | \$ 272.09    |
|      |                       |                             | Meals                                      | JCR CONSTRUCTION CO INC   | 0.03            | \$ 1,020.00  |
|      |                       |                             |  | UTILITY SERVICE & ASSISTANCE  | 0.04            | \$ 1,200.00  |
|      |                       |                             |  |   | 0               | \$ 13,983.19 |
|      |                       |                             | Misc Dist Exp Capitalized OH-Acct Use Only |   | 0               | \$ 6,548.39  |
|      |                       |                             | Non Productive Time Loader- Acct Use Only  |   | 0               | \$ 1,500.00  |
|      |                       |                             | Other Outside Services- Other              | VERMONT RECREATIONAL SURFACING & FENCING INC                        | 1               | \$ 7,150.00  |
|      |                       |                             | Other Outside Services- Tree Planned       | JOHN BROWN & SONS INC   | 0               | \$ 14,770.42 |
|      |                       |                             | Payroll Benefit Loader- Acct Use Only      |   | 0               | \$ 4,300.00  |
|      |                       |                             | Permits                                    | AON RISK SERVICES NORTHEAST INC                                     | 1               | \$ 740.00    |
|      |                       |                             | Police Services and Traffic Control        | JCR CONSTRUCTION CO INC   | 0.86            | \$ 1,776.00  |
|      |                       |                             |  | STATE OF NEW HAMPSHIRE  | 0.77            | \$ 837.00    |
|      |                       |                             |  | TOWN OF OSSIPEE   | 0               | \$ 72,250.60 |
|      |                       |                             | Property Taxes                             |   | 0               | \$ -         |
|      |                       |                             | Refuse Removal and Recycling               |   | 16              | \$ 5,280.69  |
|      |                       |                             |  | WASTE MANAGEMENT  | 0               | \$ 2,397.80  |
|      |                       |                             |  | WASTE MANAGEMENT OF N H   | 0               | \$ 2,965.25  |
|      |                       |                             | Stores Loader- Acct Use Only               |   | 1.42            | \$ 10,008.44 |
|      |                       |                             | Travel                                     | JCR CONSTRUCTION CO INC   | 0               | \$ -         |
|      |                       |                             | UVL-Contractor Labor                       | 0106237 - MISC CONTRACTOR WORK                                      | 0               | \$ -         |
|      |                       |                             |  | 0106237 - STRUCTURE REPLACEMENTS-3025 LI                            | 0               | \$ -         |

| year        | accounting_work_order | accounting_work_order_d | escript                     | cost_element_description              | Description                              | Sum of quantity | Sum of amount   |
|-------------|-----------------------|-------------------------|-----------------------------|---------------------------------------|--|-----------------|-----------------|
| 2017        | DL7TD117              |                         | NH Distribution line annual | UVL-Contractor Labor                  | 0106237 - STRUCTURE REPLACEMENTS-348 LIN | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0106973 - 346 LINE MATTING               | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0106973 - 346 LINE ROW REPAIRS           | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0106973 - I-95 N HAMPTON                 | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0106973 - LANCASTER 348X                 | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0106973 - MISC CONTRACTOR WORK           | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0106973 - OFF ROAD REPAIRS WHITEFIELD    | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0106973 - STRUCTURE REPLACEMENTS-348 LIN | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108059 - 313/383 HANCOCK                | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108059 - 3194X1 LINE                    | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108059 - 348 LINE                       | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108059 - I-95 CROSSING                  | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108059 - I-95 MATTING                   | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108059 - MISC CONTRACTOR WORK           | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108868 - CROSSARM CHANGEOUTS- KEENE     | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108868 - MISC CONTRACTOR WORK           | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108868 - OFF-ROAD REPAIRS WHITEFIELD    | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0108868 - STRUCTURE REPLACEMENTS         | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0109350 - STRUCTURE REPLACEMENTS         | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0110019 - BEDFORD MAINTENANCE MAINTENANC | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0110019 - BEDFORD STRUCTURE REPLACEMENTS | 0               | \$ -            |
|             |                       |                         |                             |                                       | 0110891 - STRUCTURE REPLACEMENTS313 LINE | 0               | \$ -            |
|             |                       |                         |                             |                                       |  | 0               | \$ 13,854.02    |
|             |                       |                         |                             | Vehicle Costs Clearing- Acct Use Only |  |                 |                 |
|             |                       |                         |                             | DL7TD117 Total                        |  | 12606.32        | \$ 2,380,855.15 |
| 2017 Total  |                       |                         |                             |                                       |  | 14017.87        | \$ 2,380,580.43 |
| Grand Total |                       |                         |                             |                                       |  | 14017.87        | \$ 2,380,580.43 |

## Public Service Co of New Hampshire Project Approval Information

|   |   |                    |
|---|---|--------------------|
| Fund Project Number <u>A15N01</u>                   | Status <u>open</u>                        | Revision <u>30</u> |
| Project Title <u>CONVERT LACONIA 4KV TO 12.47KV</u> | Operating Unit _____                      |                    |
| Initiated By <u>Randy Herk</u>                      | Initiated Date <u>12/19/2014 10:11:04</u> |                    |

|                            |   |
|----------------------------|---|
| <b>Description of Work</b> | Convert 38H1 in Laconia and shift the load to the 70W1 (2016). Convert 38H2 in Laconia and shift the load to 70W1 (2015). Convert 38H3 in Laconia and shift the load to the 68W6 (2016). Convert 38H4 in Laconia and shift the load to the 68W6 (2015). |
| <b>Location</b>            | Distribution Line - New Hampshire   |

| Project Schedule / Expenditures |              |                | Est Start Date : | 1/1/2015    | Est Complete Date : | 2/3/2017           |
|---------------------------------|--------------|----------------|------------------|-------------|---------------------|--------------------|
| 2015                            | 2016         | 2017           | 2018             | 2019        | Future Years        | Total              |
| \$576,372.63                    | \$609,227.23 | \$1,273,588.11 | \$0.00           | \$0.00      | \$0.00              | <u>\$2,459,188</u> |
|                                 | Capital      | Expense        | Removal          | Retirements | Credits             |                    |
| <b>Cost Breakdown</b>           | \$2,323,343  | \$0            | \$135,845        | \$0         | \$0                 | \$2,459,187.97     |

Reason For Work

Background Information

### Approvals

| Level                  | Approver                      | Approval Limit | Date Approved |
|------------------------|-------------------------------|----------------|---------------|
| Project Manager        | Menard, Erica                 | \$0            | 1/8/2019      |
| Plant Accounting       | Salbinski, Chris              | \$0            | 1/8/2019      |
| Manager - PSNH Dist    | Bosse, Samuel                 | \$100,000      | 1/11/2019     |
| Director - PSNH Dist   | Eilenberger_TERMINATED, James | \$250,000      | 1/13/2019     |
| Vice President - PSNH  | Purington, Joseph             | \$1,000,000    | 3/4/2019      |
| Sr. VP/President - Ops | Quinlan, William              | \$5,000,000    | 4/2/2019      |

# EVERSOURCE

## APS 1 - Project Authorization Policy

## Supplement Request Form

### Supplement Request Form

|   |  |
|---|--|
| <b>Date Prepared:</b> 10/29/18                | <b>Project Title:</b> Convert Laconia 4kV to 12.47kV             |
| <b>Company/Companies:</b> Eversource NH       | <b>Project ID Number:</b> A15N01                                 |
| <b>Organization:</b> NH Operations            | <b>Plant Class/(F.P.Type):</b> Distribution                      |
| <b>Project Initiator:</b> Bill Steff          | <b>Project Type:</b> Peak Load                                   |
| <b>Project Manager:</b> Sam Bosse             | <b>Capital Investment Part of Original Operating Plan?</b> Yes   |
| <b>Project Sponsor:</b> Jim Eilenberger       | <b>O&amp;M Expenses Part of the Original Operating Plan?</b> Yes |
| <b>Current Authorized Amount:</b> \$1,123,000 | <b>Estimated in service date(s):</b> 2/3/17                      |
| <b>Supplement Request:</b> \$1,336,000        | <b>Other:</b>  |
| <b>Total Request:</b> \$2,460,000             |  |

### Supplement Justification

This project was complete in 2017 and requires a supplemental justification because direct costs were more than 10% above the approved budget. The review and approval of funding for this project was done through a legacy process where year-end projections were updated monthly. Project controls have been put in place to monitor funding at monthly T&D capital project meetings. This will provide the necessary controls to address the need for supplements in a timely manner.

This project converted the remaining two 4 KV circuits (38H1 & 38H3) to 12 KV for the Laconia Area Study. These new 12 KV circuits tie into other area 12 KV circuits providing a more reliable electric system for the Laconia area. The Project Authorization Form (PAF) for this project was approved in April 2016. At that time, the project was approved at a total cost of \$1,123,000 with an in-service date of December 2016. The total project cost was based on direct costs of \$813,000 with indirect costs and AFUDC of \$310,000.

The actual cost to complete the project is \$2,459,000 which is \$1,336,000 above the approved project amount. The approved direct costs for this project are \$813,000. The final direct costs associated with this project are \$1,105,000 or 36% above the approved estimate. This increase in direct costs are based primarily on higher than anticipated contracted outside service costs. The contingency budget has been applied.

### Justification for Additional Resources

The overall scope of the job did not change from the original PAF, attached. However, a number of pole changes not included in the original design were approved by the Construction Rep during construction caused delays in the project. This resulted in increases in internal labor, materials, and outside services. The higher than anticipated outside labor charges resulted in higher than anticipated overheads as well.

The differences in estimates versus actual include:



# EVERSOURCE

## APS 1 - Project Authorization Policy

## Supplement Request Form

**Internal Labor** – This was more than estimated because of delays caused by changes made by contractor as approved by construction rep. Most of the changes were pole replacements not originally planned for, but the decision was made to upgrade many of the class 3 poles to class 2 while the crews were working on these poles. In addition, there was internal labor used for construction oversight that was not planned.  
**Increased by \$46K**

**Outside Service** – The electrical high voltage contractor bids came in much higher than estimated at \$1,305K. There were additional tree trimming and traffic control costs from outside vendors above estimates due to additional time needed to replace the additional poles. **Increased by \$1,056K**

**Materials/Supplies** – The increase in material cost was primarily due to pole replacements not originally planned for, but the decision was made to upgrade many of the class 3 poles to class 2. **Increased by \$36K**

**Other/Contingency** – This was less than estimated. **Decreased by \$33K**

**Indirects/AFUDC** – Increases to these are attributed to the direct costs that were higher than estimated. **Increased by \$231K**

## Supplement Cost Summary

Note: Dollar values are in thousands:

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 813              | \$ 1,105              | \$ 1,918        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | -                   | -                     | -               |
| Total Direct Spending         | \$ 813              | \$ 1,105              | \$ 1,918        |
| Capital Additions - Indirect  | 299                 | 237                   | 536             |
| AFUDC                         | 11                  | (6)                   | 5               |
| Total Capital Request         | \$ 1,123            | \$ 1,336              | \$ 2,459        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 1,123</b>     | <b>\$ 1,336</b>       | <b>\$ 2,459</b> |

Note: Dollar values are in thousands:

|                               | Year 2015   | Year 2016     | Year 2017+    | Total           |
|-------------------------------|-------------|---------------|---------------|-----------------|
| Capital Additions - Direct    | \$ -        | \$ 600        | \$ 494        | \$ 1,094        |
| Less Customer Contribution    | -           | -             | -             | -               |
| Removals net of Salvage ____% | -           | -             | -             | -               |
| Total Direct Spending         | \$ -        | \$ 600        | \$ 494        | \$ 1,094        |
| Capital Additions - Indirect  | -           | 124           | 116           | 240             |
| AFUDC                         | -           | 1             | 1             | 2               |
| Total Capital Request         | \$ -        | \$ 725        | \$ 611        | \$ 1,336        |
| O&M                           | -           | -             | -             | -               |
| <b>Total Request</b>          | <b>\$ -</b> | <b>\$ 725</b> | <b>\$ 611</b> | <b>\$ 1,336</b> |

# EVERSOURCE

## APS 1 - Project Authorization Policy

## Supplement Request Form

### Project Authorization Form

#### General Information

|  |  |
|--|--|
| Date Prepared: 4/5/2016                        | Project Title: Convert Messer St. 4.16 kV to 12.47 kV      |
| Company: Eversource - NH                       | Project ID Number: A15N01                                  |
| Organization: NH Operations                    | Class(es) of Plant: Distribution                           |
| Project Initiator: Bill Steff                  | Project Category: Reliability (Dist. Lines)                |
| Project Owner/Manager: Marc Geaumont/Sam Bosse | Project Purpose: part of regulatory tracked program?<br>No |
| Project Sponsor: Jim Eilenberger               | Project Type: Specific                                     |
| Estimated in service date: 12/31/2016          | Capital Investment Part of Original Operating Plan?<br>Yes |
| If Transmission Project: N/A                   | Supplement to Existing Authorization? Yes                  |
|  | O&M Expenses Part of the Original Operating Plan?<br>Yes   |

If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and Financial Planning and Analysis (FP&A)

ERM: \_\_\_\_\_  
FP&A: \_\_\_\_\_

#### Executive Summary

The 4 KV equipment at Messer Street Substation ranges in age from 55 years old (transformer) to 73 years old for three oil circuit breakers. The transformer is also loaded to over 100% of its nameplate rating. The Laconia Area Distribution System Study has recommended converting the area from 4 KV to 12 KV to retire this old equipment and create an interconnected 12 KV system with other circuits and substations. To accomplish this, a new 10 MVA 34.5/12 KV transformer was recently installed at Messer Street (TB68) to handle the converted load and half of the 4 KV load has already been converted in a previous phase. This project will convert the remaining two 4 KV circuits (38H1 & 38H3) to 12 KV and then the 4 KV substation equipment will all be retired. These new 12 KV circuits will then tie into other area 12 KV circuits providing a more reliable electric system for the Laconia area. The anticipated cost of conversion of these two circuits is \$609,000.



APS 1 - Project Authorization Policy

Supplement Request Form

**Project Costs Summary**

Note: Dollar values are in thousands

|                              | Prior Authorized | Prior Spend | 2016  | 2017 | 2018 | Totals  | Supplemental Authorization |
|------------------------------|------------------|-------------|-------|------|------|---------|----------------------------|
| Capital Additions - Direct   |                  | \$299       | \$417 | \$0  | \$0  | \$716   |                            |
| Customer Contribution        |                  | \$0         | \$0   | \$0  | \$0  | \$0     |                            |
| Removals net of Salvage      |                  | \$80        | \$17  | \$0  | \$0  | \$97    |                            |
| Total - Direct Spending      | \$144            | \$380       | \$434 | \$0  | \$0  | \$814   | \$670                      |
| Capital Additions - Indirect |                  | \$131       | \$166 | \$0  | \$0  | \$297   |                            |
| Subtotal Request             |                  | \$511       | \$600 | \$0  | \$0  | \$1,111 |                            |
| AFUDC (half-year convention) |                  | \$1         | \$10  | \$0  | \$0  | \$11    |                            |
| Total Request                |                  | \$512       | \$609 | \$0  | \$0  | \$1,122 |                            |

The prior amount authorized and prior spend was for previous phases of this project. The supplemental amount is needed to complete the last phase of the project in 2016.

**Summary Project Description**

Convert the remaining two 4.16 kV circuits in Messer Street S/S to 12.47 kV and remove all old 4.16 kV equipment from the substation. Upgrade circuit conductors which tie to other circuits/substations to allow the shifting of load segments between circuits and substations to reduce outage times and improve reliability. DA will eventually be applied to these circuits under the Reliability Enhancement Program (REP). These subjects are discussed in greater detail within the "Laconia Area Distribution System Study".

**Project Authorization**

| Approver           | Approver Name     | Approver Signature | Date |
|--------------------|-------------------|--------------------|------|
| Project Initiator  | Bill Steff        |                    |      |
| Project Manager    | Marc Geaumont     |                    |      |
| Plant Accounting   | Michele Roncaioli |                    |      |
| Manager            | Sam Bosse         |                    |      |
| Director           | James Eilenberger |                    |      |
| Sr. Vice President | Peter Clarke      |                    |      |

# EVERSOURCE

## APS 1 - Project Authorization Policy

## Supplement Request Form

### Overall Justification

This project will replace aging infrastructure including all 4.16 kV equipment and circuits out of Messer Street Substation. Conversion of the 4 KV circuits to 12 KV and tying them to other existing circuits will create a robust 12.47 kV interconnected system with adequate transformer capacity and adequate circuit ties to allow load shifts in the event of a major outage within the Laconia 12.47 kV system. DA will eventually be applied to these circuits as part of the REP program.

### Project Scope

**38H1 Circuit:** Convert circuit from 4.16 kV to 12.47 kV. Convert 33 OH transformers and 3 pad-mount transformers from 4.16 kV to 12.47 kV. Replace several #6 copper side taps with 1/0 ACSR. Install three step transformers on Harvard Street to serve neighborhood east of North Main Street. Existing main line conductor between Messer Street Substation and North Main Street (Route 106) is 336 ACSR.

**38H3 Circuit:** Convert 47 pole sections of three phase circuit from 4.16 kV to 12.47 kV. Convert 14 pole sections of single phase circuit from 2.4 kV to 7.2 kV. The conversion of the 47 pole sections of three phase line involves 'up-converting' to an existing 12.47 kV three phase line which runs above the 38H3 Circuit along Union Ave. Replace 4/0 jacketed ACSR with 477 Hendrix spacer cable along 29 spans of the 12.47 kV 70W1 Circuit to accept the new load and improve the ability to tie the circuit to the 68W6 on Union Ave and Fair Street.

### Project Objectives

Proactively retire aged equipment to prevent catastrophic failure. Improve reliability through 12.47 KV system upgrades and improvements.

### Business Process and / or Technical Improvements

Costs, benefits and assumptions used to estimate benefits and customer impacts are contained in the "Laconia Area Distribution System Study".

### Assumptions

It is assumed that the replacement of aged substation equipment ranging from 55 years to 73 years in age will have a net positive affect on customer reliability. It is assumed that upgrading portions of main line conductor and creating more robust circuit ties at 12.47 kV will increase reliability by allowing large line segments to be swapped between circuits/substations in the event of an outage on a main feeder line.

### Alternatives Considered

The "Laconia Area Distribution System Study" examined keeping the 4.16 kV system throughout the downtown Laconia area. This included performing necessary infrastructure upgrades at 4.16 kV both within Messer Street Substation and out along the four 4.16 kV circuits fed out of the station. The lack of flexibility to serve future load at 4 KV and the desire to create an interconnected 12 KV system led to the decision to convert the four 4 KV circuits and eliminate the very old 4 KV equipment within Messer Street. The 38H2 and 38H4 Circuits were converted in late 2015 and early 2016.

# EVERSOURCE

APS 1 - Project Authorization Policy

## Supplement Request Form

### Project Schedule

| Milestone/Phase Name | Estimated Completion Date |
|----------------------|---------------------------|
| Complete Engineering | 1/30/16                   |
| Complete Design      | 5/1/16                    |
| Bid Package          | 7/1/16                    |
| Job completion       | 12/15/16                  |

### Financial Evaluation

Note: Dollar values are in thousands

| Direct Capital Costs                                    | Prior Spend | 2016  | 2017 | 2018 | Total |
|---|-------------|-------|------|------|-------|
| Straight Time Labor                                     | \$7         | \$6   | \$0  | \$0  | \$13  |
| Overtime Labor  | \$5         | \$0   | \$0  | \$0  | \$5   |
| Outside Services  | \$322       | \$294 | \$0  | \$0  | \$616 |
| Materials   | \$44        | \$121 | \$0  | \$0  | \$165 |
| Other, including contingency amounts (describe) Vehicle | \$2         | \$13  | \$0  | \$0  | \$15  |
| Total   | \$380       | \$434 | \$0  | \$0  | \$814 |

| Indirect Capital Costs                | Prior Spend | 2016  | 2017 | 2018 | Total |
|---------------------------------------|-------------|-------|------|------|-------|
| Benefits / Loaders                    | \$131       | \$166 | \$0  | \$0  | \$297 |
| Capitalized interest or AFUDC, if any | \$1         | \$10  | \$0  | \$0  | \$11  |
| Total                                 | \$133       | \$175 | \$0  | \$0  | \$308 |

|                     |     |       |     |     |        |
|---------------------|-----|-------|-----|-----|--------|
| Total Capital Costs | 512 | \$609 | \$0 | \$0 | \$1122 |
|---------------------|-----|-------|-----|-----|--------|

|                 |    |     |     |     |      |
|-----------------|----|-----|-----|-----|------|
| Total O&M Costs | 62 | \$0 | \$0 | \$0 | \$62 |
|-----------------|----|-----|-----|-----|------|

|                            |            |              |            |            |               |
|----------------------------|------------|--------------|------------|------------|---------------|
| <b>Total Project Costs</b> | <b>574</b> | <b>\$609</b> | <b>\$0</b> | <b>\$0</b> | <b>\$1184</b> |
|----------------------------|------------|--------------|------------|------------|---------------|

Note: Explain unique payment provisions, if applicable

### Regulatory Approvals

None

### Risks and Risk Mitigation Plans

None

Funding Project Information

New Approval Type

Budget Version 2016 Working (inactive)

Funding Project A15N01 Revision 27

Rev |< < > >|

Approval Type Amount

FP PSNH - Distribution - Eng \$1,183,720.15

Send for Approval

Refresh

Status Sent By Date Sent Date Appr

Approved Herk, Randy 4/12/2016 4/19/2016

|                            | Approver            | Required                            | Date Approved | Authority Limit |
|----------------------------|---------------------|-------------------------------------|---------------|-----------------|
| + Project Manager - - - -  | Menard, Erica       | <input checked="" type="checkbox"/> | 4/12/2016     | \$0             |
| + Plant Accounting - - - - | Roncaioli_TERMINATI | <input checked="" type="checkbox"/> | 4/15/2016     | \$0             |
| + Manager - PSNH Dist      | Bosse, Samuel       | <input checked="" type="checkbox"/> | 4/15/2016     | \$100,000       |
| + Director - PSNH Dist     | Eilenberger_TERMINA | <input checked="" type="checkbox"/> | 4/15/2016     | \$250,000       |
| + Sr. VP/President - Ops   | Clarke_TERMINATED   | <input checked="" type="checkbox"/> | 4/19/2016     | \$5,000,000     |

Details

Accounts

Departments

Contacts

Tasks

Class Codes

Justification

Tax Status

Authorizations

User Comment

Review

Related FPs

Audits

Delete FP

Cancel FP

Suspend FP

Estimates

Update

Print

Cancel

Record 1 of 1

|< < > >|

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 10/28/2019**

**Date of Response: 11/21/2019**

**Request No. TS 2-063**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Joseph A. Purington, Lee G. Lajoie**

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**Request:**

Re: Convert Laconia 4kV to 12.47kV, #A15N01, 12-045Q. Please provide the following information for this project:

- a. Re: Supplement Justification at page 2: Explain why project controls were put into place to monitor the funding for this project and describe what those controls were. At what point during the project were these controls put into place?
- b. Re: Justification for Additional Resources at pages 2-3: How much decision-making authority does Eversource delegate to Construction Reps and contractors for a project such as this? Are there any contractual limits (e.g. dollar amounts, notification requirements) placed on their exercise of that authority? Provide the details for the decision on pole replacements by the Construction Rep. Did Eversource engineers review the Construction Rep's decision prior to replacement and inspect the poles to be replaced?
- c. Please provide an itemized break-out of overheads, AFUDC, and other costs leading up to the variance.

**Response:**

- a. Additional project controls for distribution line projects were put in place after this project was complete, partly as a result of this project. The bid from the low price bidder for this work exceeded the design estimate by approximately \$689,000. The additional process controls include a feedback loop so that project estimates are revised to include actual contractor bid prices and the project authorization is revised prior to construction. This process improvement was put into place after this project was completed.
- b. The Construction Reps and contractors have limited authority for making decisions which will affect cost of a project. This authority is limited to small design changes, required due to field conditions, which will not materially affect cost, scope, or schedule. A process is in place for these decisions to be brought to their supervision, project sponsors, project engineers, or any other persons who would need to be involved in the decision. Specifically in this project, between the time when the project was designed and when the construction started, Eversource had increase our standard pole to a more robust 45 foot Class 2 pole as part of the Company's effort to harden the system. The Construction Rep assigned to this project took it upon himself to comply with this change in Standards, and replaced poles not originally included to be replaced. The Construction Rep acted in what they thought to be of the best interests of Eversource in making these decisions without following the proper approval process and therefore without providing Engineering the opportunity to review the changes, which increased cost, scope, and schedule. These pole changes and the associated work increased the cost of the project by approximately \$420,000. This Construction Rep was terminated by Eversource.
- c. See Excel Attachment TS 2-063.

funding\_project A15N01

| accounting_work_order | accounting_work_order_descript   | cost_element_description                   | Description  | year | Values<br>Sum of<br>quantity | Sum of amount |
|-----------------------|----------------------------------|--|--|------|------------------------------|---------------|
| 9L520603              | EWR 15-020-41 Elec Proj Reconduc | Admin and Eng OH- Acct Use Only            |  | 2015 | 0 \$                         | 884.33        |
|                       |                                  |  |  | 2016 | 0 \$                         | (30.49)       |
|                       |                                  | AFUDC Debt                                 |  | 2015 | 0 \$                         | 153.39        |
|                       |                                  |  |  | 2016 | 0 \$                         | 33.12         |
|                       |                                  | AFUDC Equity                               |  | 2015 | 0 \$                         | 236.94        |
|                       |                                  |  |  | 2016 | 0 \$                         | 52.28         |
|                       |                                  | Contractor Labor                           | EVANS LINE CONSTRUCTION INC  | 2015 | 0 \$                         | -             |
|                       |                                  | Contractor Services- Other                 |  | 2016 | 0 \$                         | (0.00)        |
|                       |                                  |  | EVANS LINE CONSTRUCTION INC  | 2015 | 1.51 \$                      | 50,073.09     |
|                       |                                  | Contractor Vehicles + Equip                |  | 2016 | 0 \$                         | (0.00)        |
|                       |                                  |  | EVANS LINE CONSTRUCTION INC  | 2015 | 0.45 \$                      | 14,648.50     |
|                       |                                  | Engin and Super OH- Acct Use Only          |  | 2015 | 0 \$                         | 21,811.78     |
|                       |                                  |  |  | 2016 | 0 \$                         | 159.72        |
|                       |                                  | Joint Line Billing                         |  | 2016 | -5 \$                        | (3,100.00)    |
|                       |                                  | Labor Overtime Non-Exempt                  |  | 2015 | 68 \$                        | 3,854.40      |
|                       |                                  |  |  | 2016 | 0 \$                         | 0.00          |
|                       |                                  | Labor Premium and Special Non-Exempt       |  | 2015 | 2 \$                         | 72.20         |
|                       |                                  |  |  | 2016 | 0 \$                         | (0.00)        |
|                       |                                  | Labor Straight Time Exempt                 |  | 2015 | 30.5 \$                      | 1,205.91      |
|                       |                                  |  |  | 2016 | 2 \$                         | 84.34         |
|                       |                                  | Labor Straight Time Non-Exempt             |  | 2015 | 10.5 \$                      | 450.67        |
|                       |                                  |  |  | 2016 | 1 \$                         | 39.44         |
|                       |                                  | Lobby Stock Loader-Acct Use Only           |  | 2015 | 0 \$                         | 1,085.61      |
|                       |                                  | Materials- Stores                          | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                     | 2015 | 2 \$                         | 49.09         |
|                       |                                  |  | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I       | 2015 | 4 \$                         | 143.25        |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 1/0 AWG, (6/1 STR), RAVEN/AW                   | 2015 | 75 \$                        | 17.22         |
|                       |                                  |  | CABLE, INSULATED, AERIAL TRIPLEX, 600 V, AAC, 1/0, 7-STR, TRIPLEX WI | 2015 | 270 \$                       | 197.97        |
|                       |                                  |  | CABLE, INSULATED, UG, EPR, 600V, CU, 500KCML, 1/C                    | 2015 | 30 \$                        | 206.00        |
|                       |                                  |  | CONNECTOR, TRANSFORMER, ROD TO 4 HOLE NEMA PAD, FOR COPPER I         | 2015 | 7 \$                         | 134.60        |
|                       |                                  |  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, 1  | 2015 | 1 \$                         | 219.76        |
|                       |                                  |  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN  | 2015 | 5 \$                         | 528.30        |
|                       |                                  |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100    | 2015 | 10 \$                        | 688.15        |
|                       |                                  |  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I      | 2015 | 1 \$                         | 170.18        |
|                       |                                  |  | POLE, SYP, 35 FT, CL 2, CCA  | 2015 | 1 \$                         | 249.33        |
|                       |                                  |  | POLE, SYP, 40 FT, CL 2, CCA  | 2015 | 1 \$                         | 325.61        |
|                       |                                  |  | POLE, SYP, 45 FT, CL 2, CCA  | 2015 | 3 \$                         | 1,192.53      |
|                       |                                  | Meals                                      |  | 2015 | 0 \$                         | 30.00         |
|                       |                                  |  |  | 2016 | 0 \$                         | (0.00)        |
|                       |                                  | Misc Dist Exp Capitalized OH-Acct Use Only |  | 2015 | 0 \$                         | 2,980.18      |
|                       |                                  |  |  | 2016 | 0 \$                         | 12.56         |
|                       |                                  | Miscellaneous Accounting Adjustments       |  | 2016 | 0 \$                         | 0.00          |
|                       |                                  |  |  | 2019 | 0 \$                         | -             |
|                       |                                  | Non Productive Time Loader- Acct Use Only  |  | 2015 | 0 \$                         | 879.89        |
|                       |                                  |  |  | 2016 | 0 \$                         | 19.16         |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |  | 2015 | 0 \$                         | 2,505.10      |
|                       |                                  |  |  | 2016 | 0 \$                         | 44.97         |
|                       |                                  | Police Services and Traffic Control        |  | 2016 | 0 \$                         | (0.00)        |
|                       |                                  |  | NEW ENGLAND TRAFFIC CONTR SVCS                                       | 2015 | 0.28 \$                      | 1,258.00      |
|                       |                                  |  |  | 2016 | 0.19 \$                      | 1,036.00      |
|                       |                                  | Stores Loader- Acct Use Only               |  | 2015 | 0 \$                         | 710.99        |
|                       |                                  | UVL-Contractor Services- Other             |  | 2016 | 0 \$                         | -             |
|                       |                                  |  | 0094345 - MISC CONTRACTOR WORK                                       | 2015 | 0 \$                         | -             |
|                       |                                  |  | 0095383 - MISC CONTRACTOR WORK                                       | 2015 | 0 \$                         | -             |
|                       |                                  |  | 0095798 - MISC CONTRACTOR WORK                                       | 2015 | 0 \$                         | 1,036.00      |
|                       |                                  |  |  | 2016 | 0 \$                         | (1,036.00)    |
|                       |                                  | Vehicle Costs Clearing- Acct Use Only      |  | 2016 | 0 \$                         | (0.01)        |
|                       |                                  | Vehicles-Class 2                           |  | 2015 | 102.5 \$                     | 1,037.48      |
|                       |                                  |  |  | 2016 | 3 \$                         | 27.98         |
| 9L520603 Total        |                                  |  |  |      | 626.93 \$                    | 106,379.52    |
| 9L520676              | EWR 15-020-41 Elec Proj Reconduc | Admin and Eng OH- Acct Use Only            |  | 2015 | 0 \$                         | 176.53        |
|                       |                                  |  |  | 2016 | 0 \$                         | (1.99)        |
|                       |                                  | AFUDC Debt                                 |  | 2015 | 0 \$                         | 25.62         |



| accounting_work_order             | accounting_work_order_description | cost_element_description                   | Description   | year                            | Sum of quantity | Sum of amount |        |              |
|-----------------------------------|-----------------------------------|--|---|---------------------------------|-----------------|---------------|--------|--------------|
| 9L520676                          | EWR 15-020-41 Elec Proj Recond    | AFUDC Debt                                 |   | 2016                            | 0               | \$ 5.47       |        |              |
|                                   |                                   | AFUDC Equity                               |   | 2015                            | 0               | \$ 37.89      |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ 8.64       |        |              |
|                                   |                                   | Contractor Services- Other                 |   | 2016                            | 0               | \$ -          |        |              |
|                                   |                                   |  | EVANS LINE CONSTRUCTION INC   | 2015                            | 0.22            | \$ 8,432.95   |        |              |
|                                   |                                   | Contractor Vehicles + Equip                |   | 2016                            | 0               | \$ -          |        |              |
|                                   |                                   |  | EVANS LINE CONSTRUCTION INC   | 2015                            | 0.06            | \$ 2,203.90   |        |              |
|                                   |                                   | Engin and Super OH- Acct Use Only          |   | 2015                            | 0               | \$ 3,477.54   |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ 100.99     |        |              |
|                                   |                                   | Labor Overtime Non-Exempt                  |   | 2015                            | 9.5             | \$ 439.47     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ -          |        |              |
|                                   |                                   | Labor Straight Time Exempt                 |   | 2015                            | 23.5            | \$ 995.05     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ -          |        |              |
|                                   |                                   | Lobby Stock Loader-Acct Use Only           |   | 2015                            | 0               | \$ 828.88     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ (75.21)    |        |              |
|                                   |                                   | Materials- Stores                          | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I      | 2015                            | 5               | \$ 179.06     |        |              |
|                                   |                                   |  | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS W        | 2015                            | 1               | \$ 126.29     |        |              |
|                                   |                                   |  | CABLE, INSULATED, AERIAL QUADRAPLEX, 600V, 4/0 AAC CONDUCTOR, 4     | 2015                            | 86              | \$ 147.74     |        |              |
|                                   |                                   |  |   | 2016                            | -86             | \$ (147.74)   |        |              |
|                                   |                                   |  | CABLE, INSULATED, UG, EPR, 600V, CU, 500KCMIL, 1/C                  | 2015                            | 30              | \$ 206.00     |        |              |
|                                   |                                   |  | CONNECTOR, TRANSFORMER, ROD TO 4 HOLE NEMA PAD, FOR COPPER I        | 2015                            | 11              | \$ 211.52     |        |              |
|                                   |                                   |  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, 1 | 2015                            | 5               | \$ 1,098.92   |        |              |
|                                   |                                   |  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN | 2015                            | 6               | \$ 633.77     |        |              |
|                                   |                                   |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100   | 2015                            | 8               | \$ 550.53     |        |              |
|                                   |                                   |  | MOUNT, TRANSFORMER CLUSTER, SMALL, ALUMINUM, 5 - 25 KVA, 3 POS      | 2015                            | 1               | \$ 93.52      |        |              |
|                                   |                                   |  | POLE, SYP, 45 FT, CL 2, CCA   | 2015                            | 1               | \$ 397.51     |        |              |
|                                   |                                   |  |   | 2016                            | -1              | \$ (397.51)   |        |              |
|                                   |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2015                            | 0               | \$ 361.04     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ 22.02      |        |              |
|                                   |                                   | Miscellaneous Accounting Adjustments       |   | 2016                            | 0               | \$ -          |        |              |
|                                   |                                   |  |   | 2017                            | 0               | \$ -          |        |              |
|                                   |                                   | Non Productive Time Loader- Acct Use Only  |   | 2015                            | 0               | \$ 226.07     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ (0.01)     |        |              |
|                                   |                                   | Payroll Benefit Loader- Acct Use Only      |   | 2015                            | 0               | \$ 643.63     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ 0.01       |        |              |
|                                   |                                   | Police Services and Traffic Control        |   | 2016                            | 0               | \$ -          |        |              |
|                                   |                                   |  | NEW ENGLAND TRAFFIC CONTR SVCS                                      | 2015                            | 0.1             | \$ 647.50     |        |              |
|                                   |                                   |  |   | 2016                            | 0.1             | \$ 592.00     |        |              |
|                                   |                                   | Stores Loader- Acct Use Only               |   | 2015                            | 0               | \$ 455.02     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ 207.61     |        |              |
|                                   |                                   | UVL-Contractor Services- Other             |   | 2016                            | 0               | \$ -          |        |              |
|                                   |                                   |  | 0095383 - MISC CONTRACTOR WORK                                      | 2015                            | 0               | \$ -          |        |              |
|                                   |                                   |  | 0095798 - MISC CONTRACTOR WORK                                      | 2015                            | 0               | \$ 592.00     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ (592.00)   |        |              |
|                                   |                                   | Vehicle Costs Clearing- Acct Use Only      |   | 2016                            | 0               | \$ 0.01       |        |              |
|                                   |                                   | Vehicles-Class 2                           |   | 2015                            | 21.5            | \$ 192.86     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ (0.00)     |        |              |
|                                   |                                   | 9L520676 Total                             |   |                                 |                 |               | 121.98 | \$ 23,103.10 |
|                                   |                                   | 9L520705                                   | EWR 15-020-41 Elec Proj Recond                                      | Admin and Eng OH- Acct Use Only |                 | 2015          | 0      | \$ 1,039.74  |
|                                   |                                   |  |   |                                 |                 | 2016          | 0      | \$ (3.61)    |
|                                   |                                   |  |   |                                 |                 | 2017          | 0      | \$ (31.01)   |
|                                   |                                   |  |   | AFUDC Debt                      |                 | 2015          | 0      | \$ 120.25    |
|                                   |                                   |  |   |                                 |                 | 2016          | 0      | \$ 42.21     |
| AFUDC Equity                      |                                   |  |   | 2015                            | 0               | \$ 187.25     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ 66.62      |        |              |
| Contractor Services- Other        |                                   |  |   | 2016                            | 0               | \$ 0.00       |        |              |
|                                   | EVANS LINE CONSTRUCTION INC       |  |   | 2015                            | 1.68            | \$ 64,078.63  |        |              |
| Contractor Vehicles + Equip       |                                   |  |   | 2016                            | 0               | \$ 0.00       |        |              |
|                                   | EVANS LINE CONSTRUCTION INC       |  |   | 2015                            | 0.41            | \$ 15,918.55  |        |              |
| Engin and Super OH- Acct Use Only |                                   |  |   | 2015                            | 0               | \$ 25,415.01  |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ 505.69     |        |              |
| Joint Line Billing                |                                   |  |   | 2017                            | -5              | \$ (3,100.00) |        |              |
| Labor Overtime Non-Exempt         |                                   |  |   | 2015                            | 2.5             | \$ 115.65     |        |              |
|                                   |                                   |  |   | 2016                            | 0               | \$ 0.00       |        |              |
| Labor Straight Time Exempt        |                                   |  |   | 2015                            | 17              | \$ 716.86     |        |              |

| accounting_work_order             | accounting_work_order_descript   | cost_element_description         | Description   | year                            | Sum of quantity | Sum of amount |               |               |
|-----------------------------------|----------------------------------|----------------------------------|---|---------------------------------|-----------------|---------------|---------------|---------------|
| 9L520705                          | EWR 15-020-41 Elec Proj Reconduc | Labor Straight Time Exempt       |   | 2016                            | 0               | \$ (0.00)     |               |               |
|                                   |                                  | Lobby Stock Loader-Acct Use Only |   | 2015                            | 0               | \$ 1,747.74   |               |               |
|                                   |                                  |                                  |   | 2016                            | 0               | \$ (190.08)   |               |               |
|                                   |                                  | Materials- Stores                |   | 2016                            | 0               | \$ -          |               |               |
|                                   |                                  |                                  | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                    | 2015                            | 2               | \$ 49.92      |               |               |
|                                   |                                  |                                  | BRACKET, CUTOOT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I      | 2015                            | 5               | \$ 179.13     |               |               |
|                                   |                                  |                                  | BRACKET, CUTOOT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS W        | 2015                            | 4               | \$ 503.98     |               |               |
|                                   |                                  |                                  | CABLE, BARE, ACSR/AW, 1/0 AWG, (6/1 STR), RAVEN/AW                  | 2015                            | 2438            | \$ 559.78     |               |               |
|                                   |                                  |                                  |   | 2016                            | -548            | \$ (125.83)   |               |               |
|                                   |                                  |                                  | CABLE, INSULATED, AERIAL QUADRAPLEX, 600V, 4/0 AAC CONDUCTOR, 4     | 2015                            | 869             | \$ 1,492.82   |               |               |
|                                   |                                  |                                  |   | 2016                            | -689            | \$ (1,183.60) |               |               |
|                                   |                                  |                                  | CABLE, INSULATED, AERIAL QUADRAPLEX, XLP, 600V, AAC, 1/0, 7-STR, Q  | 2015                            | 20              | \$ 19.89      |               |               |
|                                   |                                  |                                  | CABLE, INSULATED, UG, EPR, 600V, CU, 500KCMIL, 1/C                  | 2015                            | 30              | \$ 206.00     |               |               |
|                                   |                                  |                                  | CONNECTOR, TRANSFORMER, ROD TO 4 HOLE NEMA PAD, FOR COPPER I        | 2015                            | 17              | \$ 326.89     |               |               |
|                                   |                                  |                                  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN | 2015                            | 5               | \$ 528.30     |               |               |
|                                   |                                  |                                  | CUTOOT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100   | 2015                            | 20              | \$ 1,372.54   |               |               |
|                                   |                                  |                                  |   | 2016                            | -1              | \$ (68.63)    |               |               |
|                                   |                                  |                                  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I     | 2015                            | 2               | \$ 342.83     |               |               |
|                                   |                                  |                                  | MOUNT, TRANSFORMER CLUSTER, SMALL, ALUMINUM, 5 - 25 KVA, 3 POS      | 2015                            | 1               | \$ 93.82      |               |               |
|                                   |                                  |                                  | POLE, SYP, 45 FT, CL 2, CCA   | 2015                            | 4               | \$ 1,590.04   |               |               |
|                                   |                                  |                                  | Misc Dist Exp Capitalized OH-Acct Use Only                          | 2015                            | 0               | \$ 2,366.94   |               |               |
|                                   |                                  |                                  |   | 2016                            | 0               | \$ 125.91     |               |               |
|                                   |                                  |                                  | Miscellaneous Accounting Adjustments                                | 2016                            | 0               | \$ -          |               |               |
|                                   |                                  |                                  |   | 2017                            | 0               | \$ 0.00       |               |               |
|                                   |                                  |                                  |   | 2019                            | 0               | \$ -          |               |               |
|                                   |                                  |                                  | Non Productive Time Loader- Acct Use Only                           | 2015                            | 0               | \$ 131.22     |               |               |
|                                   |                                  |                                  |   | 2016                            | 0               | \$ -          |               |               |
|                                   |                                  |                                  | Payroll Benefit Loader- Acct Use Only                               | 2015                            | 0               | \$ 373.54     |               |               |
|                                   |                                  |                                  |   | 2016                            | 0               | \$ (0.02)     |               |               |
|                                   |                                  |                                  | Police Services and Traffic Control                                 | 2016                            | 0               | \$ -          |               |               |
|                                   |                                  |                                  |   | CITY OF LACONIA                 | 2015            | 2             | \$ 570.00     |               |
|                                   |                                  |                                  |   |                                 | 2016            | 1             | \$ 285.00     |               |
|                                   |                                  |                                  |   | NEW ENGLAND TRAFFIC CONTR SVCS  | 2015            | 0.4           | \$ 2,973.88   |               |
|                                   |                                  |                                  |   |                                 | 2016            | 0.41          | \$ 2,608.50   |               |
|                                   |                                  |                                  | Refuse Removal and Recycling  |                                 | 2016            | 0             | \$ -          |               |
|                                   |                                  |                                  |   | WASTE MANAGEMENT                | 2016            | 1             | \$ 451.54     |               |
|                                   |                                  |                                  | Stores Loader- Acct Use Only  |                                 | 2015            | 0             | \$ 975.20     |               |
|                                   |                                  |                                  |   |                                 | 2016            | 0             | \$ 215.17     |               |
|                                   |                                  |                                  | UVL-Contractor Services- Other                                      |                                 | 2016            | 0             | \$ -          |               |
|                                   |                                  |                                  |   | 0094345 - MISC CONTRACTOR WORK  | 2015            | 0             | \$ -          |               |
|                                   |                                  |                                  |   | 0095383 - 38H4 CONVERSION       | 2015            | 0             | \$ -          |               |
|                                   |                                  |                                  |   | 0095383 - MISC CONTRACTOR WORK  | 2015            | 0             | \$ -          |               |
|                                   |                                  |                                  |   | 0095798 - MISC CONTRACTOR WORK  | 2015            | 0             | \$ 2,608.50   |               |
|                                   |                                  |                                  |   |                                 | 2016            | 0             | \$ (2,608.50) |               |
|                                   |                                  |                                  | Vehicle Costs Clearing- Acct Use Only                               |                                 | 2016            | 0             | \$ (0.02)     |               |
|                                   |                                  |                                  | Vehicles-Class 2  |                                 | 2015            | 17            | \$ 152.49     |               |
|                                   |                                  |                                  |   |                                 | 2016            | 0             | \$ -          |               |
|                                   |                                  | 9L520705 Total                   |   |                                 |                 |               | 2217.4        | \$ 123,746.73 |
|                                   |                                  | 9L520744                         | EWR 15-020-41 Elec Proj Reconduc                                    | Admin and Eng OH- Acct Use Only |                 | 2015          | 0             | \$ 463.72     |
|                                   |                                  |                                  |   |                                 |                 | 2016          | 0             | \$ (5.03)     |
|                                   |                                  |                                  |   | AFUDC Debt                      |                 | 2015          | 0             | \$ 46.41      |
|                                   |                                  |                                  |   |                                 |                 | 2016          | 0             | \$ 14.95      |
|                                   |                                  |                                  |   | AFUDC Equity                    |                 | 2015          | 0             | \$ 69.30      |
|                                   |                                  |                                  |   | 2016                            | 0               | \$ 23.60      |               |               |
| Contractor Services- Other        |                                  |                                  |   | 2016                            | 0               | \$ -          |               |               |
|                                   | EVANS LINE CONSTRUCTION INC      |                                  |   | 2015                            | 0.85            | \$ 27,967.76  |               |               |
| Contractor Vehicles + Equip       |                                  |                                  |   | 2016                            | 0               | \$ 0.00       |               |               |
|                                   | EVANS LINE CONSTRUCTION INC      |                                  |   | 2015                            | 0.21            | \$ 6,944.50   |               |               |
| Engin and Super OH- Acct Use Only |                                  |                                  |   | 2015                            | 0               | \$ 11,153.13  |               |               |
|                                   |                                  |                                  |   | 2016                            | 0               | \$ 174.37     |               |               |
| Labor Overtime Non-Exempt         |                                  |                                  |   | 2015                            | 1.5             | \$ 69.39      |               |               |
|                                   |                                  |                                  |   | 2016                            | 0               | \$ -          |               |               |
| Labor Straight Time Exempt        |                                  |                                  |   | 2015                            | 29              | \$ 1,222.88   |               |               |
|                                   |                                  |                                  |   | 2016                            | 0               | \$ -          |               |               |
| Lobby Stock Loader-Acct Use Only  |                                  |                                  |   | 2015                            | 0               | \$ 925.27     |               |               |

| accounting_work_order | accounting_work_order_descript | cost_element_description                   | Description  | year | Sum of quantity | Sum of amount |
|-----------------------|--------------------------------|--|--|------|-----------------|---------------|
| 9L520744              | EWR 15-020-41 Elec Proj Recond | Lobby Stock Loader-Acct Use Only           |  | 2016 | 0               | \$ (94.63)    |
|                       |                                | Materials- Stores                          |  | 2016 | 0               | \$ -          |
|                       |                                |  | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                     | 2015 | 1               | \$ 24.54      |
|                       |                                |  | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I       | 2015 | 1               | \$ 35.82      |
|                       |                                |  | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS V         | 2015 | 2               | \$ 251.80     |
|                       |                                |  | CABLE, INSULATED, DB, XLP, 600V, AL, 350 KCMIL, STR, 3CT, 4/0 AWG NE | 2015 | 20              | \$ 37.38      |
|                       |                                |  | CABLE, INSULATED, DB, XLP, 600V, AL, 4/0 AWG, UNILAY COMPRESSED, 1   | 2015 | 20              | \$ 24.03      |
|                       |                                |  | CABLE, INSULATED, UG, EPR, 600V, CU, 500KCMIL, 1/C                   | 2015 | 30              | \$ 206.00     |
|                       |                                |  | CONDUIT, ELECTRICAL, PVC, 3 IN, 10 FT, SCHEDULE 40, BELLED ONE ENI   | 2015 | 20              | \$ 20.85      |
|                       |                                |  | CONNECTOR, TRANSFORMER, ROD TO 4 HOLE NEMA PAD, FOR COPPER I         | 2015 | 6               | \$ 115.37     |
|                       |                                |  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, 1  | 2015 | 2               | \$ 439.58     |
|                       |                                |  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN  | 2015 | 3               | \$ 316.98     |
|                       |                                |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100    | 2015 | 20              | \$ 1,372.03   |
|                       |                                |  |  | 2016 | -10             | \$ (686.04)   |
|                       |                                |  | POLE, SYP, 40 FT, CL 2, CCA  | 2015 | 1               | \$ 325.61     |
|                       |                                |  | POLE, SYP, 45 FT, CL 2, CCA  | 2015 | 2               | \$ 795.02     |
|                       |                                | Misc Dist Exp Capitalized OH-Acct Use Only |  | 2015 | 0               | \$ 844.73     |
|                       |                                |  |  | 2016 | 0               | \$ 17.27      |
|                       |                                | Miscellaneous Accounting Adjustments       |  | 2016 | 0               | \$ -          |
|                       |                                |  |  | 2017 | 0               | \$ -          |
|                       |                                |  |  | 2019 | 0               | \$ -          |
|                       |                                | Non Productive Time Loader- Acct Use Only  |  | 2015 | 0               | \$ 203.66     |
|                       |                                |  |  | 2016 | 0               | \$ (0.02)     |
|                       |                                | Payroll Benefit Loader- Acct Use Only      |  | 2015 | 0               | \$ 579.82     |
|                       |                                |  |  | 2016 | 0               | \$ (0.01)     |
|                       |                                | Police Services and Traffic Control        |  | 2016 | 0               | \$ -          |
|                       |                                |  | NEW ENGLAND TRAFFIC CONTR SVCS                                       | 2015 | 0.2             | \$ 1,253.38   |
|                       |                                |  |  | 2016 | 0.2             | \$ 1,110.00   |
|                       |                                | Stores Loader- Acct Use Only               |  | 2015 | 0               | \$ 476.05     |
|                       |                                |  |  | 2016 | 0               | \$ 107.11     |
|                       |                                | UVL-Contractor Services- Other             |  | 2016 | 0               | \$ -          |
|                       |                                |  | 0094345 - MISC CONTRACTOR WORK                                       | 2015 | 0               | \$ -          |
|                       |                                |  | 0095383 - MISC CONTRACTOR WORK                                       | 2015 | 0               | \$ -          |
|                       |                                |  | 0095798 - MISC CONTRACTOR WORK                                       | 2015 | 0               | \$ 1,110.00   |
|                       |                                |  |  | 2016 | 0               | \$ (1,110.00) |
|                       |                                | Vehicle Costs Clearing- Acct Use Only      |  | 2016 | 0               | \$ (0.02)     |
|                       |                                | Vehicles-Class 2                           |  | 2015 | 29              | \$ 260.13     |
|                       |                                |  |  | 2016 | 0               | \$ -          |
| 9L520744 Total        |                                |  |  |      | 178.96          | \$ 57,106.69  |
| 9L520773              | EWR 15-020-41 Elec Proj Recond | Admin and Eng OH- Acct Use Only            |  | 2015 | 0               | \$ 464.17     |
|                       |                                |  |  | 2016 | 0               | \$ (4.70)     |
|                       |                                | AFUDC Debt                                 |  | 2015 | 0               | \$ 30.82      |
|                       |                                |  |  | 2016 | 0               | \$ 11.19      |
|                       |                                | AFUDC Equity                               |  | 2015 | 0               | \$ 46.34      |
|                       |                                |  |  | 2016 | 0               | \$ 17.67      |
|                       |                                | Contractor Services- Other                 |  | 2016 | 0               | \$ -          |
|                       |                                |  | EVANS LINE CONSTRUCTION INC  | 2015 | 1.97            | \$ 34,560.78  |
|                       |                                | Contractor Vehicles + Equip                |  | 2016 | 0               | \$ -          |
|                       |                                |  | EVANS LINE CONSTRUCTION INC  | 2015 | 0.46            | \$ 8,391.55   |
|                       |                                | Engin and Super OH- Acct Use Only          |  | 2015 | 0               | \$ 11,689.99  |
|                       |                                |  |  | 2016 | 0               | \$ 41.21      |
|                       |                                | Joint Line Billing                         |  | 2016 | -1              | \$ (620.00)   |
|                       |                                | Labor Overtime Non-Exempt                  |  | 2015 | 3.5             | \$ 169.19     |
|                       |                                |  |  | 2016 | 0               | \$ (0.00)     |
|                       |                                | Labor Straight Time Exempt                 |  | 2015 | 22              | \$ 942.08     |
|                       |                                |  |  | 2016 | 0               | \$ -          |
|                       |                                | Labor Straight Time Non-Exempt             |  | 2015 | 2.5             | \$ 78.50      |
|                       |                                |  |  | 2016 | 0               | \$ 0.00       |
|                       |                                | Lobby Stock Loader-Acct Use Only           |  | 2015 | 0               | \$ 544.85     |
|                       |                                | Materials- Stores                          |  | 2015 | 6               | \$ 214.96     |
|                       |                                |  | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I       | 2015 | 3               | \$ 367.30     |
|                       |                                |  | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS V         | 2015 | 30              | \$ 206.00     |
|                       |                                |  | CABLE, INSULATED, UG, EPR, 600V, CU, 500KCMIL, 1/C                   | 2015 | 13              | \$ 249.50     |
|                       |                                |  | CONNECTOR, TRANSFORMER, ROD TO 4 HOLE NEMA PAD, FOR COPPER I         | 2015 | 2               | \$ 211.32     |
|                       |                                |  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN  | 2015 | 12              | \$ 823.84     |
|                       |                                |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100    | 2015 |                 |               |

| accounting_work_order | accounting_work_order_descript   | cost_element_description                   | Description  | year                           | Sum of quantity | Sum of amount |             |
|-----------------------|----------------------------------|--|--|--------------------------------|-----------------|---------------|-------------|
| 9L520773              | EWR 15-020-41 Elec Proj Recondue | Materials- Stores                          | POLE, SYP, 45 FT, CL 2, CCA  | 2015                           | 1               | \$ 397.51     |             |
|                       |                                  | Mileage                                    |  | 2015                           | 0               | \$ 11.50      |             |
|                       |                                  |  |  | 2016                           | 0               | \$ -          |             |
|                       |                                  | Misc Dist Exp Capitalized OH-Acct Use Only |  | 2015                           | 0               | \$ 816.40     |             |
|                       |                                  |  |  | 2016                           | 0               | \$ 5.28       |             |
|                       |                                  | Miscellaneous Accounting Adjustments       |  | 2016                           | 0               | \$ -          |             |
|                       |                                  |  |  | 2017                           | 0               | \$ -          |             |
|                       |                                  |  |  | 2019                           | 0               | \$ -          |             |
|                       |                                  | Non Productive Time Loader- Acct Use Only  |  | 2015                           | 0               | \$ 187.49     |             |
|                       |                                  |  |  | 2016                           | 0               | \$ (0.01)     |             |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |  | 2015                           | 0               | \$ 533.82     |             |
|                       |                                  |  |  | 2016                           | 0               | \$ (0.01)     |             |
|                       |                                  | Police Services and Traffic Control        |  | 2016                           | 0               | \$ -          |             |
|                       |                                  |  |  | NEW ENGLAND TRAFFIC CONTR SVCS | 2015            | 0.43          | \$ 2,812.00 |
|                       |                                  |  |  |                                | 2016            | 0.03          | \$ 222.00   |
|                       |                                  | Stores Loader- Acct Use Only               |  | 2015                           | 0               | \$ 262.01     |             |
|                       |                                  | UVL-Contractor Services- Other             |  | 2016                           | 0               | \$ -          |             |
|                       |                                  |  |  | 0094345 - MISC CONTRACTOR WORK | 2015            | 0             | \$ -        |
|                       |                                  |  |  | 0095383 - MISC CONTRACTOR WORK | 2015            | 0             | \$ -        |
|                       |                                  |  |  | 0095798 - MISC CONTRACTOR WORK | 2015            | 0             | \$ 222.00   |
|                       |                                  |  |  |                                | 2016            | 0             | \$ (222.00) |
|                       |                                  | Vehicle Costs Clearing- Acct Use Only      |  | 2016                           | 0               | \$ (0.01)     |             |
|                       |                                  | Vehicles-Class 2                           |  | 2015                           | 15              | \$ 134.55     |             |
|                       |                                  |  |  |                                | 2016            | 0             | \$ -        |
| 9L520773 Total        |                                  |  |  |                                | 111.89          | \$ 63,819.09  |             |
| 9L520836              | EWR 15-014-41 Elec Proj Recondue | Admin and Eng OH- Acct Use Only            |  | 2015                           | 0               | \$ 370.06     |             |
|                       |                                  |  |  | 2016                           | 0               | \$ 209.12     |             |
|                       |                                  |  |  | 2017                           | 0               | \$ 155.32     |             |
|                       |                                  | AFUDC Debt                                 |  | 2015                           | 0               | \$ 67.75      |             |
|                       |                                  |  |  | 2016                           | 0               | \$ 171.29     |             |
|                       |                                  | AFUDC Equity                               |  | 2015                           | 0               | \$ 102.42     |             |
|                       |                                  |  |  | 2016                           | 0               | \$ 177.87     |             |
|                       |                                  | Contractor Labor                           | I C REED & SONS INC  | 2015                           | 0               | \$ -          |             |
|                       |                                  | Contractor Services- Other                 |  | 2017                           | 0               | \$ (0.00)     |             |
|                       |                                  |  | I C REED & SONS INC  | 2015                           | 0.46            | \$ 8,065.66   |             |
|                       |                                  |  |  | 2016                           | 0.56            | \$ 9,800.59   |             |
|                       |                                  | Contractor Vehicles + Equip                |  | 2017                           | 0               | \$ -          |             |
|                       |                                  |  | I C REED & SONS INC  | 2015                           | 0.07            | \$ 699.98     |             |
|                       |                                  |  |  | 2016                           | 0.22            | \$ 3,916.83   |             |
|                       |                                  | Engin and Super OH- Acct Use Only          |  | 2015                           | 0               | \$ 3,698.04   |             |
|                       |                                  |  |  | 2016                           | 0               | \$ 6,996.76   |             |
|                       |                                  |  |  | 2017                           | 0               | \$ 1,013.26   |             |
|                       |                                  | Joint Line Billing                         |  | 2016                           | -12             | \$ (7,440.00) |             |
|                       |                                  |  |  | 2017                           | 0               | \$ -          |             |
|                       |                                  | Labor Overtime Non-Exempt                  |  | 2015                           | 12              | \$ 677.39     |             |
|                       |                                  |  |  | 2016                           | 39.75           | \$ 2,311.82   |             |
|                       |                                  |  |  | 2017                           | 0               | \$ -          |             |
|                       |                                  | Labor Premium and Special Non-Exempt       |  | 2016                           | 5               | \$ 196.65     |             |
|                       |                                  |  |  | 2017                           | 0               | \$ (0.00)     |             |
|                       |                                  | Labor Straight Time Exempt                 |  | 2015                           | 50.5            | \$ 2,139.76   |             |
|                       |                                  |  |  | 2016                           | 7               | \$ 306.89     |             |
|                       |                                  |  |  | 2017                           | 0               | \$ (0.00)     |             |
|                       |                                  | Labor Straight Time Non-Exempt             |  | 2015                           | 9               | \$ 344.06     |             |
|                       |                                  |  |  | 2016                           | 15              | \$ 577.04     |             |
|                       |                                  |  |  | 2017                           | 0               | \$ 0.00       |             |
|                       |                                  | Lobby Stock Loader-Acct Use Only           |  | 2015                           | 0               | \$ 1,538.02   |             |
|                       |                                  |  |  | 2016                           | 0               | \$ 35.81      |             |
|                       |                                  | Materials- Stores                          |  | 2017                           | 0               | \$ 0.00       |             |
|                       |                                  |  | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                     | 2015                           | 2               | \$ 50.12      |             |
|                       |                                  |  | BLADE, CONTACT, BRONZE, 25/27 KV, 300 AMP, SOLID DOOR, FITS CHAN     | 2016                           | 3               | \$ 98.37      |             |
|                       |                                  |  | BRACKET, CUTOOT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I       | 2015                           | 15              | \$ 537.29     |             |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 1/0 AWG, (6/1 STR), RAVEN/AW                   | 2015                           | 5837            | \$ 1,371.13   |             |
|                       |                                  |  |  | 2016                           | -2000           | \$ (469.81)   |             |
|                       |                                  |  | CABLE, INSULATED, AERIAL TRIPLEX, 600 V, AAC, 1/0, 7-STR, TRIPLEX WI | 2016                           | 488             | \$ 377.08     |             |
|                       |                                  |  | CONNECTOR, TRANSFORMER, ROD TO 4 HOLE NEMA PAD, FOR COPPER I         | 2015                           | 14              | \$ 269.20     |             |

| accounting_work_order | accounting_work_order_descript | cost_element_description                   | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|--------------------------------|--|---|------|-----------------|---------------|
| 9L520836              | EWR 15-014-41 Elec Proj Recond | Materials- Stores                          | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, 1 | 2016 | 2 \$            | 439.13        |
|                       |                                |  | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN | 2015 | 5 \$            | 528.10        |
|                       |                                |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100   | 2015 | 17 \$           | 1,166.15      |
|                       |                                |  |   | 2016 | -3 \$           | (205.79)      |
|                       |                                |  | POLE, SYP, 40 FT, CL 2, CCA   | 2015 | 8 \$            | 2,585.80      |
|                       |                                |  |   | 2016 | 1 \$            | 321.54        |
|                       |                                |  | POLE, SYP, 45 FT, CL 2, CCA   | 2015 | 4 \$            | 1,575.92      |
|                       |                                |  |   | 2016 | -1 \$           | (395.47)      |
|                       |                                |  | SPLICE, INSULATED, COMPRESSION/URD, 1/0 STR, 35 KV, SUB 287805 & 3  | 2016 | 3 \$            | 210.70        |
|                       |                                | Mileage                                    |   | 2015 | 0 \$            | 21.28         |
|                       |                                |  |   | 2016 | 0 \$            | 8.64          |
|                       |                                |  |   | 2017 | 0 \$            | -             |
|                       |                                | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2015 | 0 \$            | 193.22        |
|                       |                                |  |   | 2016 | 0 \$            | 1,018.80      |
|                       |                                |  |   | 2017 | 0 \$            | 46.05         |
|                       |                                | Miscellaneous Accounting Adjustments       |   | 2017 | 0 \$            | (0.00)        |
|                       |                                |  |   | 2019 | 0 \$            | -             |
|                       |                                | Non Productive Time Loader- Acct Use Only  |   | 2015 | 0 \$            | 498.20        |
|                       |                                |  |   | 2016 | 0 \$            | 550.57        |
|                       |                                |  |   | 2017 | 0 \$            | 0.02          |
|                       |                                | Other Outside Services- Tree Planned       |   | 2015 | 0 \$            | -             |
|                       |                                |  |   | 2017 | 0 \$            | 0.00          |
|                       |                                |  | ASPLUNDH TREE EXPERT CO   | 2015 | 10.89 \$        | 18,073.29     |
|                       |                                |  |   | 2016 | 1 \$            | 885.33        |
|                       |                                | Payroll Benefit Loader- Acct Use Only      |   | 2015 | 0 \$            | 1,418.40      |
|                       |                                |  |   | 2016 | 0 \$            | 1,240.46      |
|                       |                                |  |   | 2017 | 0 \$            | 0.01          |
|                       |                                | Police Services and Traffic Control        |   | 2017 | 0 \$            | (0.00)        |
|                       |                                |  | NEW ENGLAND TRAFFIC CONTR SVCS                                      | 2015 | 0.06 \$         | 323.76        |
|                       |                                |  |   | 2016 | 0.96 \$         | 6,438.04      |
|                       |                                | Shared Lease Vehicles-Class 4              |   | 2015 | 1 \$            | 3.65          |
|                       |                                |  |   | 2017 | 0 \$            | -             |
|                       |                                | Stores Loader- Acct Use Only               |   | 2015 | 0 \$            | 636.70        |
|                       |                                |  |   | 2016 | 0 \$            | 641.82        |
|                       |                                | Unvouchered Liabilities                    |   | 2017 | 0 \$            | -             |
|                       |                                | UVL-Contractor Services- Other             | 0093637 - TREE TRIMMING   | 2015 | 0 \$            | -             |
|                       |                                |  |   | 2015 | 0 \$            | -             |
|                       |                                |  |   | 2017 | 0 \$            | -             |
|                       |                                |  | 0092552 - TRIMMING  | 2015 | 0 \$            | -             |
|                       |                                |  | 0093313 - TREE TRIMMING   | 2015 | 0 \$            | -             |
|                       |                                |  | 0095383 - 38H2 CONVERSION   | 2015 | 0 \$            | -             |
|                       |                                |  | 0095383 - 38H4 CONVERSION   | 2015 | 0 \$            | -             |
|                       |                                |  | 0095798 - 38H2 CONVERSION   | 2015 | 0 \$            | 32,000.00     |
|                       |                                |  |   | 2016 | 0 \$            | (32,000.00)   |
|                       |                                |  | 0095798 - MISC CONTRACTOR WORK                                      | 2015 | 0 \$            | 6,328.50      |
|                       |                                |  |   | 2016 | 0 \$            | (6,328.50)    |
|                       |                                |  | 0097214 - MISC CONTRACTOR WORK                                      | 2016 | 0 \$            | -             |
|                       |                                |  |   | 2017 | 0 \$            | -             |
|                       |                                | Vehicle Costs Clearing- Acct Use Only      |   | 2015 | 61.5 \$         | 580.31        |
|                       |                                | Vehicles-Class 2                           |   | 2016 | 53.75 \$        | 483.75        |
|                       |                                |  |   | 2017 | 0 \$            | (0.00)        |
|                       |                                |  |   | 2015 | 2 \$            | 68.44         |
|                       |                                | Vehicles-Class 4A                          |   | 2016 | 3 \$            | 73.92         |
|                       |                                |  |   | 2017 | 0 \$            | 0.00          |
| 9L520836 Total        |                                |  |   |      | 4656.72 \$      | 77,796.51     |
| 9L520929              | EWR 15-014-41 Elec Proj Recond | Admin and Eng OH- Acct Use Only            |   | 2015 | 0 \$            | 847.06        |
|                       |                                |  |   | 2016 | 0 \$            | 2,013.87      |
|                       |                                | AFUDC Debt                                 |   | 2015 | 0 \$            | 87.56         |
|                       |                                |  |   | 2016 | 0 \$            | 231.83        |
|                       |                                | AFUDC Equity                               |   | 2015 | 0 \$            | 134.98        |
|                       |                                |  |   | 2016 | 0 \$            | 249.55        |
|                       |                                | Contractor Labor                           | I C REED & SONS INC   | 2015 | 1 \$            | 25,622.73     |
|                       |                                |  |   | 2016 | -1 \$           | (25,622.73)   |
|                       |                                | Contractor Materials                       |   | 2016 | 0 \$            | (0.00)        |
|                       |                                |  | I C REED & SONS INC   | 2016 | 1 \$            | 211.27        |

| accounting_work_order | accounting_work_order_descript | cost_element_description          | Description  | year | Sum of quantity | Sum of amount |
|-----------------------|--------------------------------|-----------------------------------|--|------|-----------------|---------------|
| 9L520929              | EWR 15-014-41 Elec Proj Recond | Contractor Services- Other        |  | 2016 | 0               | \$ 0.00       |
|                       |                                |                                   | I C REED & SONS INC  | 2015 | 0.95            | \$ 18,658.05  |
|                       |                                |                                   |  | 2016 | 6.16            | \$ 147,631.62 |
|                       |                                | Contractor Vehicles + Equip       |  | 2016 | 0               | \$ -          |
|                       |                                |                                   | I C REED & SONS INC  | 2015 | 0.46            | \$ 11,269.76  |
|                       |                                |                                   |  | 2016 | 2.09            | \$ 48,658.95  |
|                       |                                | Engin and Super OH- Acct Use Only |  | 2015 | 0               | \$ 17,284.18  |
|                       |                                |                                   |  | 2016 | 0               | \$ 51,923.27  |
|                       |                                | Fees + Payments- Other            |  | 2016 | 0               | \$ -          |
|                       |                                |                                   | SUNBELT RENTALS INC  | 2016 | 1               | \$ 7,123.47   |
|                       |                                | Joint Line Billing                |  | 2016 | -13             | \$ (8,060.00) |
|                       |                                | Labor Overtime Non-Exempt         |  | 2015 | 1.5             | \$ 69.39      |
|                       |                                |                                   |  | 2016 | 0               | \$ 0.00       |
|                       |                                | Labor Straight Time Exempt        |  | 2015 | 32.5            | \$ 1,370.46   |
|                       |                                |                                   |  | 2016 | 5               | \$ 217.17     |
|                       |                                | Lobby Stock Loader-Acct Use Only  |  | 2015 | 0               | \$ 3,943.62   |
|                       |                                |                                   |  | 2016 | 0               | \$ 448.31     |
|                       |                                | Materials- Stores                 |  | 2016 | 0               | \$ -          |
|                       |                                |                                   | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                     | 2015 | 2               | \$ 49.76      |
|                       |                                |                                   | ARRESTER, SURGE, 12.47 KV MGY SYSTEM VOLTAGE, 9 KV ARRESTER R.       | 2015 | 6               | \$ 349.59     |
|                       |                                |                                   |  | 2016 | -6              | \$ (349.59)   |
|                       |                                |                                   | ARRESTER, SURGE, DISTRIBUTION CLASS, 9 KV, POLYMER, MOV, 7.65KV      | 2015 | 3               | \$ 147.96     |
|                       |                                |                                   | BLADE, CONTACT, BRONZE, 25/27 KV, 300 AMP, SOLID DOOR, FITS CHAN     | 2015 | 3               | \$ 97.66      |
|                       |                                |                                   |  | 2016 | -3              | \$ (97.66)    |
|                       |                                |                                   | BRACKET, ANGLE, EXTENDED TAP, HENDRIX, SPACER CABLE SINGLE CIL       | 2015 | 2               | \$ 304.94     |
|                       |                                |                                   |  | 2016 | -2              | \$ (304.94)   |
|                       |                                |                                   | BRACKET, CABLE, TERMINATOR MOUNTING, ALUM, 0.75 THRU 3.00 IN D C     | 2016 | 0               | \$ -          |
|                       |                                |                                   | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I       | 2015 | 11              | \$ 392.77     |
|                       |                                |                                   |  | 2016 | -4              | \$ (148.94)   |
|                       |                                |                                   | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS V         | 2015 | 4               | \$ 449.47     |
|                       |                                |                                   |  | 2016 | -2              | \$ (213.43)   |
|                       |                                |                                   | BRACKET, TANGENT/ HENDRIX, 24 IN W/MC-2 MESSENGER CLAMP              | 2015 | 3               | \$ 215.84     |
|                       |                                |                                   | CABLE, INSULATED, 1 PH PRIMARY URD, JACKETED, 35 KV, AL, 1/0, W/ CC  | 2016 | 0               | \$ -          |
|                       |                                |                                   | CABLE, INSULATED, AERIAL QUADRAPLEX, 600V, 4/0 AAC CONDUCTOR, 4      | 2016 | 165             | \$ 303.44     |
|                       |                                |                                   | CABLE, INSULATED, AERIAL QUADRAPLEX, 600V, 4/0 AAC CONDUCTOR, 4      | 2015 | 0               | \$ -          |
|                       |                                |                                   | CABLE, INSULATED, AERIAL TRIPLEX, 600 V, AAC, 1/0, 7-STR, TRIPLEX WI | 2015 | 0               | \$ (0.01)     |
|                       |                                |                                   |  | 2016 | 478             | \$ 369.67     |
|                       |                                |                                   | CABLE, INSULATED, AERIAL TRIPLEX, 600V, AAC, #2, 7 STR, WITH #4 7 ST | 2016 | 120             | \$ 52.78      |
|                       |                                |                                   | CABLE, INSULATED, AERIAL TRIPLEX, XLP, 600V, #2 AAC CONDUCTOR, #     | 2015 | 0               | \$ -          |
|                       |                                |                                   | CONDUIT, ELECTRICAL, PVC, 3 IN, 10 FT, SCHEDULE 40, BELLED ONE ENI   | 2016 | 0               | \$ -          |
|                       |                                |                                   | CONDUIT, ELECTRICAL, PVC, 4 IN DIA, 10 FT LG, SCH 40, BELLED ONE EN  | 2016 | 0               | \$ -          |
|                       |                                |                                   | CONDUIT, ELECTRICAL, PVC, 5 IN DIA, 10 FT LG, SCH 40, BELLED ONE EN  | 2016 | 20              | \$ 37.43      |
|                       |                                |                                   | CONNECTOR, ELBOW, LOADBREAK, AL, 1/0 STR AWG, 345 MIL, 1.095" - 1.   | 2015 | 6               | \$ 143.65     |
|                       |                                |                                   |  | 2016 | -3              | \$ (71.81)    |
|                       |                                |                                   | CONNECTOR, TRANSFORMER, ROD TO 4 HOLE NEMA PAD, FOR COPPER I         | 2015 | 17              | \$ 326.48     |
|                       |                                |                                   | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, V  | 2015 | 1               | \$ 220.09     |
|                       |                                |                                   |  | 2016 | 0               | \$ (0.24)     |
|                       |                                |                                   | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN  | 2015 | 10              | \$ 1,056.25   |
|                       |                                |                                   |  | 2016 | 3               | \$ 316.69     |
|                       |                                |                                   | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100 .  | 2015 | 23              | \$ 1,577.27   |
|                       |                                |                                   |  | 2016 | 2               | \$ 137.12     |
|                       |                                |                                   | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I      | 2015 | 1               | \$ 172.55     |
|                       |                                |                                   |  | 2016 | -1              | \$ (172.55)   |
|                       |                                |                                   | MOUNT, TRANSFORMER CLUSTER, SMALL, ALUMINUM, 5 - 25 KVA, 3 POS       | 2016 | 1               | \$ 94.77      |
|                       |                                |                                   | POLE, SYP, 40 FT, CL 2, CCA  | 2015 | 0               | \$ -          |
|                       |                                |                                   | POLE, SYP, 45 FT, CL 2, CCA  | 2015 | 13              | \$ 5,127.65   |
|                       |                                |                                   |  | 2016 | 0               | \$ (7.77)     |
|                       |                                |                                   | RECLOSER, VAC, 3PH, ELEC, 34.5KV, 560A, 12KA, HIGH VOLT, TYPE VWVE   | 2016 | 0               | \$ -          |
|                       |                                |                                   | SPACER, CABLE, HENDRIX - 46KV, POLYETHYLENE W/CONDUCTOR CLAM         | 2015 | 32              | \$ 810.86     |
|                       |                                |                                   |  | 2016 | 2               | \$ 53.35      |
|                       |                                |                                   | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 477 ACSR (18/1), 556.5 AA  | 2015 | 5               | \$ 3,380.87   |
|                       |                                |                                   |  | 2016 | 1               | \$ 675.44     |
|                       |                                |                                   | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 477KCMIL ACSR (18/1)(26/   | 2015 | 1               | \$ 707.32     |
|                       |                                |                                   |  | 2016 | -1              | \$ (707.32)   |
|                       |                                |                                   | TERMINATOR, CABLE, COLD SHRINK, JACKETED, 1/0 ALUM, 35 KV, W/PIN     | 2016 | 3               | \$ 333.75     |

000282

| accounting_work_order | accounting_work_order_descript   | cost_element_description                   | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|----------------------------------|--|---|------|-----------------|---------------|
| 9L520929              | EWR 15-014-41 Elec Proj Recond   | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2015 | 0               | \$ 656.18     |
|                       |                                  |  |   | 2016 | 0               | \$ 7,523.86   |
|                       |                                  | Miscellaneous Accounting Adjustments       |   | 2016 | 0               | \$ 0.00       |
|                       |                                  |  |   | 2017 | 0               | \$ -          |
|                       |                                  |  |   | 2019 | 0               | \$ (0.00)     |
|                       |                                  | Non Productive Time Loader- Acct Use Only  |   | 2015 | 0               | \$ 226.90     |
|                       |                                  |  |   | 2016 | 0               | \$ 37.38      |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |   | 2015 | 0               | \$ 646.04     |
|                       |                                  |  |   | 2016 | 0               | \$ 80.08      |
|                       |                                  | Police Services and Traffic Control        |   | 2016 | 0               | \$ -          |
|                       |                                  |  | NEW ENGLAND TRAFFIC CONTR SVCS                                      | 2015 | 0.14            | \$ 730.76     |
|                       |                                  |  |   | 2016 | 1.18            | \$ 7,323.75   |
|                       |                                  | Stores Loader- Acct Use Only               |   | 2015 | 0               | \$ 3,330.59   |
|                       |                                  |  |   | 2016 | 0               | \$ 9,139.93   |
|                       |                                  | UVL-Contractor Services- Other             |   | 2016 | 0               | \$ -          |
|                       |                                  |  | 0095798 - MISC CONTRACTOR WORK                                      | 2015 | 0               | \$ 6,761.30   |
|                       |                                  |  |   | 2016 | 0               | \$ (6,761.30) |
|                       |                                  |  | 0097214 - 38H2 CONVERSION   | 2016 | 0               | \$ -          |
|                       |                                  |  | 0097214 - MISC CONTRACTOR WORK                                      | 2016 | 0               | \$ -          |
|                       |                                  |  | 0098054 - 38H2 CONVERSION   | 2016 | 0               | \$ -          |
|                       |                                  |  | 0098054 - MISC CONTRACTOR WORK                                      | 2016 | 0               | \$ -          |
|                       |                                  | Vehicle Costs Clearing- Acct Use Only      |   | 2016 | 0               | \$ (0.00)     |
|                       |                                  | Vehicles-Class 2                           |   | 2015 | 32.5            | \$ 291.53     |
|                       |                                  |  |   | 2016 | 4               | \$ 25.84      |
| 9L520929 Total        |                                  |  |   |      | 991.48          | \$ 350,158.37 |
| 9L620518              | EWR 15-093-41 Elec Svc Conv-Rec- | Admin and Eng OH- Acct Use Only            |   | 2016 | 0               | \$ 1,435.56   |
|                       |                                  |  |   | 2017 | 0               | \$ 1,564.21   |
|                       |                                  | AFUDC Debt                                 |   | 2016 | 0               | \$ 259.80     |
|                       |                                  |  |   | 2017 | 0               | \$ 195.25     |
|                       |                                  | AFUDC Equity                               |   | 2016 | 0               | \$ 0.34       |
|                       |                                  | Contractor Services                        |   | 2017 | 0               | \$ -          |
|                       |                                  |  | LJM CONSTRUCTION LLC  | 2017 | 2               | \$ 18,316.60  |
|                       |                                  | Contractor Services- Other                 |   | 2017 | 0               | \$ -          |
|                       |                                  |  | HAUGLAND ENERGY GROUP LLC   | 2016 | 0.64            | \$ 54,047.07  |
|                       |                                  |  |   | 2017 | 1.04            | \$ 127,571.50 |
|                       |                                  | Engin and Super OH- Acct Use Only          |   | 2016 | 0               | \$ 24,599.27  |
|                       |                                  |  |   | 2017 | 0               | \$ 10,006.38  |
|                       |                                  | Labor Overtime Non-Exempt                  |   | 2016 | 15              | \$ 1,198.53   |
|                       |                                  |  |   | 2017 | 21.5            | \$ 1,661.93   |
|                       |                                  | Labor Straight Time Exempt                 |   | 2016 | 75              | \$ 3,270.20   |
|                       |                                  |  |   | 2017 | 3               | \$ 130.32     |
|                       |                                  | Labor Straight Time Non-Exempt             |   | 2016 | 65.5            | \$ 2,977.52   |
|                       |                                  |  |   | 2017 | 7               | \$ 226.38     |
|                       |                                  | Lobby Stock Loader-Acct Use Only           |   | 2016 | 0               | \$ 8,430.20   |
|                       |                                  |  |   | 2017 | 0               | \$ (1,496.81) |
|                       |                                  | Materials- Purchased                       |   | 2017 | 0               | \$ -          |
|                       |                                  |  | JP MORGAN CHASE BANK  | 2016 | 4               | \$ 159.92     |
|                       |                                  | Materials- Stores                          |   | 2017 | 0               | \$ -          |
|                       |                                  |  | ANCHOR, EXPANDING 12 IN, FOR 1 IN RODS                              | 2016 | 1               | \$ 34.40      |
|                       |                                  |  | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                    | 2016 | 3               | \$ 75.90      |
|                       |                                  |  | ARRESTER, SURGE, DISTRIBUTION CLASS, 9 KV, POLYMER, MOV, 7.65KV     | 2016 | 38              | \$ 1,838.30   |
|                       |                                  |  | ARRESTER, SURGE, LIGHTNING, DISTRIBUTION CLASS, 9 KV, POLYMER, 7    | 2017 | 3               | \$ 141.10     |
|                       |                                  |  | BAR, ANTI-SWAY, CABLE SPACERS ON TANGENT CABLES, POLYETHYLENE       | 2016 | 32              | \$ 524.43     |
|                       |                                  |  | BRACKET, ANGLE, EXTENDED TAP, HENDRIX, SPACER CABLE SINGLE CIL      | 2016 | 27              | \$ 4,442.67   |
|                       |                                  |  |   | 2017 | -14             | \$ (2,303.92) |
|                       |                                  |  | BRACKET, CABLE, TERMINATOR MOUNTING, ALUM, 0.75 THRU 3.00 IN DIA    | 2016 | 6               | \$ 100.27     |
|                       |                                  |  | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I      | 2016 | 9               | \$ 287.22     |
|                       |                                  |  | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS V        | 2016 | 4               | \$ 443.66     |
|                       |                                  |  |   | 2017 | -2              | \$ (221.83)   |
|                       |                                  |  | BRACKET, TANGENT/ HENDRIX, 24 IN W/MC-2 MESSENGER CLAMP             | 2016 | 22              | \$ 1,577.66   |
|                       |                                  |  | CABLE, BARE, 052 AWA MESSENGER FOR SPACER CABLE                     | 2017 | 1205            | \$ 1,128.18   |
|                       |                                  |  | CABLE, BARE, ACSR, #2, 6/1, USE STOCK CODE 177589                   | 2017 | 100             | \$ 33.41      |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 1/0 AWG, (6/1 STR), RAVEN/AW                  | 2017 | 60              | \$ 14.49      |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 4/0 AWG, 6/1 STR, PENGUIN/AW                  | 2017 | 203             | \$ 93.10      |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 477 KCMIL, 0.814 IN DIA, 18/1 STR, PELICAN/AW | 2017 | 100             | \$ 90.09      |

| accounting_work_order | accounting_work_order_descript   | cost_element_description                   | Description  | year | Sum of quantity | Sum of amount   |
|-----------------------|----------------------------------|--|--|------|-----------------|-----------------|
| 9L620518              | EWR 15-093-41 Elec Svc Conv-Rec- | Materials- Stores                          | CABLE, BARE, SD/ANNEALED, CU, #2, 7 STR                                | 2017 | 9               | \$ 6.88         |
|                       |                                  |  | CABLE, COVERED, 2 LAYER POLY, 150 MIL, 90 C, AAC, 477 KCMIL, 19 STR,   | 2016 | 4200            | \$ 7,314.97     |
|                       |                                  |  |  | 2017 | -585            | \$ (1,025.22)   |
|                       |                                  |  | CABLE, INSULATED, AERIAL TRIPLEX, 600V, 4/0 AAC CONDUCTOR, 2/0 AL      | 2017 | 1265            | \$ 1,525.77     |
|                       |                                  |  | CLAMP, MESSENGER, AERIAL CABLE, GALVANIZED STEEL, 3/8 - 9/16 IN M      | 2016 | 8               | \$ 285.17       |
|                       |                                  |  | CLAMP, STRAIN, STRT GROOVE, 336.4-795 AL, 300-636 ACSR, W/LIFTING E    | 2016 | 13              | \$ 231.07       |
|                       |                                  |  | CONDUIT, ELECTRICAL, PVC, 5 IN DIA, 10 FT LG, SCH 40, BELLED ONE EN    | 2017 | 40              | \$ 77.93        |
|                       |                                  |  | CROSSARM, DOUGLAS FIR, WOOD, 10 FT, 4-3/4 X 5-3/4 IN, "JUMBO", PHAS    | 2016 | 1               | \$ 64.79        |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, WITH CENTER M      | 2016 | 14              | \$ 2,900.40     |
|                       |                                  |  |  | 2017 | -14             | \$ (2,900.40)   |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN, WITH CENTER     | 2016 | 10              | \$ 1,055.10     |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT TANGENT, JUMBO, BROWN, WITH JUMB           | 2016 | 1               | \$ 104.07       |
|                       |                                  |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100      | 2016 | 42              | \$ 2,879.42     |
|                       |                                  |  |  | 2017 | 3               | \$ 204.50       |
|                       |                                  |  | GUARD, ELECTRICAL, PRIMARY CONDUCTOR /TREE/BRANCH, 8 FT. LG, 1         | 2016 | 4               | \$ 107.30       |
|                       |                                  |  | LINK, STRIRRU, FOR SPACER CABLE TANGENT BRACKET                        | 2016 | 7               | \$ 61.80        |
|                       |                                  |  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I        | 2016 | 2               | \$ 346.65       |
|                       |                                  |  | POLE, SYP, 45 FT, CL 2, CCA  | 2016 | 3               | \$ 1,223.83     |
|                       |                                  |  |  | 2017 | 1               | \$ 410.59       |
|                       |                                  |  | POLE, SYP, 50 FT, CL 1, CCA  | 2016 | 10              | \$ 5,110.44     |
|                       |                                  |  | POLE, WESTERN RED CEDAR, 55 FT L, CL 2                                 | 2016 | 1               | \$ 1,202.11     |
|                       |                                  |  | SPACER, CABLE, HENDRIX - 46KV, POLYETHYLENE W/CONDUCTOR CLAM           | 2016 | 118             | \$ 3,139.28     |
|                       |                                  |  |  | 2017 | -57             | \$ (1,517.06)   |
|                       |                                  |  | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 0.629--0.741 IN DIA, 34.5 K  | 2016 | 3               | \$ 2,208.70     |
|                       |                                  |  | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 0.741-0.814 IN DIA, 35 KV, ! | 2016 | 3               | \$ 2,057.10     |
|                       |                                  |  |  | 2017 | -3              | \$ (2,057.10)   |
|                       |                                  |  | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 0.772-0.860 IN DIA, 34.5 KV  | 2016 | 3               | \$ 2,106.91     |
|                       |                                  |  | TERMINATOR, CABLE, COLD SHRINK, JACKETED, 1/0 ALUM, 35 KV, W/PIN       | 2016 | 7               | \$ 796.49       |
|                       |                                  |  | WIRE, TIE, COPPER, SOFT DRAWN, 6 AWG, 25 LB / SPOOL                    | 2016 | 150             | \$ 729.23       |
|                       |                                  | Meals                                      |  | 2017 | 2               | \$ 40.00        |
|                       |                                  | Mileage                                    |  | 2016 | 46              | \$ 24.84        |
|                       |                                  |  |  | 2017 | 0               | \$ 0.00         |
|                       |                                  | Misc Dist Exp Capitalized OH-Acct Use Only |  | 2016 | 0               | \$ 2,264.04     |
|                       |                                  |  |  | 2017 | 0               | \$ 328.22       |
|                       |                                  | Miscellaneous Accounting Adjustments       |  | 2018 | 0               | \$ -            |
|                       |                                  |  |  | 2019 | 0               | \$ -            |
|                       |                                  | Non Productive Time Loader- Acct Use Only  |  | 2016 | 0               | \$ 1,281.53     |
|                       |                                  |  |  | 2017 | 0               | \$ 337.15       |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |  | 2016 | 0               | \$ 2,745.77     |
|                       |                                  |  |  | 2017 | 0               | \$ 775.54       |
|                       |                                  | Stores Loader- Acct Use Only               |  | 2016 | 0               | \$ 2,814.19     |
|                       |                                  |  |  | 2017 | 0               | \$ 426.78       |
|                       |                                  | UVL-Contractor Labor                       |  | 2017 | 0               | \$ -            |
|                       |                                  |  | 0103006 - 38H3 COVNERSION  | 2016 | 0               | \$ -            |
|                       |                                  |  | 0103649 - 38H3 CONVERSION  | 2016 | 0               | \$ -            |
|                       |                                  |  | 0104296 - 38H3 COVNERSION  | 2016 | 0               | \$ -            |
|                       |                                  |  | 0104985 - 38H3 CONVERSION  | 2016 | 0               | \$ 101,841.00   |
|                       |                                  |  |  | 2017 | 0               | \$ (101,841.00) |
|                       |                                  | Vehicle Costs Clearing- Acct Use Only      |  | 2016 | 0               | \$ 2,058.93     |
|                       |                                  |  |  | 2017 | 0               | \$ 627.64       |
|                       |                                  | Vehicles-Class 2                           |  | 2016 | 61              | \$ 404.62       |
|                       |                                  |  |  | 2017 | 0               | \$ -            |
| 9L620518 Total        |                                  |  |  |      | 7359.68         | \$ 305,633.27   |
| 9L620688              | EWR 15-093-41 Elec Svc Conv-Rec- | Admin and Eng OH- Acct Use Only            |  | 2016 | 0               | \$ 938.16       |
|                       |                                  |  |  | 2017 | 0               | \$ 658.49       |
|                       |                                  |  |  | 2018 | 0               | \$ 113.52       |
|                       |                                  | AFUDC Debt                                 |  | 2016 | 0               | \$ 153.91       |
|                       |                                  |  |  | 2017 | 0               | \$ 42.51        |
|                       |                                  | AFUDC Equity                               |  | 2016 | 0               | \$ 0.01         |
|                       |                                  | Contractor Services- Other                 |  | 2018 | 0               | \$ -            |
|                       |                                  |  | HAUGLAND ENERGY GROUP LLC  | 2016 | 0.44            | \$ 40,665.02    |
|                       |                                  |  |  | 2017 | 0.84            | \$ 104,150.22   |
|                       |                                  | Engin and Super OH- Acct Use Only          |  | 2016 | 0               | \$ 6,738.61     |
|                       |                                  |  |  | 2017 | 0               | \$ 15,172.38    |
|                       |                                  |  |  | 2018 | 0               | \$ 2,072.85     |



| accounting_work_order | accounting_work_order_desc       | cost_element_description                   | Description   | year | Sum of quantity | Sum of amount  |
|-----------------------|----------------------------------|--|---|------|-----------------|----------------|
| 9L620688              | EWR 15-093-41 Elec Svc Conv-Rec- | Labor Overtime Non-Exempt                  |   | 2016 | 11              | \$ 756.49      |
|                       |                                  |  |   | 2018 | 0               | \$ -           |
|                       |                                  | Labor Straight Time Exempt                 |   | 2016 | 22              | \$ 980.92      |
|                       |                                  |  |   | 2017 | 3               | \$ 130.32      |
|                       |                                  |  |   | 2018 | 15              | \$ 735.22      |
|                       |                                  | Labor Straight Time Non-Exempt             |   | 2016 | 55              | \$ 2,521.54    |
|                       |                                  |  |   | 2018 | 0               | \$ 0.00        |
|                       |                                  | Lobby Stock Loader-Acct Use Only           |   | 2016 | 0               | \$ 6,175.22    |
|                       |                                  |  |   | 2017 | 0               | \$ (5,350.48)  |
|                       |                                  |  |   | 2018 | 0               | \$ 2,526.79    |
|                       |                                  | Materials- Stores                          |   | 2016 | 0               | \$ (0.00)      |
|                       |                                  |  |   | 2018 | 0               | \$ -           |
|                       |                                  |  | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                        | 2016 | 1               | \$ 25.30       |
|                       |                                  |  | ARRESTER, SURGE, DISTRIBUTION CLASS, 9 KV, POLYMER, MOV, 7.65KV         | 2016 | 3               | \$ 145.52      |
|                       |                                  |  | ARRESTER, SURGE, LIGHTNING, DISTRIBUTION CLASS, 9 KV, POLYMER, 7        | 2017 | -3              | \$ (145.52)    |
|                       |                                  |  | ARRESTER, SURGE, DISTRIBUTION CLASS, METAL OXIDE VARISTOR (MOV)         | 2018 | 12              | \$ 565.48      |
|                       |                                  |  | BAR, ANTI-SWAY, CABLE SPACERS ON TANGENT CABLES, POLYETHYLENE           | 2016 | 7               | \$ 114.78      |
|                       |                                  |  |   | 2017 | 0               | \$ (0.01)      |
|                       |                                  |  | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I          | 2016 | 7               | \$ 227.91      |
|                       |                                  |  |   | 2017 | 0               | \$ -           |
|                       |                                  |  | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS W            | 2016 | 4               | \$ 441.75      |
|                       |                                  |  |   | 2017 | -4              | \$ (441.76)    |
|                       |                                  |  | BRACKET, NEUTRAL OFFSET, 5/8 IN X 25 IN, GALV                           | 2016 | 1               | \$ 21.58       |
|                       |                                  |  | BRACKET, TANGENT/ HENDRIX, 24 IN W/MC-2 MESSENGER CLAMP                 | 2016 | 1               | \$ 71.80       |
|                       |                                  |  |   | 2017 | 0               | \$ -           |
|                       |                                  |  | CABLE, BARE, 052 AWA MESSENGER FOR SPACER CABLE                         | 2017 | 1555            | \$ 1,455.87    |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 4/0 AWG, 6/1 STR, PENGUIN/AW                      | 2017 | 245             | \$ 112.37      |
|                       |                                  |  | CABLE, COVERED, 2 LAYER POLY, 150 MIL, 90 C, AAC, 477 KCMIL, 19 STR,    | 2016 | 12520           | \$ 21,783.26   |
|                       |                                  |  |   | 2017 | -14457          | \$ (25,131.32) |
|                       |                                  |  | CABLE, COVERED, AAC, 1/C, 477 KCMIL, 19 STR, 15 KV, 90 DEG C, 150 MIL   | 2018 | 4076            | \$ 7,117.80    |
|                       |                                  |  | CABLE, INSULATED, 3CT, 1/0 AWG, STRANDED, 600 V, W/ #2 AWG NEUTRAL      | 2018 | 60              | \$ 48.19       |
|                       |                                  |  | CABLE, INSULATED, AERIAL, AAC, 4/0 AWG, 600 V, W/ 4/0 AWG ALLOY NEUTRAL | 2018 | 104             | \$ 203.06      |
|                       |                                  |  | CABLE, INSULATED, AERIAL, AAC, QUADRUPLX, 1/0 AWG, 7 STR, 600 V, 1      | 2018 | 134             | \$ 133.26      |
|                       |                                  |  | CABLE, INSULATED, AERIAL, AAC, TRIPLEX, 4/0 AWG, 600 V, W/ 4/0 AWG E    | 2018 | 1415            | \$ 1,841.58    |
|                       |                                  |  | CLAMP, STRAIN, STRT GROOVE, 336.4-795 AL, 300-636 ACSR, W/LIFTING E     | 2017 | 0               | \$ -           |
|                       |                                  |  | CONDUIT, ELECTRICAL, PVC, 3 IN, 10 FT, SCHEDULE 40, BELLED ONE EN       | 2017 | 30              | \$ 29.27       |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, WITH CENTER M       | 2016 | 8               | \$ 1,692.52    |
|                       |                                  |  |   | 2017 | 9               | \$ 1,770.02    |
|                       |                                  |  | CUTOUT, FUSE, OPEN, 100 A, 12 KA INTERRUPTING CURRENT ASYMMETRIC        | 2018 | 27              | \$ 1,778.01    |
|                       |                                  |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100       | 2017 | -27             | \$ (1,851.07)  |
|                       |                                  |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100       | 2016 | 27              | \$ 1,851.07    |
|                       |                                  |  |   | 2017 | 0               | \$ -           |
|                       |                                  |  | LINK, STRIRRU, FOR SPACER CABLE TANGENT BRACKET                         | 2017 | 0               | \$ -           |
|                       |                                  |  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I         | 2016 | 3               | \$ 519.97      |
|                       |                                  |  | POLE, SYP, 45 FT, CL 2, CCA   | 2016 | 1               | \$ 407.94      |
|                       |                                  |  | POLE, SYP, 50 FT, CL 1, CCA   | 2016 | 10              | \$ 5,110.44    |
|                       |                                  |  | POLE, SYP, 55 FT, CL 1, PENTA   | 2016 | 2               | \$ 1,340.70    |
|                       |                                  |  | SPACER, CABLE, HENDRIX - 46KV, POLYETHYLENE W/CONDUCTOR CLAMP           | 2016 | 62              | \$ 1,650.13    |
|                       |                                  |  |   | 2017 | 0               | \$ -           |
|                       |                                  | Mileage                                    |   | 2016 | 12              | \$ 6.48        |
|                       |                                  |  |   | 2018 | 16              | \$ 8.72        |
|                       |                                  | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2016 | 0               | \$ 54.12       |
|                       |                                  |  |   | 2017 | 0               | \$ 97.85       |
|                       |                                  |  |   | 2018 | 0               | \$ 174.84      |
|                       |                                  | Miscellaneous Accounting Adjustments       |   | 2018 | 0               | \$ -           |
|                       |                                  | Non Productive Time Loader- Acct Use Only  |   | 2016 | 0               | \$ 732.98      |
|                       |                                  |  |   | 2017 | 0               | \$ 21.76       |
|                       |                                  |  |   | 2018 | 0               | \$ 102.96      |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |   | 2016 | 0               | \$ 1,570.47    |
|                       |                                  |  |   | 2017 | 0               | \$ 49.44       |
|                       |                                  |  |   | 2018 | 0               | \$ 286.99      |
|                       |                                  | Stores Loader- Acct Use Only               |   | 2016 | 0               | \$ 1,652.25    |
|                       |                                  |  |   | 2017 | 0               | \$ 163.34      |
|                       |                                  |  |   | 2018 | 0               | \$ 872.31      |
|                       |                                  | Vehicle Costs Clearing- Acct Use Only      |   | 2016 | 0               | \$ 1,242.02    |

| accounting_work_order | accounting_work_order_descript   | cost_element_description                   | Description   | year    | Sum of quantity | Sum of amount |
|-----------------------|----------------------------------|--|---|---------|-----------------|---------------|
| 9L620688              | EWR 15-093-41 Elec Svc Conv-Rec- | Vehicle Costs Clearing- Acct Use Only      |   | 2017    | 0               | \$ 16.09      |
|                       |                                  |  |   | 2018    | 0               | \$ 43.06      |
|                       |                                  | Vehicles-Class 2                           |   | 2016    | 10              | \$ 66.52      |
|                       |                                  |  |   | 2018    | 0               | \$ -          |
| 9L620688 Total        |                                  |  |   | 5978.28 | \$              | 209,233.80    |
| 9L620718              | EWR 15-093-41 Elec Svc Conv-Rec- | Admin and Eng OH- Acct Use Only            |   | 2016    | 0               | \$ 819.97     |
|                       |                                  |  |   | 2017    | 0               | \$ 1,548.82   |
|                       |                                  |  |   | 2018    | 0               | \$ 26.68      |
|                       |                                  | AFUDC Debt                                 |   | 2016    | 0               | \$ 132.38     |
|                       |                                  |  |   | 2017    | 0               | \$ 134.13     |
|                       |                                  | Contractor Services- Other                 |   | 2018    | 0               | \$ -          |
|                       |                                  |  | HAUGLAND ENERGY GROUP LLC   | 2016    | 0.4             | \$ 42,070.25  |
|                       |                                  |  |   | 2017    | 0.9             | \$ 116,874.05 |
|                       |                                  | Engin and Super OH- Acct Use Only          |   | 2016    | 0               | \$ 6,787.54   |
|                       |                                  |  |   | 2017    | 0               | \$ 17,721.47  |
|                       |                                  |  |   | 2018    | 0               | \$ 1,358.46   |
|                       |                                  | Labor Straight Time Exempt                 |   | 2016    | 34.5            | \$ 1,511.16   |
|                       |                                  |  |   | 2017    | 2.5             | \$ 108.60     |
|                       |                                  |  |   | 2018    | 2               | \$ 103.85     |
|                       |                                  | Lobby Stock Loader-Acct Use Only           |   | 2016    | 0               | \$ 4,584.31   |
|                       |                                  |  |   | 2017    | 0               | \$ 1,036.11   |
|                       |                                  |  |   | 2018    | 0               | \$ 30.12      |
|                       |                                  | Materials- Purchased                       | MARMON UTILITY LLC  | 2016    | 0               | \$ 34.81      |
|                       |                                  | Materials- Stores                          | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                      | 2016    | 3               | \$ 75.90      |
|                       |                                  |  | ARRESTER, SURGE, DISTRIBUTION CLASS, 9 KV, POLYMER, MOV, 7.65KV       | 2016    | 3               | \$ 145.52     |
|                       |                                  |  | ARRESTER, SURGE, LIGHTNING, DISTRIBUTION CLASS, 9 KV, POLYMER, 1      | 2017    | 4               | \$ 185.18     |
|                       |                                  |  | BAR, ANTI-SWAY, CABLE SPACERS ON TANGENT CABLES, POLYETHYLENE         | 2016    | 6               | \$ 98.39      |
|                       |                                  |  | BLADE, CONTACT, BRONZE, 25/27 KV, 300 AMP, SOLID DOOR, FITS CHAN      | 2016    | 2               | \$ 65.61      |
|                       |                                  |  | BRACKET, ANGLE, EXTENDED TAP, HENDRIX, SPACER CABLE SINGLE CII        | 2016    | 2               | \$ 329.13     |
|                       |                                  |  | BRACKET, CABLE, TERMINATOR MOUNTING, ALUM, 0.75 THRU 3.00 IN D C      | 2016    | 1               | \$ 16.67      |
|                       |                                  |  | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I        | 2016    | 6               | \$ 189.67     |
|                       |                                  |  | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS W          | 2016    | 6               | \$ 662.64     |
|                       |                                  |  | BRACKET, TANGENT/ HENDRIX, 24 IN W/MC-2 MESSENGER CLAMP               | 2016    | 6               | \$ 430.45     |
|                       |                                  |  | CABLE, BARE, 052 AWA MESSENGER FOR SPACER CABLE                       | 2017    | 1384            | \$ 1,295.77   |
|                       |                                  |  | CABLE, COVERED, 2 LAYER POLY, 150 MIL, 90 C, AAC, 477 KCMIL, 19 STR,  | 2016    | 4200            | \$ 7,314.97   |
|                       |                                  |  |   | 2017    | 1422            | \$ 2,488.43   |
|                       |                                  |  | CABLE, INSULATED, AERIAL QUADRAPLEX, 600V, 4/0 AAC CONDUCTOR, 4       | 2017    | 114             | \$ 217.20     |
|                       |                                  |  | CABLE, INSULATED, AERIAL TRIPLEX, 600V, 4/0 AAC CONDUCTOR, 2/0 AL     | 2017    | 1462            | \$ 1,763.39   |
|                       |                                  |  | CABLE, INSULATED, AERIAL, AAC, TRIPLEX, 4/0 AWG, 600 V, W/ 2/0 AWG /  | 2018    | -1462           | \$ (1,763.39) |
|                       |                                  |  | CABLE, INSULATED, AERIAL, AAC, TRIPLEX, 4/0 AWG, 600 V, W/ 4/0 AWG 6  | 2018    | 1462            | \$ 1,902.74   |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, WITH CENTER M     | 2016    | 10              | \$ 2,115.65   |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN, WITH CENTER    | 2016    | 2               | \$ 211.07     |
|                       |                                  |  |   | 2017    | 2               | \$ 211.20     |
|                       |                                  |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100     | 2017    | -4              | \$ (274.23)   |
|                       |                                  |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100     | 2016    | 13              | \$ 891.25     |
|                       |                                  |  | EXTENSION, POLE DIAMETER RANGE, 14-1/2 IN, FOR USE WITH SMALL MC      | 2016    | 3               | \$ 163.20     |
|                       |                                  |  | EXTENSION, POLE TOP, SPACER CABLE, 75 IN L, GALV STEEL, HEAVY DU      | 2017    | 1               | \$ 190.00     |
|                       |                                  |  | FITTING, SIDEWALK GUY, 2-1/2 IN, CLAMP END, GALVANIZED STEEL          | 2016    | 1               | \$ 8.65       |
|                       |                                  |  | FITTING, SIDEWALK GUY, 2-1/2 IN, POLE END, GALVANIZED STEEL           | 2016    | 1               | \$ 8.69       |
|                       |                                  |  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I       | 2016    | 1               | \$ 173.32     |
|                       |                                  |  | POLE, SYP, 50 FT, CL 1, CCA   | 2016    | 13              | \$ 6,678.69   |
|                       |                                  |  | POLE, SYP, 55 FT, CL 1, PENTA   | 2016    | 1               | \$ 670.35     |
|                       |                                  |  | SPACER, CABLE, HENDRIX - 46KV, POLYETHYLENE W/CONDUCTOR CLAM          | 2016    | 68              | \$ 1,809.82   |
|                       |                                  |  | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, (0.642-0.723 IN DIA), 35 KV | 2016    | 3               | \$ 1,980.15   |
|                       |                                  |  |   | 2017    | -1              | \$ (660.05)   |
|                       |                                  |  | SWITCH, DISCONNECT, OUTDOOR, AIR, 35 KV, 900A, LOADBUSTER, VERT       | 2016    | 3               | \$ 2,048.47   |
|                       |                                  | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2016    | 0               | \$ 96.00      |
|                       |                                  |  |   | 2017    | 0               | \$ 101.58     |
|                       |                                  |  |   | 2018    | 0               | \$ 105.85     |
|                       |                                  | Miscellaneous Accounting Adjustments       |   | 2018    | 0               | \$ 0.00       |
|                       |                                  |  |   | 2019    | 0               | \$ -          |
|                       |                                  | Non Productive Time Loader- Acct Use Only  |   | 2016    | 0               | \$ 260.07     |
|                       |                                  |  |   | 2017    | 0               | \$ 18.15      |
|                       |                                  |  |   | 2018    | 0               | \$ 14.55      |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |   | 2016    | 0               | \$ 557.23     |

| accounting_work_order | accounting_work_order_descript   | cost_element_description              | Description  | year | Sum of quantity | Sum of amount |
|-----------------------|----------------------------------|---------------------------------------|--|------|-----------------|---------------|
| 9L620718              | EWR 15-093-41 Elec Svc Conv-Rec- | Payroll Benefit Loader- Acct Use Only |  | 2017 | 0               | \$ 41.32      |
|                       |                                  |                                       |  | 2018 | 0               | \$ 40.54      |
|                       |                                  | Stores Loader- Acct Use Only          |  | 2016 | 0               | \$ 1,221.38   |
|                       |                                  |                                       |  | 2017 | 0               | \$ (8.97)     |
|                       |                                  |                                       |  | 2018 | 0               | \$ 171.27     |
|                       |                                  | Vehicle Costs Clearing- Acct Use Only |  | 2016 | 0               | \$ 61.54      |
|                       |                                  |                                       |  | 2017 | 0               | \$ 13.46      |
|                       |                                  |                                       |  | 2018 | 0               | \$ 6.97       |
|                       |                                  | Vehicles-Class 2                      |  | 2016 | 24.5            | \$ 181.79     |
|                       |                                  |                                       |  | 2018 | 0               | \$ -          |
| 9L620718 Total        |                                  |                                       |  |      | 8802.8          | \$ 229,409.94 |
| 9L620788              | EWR 15-093-41 Elec Svc Conv-Rec- | Admin and Eng OH- Acct Use Only       |  | 2016 | 0               | \$ 720.89     |
|                       |                                  |                                       |  | 2017 | 0               | \$ 763.45     |
|                       |                                  |                                       |  | 2018 | 0               | \$ 22.51      |
|                       |                                  | AFUDC Debt                            |  | 2016 | 0               | \$ 108.60     |
|                       |                                  |                                       |  | 2017 | 0               | \$ 115.67     |
|                       |                                  | Contractor Services                   |  | 2017 | 0               | \$ -          |
|                       |                                  |                                       |  | 2018 | 0               | \$ (0.00)     |
|                       |                                  |                                       | LJM CONSTRUCTION LLC   | 2016 | 1               | \$ 795.00     |
|                       |                                  | Contractor Services- Other            |  | 2017 | 0               | \$ 0.00       |
|                       |                                  |                                       |  | 2018 | 0               | \$ (0.00)     |
|                       |                                  |                                       | HAUGLAND ENERGY GROUP LLC  | 2016 | 0.3             | \$ 27,726.15  |
|                       |                                  |                                       |  | 2017 | 0.68            | \$ 73,330.62  |
|                       |                                  | Contractor- Unit Price                |  | 2017 | 0               | \$ -          |
|                       |                                  |                                       |  | 2018 | 0               | \$ -          |
|                       |                                  |                                       | JCR CONSTRUCTION CO INC  | 2016 | 1               | \$ 547.00     |
|                       |                                  | Engin and Super OH- Acct Use Only     |  | 2016 | 0               | \$ 6,500.67   |
|                       |                                  |                                       |  | 2017 | 0               | \$ 10,566.56  |
|                       |                                  |                                       |  | 2018 | 0               | \$ 1,214.53   |
|                       |                                  | Labor Overtime Non-Exempt             |  | 2016 | 19.75           | \$ 1,476.14   |
|                       |                                  |                                       |  | 2018 | 0               | \$ (0.00)     |
|                       |                                  | Labor Straight Time Exempt            |  | 2016 | 38.5            | \$ 1,701.49   |
|                       |                                  |                                       |  | 2017 | 3.5             | \$ 152.03     |
|                       |                                  |                                       |  | 2018 | 0               | \$ (0.00)     |
|                       |                                  | Labor Straight Time Non-Exempt        |  | 2016 | 93              | \$ 4,674.01   |
|                       |                                  |                                       |  | 2017 | 8               | \$ 402.25     |
|                       |                                  |                                       |  | 2018 | 0               | \$ -          |
|                       |                                  | Lobby Stock Loader-Acct Use Only      |  | 2016 | 0               | \$ 3,466.65   |
|                       |                                  |                                       |  | 2017 | 0               | \$ (671.63)   |
|                       |                                  |                                       |  | 2018 | 0               | \$ 12.41      |
|                       |                                  | Materials- Purchased                  | GRAYBAR ELECTRIC CO INC  | 2017 | 0               | \$ (2.89)     |
|                       |                                  |                                       | STANDARD REGISTER COMPANY  | 2017 | 3               | \$ 394.29     |
|                       |                                  | Materials- Stores                     | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                     | 2016 | 5               | \$ 126.50     |
|                       |                                  |                                       | ARRESTER, SURGE, 12.47 KV MGY SYSTEM VOLTAGE, 9 KV ARRESTER R.       | 2016 | 0               | \$ -          |
|                       |                                  |                                       | ARRESTER, SURGE, DISTRIBUTION CLASS, 9 KV, POLYMER, MOV, 7.65KV      | 2016 | 3               | \$ 145.52     |
|                       |                                  |                                       | BAR, ANTI-SWAY, CABLE SPACERS ON TANGENT CABLES, POLYETHYLENE        | 2016 | 1               | \$ 16.40      |
|                       |                                  |                                       | BRACKET, ANGLE, EXTENDED TAP, HENDRIX, SPACER CABLE SINGLE CIL       | 2016 | 3               | \$ 493.70     |
|                       |                                  |                                       | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I       | 2016 | 2               | \$ 59.54      |
|                       |                                  |                                       | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS V         | 2016 | 1               | \$ 110.44     |
|                       |                                  |                                       | BRACKET, TANGENT/ HENDRIX, 24 IN W/MC-2 MESSENGER CLAMP              | 2016 | 8               | \$ 573.93     |
|                       |                                  |                                       | CABLE, BARE, 052 AWA MESSENGER FOR SPACER CABLE                      | 2017 | 686             | \$ 642.27     |
|                       |                                  |                                       | CABLE, BARE, SD/ANNEALED, CU, #2, 7 STR                              | 2017 | 27              | \$ 20.64      |
|                       |                                  |                                       | CABLE, COVERED, 2 LAYER POLY, 150 MIL, 90 C, AAC, 477 KCMIL, 19 STR, | 2016 | 4200            | \$ 7,314.97   |
|                       |                                  |                                       |  | 2017 | -2142           | \$ (3,730.64) |
|                       |                                  |                                       | CABLE, INSULATED, AERIAL TRIPLEX, 600V, 4/0 AAC CONDUCTOR, 2/0 AL    | 2016 | 1000            | \$ 1,206.15   |
|                       |                                  |                                       |  | 2017 | -398            | \$ (480.05)   |
|                       |                                  |                                       | CABLE, INSULATED, AERIAL, AAC, TRIPLEX, 4/0 AWG, 600 V, W/ 2/0 AWG / | 2018 | -602            | \$ (726.10)   |
|                       |                                  |                                       | CABLE, INSULATED, AERIAL, AAC, TRIPLEX, 4/0 AWG, 600 V, W/ 4/0 AWG & | 2018 | 602             | \$ 783.48     |
|                       |                                  |                                       | CONDUIT, ELECTRICAL, PVC, 4 IN DIA, 10 FT LG, SCH 40, BELLED ONE EN  | 2016 | 20              | \$ 27.23      |
|                       |                                  |                                       | CROSSARM, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, WITH CENTER M    | 2016 | 4               | \$ 846.26     |
|                       |                                  |                                       | CROSSARM, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN, WITH CENTER   | 2016 | 2               | \$ 211.10     |
|                       |                                  |                                       | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100    | 2016 | 13              | \$ 891.32     |
|                       |                                  |                                       | FITTING, SIDEWALK GUY, 2-1/2 IN, CLAMP END, GALVANIZED STEEL         | 2016 | 2               | \$ 17.79      |
|                       |                                  |                                       | FITTING, SIDEWALK GUY, 2-1/2 IN, POLE END, GALVANIZED STEEL          | 2016 | 2               | \$ 17.75      |
|                       |                                  |                                       | GRIP, CABLE, UNDERGROUND, EYE DIAMETER: 1- 7/8", 3.00" - 3.49", ROT/ | 2017 | 2               | \$ 289.20     |

| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description  | year | Sum of quantity | Sum of amount |
|-----------------------|-----------------------------------|--|--|------|-----------------|---------------|
| 9L620788              | EWR 15-093-41 Elec Svc Conv-Rec-  | Materials- Stores                          | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I      | 2016 | 1               | \$ 173.32     |
|                       |                                   |  | POLE, SYP, 40 FT, CL 1, CCA  | 2016 | 1               | \$ 368.56     |
|                       |                                   |  | POLE, SYP, 40 FT, CL 2, CCA  | 2016 | 5               | \$ 1,681.11   |
|                       |                                   |  | POLE, SYP, 45 FT, CL 2, CCA  | 2016 | 1               | \$ 407.94     |
|                       |                                   |  | POLE, SYP, 50 FT, CL 1, CCA  | 2016 | 7               | \$ 3,582.36   |
|                       |                                   |  | SPACER, CABLE, HENDRIX - 46KV, POLYETHYLENE W/CONDUCTOR CLAM         | 2016 | 39              | \$ 1,037.99   |
|                       |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |  | 2016 | 0               | \$ 91.38      |
|                       |                                   |  |  | 2017 | 0               | \$ 42.00      |
|                       |                                   |  |  | 2018 | 0               | \$ 91.08      |
|                       |                                   | Miscellaneous Accounting Adjustments       |  | 2018 | 0               | \$ -          |
|                       |                                   |  |  | 2019 | 0               | \$ -          |
|                       |                                   | Non Productive Time Loader- Acct Use Only  |  | 2016 | 0               | \$ 1,351.27   |
|                       |                                   |  |  | 2017 | 0               | \$ 92.56      |
|                       |                                   |  |  | 2018 | 0               | \$ -          |
|                       |                                   | Payroll Benefit Loader- Acct Use Only      |  | 2016 | 0               | \$ 2,895.23   |
|                       |                                   |  |  | 2017 | 0               | \$ 212.02     |
|                       |                                   |  |  | 2018 | 0               | \$ (0.00)     |
|                       |                                   | Refuse Removal and Recycling               |  | 2017 | 0               | \$ -          |
|                       |                                   |  |  | 2018 | 0               | \$ (0.00)     |
|                       |                                   |  | WASTE MANAGEMENT   | 2016 | 1               | \$ 597.85     |
|                       |                                   |  |  | 2017 | 3               | \$ 90.00      |
|                       |                                   | Stores Loader- Acct Use Only               |  | 2016 | 0               | \$ 984.69     |
|                       |                                   |  |  | 2017 | 0               | \$ (29.48)    |
|                       |                                   |  |  | 2018 | 0               | \$ 70.52      |
|                       |                                   | UVL-Contractor Labor                       |  | 2017 | 0               | \$ -          |
|                       |                                   |  |  | 2018 | 0               | \$ -          |
|                       |                                   |  | 0104296 - MISC CONTRACTOR WORK                                       | 2016 | 0               | \$ -          |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only      |  | 2016 | 0               | \$ 2,323.04   |
|                       |                                   |  |  | 2017 | 0               | \$ 211.83     |
|                       |                                   |  |  | 2018 | 0               | \$ 0.01       |
|                       |                                   | Vehicles-Class 2                           |  | 2016 | 24              | \$ 178.08     |
|                       |                                   |  |  | 2018 | 0               | \$ -          |
| 9L620788 Total        |                                   |  |  |      | 3691.73         | \$ 159,327.16 |
| 9L620811              | Elec Svc Conv-Rec-Rel Due To Loa  | Admin and Eng OH- Acct Use Only            |  | 2016 | 0               | \$ 285.70     |
|                       |                                   |  |  | 2017 | 0               | \$ 773.07     |
|                       |                                   |  |  | 2018 | 0               | \$ (3.17)     |
|                       |                                   | AFUDC Debt                                 |  | 2016 | 0               | \$ 41.00      |
|                       |                                   |  |  | 2017 | 0               | \$ 603.86     |
|                       |                                   |  |  | 2018 | 0               | \$ (145.03)   |
|                       |                                   | AFUDC Equity                               |  | 2017 | 0               | \$ 1.59       |
|                       |                                   | Contractor Services- Other                 |  | 2018 | 0               | \$ -          |
|                       |                                   |  | HAUGLAND ENERGY GROUP LLC  | 2016 | 0.22            | \$ 20,332.51  |
|                       |                                   |  |  | 2017 | 0.54            | \$ 54,863.09  |
|                       |                                   | Engin and Super OH- Acct Use Only          |  | 2016 | 0               | \$ 3,372.18   |
|                       |                                   |  |  | 2017 | 0               | \$ 9,300.55   |
|                       |                                   |  |  | 2018 | 0               | \$ (703.60)   |
|                       |                                   | Engineering Design Services                |  | 2018 | 0               | \$ -          |
|                       |                                   |  | CHA CONSULTING INC   | 2017 | 0.07            | \$ 408.00     |
|                       |                                   | Labor Overtime Non-Exempt                  |  | 2017 | 18.5            | \$ 1,556.14   |
|                       |                                   |  |  | 2018 | 0               | \$ -          |
|                       |                                   | Labor Straight Time Exempt                 |  | 2016 | 30.5            | \$ 1,345.71   |
|                       |                                   |  |  | 2017 | 5               | \$ 217.19     |
|                       |                                   |  |  | 2018 | 4               | \$ 207.70     |
|                       |                                   | Labor Straight Time Non-Exempt             |  | 2017 | 91              | \$ 4,349.20   |
|                       |                                   |  |  | 2018 | 0               | \$ -          |
|                       |                                   | Lobby Stock Loader-Acct Use Only           |  | 2016 | 0               | \$ 706.81     |
|                       |                                   |  |  | 2017 | 0               | \$ (8.61)     |
|                       |                                   |  |  | 2018 | 0               | \$ 314.59     |
|                       |                                   | Materials- Stores                          |  | 2016 | 0               | \$ -          |
|                       |                                   |  |  | 2018 | 0               | \$ -          |
|                       |                                   |  | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                     | 2016 | 1               | \$ 25.30      |
|                       |                                   |  | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I       | 2016 | 6               | \$ 195.35     |
|                       |                                   |  | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS V         | 2016 | 2               | \$ 220.88     |
|                       |                                   |  | CABLE, BARE, ACSR/AW, 1/0 AWG, (6/1 STR), RAVEN/AW                   | 2017 | 384             | \$ 92.74      |
|                       |                                   |  | CABLE, COVERED, ACSR/AW, 1/C, 1/0 AWG, 6/1 STR, 75 DEG C, 175 MILS P | 2018 | 1164            | \$ 972.02     |

| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|-----------------------------------|--|---|------|-----------------|---------------|
| 9L620811              | Elec Svc Conv-Rec-Rel Due To Loa  | Materials- Stores                          | CABLE, COVERED, POLY 175 MIL, ACSR/AW, 1/0, 75C, 6/1 STR, 1 COND, MC  | 2017 | 28              | \$ 23.41      |
|                       |                                   |  | CABLE, INSULATED, AERIAL TRIPLEX, XLP, 600 V, AAC, 1/0, 7-STR, TRIPLE | 2017 | 52              | \$ 40.57      |
|                       |                                   |  | CROSSARM, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, WITH CENTER M     | 2016 | 1               | \$ 211.57     |
|                       |                                   |  | CROSSARM, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN, WITH CENTER    | 2016 | 3               | \$ 316.63     |
|                       |                                   |  | CUTOUT, FUSE, OPEN, 100 A, 12 KA INTERRUPTING CURRENT ASYMMETRIC      | 2018 | 1               | \$ 65.87      |
|                       |                                   |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100     | 2016 | 12              | \$ 822.70     |
|                       |                                   |  | FITTING, SIDEWALK GUY, 2-1/2 IN, CLAMP END, GALVANIZED STEEL          | 2016 | 1               | \$ 8.65       |
|                       |                                   |  | FITTING, SIDEWALK GUY, 2-1/2 IN, POLE END, GALVANIZED STEEL           | 2016 | 1               | \$ 8.69       |
|                       |                                   |  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I       | 2016 | 2               | \$ 346.54     |
|                       |                                   |  | POLE, 45 FT LG, CLASS 2, SOUTHERN YELLOW PINE, CCA TREATED            | 2018 | 1               | \$ 417.21     |
|                       |                                   |  | POLE, SYP, 40 FT, CL 2, CCA   | 2016 | 3               | \$ 1,008.67   |
|                       |                                   |  | POLE, SYP, 45 FT, CL 2, CCA   | 2016 | 2               | \$ 815.89     |
|                       |                                   | Meals                                      |   | 2017 | 2               | \$ 40.00      |
|                       |                                   |  |   | 2018 | 0               | \$ -          |
|                       |                                   |  | JP MORGAN CHASE BANK  | 2017 | 1               | \$ 46.72      |
|                       |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2016 | 0               | \$ 83.61      |
|                       |                                   |  |   | 2017 | 0               | \$ 75.70      |
|                       |                                   |  |   | 2018 | 0               | \$ (52.61)    |
|                       |                                   | Miscellaneous Accounting Adjustments       |   | 2018 | 0               | \$ -          |
|                       |                                   |  |   | 2019 | 0               | \$ -          |
|                       |                                   | Non Productive Time Loader- Acct Use Only  |   | 2016 | 0               | \$ 231.60     |
|                       |                                   |  |   | 2017 | 0               | \$ 1,021.13   |
|                       |                                   |  |   | 2018 | 0               | \$ 29.05      |
|                       |                                   | Payroll Benefit Loader- Acct Use Only      |   | 2016 | 0               | \$ 496.23     |
|                       |                                   |  |   | 2017 | 0               | \$ 2,352.95   |
|                       |                                   |  |   | 2018 | 0               | \$ 81.06      |
|                       |                                   | Reimbursables- Other                       |   | 2017 | 0               | \$ (3,328.72) |
|                       |                                   |  |   | 2018 | 0               | \$ -          |
|                       |                                   | Reimbursements                             |   | 2017 | 0               | \$ -          |
|                       |                                   | Stores Loader- Acct Use Only               |   | 2016 | 0               | \$ 190.90     |
|                       |                                   |  |   | 2017 | 0               | \$ 41.26      |
|                       |                                   |  |   | 2018 | 0               | \$ 67.99      |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only      |   | 2016 | 0               | \$ 17.01      |
|                       |                                   |  |   | 2017 | 0               | \$ 2,647.09   |
|                       |                                   |  |   | 2018 | 0               | \$ 12.09      |
|                       |                                   | Vehicles-Class 2                           |   | 2016 | 24              | \$ 178.08     |
|                       |                                   |  |   | 2017 | 3.5             | \$ 37.66      |
|                       |                                   |  |   | 2018 | 0               | \$ (0.00)     |
| 9L620811 Total        |                                   |  |   |      | 1844.33         | \$ 107,679.97 |
| 9L621020              | EWR 16-018-41 Elec Svc Conv-Rec-  | Admin and Eng OH- Acct Use Only            |   | 2016 | 0               | \$ 3,007.06   |
|                       |                                   |  |   | 2017 | 0               | \$ (37.25)    |
|                       |                                   |  |   | 2018 | 0               | \$ 13.38      |
|                       |                                   | AFUDC Debt                                 |   | 2016 | 0               | \$ 445.22     |
|                       |                                   |  |   | 2017 | 0               | \$ 91.06      |
|                       |                                   | Contractor Materials                       |   | 2018 | 0               | \$ -          |
|                       |                                   |  | GRATTAN LINE CONSTRUCTION CORP  | 2017 | 1               | \$ 977.54     |
|                       |                                   | Contractor Services- Other                 |   | 2018 | 0               | \$ (0.00)     |
|                       |                                   |  | GRATTAN LINE CONSTRUCTION CORP  | 2016 | 6.72            | \$ 136,731.73 |
|                       |                                   |  |   | 2017 | -0.08           | \$ (784.16)   |
|                       |                                   | Contractor- Unit Price                     |   | 2018 | 0               | \$ -          |
|                       |                                   |  | JCR CONSTRUCTION CO INC   | 2016 | 1               | \$ 944.00     |
|                       |                                   |  |   | 2017 | 1               | \$ 497.00     |
|                       |                                   | Contractor Vehicles + Equip                |   | 2018 | 0               | \$ 0.00       |
|                       |                                   |  | GRATTAN LINE CONSTRUCTION CORP  | 2016 | 3.88            | \$ 76,485.09  |
|                       |                                   |  |   | 2017 | 0.08            | \$ 824.00     |
|                       |                                   | Engin and Super OH- Acct Use Only          |   | 2016 | 0               | \$ 33,924.81  |
|                       |                                   |  |   | 2017 | 0               | \$ (734.66)   |
|                       |                                   |  |   | 2018 | 0               | \$ 610.32     |
|                       |                                   | Labor Overtime Non-Exempt                  |   | 2016 | 22              | \$ 1,489.57   |
|                       |                                   |  |   | 2018 | 0               | \$ -          |
|                       |                                   | Labor Straight Time Exempt                 |   | 2016 | 58.5            | \$ 2,547.16   |
|                       |                                   |  |   | 2018 | 2               | \$ 103.85     |
|                       |                                   | Labor Straight Time Non-Exempt             |   | 2016 | 96.5            | \$ 4,368.98   |
|                       |                                   |  |   | 2018 | 0               | \$ 0.00       |
|                       |                                   | Lobby Stock Loader-Acct Use Only           |   | 2016 | 0               | \$ 3,988.02   |

| accounting_work_order | accounting_work_order_desc       | cost_element_description                   | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|----------------------------------|--|---|------|-----------------|---------------|
| 9L621020              | EWR 16-018-41 Elec Svc Conv-Rec- | Lobby Stock Loader-Acct Use Only           |   | 2017 | 0 \$            | (149.80)      |
|                       |                                  |  |   | 2018 | 0 \$            | 65.09         |
|                       |                                  | Materials- Purchased                       |   | 2018 | 0 \$            | -             |
|                       |                                  |  | ARRESTER, SURGE, 12.47 KV MGY SYSTEM VOLTAGE, 9 KV ARRESTER R.        | 2016 | -1 \$           | (59.38)       |
|                       |                                  |  | BRACKET, CUTOOT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I        | 2016 | -1 \$           | (31.04)       |
|                       |                                  |  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I       | 2016 | -1 \$           | (173.27)      |
|                       |                                  | Materials- Stores                          |   | 2018 | 0 \$            | -             |
|                       |                                  |  | BLADE, CONTACT, BRONZE, 25/27 KV, 300 AMP, SOLID DOOR, FITS CHAN      | 2016 | 3 \$            | 99.80         |
|                       |                                  |  | BRACKET, CUTOOT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I        | 2016 | 12 \$           | 364.11        |
|                       |                                  |  | BRACKET, CUTOOT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS V          | 2016 | 0 \$            | 0.01          |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 1/0 AWG, (6/1 STR), RAVEN/AW                    | 2016 | 51 \$           | 12.29         |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 4/0 AWG, 6/1 STR, PENGUIN/AW                    | 2016 | 98 \$           | 45.33         |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 477 KCMIL, 0.814 IN DIA, 18/1 STR, PELICAN/AW   | 2016 | 294 \$          | 264.85        |
|                       |                                  |  | CABLE, INSULATED, AERIAL QUADRAPLEX, 600V, 4/0 AAC CONDUCTOR, 4       | 2016 | 150 \$          | 283.09        |
|                       |                                  |  | CABLE, INSULATED, AERIAL TRIPLEX, XLP, 600 V, AAC, 1/0, 7-STR, TRIPLE | 2016 | 210 \$          | 162.81        |
|                       |                                  |  | CABLE, INSULATED, AERIAL TRIPLEX, XLP, 600V, #2 AAC CONDUCTOR, #2     | 2016 | 3 \$            | 1.53          |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, WITH CENTER M     | 2016 | 8 \$            | 1,644.57      |
|                       |                                  |  |   | 2017 | -3 \$           | (616.72)      |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT LG, 3 5/8 IN X 4 5/8 IN, W/ALLEY ARM BR   | 2016 | 0 \$            | -             |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN, WITH CENTER    | 2016 | 18 \$           | 1,899.76      |
|                       |                                  |  | CUTOOT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100     | 2016 | 15 \$           | 1,029.60      |
|                       |                                  |  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I       | 2016 | 0 \$            | (0.01)        |
|                       |                                  |  | POLE, 40 FT LG, CLASS 2, SOUTHREN YELLOW PINE, CCA TREATED            | 2018 | 1 \$            | 353.88        |
|                       |                                  |  | POLE, 45 FT LG, CLASS 2, SOUTHREN YELLOW PINE, CCA TREATED            | 2018 | 1 \$            | 417.21        |
|                       |                                  |  | POLE, 50 FT LG, CLASS 2, SOUTHREN YELLOW PINE, CCA TREATED            | 2018 | -1 \$           | (470.03)      |
|                       |                                  |  | POLE, SYP, 40 FT, CL 2, CCA   | 2016 | 5 \$            | 1,679.59      |
|                       |                                  |  | POLE, SYP, 45 FT, CL 2, CCA   | 2016 | 9 \$            | 3,662.47      |
|                       |                                  |  | POLE, SYP, 50 FT, CL 2, CCA   | 2016 | 2 \$            | 911.76        |
|                       |                                  |  | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, (0.642-0.723 IN DIA), 35 KV | 2016 | 15 \$           | 9,986.76      |
|                       |                                  |  | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 0.772-0.860 IN DIA, 34.5 KV | 2016 | 0 \$            | -             |
|                       |                                  | Meals                                      |   | 2016 | 3 \$            | 60.00         |
|                       |                                  |  |   | 2018 | 0 \$            | -             |
|                       |                                  | Mileage                                    |   | 2016 | 68 \$           | 36.72         |
|                       |                                  |  |   | 2018 | 0 \$            | -             |
|                       |                                  | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2016 | 0 \$            | 2,277.95      |
|                       |                                  |  |   | 2017 | 0 \$            | 3.50          |
|                       |                                  |  |   | 2018 | 0 \$            | 45.77         |
|                       |                                  | Miscellaneous Accounting Adjustments       |   | 2018 | 0 \$            | -             |
|                       |                                  |  |   | 2019 | 0 \$            | -             |
|                       |                                  | Non Productive Time Loader- Acct Use Only  |   | 2016 | 0 \$            | 1,446.63      |
|                       |                                  |  |   | 2018 | 0 \$            | 14.55         |
|                       |                                  | Other Outside Services- Tree Planned       |   | 2018 | 0 \$            | 0.00          |
|                       |                                  |  | ASPLUNDH TREE EXPERT CO   | 2016 | 5.27 \$         | 13,922.77     |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |   | 2016 | 0 \$            | 3,099.53      |
|                       |                                  |  |   | 2018 | 0 \$            | 40.55         |
|                       |                                  | Police Services and Traffic Control        |   | 2018 | 0 \$            | -             |
|                       |                                  |  | CITY OF LACONIA   | 2016 | 1 \$            | 285.00        |
|                       |                                  |  | NEW ENGLAND TRAFFIC CONTR SVCS  | 2016 | 2.01 \$         | 12,205.40     |
|                       |                                  |  |   | 2017 | -0.55 \$        | (3,829.50)    |
|                       |                                  | Refuse Removal and Recycling               |   | 2018 | 0 \$            | (0.00)        |
|                       |                                  |  | WASTE MANAGEMENT  | 2016 | 5 \$            | 964.84        |
|                       |                                  | Stores Loader- Acct Use Only               |   | 2016 | 0 \$            | 1,739.23      |
|                       |                                  |  |   | 2017 | 0 \$            | 33.42         |
|                       |                                  |  |   | 2018 | 0 \$            | 57.98         |
|                       |                                  | UVL- Police Serv + Traffic Cntrl           |   | 2018 | 0 \$            | -             |
|                       |                                  |  | 0103006 - MISC CONTRACTOR WORK  | 2016 | 0 \$            | -             |
|                       |                                  |  | 0103649 - MISC CONTRACTOR WORK  | 2016 | 0 \$            | -             |
|                       |                                  |  | 0104985 - MISC CONTRACTOR WORK  | 2016 | 0 \$            | 1,674.26      |
|                       |                                  |  |   | 2017 | 0 \$            | (1,674.26)    |
|                       |                                  |  | 0106237 - MISC CONTRACTOR WORK  | 2017 | 0 \$            | -             |
|                       |                                  |  | 0106973 - MISC CONTRACTOR WORK  | 2017 | 0 \$            | -             |
|                       |                                  | UVL-Contractor Labor                       |   | 2018 | 0 \$            | -             |
|                       |                                  |  | 0103006 - 16-018: 38H1 CONVERSION                                     | 2016 | 0 \$            | -             |
|                       |                                  |  | 0103649 - MISC CONTRACTOR WORK  | 2016 | 0 \$            | -             |
|                       |                                  |  | 0104296 - MISC CONTRACTOR WORK  | 2016 | 0 \$            | -             |

| accounting_work_order | accounting_work_order_descript   | cost_element_description                   | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|----------------------------------|--|---|------|-----------------|---------------|
| 9L621020              | EWR 16-018-41 Elec Svc Conv-Rec- | UVL-Contractor Labor                       | 0104985 - MISC CONTRACTOR WORK  | 2016 | 0               | \$ 497.00     |
|                       |                                  |  |   | 2017 | 0               | \$ (497.00)   |
|                       |                                  | UVL-Other Outside Serv-Tree Hr             |   | 2018 | 0               | \$ -          |
|                       |                                  |  | 0102085 - TREE TRIMMING   | 2016 | 0               | \$ -          |
|                       |                                  |  | 0102888 - TREE TRIMMING   | 2016 | 0               | \$ -          |
|                       |                                  |  | 0103577 - MISC TREE TRIMMING  | 2016 | 0               | \$ -          |
|                       |                                  |  | 0104202 - MISC TREE TRIMMING  | 2016 | 0               | \$ -          |
|                       |                                  | Vehicle Costs Clearing- Acct Use Only      |   | 2016 | 0               | \$ 2,585.01   |
|                       |                                  |  |   | 2018 | 0               | \$ 5.14       |
|                       |                                  | Vehicles-Class 2                           |   | 2016 | 13              | \$ 96.46      |
|                       |                                  |  |   | 2018 | 0               | \$ -          |
| 9L621020 Total        |                                  |  |   |      | 1177.33         | \$ 321,967.93 |
| 9L621052              | EWR 16-018-41 Elec Svc Conv-Rec- | Admin and Eng OH- Acct Use Only            |   | 2016 | 0               | \$ 1,307.23   |
|                       |                                  |  |   | 2017 | 0               | \$ 1.82       |
|                       |                                  |  |   | 2018 | 0               | \$ 11.35      |
|                       |                                  | AFUDC Debt                                 |   | 2016 | 0               | \$ 172.55     |
|                       |                                  |  |   | 2017 | 0               | \$ 38.63      |
|                       |                                  | Contractor Services- Other                 |   | 2018 | 0               | \$ 0.00       |
|                       |                                  |  | GRATTAN LINE CONSTRUCTION CORP  | 2016 | 7.73            | \$ 87,380.79  |
|                       |                                  | Contractor Vehicles + Equip                |   | 2018 | 0               | \$ 0.00       |
|                       |                                  |  | GRATTAN LINE CONSTRUCTION CORP  | 2016 | 3.27            | \$ 34,314.65  |
|                       |                                  | Engin and Super OH- Acct Use Only          |   | 2016 | 0               | \$ 16,096.50  |
|                       |                                  |  |   | 2018 | 0               | \$ 617.75     |
|                       |                                  | Labor Overtime Non-Exempt                  |   | 2016 | 8               | \$ 550.20     |
|                       |                                  |  |   | 2018 | 0               | \$ -          |
|                       |                                  | Labor Straight Time Exempt                 |   | 2016 | 23.5            | \$ 1,058.82   |
|                       |                                  |  |   | 2018 | 0               | \$ -          |
|                       |                                  | Labor Straight Time Non-Exempt             |   | 2016 | 58              | \$ 2,636.60   |
|                       |                                  |  |   | 2018 | 0               | \$ -          |
|                       |                                  | Lobby Stock Loader-Acct Use Only           |   | 2016 | 0               | \$ 998.38     |
|                       |                                  |  |   | 2017 | 0               | \$ 16.05      |
|                       |                                  | Materials- Stores                          | ARRESTER, SURGE, 12.47 KV MGY SYSTEM VOLTAGE, 9 KV ARRESTER R.        | 2016 | 3               | \$ 177.93     |
|                       |                                  |  | ARRESTER, SURGE, DISTRIBUTION CLASS, 9 KV, POLYMER, MOV, 7.65KV       | 2016 | 3               | \$ 144.75     |
|                       |                                  |  | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I        | 2016 | 11              | \$ 341.84     |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 1/0 AWG, (6/1 STR), RAVEN/AW                    | 2016 | 388             | \$ 93.48      |
|                       |                                  |  |   | 2017 | -180            | \$ (43.37)    |
|                       |                                  |  | CABLE, COVERED, POLY 175 MIL, ACSR/AW, 1/0, 75C, 6/1 STR, 1 COND, M   | 2016 | 388             | \$ 323.72     |
|                       |                                  |  |   | 2017 | -180            | \$ (150.18)   |
|                       |                                  |  | CABLE, INSULATED, AERIAL TRIPLEX, XLP, 600 V, AAC, 1/0, 7-STR, TRIPLE | 2016 | 80              | \$ 62.02      |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN, WITH CENTER    | 2016 | 2               | \$ 211.09     |
|                       |                                  |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100 .   | 2016 | 10              | \$ 685.36     |
|                       |                                  |  |   | 2017 | 4               | \$ 273.15     |
|                       |                                  |  | FITTING, SIDEWALK GUY, 2-1/2 IN, CLAMP END, GALVANIZED STEEL          | 2016 | 1               | \$ 8.99       |
|                       |                                  |  | FITTING, SIDEWALK GUY, 2-1/2 IN, POLE END, GALVANIZED STEEL           | 2016 | 1               | \$ 9.06       |
|                       |                                  |  | POLE, SYP, 40 FT, CL 2, CCA   | 2016 | 8               | \$ 2,687.35   |
|                       |                                  |  | POLE, SYP, 45 FT, CL 2, CCA   | 2016 | 2               | \$ 814.81     |
|                       |                                  | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2016 | 0               | \$ 482.78     |
|                       |                                  |  |   | 2018 | 0               | \$ 48.14      |
|                       |                                  | Miscellaneous Accounting Adjustments       |   | 2018 | 0               | \$ -          |
|                       |                                  |  |   | 2019 | 0               | \$ -          |
|                       |                                  | Non Productive Time Loader- Acct Use Only  |   | 2016 | 0               | \$ 730.67     |
|                       |                                  |  |   | 2018 | 0               | \$ -          |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |   | 2016 | 0               | \$ 1,565.55   |
|                       |                                  |  |   | 2018 | 0               | \$ -          |
|                       |                                  | Police Services and Traffic Control        |   | 2018 | 0               | \$ -          |
|                       |                                  |  | NEW ENGLAND TRAFFIC CONTR SVCS  | 2016 | 0.13            | \$ 823.26     |
|                       |                                  | Stores Loader- Acct Use Only               |   | 2016 | 0               | \$ 274.88     |
|                       |                                  |  |   | 2017 | 0               | \$ (4.74)     |
|                       |                                  | UVL-Contractor Labor                       |   | 2018 | 0               | \$ -          |
|                       |                                  |  | 0103649 - MISC CONTRACTOR WORK  | 2016 | 0               | \$ -          |
|                       |                                  | Vehicle Costs Clearing- Acct Use Only      |   | 2016 | 0               | \$ 1,170.12   |
|                       |                                  |  |   | 2018 | 0               | \$ (0.00)     |
| 9L621052 Total        |                                  |  |   |      | 641.63          | \$ 155,931.98 |
| 9L621077              | EWR 16-018-41 Elec Svc Conv-Rec- | Admin and Eng OH- Acct Use Only            |   | 2016 | 0               | \$ 1,653.85   |
|                       |                                  |  |   | 2017 | 0               | \$ 63.64      |

| accounting_work_order | accounting_work_order_descript   | cost_element_description                   | Description  | year | Sum of quantity | Sum of amount  |
|-----------------------|----------------------------------|--|--|------|-----------------|----------------|
| 9L621077              | EWR 16-018-41 Elec Svc Conv-Rec- | Admin and Eng OH- Acct Use Only            |  | 2018 | 0               | \$ 85.15       |
|                       |                                  | AFUDC Debt                                 |  | 2016 | 0               | \$ 197.96      |
|                       |                                  |  |  | 2017 | 0               | \$ 49.07       |
|                       |                                  | Contractor Services- Other                 |  | 2018 | 0               | \$ (0.00)      |
|                       |                                  |  | GRATTAN LINE CONSTRUCTION CORP   | 2016 | 7.23            | \$ 121,299.23  |
|                       |                                  |  |  | 2017 | -0.52           | \$ (16,226.80) |
|                       |                                  | Contractor Vehicles + Equip                |  | 2018 | 0               | \$ -           |
|                       |                                  |  | GRATTAN LINE CONSTRUCTION CORP   | 2016 | 2.76            | \$ 26,058.07   |
|                       |                                  |  |  | 2017 | 0.52            | \$ 18,011.00   |
|                       |                                  | Employee Expense Other                     |  | 2016 | 0               | \$ 34.96       |
|                       |                                  |  |  | 2018 | 0               | \$ -           |
|                       |                                  | Engin and Super OH- Acct Use Only          |  | 2016 | 0               | \$ 19,698.31   |
|                       |                                  |  |  | 2017 | 0               | \$ 651.88      |
|                       |                                  |  |  | 2018 | 0               | \$ 4,631.74    |
|                       |                                  | Labor Overtime Non-Exempt                  |  | 2016 | 29              | \$ 1,802.55    |
|                       |                                  |  |  | 2018 | 0               | \$ 0.00        |
|                       |                                  | Labor Straight Time Exempt                 |  | 2016 | 22              | \$ 957.66      |
|                       |                                  |  |  | 2018 | 0               | \$ 0.00        |
|                       |                                  | Labor Straight Time Non-Exempt             |  | 2016 | 27              | \$ 1,237.86    |
|                       |                                  |  |  | 2018 | 0               | \$ -           |
|                       |                                  | Lobby Stock Loader-Acct Use Only           |  | 2016 | 0               | \$ 2,042.31    |
|                       |                                  |  |  | 2017 | 0               | \$ 50.30       |
|                       |                                  | Materials- Purchased                       | ARRESTER, SURGE, LIGHTNING, DISTRIBUTION CLASS, 9 KV, POLYMER, 7       | 2016 | -1              | \$ (48.19)     |
|                       |                                  |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100      | 2017 | -1              | \$ (68.54)     |
|                       |                                  | Materials- Stores                          | ARRESTER, SURGE, 12.47 KV MGY SYSTEM VOLTAGE, 9 KV ARRESTER R          | 2016 | 9               | \$ 534.01      |
|                       |                                  |  | ARRESTER, SURGE, DISTRIBUTION CLASS, 9 KV, POLYMER, MOV, 7.65KV        | 2016 | 9               | \$ 434.25      |
|                       |                                  |  | ARRESTER, SURGE, LIGHTNING, DISTRIBUTION CLASS, 9 KV, POLYMER, 7       | 2016 | 5               | \$ 240.42      |
|                       |                                  |  | BRACKET, CUTOUT & ARRESTER, FERR / ALUM FITTINGS W/ MOUNTING I         | 2016 | 4               | \$ 121.55      |
|                       |                                  |  | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS V           | 2016 | 3               | \$ 332.17      |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 1/0 AWG, (6/1 STR), RAVEN/AW                     | 2017 | 85              | \$ 20.53       |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 4/0 AWG, 6/1 STR, PENGUIN/AW                     | 2016 | 111             | \$ 51.35       |
|                       |                                  |  | CABLE, BARE, ACSR/AW, 477 KCMIL, 0.814 IN DIA, 18/1 STR, PELICAN/AW    | 2016 | 335             | \$ 301.79      |
|                       |                                  |  | CABLE, COVERED, POLY 175 MIL, ACSR/AW, 1/0, 75C, 6/1 STR, 1 COND, M    | 2017 | 85              | \$ 71.04       |
|                       |                                  |  | CABLE, INSULATED, 1 PH PRIMARY URD, JACKETED, 35 KV, AL, 1/0, W/ CC    | 2016 | 30              | \$ 65.91       |
|                       |                                  |  | CABLE, INSULATED, AERIAL TRIPLEX, XLP, 600 V, AAC, 1/0, 7-STR, TRIPLE  | 2016 | 91              | \$ 70.55       |
|                       |                                  |  |  | 2017 | 219             | \$ 169.74      |
|                       |                                  |  | CONNECTOR, ELBOW, LOADBREAK, AL, 1/0 STR AWG, 345 MIL, 1.095" - 1.     | 2016 | 6               | \$ 143.68      |
|                       |                                  |  | CONNECTOR, ELBOW, LOADBREAK, AL, 1/0 STR, 345 MIL, 1.095" - 1.155",    | 2016 | 2               | \$ 187.99      |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, WITH CENTER M      | 2016 | 1               | \$ 208.11      |
|                       |                                  |  | CROSSARM, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN, WITH CENTER     | 2016 | 4               | \$ 422.65      |
|                       |                                  |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100      | 2016 | 30              | \$ 2,056.09    |
|                       |                                  |  |  | 2017 | -1              | \$ (68.54)     |
|                       |                                  |  | MOUNT, TRANSFORMER CLUSTER, LG, AL, 250-500 KVA, 3 POS, NEMA TY        | 2016 | 1               | \$ 426.82      |
|                       |                                  |  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I        | 2016 | 4               | \$ 693.74      |
|                       |                                  |  | POLE, SYP, 40 FT, CL 2, CCA  | 2016 | 1               | \$ 335.92      |
|                       |                                  |  | POLE, SYP, 45 FT, CL 1, CCA  | 2016 | 1               | \$ 445.99      |
|                       |                                  |  | POLE, SYP, 45 FT, CL 2, CCA  | 2016 | 4               | \$ 1,629.15    |
|                       |                                  |  |  | 2017 | -1              | \$ (407.40)    |
|                       |                                  |  | POLE, SYP, 50 FT, CL 2, CCA  | 2016 | 1               | \$ 453.98      |
|                       |                                  |  |  | 2017 | 1               | \$ 464.17      |
|                       |                                  |  | SPLICE, INSULATED, COMPRESSION/URD, 1/0 STR, 35 KV, SUB 287805 & 3     | 2016 | 3               | \$ 215.02      |
|                       |                                  |  | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 0.741-0.814 IN DIA, 35 KV, 1 | 2016 | 3               | \$ 2,078.89    |
|                       |                                  | Misc Dist Exp Capitalized OH-Acct Use Only |  | 2016 | 0               | \$ 312.32      |
|                       |                                  |  |  | 2017 | 0               | \$ 6.15        |
|                       |                                  |  |  | 2018 | 0               | \$ 360.91      |
|                       |                                  | Miscellaneous Accounting Adjustments       |  | 2018 | 0               | \$ -           |
|                       |                                  |  |  | 2019 | 0               | \$ 0.00        |
|                       |                                  | Non Productive Time Loader- Acct Use Only  |  | 2016 | 0               | \$ 688.03      |
|                       |                                  |  |  | 2018 | 0               | \$ (0.01)      |
|                       |                                  | Payroll Benefit Loader- Acct Use Only      |  | 2016 | 0               | \$ 1,474.25    |
|                       |                                  |  |  | 2018 | 0               | \$ (0.01)      |
|                       |                                  | Police Services and Traffic Control        |  | 2018 | 0               | \$ -           |
|                       |                                  |  | NEW ENGLAND TRAFFIC CONTR SVCS   | 2016 | 1.2             | \$ 8,320.43    |
|                       |                                  |  |  | 2017 | 0.61            | \$ 3,542.76    |
|                       |                                  | Stores Loader- Acct Use Only               |  | 2016 | 0               | \$ 817.60      |



| accounting_work_order | accounting_work_order_description | cost_element_description                   | Description   | year | Sum of quantity | Sum of amount |
|-----------------------|-----------------------------------|--|---|------|-----------------|---------------|
| 9L621077              | EWR 16-018-41 Elec Svc Conv-Rec-  | Stores Loader- Acct Use Only               |   | 2017 | 0 \$            | (12.21)       |
|                       |                                   | UVL- Police Serv + Traffic Cntrl           |   | 2018 | 0 \$            | -             |
|                       |                                   |  | 0103006 - MISC CONTRACTOR WORK                                      | 2016 | 0 \$            | -             |
|                       |                                   |  | 0103649 - MISC CONTRACTOR WORK                                      | 2016 | 0 \$            | -             |
|                       |                                   |  | 0104985 - MISC CONTRACTOR WORK                                      | 2016 | 0 \$            | 296.00        |
|                       |                                   |  |   | 2017 | 0 \$            | (296.00)      |
|                       |                                   |  | 0106237 - MISC CONTRACTOR WORK                                      | 2017 | 0 \$            | -             |
|                       |                                   |  | 0106973 - MISC CONTRACTOR WORK                                      | 2017 | 0 \$            | -             |
|                       |                                   | UVL-Contractor Labor                       |   | 2017 | 0 \$            | -             |
|                       |                                   |  | 0103649 - MISC CONTRACTOR WORK                                      | 2018 | 0 \$            | -             |
|                       |                                   |  | 0104296 - MISC CONTRACTOR WORK                                      | 2016 | 0 \$            | -             |
|                       |                                   |  |   | 2016 | 0 \$            | -             |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only      |   | 2016 | 0 \$            | 1,181.35      |
|                       |                                   |  |   | 2018 | 0 \$            | -             |
| 9L621077 Total        |                                   |  |   |      | 1133.8 \$       | 210,573.15    |
| 9L622124              | Elec Svc Conv-Rec-Rel Due To Load | Admin and Eng OH- Acct Use Only            |   | 2016 | 0 \$            | 3.41          |
|                       |                                   | AFUDC Debt                                 |   | 2017 | 0 \$            | 2,587.22      |
|                       |                                   |  |   | 2016 | 0 \$            | 0.11          |
|                       |                                   |  |   | 2017 | 0 \$            | 22.06         |
|                       |                                   | Contractor Services- Other                 |   | 2017 | 0 \$            | -             |
|                       |                                   |  | GRATTAN LINE CONSTRUCTION CORP                                      | 2017 | 4.73 \$         | 74,741.24     |
|                       |                                   | Contractor Vehicles + Equip                |   | 2017 | 0 \$            | 0.00          |
|                       |                                   |  | GRATTAN LINE CONSTRUCTION CORP                                      | 2017 | 1.77 \$         | 28,022.00     |
|                       |                                   | Engin and Super OH- Acct Use Only          |   | 2016 | 0 \$            | 44.45         |
|                       |                                   |  |   | 2017 | 0 \$            | 21,883.14     |
|                       |                                   | Labor Straight Time Exempt                 |   | 2016 | 5 \$            | 192.31        |
|                       |                                   |  |   | 2017 | 11 \$           | 469.74        |
|                       |                                   | Labor Straight Time Non-Exempt             |   | 2017 | 3 \$            | 107.76        |
|                       |                                   | Lobby Stock Loader-Acct Use Only           |   | 2017 | 0 \$            | 1,525.56      |
|                       |                                   | Materials- Stores                          |   | 2017 | 0 \$            | 0.00          |
|                       |                                   |  | ANCHOR, SINGLE HELIX, SOCKET DRIVE, 8000#, 10 IN                    | 2017 | 1 \$            | 24.01         |
|                       |                                   |  | ARRESTER, SURGE, LIGHTNING, DISTRIBUTION CLASS, 15 KV, SILICONE I   | 2017 | 0 \$            | -             |
|                       |                                   |  | ARRESTER, SURGE, LIGHTNING, DISTRIBUTION CLASS, 9 KV, POLYMER, 7    | 2017 | 3 \$            | 140.61        |
|                       |                                   |  | BRACKET, CUTOUT OR TERM CBL & ARRESTER 3 PHASE, FIBERGLASS V        | 2017 | 1 \$            | 90.12         |
|                       |                                   |  | CABLE, COVERED, 2 LAYER POLY, 150 MIL, 90 C, AAC, 477 KCMIL, 19 STR | 2017 | 1400 \$         | 2,430.60      |
|                       |                                   |  | CONNECTOR, TRANSFORMER, ROD TO 4 HOLE NEMA PAD, FOR COPPER I        | 2017 | 8 \$            | 158.25        |
|                       |                                   |  | CROSSARM, FIBERGLASS, 10 FT DEADEND, 3-5/8 X 4-5/8, WITH CENTER M   | 2017 | 3 \$            | 580.61        |
|                       |                                   |  | CROSSARM, FIBERGLASS, 10 FT TANGENT, 3-5/8 X 4-5/8 IN, WITH CENTER  | 2017 | 6 \$            | 633.26        |
|                       |                                   |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100   | 2017 | 10 \$           | 681.68        |
|                       |                                   |  | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE, 25 KV, 150 KV BIL, 100   | 2017 | 7 \$            | 478.64        |
|                       |                                   |  | MOUNT, TRANSFORMER CLUSTER, MEDIUM, ALUMINUM, 37.5-167 KVA, 3 I     | 2017 | 1 \$            | 173.31        |
|                       |                                   |  | POLE, SYP, 35 FT, CL 2, CCA   | 2017 | 1 \$            | 255.77        |
|                       |                                   |  | POLE, SYP, 50 FT, CL 2, CCA   | 2017 | 3 \$            | 1,392.61      |
|                       |                                   |  | POLE, SYP, 50 FT, CL 2, PENTA                                       | 2017 | 0 \$            | -             |
|                       |                                   | Mileage                                    |   | 2017 | 12 \$           | 6.42          |
|                       |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |   | 2016 | 0 \$            | 0.03          |
|                       |                                   |  |   | 2017 | 0 \$            | 993.07        |
|                       |                                   | Miscellaneous Accounting Adjustments       |   | 2017 | 0 \$            | -             |
|                       |                                   |  |   | 2018 | 0 \$            | -             |
|                       |                                   |  |   | 2019 | 0 \$            | (0.00)        |
|                       |                                   | Non Productive Time Loader- Acct Use Only  |   | 2016 | 0 \$            | 33.10         |
|                       |                                   |  |   | 2017 | 0 \$            | 96.48         |
|                       |                                   | Payroll Benefit Loader- Acct Use Only      |   | 2016 | 0 \$            | 70.91         |
|                       |                                   |  |   | 2017 | 0 \$            | 219.23        |
|                       |                                   | Police Services and Traffic Control        |   | 2017 | 0 \$            | 0.00          |
|                       |                                   |  | NEW ENGLAND TRAFFIC CONTR SVCS                                      | 2017 | 1.56 \$         | 3,681.54      |
|                       |                                   | Stores Loader- Acct Use Only               |   | 2017 | 0 \$            | 100.24        |
|                       |                                   | UVL-Contractor Labor                       |   | 2017 | 0 \$            | -             |
|                       |                                   |  | 0108059 - 38H3 EXTENSION  | 2017 | 0 \$            | -             |
|                       |                                   |  | 0108059 - MISC CONTRACTOR WORK                                      | 2017 | 0 \$            | -             |
|                       |                                   |  | 0108868 - FINAL PHASE OF 38H3 CONVERSION                            | 2017 | 0 \$            | -             |
|                       |                                   |  |   | 2017 | 0 \$            | -             |
|                       |                                   | Vehicle Costs Clearing- Acct Use Only      |   | 2016 | 0 \$            | 18.61         |
|                       |                                   |  |   | 2017 | 0 \$            | 113.73        |
| 9L622124 Total        |                                   |  |   |      | 1483.06 \$      | 141,971.83    |
| Grand Total           |                                   |  |   |      | 41018 \$        | 2,643,839.04  |

| Project                               | Version | Charge Types         | May 2015       | Jun 2015       |
|---------------------------------------|---------|----------------------|----------------|----------------|
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Materials            | \$0            | \$0            |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Other                | \$0            | \$12           |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Outside Services     | \$0            | \$0            |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Overtime Labor       | \$0            | \$0            |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Straight Time Labor  | \$911          | \$3,677        |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Total Direct Costs   | <u>\$911</u>   | <u>\$3,688</u> |
|                                       |         |                      |                |                |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | AFUDC                | \$1            | \$8            |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | AS&E                 | (\$4)          | \$57           |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | E&S                  | \$697          | \$2,672        |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | MDEC                 | \$155          | \$190          |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Payroll              | \$552          | \$2,229        |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Stores & Lobby Stock | \$0            | \$0            |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Vehicle              | \$295          | \$775          |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Total Allocations    | <u>\$1,696</u> | <u>\$5,931</u> |
|                                       |         |                      |                |                |
| A15N01:CONVERT LACONIA 4KV TO 12.47KV | Actual  | Total Costs          | \$2,607        | \$9,619        |

| Jul 2015 | Aug 2015 | Sep 2015 | Oct 2015  | Nov 2015  | Dec 2015  | Jan 2016 | Feb 2016  | Mar 2016  |
|----------|----------|----------|-----------|-----------|-----------|----------|-----------|-----------|
| \$0      | \$0      | \$23,997 | \$1,938   | \$7,202   | \$10,958  | \$394    | (\$4,782) | \$22,840  |
| \$0      | (\$3)    | \$1,124  | (\$1,124) | \$38      | \$0       | \$0      | (\$3,100) | \$6,503   |
| \$543    | \$1,684  | \$5,105  | \$55,638  | \$205,972 | \$52,753  | \$39,564 | \$98,029  | (\$3,444) |
| \$0      | \$0      | \$263    | \$1,145   | \$2,293   | \$703     | \$751    | \$606     | \$0       |
| \$2,351  | (\$716)  | \$441    | \$34      | \$558     | \$84      | \$96     | \$173     | \$319     |
| \$2,894  | \$965    | \$30,930 | \$57,631  | \$216,063 | \$64,498  | \$40,805 | \$90,926  | \$26,218  |
| \$16     | \$17     | \$71     | \$166     | \$379     | \$688     | \$583    | \$324     | \$286     |
| \$59     | \$20     | \$432    | \$303     | \$2,025   | \$1,354   | \$289    | \$1,284   | \$1,017   |
| \$1,137  | (\$314)  | \$187    | \$8,824   | \$49,411  | \$31,916  | \$7,419  | \$35,718  | \$17,925  |
| \$166    | (\$33)   | \$58     | \$680     | \$5,743   | \$1,261   | \$1,080  | \$5,201   | \$2,610   |
| \$1,425  | (\$434)  | \$427    | \$714     | \$1,729   | \$477     | \$430    | \$421     | \$172     |
| \$0      | \$0      | \$11,225 | \$4,550   | \$3,038   | (\$1,631) | \$384    | \$149     | \$7,484   |
| \$382    | (\$167)  | \$62     | \$238     | \$452     | \$101     | \$165    | \$97      | \$70      |
| \$3,186  | (\$912)  | \$12,463 | \$15,475  | \$62,776  | \$34,166  | \$10,350 | \$43,193  | \$29,565  |
| \$6,080  | \$53     | \$43,393 | \$73,105  | \$278,839 | \$98,664  | \$51,155 | \$134,119 | \$55,782  |

| Apr 2016   | May 2016  | Jun 2016 | Jul 2016 | Aug 2016  | Sep 2016  | Oct 2016  | Nov 2016  | Dec 2016   |
|------------|-----------|----------|----------|-----------|-----------|-----------|-----------|------------|
| (\$20,352) | (\$50)    | \$0      | \$0      | \$64,650  | \$80,115  | \$18,446  | \$559     | \$2,769    |
| \$5        | (\$8,060) | \$0      | \$0      | \$0       | (\$161)   | \$34      | (\$7,361) | \$6        |
| \$503      | \$0       | \$778    | \$0      | \$9,593   | \$152,505 | \$465,431 | \$187,906 | (\$94,550) |
| \$0        | \$0       | \$0      | \$0      | \$0       | \$375     | \$376     | \$3,594   | \$2,179    |
| \$1,821    | \$3,566   | \$2,132  | \$2,606  | \$166     | \$2,750   | \$2,766   | \$5,745   | \$8,097    |
| (\$18,023) | (\$4,544) | \$2,910  | \$2,606  | \$74,410  | \$235,584 | \$487,054 | \$190,443 | (\$81,498) |
| \$98       | \$48      | (\$217)  | \$12     | \$42      | \$123     | \$259     | \$464     | \$597      |
| (\$148)    | (\$0)     | \$79     | \$47     | \$901     | \$1,658   | \$2,796   | \$4,145   | \$280      |
| \$1,053    | \$1,853   | \$1,108  | \$602    | \$38      | \$23,627  | \$70,541  | \$29,799  | (\$12,018) |
| \$153      | \$270     | \$161    | \$120    | \$8       | \$4,725   | \$47      | \$20      | (\$8)      |
| \$985      | \$1,928   | \$1,153  | \$1,410  | \$90      | \$1,690   | \$1,699   | \$5,051   | \$5,558    |
| (\$634)    | (\$4)     | \$2,985  | \$0      | \$25,152  | \$6,850   | \$8,428   | \$777     | (\$1,130)  |
| \$416      | \$464     | \$267    | \$219    | \$25      | \$1,018   | \$573     | \$4,229   | \$3,535    |
| \$1,924    | \$4,558   | \$5,535  | \$2,410  | \$26,256  | \$39,692  | \$84,342  | \$44,484  | (\$3,186)  |
| (\$16,099) | \$14      | \$8,445  | \$5,016  | \$100,665 | \$275,276 | \$571,396 | \$234,927 | (\$84,684) |

| Jan 2017  | Feb 2017  | Mar 2017   | Apr 2017   | May 2017 | Jun 2017  | Jul 2017 | Aug 2017 | Oct 2017 |
|-----------|-----------|------------|------------|----------|-----------|----------|----------|----------|
| \$1,123   | (\$2,261) | (\$1,700)  | (\$17,756) | \$0      | \$0       | \$0      | \$22     | \$0      |
| (\$5,878) | \$0       | \$52       | \$6        | \$0      | \$0       | \$0      | \$0      | \$0      |
| \$326,248 | (\$2,875) | \$28,291   | \$61,797   | \$57,447 | \$0       | \$0      | \$222    | \$0      |
| \$2,986   | \$0       | \$998      | \$0        | \$0      | \$0       | \$0      | \$0      | \$0      |
| \$5,076   | \$431     | \$1,190    | \$257      | \$0      | \$0       | \$0      | \$2      | \$0      |
| \$329,555 | (\$4,706) | \$28,831   | \$44,304   | \$57,447 | \$0       | \$0      | \$246    | \$0      |
| \$531     | \$233     | \$59       | \$68       | \$55     | \$58      | \$58     | \$58     | \$58     |
| \$4,873   | \$36      | \$64       | \$1,087    | \$2,005  | (\$58)    | \$0      | \$3      | (\$0)    |
| \$50,679  | (\$480)   | \$6,789    | \$13,683   | \$12,621 | \$0       | \$0      | \$49     | (\$1)    |
| \$34      | (\$22)    | \$309      | \$622      | \$574    | \$0       | \$0      | \$3      | (\$0)    |
| \$4,460   | \$233     | \$1,184    | \$139      | \$0      | \$0       | \$0      | \$1      | (\$7)    |
| \$1,184   | \$7,511   | (\$10,284) | \$86       | \$0      | (\$2,922) | \$0      | \$0      | \$0      |
| \$3,237   | \$52      | \$725      | \$83       | \$0      | \$0       | \$0      | \$0      | \$0      |
| \$64,998  | \$7,563   | (\$1,156)  | \$15,767   | \$15,255 | (\$2,922) | \$58     | \$115    | \$50     |
| \$394,553 | \$2,858   | \$27,675   | \$60,071   | \$72,702 | (\$2,922) | \$58     | \$361    | \$50     |

| Nov 2017 | Dec 2017 | Feb 2018 | Mar 2018 | Apr 2018 | May 2018 | Jun 2018 | Aug 2018 | Total Costs |
|----------|----------|----------|----------|----------|----------|----------|----------|-------------|
| \$0      | (\$585)  | \$197    | \$13,426 | \$0      | \$0      | \$0      | (\$444)  | \$200,705   |
| \$0      | \$2      | \$7      | (\$461)  | \$0      | \$0      | \$0      | \$1      | (\$18,358)  |
| \$0      | \$5,432  | \$15,716 | \$1,714  | \$0      | \$0      | (\$0)    | \$4,229  | \$1,676,231 |
| \$0      | \$78     | \$349    | \$101    | \$0      | \$0      | \$0      | \$53     | \$16,849    |
| \$0      | \$179    | \$1,037  | \$792    | \$0      | \$0      | \$145    | \$308    | \$46,993    |
| \$0      | \$5,106  | \$17,305 | \$15,571 | \$0      | \$0      | \$145    | \$4,147  | \$1,922,420 |
| \$58     | \$58     | \$58     | \$59     | \$59     | \$59     | (\$380)  | \$0      | \$5,114     |
| \$0      | \$38     | \$131    | \$106    | \$0      | \$0      | \$2      | \$31     | \$24,912    |
| \$0      | \$2,241  | \$6,867  | \$1,184  | \$0      | \$0      | \$78     | \$1,674  | \$367,577   |
| \$0      | \$175    | \$535    | \$89     | \$0      | \$0      | \$7      | \$143    | \$25,075    |
| \$0      | \$133    | \$735    | \$457    | \$0      | \$0      | \$77     | \$192    | \$35,311    |
| \$0      | \$0      | \$766    | \$3,415  | \$0      | \$0      | \$0      | \$0      | \$67,379    |
| \$0      | \$56     | \$314    | \$110    | \$0      | \$0      | \$7      | \$116    | \$17,914    |
| \$58     | \$2,701  | \$9,406  | \$5,419  | \$59     | \$59     | (\$211)  | \$2,155  | \$543,281   |
| \$58     | \$7,807  | \$26,711 | \$20,990 | \$59     | \$59     | (\$66)   | \$6,302  | \$2,465,701 |

funding\_project DL9R

|      |                       |                                   |  |   | Values          |                    |
|------|-----------------------|-----------------------------------|--|---|-----------------|--------------------|
| year | accounting_work_order | accounting_work_order_description | cost_element_description                   | Description                                       | Sum of quantity | Sum of amount      |
| 2016 | DL7TD113              | DISTRIBUTION LINE ANNUAL - 20     | Miscellaneous Accounting Adjustments       |   | 0               | \$ 0.00            |
|      | <b>DL7TD113 Total</b> |                                   |  |   | <b>0</b>        | <b>\$ 0.00</b>     |
|      | DL7TD114              | DISTRIBUTION LINE ANNUAL - 20     | Admin and Eng OH- Acct Use Only            |   | 0               | \$ 15.85           |
|      |                       |                                   | Engin and Super OH- Acct Use Only          |   | 0               | \$ 250.59          |
|      |                       |                                   | Labor Straight Time Non-Exempt             |   | 20              | \$ 761.00          |
|      |                       |                                   | Materials- Purchased                       | MILL METALS CORP                                  | 1               | \$ 694.00          |
|      |                       |                                   | Misc Dist Exp Capitalized OH-Acct Use Only |   | 0               | \$ 36.49           |
|      |                       |                                   | Miscellaneous Accounting Adjustments       |   | 0               | \$ 0.00            |
|      |                       |                                   | Non Productive Time Loader- Acct Use Only  |   | 0               | \$ 111.79          |
|      |                       |                                   | Payroll Benefit Loader- Acct Use Only      |   | 0               | \$ 274.58          |
|      | <b>DL7TD114 Total</b> |                                   |  |   | <b>21</b>       | <b>\$ 2,144.30</b> |
|      | DL7TD115              | Distribution line annual - 2015   | Admin and Eng OH- Acct Use Only            |   | 0               | \$ 13,886.25       |
|      |                       |                                   | Compliance Assistance-Fees-Plans           | STATE OF NEW HAMPSHIRE TREASURER                  | 0               | \$ 1,390.27        |
|      |                       |                                   | Contractor Labor                           | I C REED & SONS INC                               | 1               | \$ 31,907.22       |
|      |                       |                                   |  | UTILITY SERVICE & ASSISTANCE                      | 0               | \$ 0               |
|      |                       |                                   | Contractor Materials                       | JCR CONSTRUCTION CO INC                           | 0               | \$ 70.20           |
|      |                       |                                   |  | UTILITY SERVICE & ASSISTANCE                      | 0               | \$ 30.25           |
|      |                       |                                   | Contractor Services- Other                 | I C REED & SONS INC                               | 2.62            | \$ 71,394.37       |
|      |                       |                                   |  | JCR CONSTRUCTION CO INC                           | 2.26            | \$ 68,533.99       |
|      |                       |                                   |  | THREE PHASE LINE CONST INC                        | 1.36            | \$ 28,248.36       |
|      |                       |                                   |  | UTILITY SERVICE & ASSISTANCE                      | 17.39           | \$ 299,111.99      |
|      |                       |                                   | Contractor- Unit Price                     | UTILITY SERVICE & ASSISTANCE                      | 0.01            | \$ 164.00          |
|      |                       |                                   | Contractor Vehicles + Equip                | I C REED & SONS INC                               | 3.39            | \$ 119,584.77      |
|      |                       |                                   |  | JCR CONSTRUCTION CO INC                           | 2.67            | \$ 138,227.08      |
|      |                       |                                   |  | THREE PHASE LINE CONST INC                        | 0.75            | \$ 14,815.40       |
|      |                       |                                   |  | UTILITY SERVICE & ASSISTANCE                      | 11.31           | \$ 218,657.30      |
|      |                       |                                   | Employee Expense Other                     | COOS MOTOR INN                                    | 2               | \$ 457.74          |
|      |                       |                                   | Engin and Super OH- Acct Use Only          |   | 0               | \$ 250,348.65      |
|      |                       |                                   | Environmental Outside Services             | TIGHE & BOND CONS ENG                             | 0.04            | \$ 619.75          |
|      |                       |                                   | Exempt Hours Beyond Schedule-Unpaid        |   | 17.5            | \$ 655.34          |
|      |                       |                                   | Fees + Payments- Other                     | COOS MOTOR INN                                    | 0.5             | \$ 76.29           |
|      |                       |                                   | IT Outside Services                        | JCR CONSTRUCTION CO INC                           | 0.02            | \$ 850.00          |
|      |                       |                                   | Labor Overtime Non-Exempt                  |   | 67.5            | \$ 4,553.62        |
|      |                       |                                   | Labor Straight Time Exempt                 |   | 507.4           | \$ 23,193.44       |
|      |                       |                                   | Labor Straight Time Non-Exempt             |   | 70.5            | \$ 2,492.06        |
|      |                       |                                   | Lobby Stock Loader-Acct Use Only           |   | 0               | \$ 16,865.85       |
|      |                       |                                   | Materials- Stores                          | ANCHOR, SCREW, 10-12 DOUBLE HELIX, W/ TWINE       | 1               | \$ 107.04          |
|      |                       |                                   |  | ANCHOR, SCREW, TRIPLE HELIX, TWIN EYE FITTIN      | 2               | \$ 334.16          |
|      |                       |                                   |  | ANCHOR, SINGLE HELIX, 10,000#, 12 IN              | 38              | \$ 1,589.34        |
|      |                       |                                   |  | BALL, CLEVIS, Y, HOT LINE TYPE, LONG, GALV STE    | 15              | \$ 202.42          |
|      |                       |                                   |  | BOLT, DOUBLE ARM, 3/4 IN, 24 IN L, GALV STEEL, V  | 9               | \$ 36.78           |
|      |                       |                                   |  | BOLT, DOUBLE ARM, 3/4 IN, 26 IN L, GALV STEEL, V  | 6               | \$ 27.03           |
|      |                       |                                   |  | BOLT, EYE, 3/4 IN X 12 IN, GALV STEEL             | 1               | \$ 8.98            |
|      |                       |                                   |  | BOLT, EYE, 3/4 IN X 14 IN, GALV STEEL             | 4               | \$ 37.50           |
|      |                       |                                   |  | BOLT, MACHINE, 1/2 IN, 8 IN L, GALV STEEL, W/SQ   | 18              | \$ 13.03           |
|      |                       |                                   |  | BOLT, MACHINE, 3/4 IN, 10 IN L, GALV STEEL, W/SC  | 3               | \$ 4.08            |
|      |                       |                                   |  | BOLT, MACHINE, 3/4 IN, 12 IN L, GALV STEEL, PER I | 38              | \$ 68.89           |
|      |                       |                                   |  | BOLT, MACHINE, 3/4 IN, 14 IN L, GALV STEEL, SQ H  | 72              | \$ 118.06          |
|      |                       |                                   |  | BOLT, MACHINE, 3/4 IN, 16 IN L, GALV STEEL, SQ H  | 42              | \$ 83.16           |
|      |                       |                                   |  | BOLT, MACHINE, 3/4 IN, 18 IN L, GALV STEEL, W/SC  | 38              | \$ 82.91           |
|      |                       |                                   |  | BOLT, MACHINE, 5/8 IN, 10 IN L, GALV STEEL, W/SC  | 18              | \$ 16.21           |
|      |                       |                                   |  | BOLT, MACHINE, 5/8 IN, 12 IN L, GALV STEEL, SQ H  | 36              | \$ 38.75           |
|      |                       |                                   |  | BOLT, MACHINE, 5/8 IN, 14 IN L, GALV STEEL, W/SC  | 46              | \$ 54.20           |
|      |                       |                                   |  | BOLT, MACHINE, 5/8 IN, 16 IN L, GALV STEEL, W/SC  | 16              | \$ 19.17           |
|      |                       |                                   |  | BOLT, MACHINE, 7/8 IN, 18 IN L, GALV STEEL, W/SC  | 24              | \$ 145.63          |
|      |                       |                                   |  | BRACE, CROSSARM, WOOD, 1-3/4 IN X 1-3/4 IN, 60    | 9               | \$ 133.86          |
|      |                       |                                   |  | BRACKET, NEUTRAL OFFSET, 5/8 IN X 25 IN, GALV     | 14              | \$ 301.30          |
|      |                       |                                   |  | CABLE, BARE, ALUMOWELD, 19-#10 AWG, (19 STR)      | 3403            | \$ 1,905.09        |
|      |                       |                                   |  | CABLE, BARE, COPPERWELD, COPPER, #2, SOLID,       | 200             | \$ 795.98          |
|      |                       |                                   |  | CABLE, BARE, GUY WIRE, 125 FT COIL, ALUMOWEI      | 0               | \$ -               |
|      |                       |                                   |  | CABLE, BARE, GUY WIRE, 125 FT COIL, ALUMOWEI      | 1500            | \$ 565.37          |
|      |                       |                                   |  | CLAMP, QUADRANT, ALUMINUM, 3/0 - 795 ACSR, .5     | 12              | \$ 692.01          |

| year | accounting_work_order | accounting_work_order_descript  | cost_element_description | Description   | Sum of quantity | Sum of amount |
|------|-----------------------|---------------------------------|--------------------------|---|-----------------|---------------|
| 2016 | DL7TD115              | Distribution line annual - 2015 | Materials- Stores        | CLAMP, STRAIN, STRT SIDE OPENING, 3/0 - 556.5 A     | 8 \$            | 87.65         |
|      |                       |                                 |                          | CLAMP, SUSP, AL, 0.70 TO 1.118, W/SOCKET EYE        | 10 \$           | 221.07        |
|      |                       |                                 |                          | CLEVIS, SHORT, 'Y' BALL, 30 K, GALV STEEL           | 1 \$            | 8.10          |
|      |                       |                                 |                          | CLEVIS, THIMBLE, GALV STEEL, 36K                    | 4 \$            | 38.24         |
|      |                       |                                 |                          | CONNECTOR, GROUND, ROD, 3/4 IN, #8 TO 1/0           | 10 \$           | 18.50         |
|      |                       |                                 |                          | CONNECTOR, PARALLEL GROVE, AL, RUN : 3/0 TO         | 11 \$           | 39.40         |
|      |                       |                                 |                          | CONNECTOR, PARALLEL GROVE, W/ INHIBTOR, AL          | 11 \$           | 10.56         |
|      |                       |                                 |                          | CONNECTOR, WEDGE TAP, SHELL DRIVEN, INLINE          | 18 \$           | 598.14        |
|      |                       |                                 |                          | COVERING, OSMOWELD MPF 600, EPOXY MIX FOR           | 60 \$           | 1,584.20      |
|      |                       |                                 |                          | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT D         | 5 \$            | 1,085.12      |
|      |                       |                                 |                          | CROSSARM, DISTRIBUTION, FIBERGLASS, 10 FT T,        | 1 \$            | 105.58        |
|      |                       |                                 |                          | CROSSARM, FIBERGLASS, 10 FT TANGENT, JUMBO          | 22 \$           | 2,286.95      |
|      |                       |                                 |                          | CUTOUT, FUSED, OPEN, LOADBUSTER, SILICONE,          | 3 \$            | 205.67        |
|      |                       |                                 |                          | DEADEND, AUTOMATIC, LONG BAIL, FOR 7/16" STF        | 96 \$           | 2,209.33      |
|      |                       |                                 |                          | DEADEND, AUTOMATIC, SHORT BAIL, FOR 7/16" ST        | 27 \$           | 527.63        |
|      |                       |                                 |                          | EYENUT, FOR 3/4 IN BOLT, GALVANIZED STEEL           | 3 \$            | 4.99          |
|      |                       |                                 |                          | GRIP, GUY, PREFORMED, FOR ALUMOWELD CABL            | 36 \$           | 618.36        |
|      |                       |                                 |                          | INSULATOR, PIN, POLYMER, VISE TOP, 35 KV, 1 IN      | 1 \$            | 23.02         |
|      |                       |                                 |                          | INSULATOR, POST, (PINEAPPLE), TIE TOP, POLYE        | 195 \$          | 8,125.49      |
|      |                       |                                 |                          | INSULATOR, SPOOL, CLASS 53-2, 750V                  | 14 \$           | 12.14         |
|      |                       |                                 |                          | INSULATOR, STRAIN, FIBERGLASS, 78 IN, LT GRAY       | 56 \$           | 1,064.54      |
|      |                       |                                 |                          | INSULATOR, SUSPENSION, DEADEND, POLY, 23 IN         | 30 \$           | 1,470.34      |
|      |                       |                                 |                          | LINK, STRAIGHT, GALV STEEL, 5/8 IN, 40,000 LB       | 70 \$           | 335.49        |
|      |                       |                                 |                          | LUBRICANT, GREASE, FILM SILICON DRY, SPRAY C        | 1 \$            | 14.84         |
|      |                       |                                 |                          | MARKER, AERIAL, 5 IN X 10 IN, "1", BLK ON YELLOW    | 3 \$            | 42.70         |
|      |                       |                                 |                          | MARKER, AERIAL, 5 IN X 10 IN, "4", BLK ON YELLOW    | 1 \$            | 12.09         |
|      |                       |                                 |                          | MARKER, AERIAL, 5 IN X 10 IN, "5", BLK ON YELLOW    | 4 \$            | 54.62         |
|      |                       |                                 |                          | MARKER, AERIAL, 5 IN X 10 IN, "6" or "9", BLK ON YE | 50 \$           | 679.52        |
|      |                       |                                 |                          | MARKER, AERIAL, 5 IN X 10 IN, "7", BLK ON YELLOW    | 10 \$           | 136.93        |
|      |                       |                                 |                          | MARKER, AERIAL, 5 IN X 10 IN, "O", BLK ON YELLOW    | 61 \$           | 794.17        |
|      |                       |                                 |                          | MARKER, GUY, FULL ROUND, PLASTIC, 8 FT L, YEL       | 73 \$           | 215.73        |
|      |                       |                                 |                          | PIN, INSULATOR, LINE POST, 3/4" X 7" SHANK, 8-1/2   | 112 \$          | 482.18        |
|      |                       |                                 |                          | PIN, INSULATOR, SHORT STUD, 3/4 IN D, 1-3/4 IN L,   | 31 \$           | 112.09        |
|      |                       |                                 |                          | PIN, POLE TOP, LINE POST, BRACKET, 4 X 4 X 13 IN    | 43 \$           | 637.14        |
|      |                       |                                 |                          | PLATE, CLAMP, CENTER, FOR X BRACE ASSEMBLY          | 4 \$            | 67.36         |
|      |                       |                                 |                          | PLATE, GUY/ POLE EYE, 13/16 IN. BOLT HOLE- 9/16     | 5 \$            | 31.65         |
|      |                       |                                 |                          | PLATE, GUY/ POLE EYE, 13/16 IN. BOLT HOLE- 9/16     | 11 \$           | 66.10         |
|      |                       |                                 |                          | POLE, TRANSMISSION, WOOD LAMINATED, 70 FT L         | 1 \$            | 2,700.00      |
|      |                       |                                 |                          | POLE, TRANSMISSION, WOOD LAMINATED, 65 FT LC        | 1 \$            | 2,600.00      |
|      |                       |                                 |                          | POLE, WESTERN RED CEDAR, 40 FT, CL 2                | 1 \$            | 813.18        |
|      |                       |                                 |                          | POLE, WESTERN RED CEDAR, 45 FT, CL 2                | 36 \$           | 33,786.47     |
|      |                       |                                 |                          | POLE, WESTERN RED CEDAR, 55 FT L, CL 2              | 1 \$            | 1,202.11      |
|      |                       |                                 |                          | ROD, ANCHOR, GALVANIZED STEEL, 1 IN DIA, 7 FT       | 34 \$           | 764.95        |
|      |                       |                                 |                          | ROD, GROUND, HOT DIPPED GALVANIZED, MINIML          | 10 \$           | 50.28         |
|      |                       |                                 |                          | SCREW, LAG, 1/2 IN, 4 IN LG, STEEL, GALVANIZED,     | 22 \$           | 6.53          |
|      |                       |                                 |                          | SHACKLE, ANCHOR, 3/4 IN, BOLT/ NUT / KEY, GALV      | 44 \$           | 540.18        |
|      |                       |                                 |                          | SHACKLE, ANCHOR-CLEVIS, GALVANIZED STEEL, :         | 27 \$           | 106.20        |
|      |                       |                                 |                          | SIGN, IDENTIFICATION, PHASE, 1, 4 X 4 IN, WHITE     | 5 \$            | 36.93         |
|      |                       |                                 |                          | SIGN, IDENTIFICATION, PHASE, 2, 4 X 4 IN, BLUE O    | 5 \$            | 36.93         |
|      |                       |                                 |                          | SIGN, IDENTIFICATION, PHASE, 3, 4 X 4 IN, WHITE     | 5 \$            | 36.93         |
|      |                       |                                 |                          | SOCKET, EYE 1/2 IN DIA.- GALV. STEEL, 20,000# RA    | 9 \$            | 45.76         |
|      |                       |                                 |                          | SPLICE, AUTOMATIC, FULL TENSION, 336 ACSR, 1E       | 8 \$            | 116.64        |
|      |                       |                                 |                          | STAKE, MARKING, 1 IN X 1-1/8 IN X 4 FT, HARD WO     | 25 \$           | 15.00         |
|      |                       |                                 |                          | SWITCH, DISCONNECT, OUTDOOR, AIR IN LINE, 33        | 3 \$            | 2,226.62      |
|      |                       |                                 |                          | TEE, MOUNTING DEADEND, CURVED BASE FOR RO           | 26 \$           | 604.13        |
|      |                       |                                 |                          | TERMINAL, TAP LUG, BRONZE, 1/0 SOLID - 500MCM       | 6 \$            | 69.12         |
|      |                       |                                 |                          | WASHER, COIL SPRING, GALV STEEL, 1/2 IN             | 18 \$           | 2.50          |
|      |                       |                                 |                          | WASHER, COIL SPRING, GALV STEEL, 3/4 IN             | 218 \$          | 66.87         |
|      |                       |                                 |                          | WASHER, COIL SPRING, GALVANIZED, 5/8 IN             | 130 \$          | 23.22         |
|      |                       |                                 |                          | WASHER, SQUARE, 2-1/4 IN X 2-1/4 IN, FLAT, FLAT,    | 124 \$          | 27.24         |
|      |                       |                                 |                          | WASHER, SQUARE, CURVED, GALVANIZED, 3 IN X          | 354 \$          | 196.05        |
|      |                       |                                 |                          | WASHER, SQUARE, CURVED, GALVANIZED, 4 IN X          | 4 \$            | 6.14          |
|      |                       |                                 |                          | WASHER, SQUARE, FLAT 3 X 3 IN X 1/4 IN, GALVAN      | 230 \$          | 284.65        |
|      |                       |                                 |                          | WASHER, SQUARE, FLAT, GALVANIZED, 1/2 IN BOL        | 18 \$           | 3.92          |
|      |                       |                                 |                          | WASHER, SQUARE, FLAT, STEEL, 4 X 4 IN (FOR 7/8      | 60 \$           | 83.74         |



| year               | accounting_work_order | accounting_work_order_description   | cost_element_description                   | Description                                     | Sum of quantity   | Sum of amount       |
|--------------------|-----------------------|-------------------------------------|--|---|-------------------|---------------------|
| 2016               | DL7TD115              | Distribution line annual - 2015     | Materials- Stores                          | WIRE, TIE, BARE, ALUMINUM, #4, (50 LB COILS) SO | 50 \$             | 91.00               |
|                    |                       |                                     |  | WIRE, TIE, COPPER, SOFT DRAWN, 6 AWG, 25 LB /   | 0 \$              | 1.02                |
|                    |                       |                                     | Meals                                      |   | 1 \$              | 20.00               |
|                    |                       |                                     |  | UTILITY SERVICE & ASSISTANCE                    | 0.16 \$           | 3,075.00            |
|                    |                       |                                     | Mileage                                    |   | 82 \$             | 44.28               |
|                    |                       |                                     | Misc Dist Exp Capitalized OH-Acct Use Only |   | 0 \$              | 15,959.87           |
|                    |                       |                                     | Non Productive Time Loader- Acct Use Only  |   | 0 \$              | 5,316.95            |
|                    |                       |                                     | Other Costs                                | CON-TEST ANALYTICAL LABORATORY                  | 0.5 \$            | 198.51              |
|                    |                       |                                     | Other Outside Services- Other              | WASTE MANAGEMENT                                | 1 \$              | 953.08              |
|                    |                       |                                     | Payroll Benefit Loader- Acct Use Only      |   | 0 \$              | 11,392.10           |
|                    |                       |                                     | Refuse Removal and Recycling               | WASTE MANAGEMENT                                | 5 \$              | 3,662.73            |
|                    |                       |                                     | Stores Loader- Acct Use Only               |   | 0 \$              | 7,525.01            |
|                    |                       |                                     | Telephone                                  |   | 0 \$              | 50.06               |
|                    |                       |                                     | Travel                                     | JCR CONSTRUCTION CO INC                         | 0.06 \$           | 3,060.00            |
|                    |                       |                                     |  | UTILITY SERVICE & ASSISTANCE                    | 0.13 \$           | 2,850.00            |
|                    |                       |                                     | UVL-Contractor Labor                       | 0100054 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0100054 - ROW HARDENING                         | 0 \$              | -                   |
|                    |                       |                                     |  | 0101098 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0101098 - ROW HARDENING                         | 0 \$              | -                   |
|                    |                       |                                     |  | 0101484 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0101484 - ROW HARDENING                         | 0 \$              | -                   |
|                    |                       |                                     |  | 0101484 - ROW HARDENING- FRANCONIA              | 0 \$              | -                   |
|                    |                       |                                     |  | 0102111 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0103006 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0103649 - 3110 LINE NASHUA                      | 0 \$              | -                   |
|                    |                       |                                     |  | 0103649 - 317 LINE ROW WORK                     | 0 \$              | -                   |
|                    |                       |                                     |  | 0103649 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0104296 - 314 ROW REPRS MILFORD                 | 0 \$              | -                   |
|                    |                       |                                     |  | 0104296 - 399 LINE ROW                          | 0 \$              | -                   |
|                    |                       |                                     |  | 0104296 - BERLIN CIRCUIT PATROL REPAIRS         | 0 \$              | -                   |
|                    |                       |                                     |  | 0104296 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0104296 - OFF-ROAD REPAIRS LANCASTER            | 0 \$              | -                   |
|                    |                       |                                     |  | 0104985 - 3525X2 LINE (BERLIN)                  | 0 \$              | 8,000.00            |
|                    |                       |                                     |  | 0104985 - 3525X2 LINE (CHOCORUA)                | 0 \$              | 16,000.00           |
|                    |                       |                                     |  | 0104985 - LANCASTER OFF-ROAD CKT PATROL         | 0 \$              | 4,000.00            |
|                    |                       |                                     |  | 0104985 - MISC CONTRACTOR WORK                  | 0 \$              | 62,524.83           |
|                    |                       |                                     |  | 0104985 - OFF-ROAD REPAIRS LANCASTER            | 0 \$              | 112,000.00          |
|                    |                       |                                     |  | 0104985 - REPLACING DAVIT ARMS (TILTON)         | 0 \$              | 4,000.00            |
|                    |                       |                                     | UVL-Contractor Services- Other             | 0095798 - MISC CONTRACTOR WORK                  | 0 \$              | (18,462.00)         |
|                    |                       |                                     |  | 0095798 - ROW MAINT                             | 0 \$              | (32,000.00)         |
|                    |                       |                                     |  | 0097214 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0098054 - 351 LINE WHITEFIELD                   | 0 \$              | -                   |
|                    |                       |                                     |  | 0098054 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0098054 - ROW MAINTENANCE                       | 0 \$              | -                   |
|                    |                       |                                     |  | 0098982 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0098982 - ROW MAINTENANCE                       | 0 \$              | -                   |
|                    |                       |                                     |  | 0099357 - MISC CONTRACTOR WORK                  | 0 \$              | -                   |
|                    |                       |                                     |  | 0099375 - ROW HARDENING                         | 0 \$              | -                   |
|                    |                       |                                     | Vehicle Costs Clearing- Acct Use Only      |   | 0 \$              | 9,953.07            |
|                    |                       |                                     | Vehicles-Class 2                           |   | 79.5 \$           | 567.32              |
|                    |                       |                                     | Vehicles-Class 3                           |   | 6 \$              | 114.36              |
|                    | <b>DL7TD115 Total</b> |                                     |  |   | <b>9024.57 \$</b> | <b>1,604,892.25</b> |
|                    | DL7TD116              | NH: Distribution line annual - 2016 | Admin and Eng OH- Acct Use Only            |   | 0 \$              | 0.30                |
|                    |                       |                                     | AFUDC Debt                                 |   | 0 \$              | 0.12                |
|                    |                       |                                     | AFUDC Equity                               |   | 0 \$              | 0.08                |
|                    |                       |                                     | Lobby Stock Loader-Acct Use Only           |   | 0 \$              | 3.50                |
|                    |                       |                                     | Materials- Stores                          | TAG, IDENTIFICATION, HORIZONTAL, "I," INJECTIO  | 100 \$            | 25.37               |
|                    |                       |                                     | Stores Loader- Acct Use Only               |   | 0 \$              | 3.97                |
|                    | <b>DL7TD116 Total</b> |                                     |  |   | <b>100 \$</b>     | <b>33.34</b>        |
|                    | RE201601              | Davisville Forest Easement          | Admin and Eng OH- Acct Use Only            |   | 0 \$              | 332.45              |
|                    |                       |                                     | Fees + Payments- Other                     | STATE OF NEW HAMPSHIRE TREASURER                | 0 \$              | 36,116.47           |
|                    |                       |                                     | Postage and Delivery Services              | UNITED PARCEL SERVICE                           | 0 \$              | 17.99               |
|                    | <b>RE201601 Total</b> |                                     |  |   | <b>0 \$</b>       | <b>36,466.91</b>    |
| <b>2016 Total</b>  |                       |                                     |  |   | <b>9145.57 \$</b> | <b>1,643,536.80</b> |
| <b>Grand Total</b> |                       |                                     |  |   | <b>9145.57 \$</b> | <b>1,643,536.80</b> |

## Public Service Co of New Hampshire Project Approval Information

|  |  |                    |
|--|--|--------------------|
| <b>Fund Project Number</b> R15RPR            | <b>Status</b> open                       | <b>Revision</b> 17 |
| <b>Project Title</b> Reject Pole Replacement | <b>Operating Unit</b>                    |                    |
| <b>Initiated By</b> Lynne Godbout            | <b>Initiated Date</b> 7/17/2015 15:25:41 |                    |

|                            |   |
|----------------------------|---|
| <b>Description of Work</b> | Replace poles which require replacement as part of pole inspection program.<br>This Project is part of the 2015 regulatory approved REP program |
| <b>Location</b>            | UNSPECIFIED MAJOR LOCATION-NH   |

| Project Schedule / Expenditures |                |                |             | Est Start Date : | 7/1/2015     | Est Complete Date : | 1/31/2018 |
|---------------------------------|----------------|----------------|-------------|------------------|--------------|---------------------|-----------|
| 2015                            | 2016           | 2017           | 2018        | 2019             | Future Years | Total               |           |
| \$144,625.09                    | \$1,912,544.87 | \$6,637,830.04 | \$0.00      | \$0.00           | \$0.00       | <b>\$8,695,000</b>  |           |
|                                 | Capital        | Expense        | Removal     | Retirements      | Credits      |                     |           |
| <b>Cost Breakdown</b>           | \$7,454,926    | \$0            | \$1,240,074 | \$0              | \$0          | \$8,695,000.00      |           |

Reason For Work

Background Information

### Approvals

| Level                  | Approver          | Approval Limit | Date Approved |
|------------------------|-------------------|----------------|---------------|
| Project Manager        | Menard, Erica     | \$0            | 3/8/2019      |
| Plant Accounting       | Salbinski, Chris  | \$0            | 3/8/2019      |
| Manager - PSNH Dist    | Lajoie, Lee       | \$100,000      | 3/11/2019     |
| Director - PSNH Dist   | Geaumont, Marc    | \$250,000      | 3/11/2019     |
| Vice President - PSNH  | Purington, Joseph | \$1,000,000    | 5/31/2019     |
| Sr. VP/President - Ops | Quinlan, William  | \$5,000,000    | 6/25/2019     |
| Executive VP - COO     | Schweiger, Werner | \$12,500,000   | 6/28/2019     |



APS 1 - Project Authorization Policy

## Supplement Request Form

|  |   |
|--|---|
| Date Prepared: 2/13/19                 | Project Title: Reject Pole Replacement (REP3)         |
| Company/Companies: Eversource NH       | Project ID Number: R15RPR                             |
| Organization: NH Operations            | Plant Class/(F.P.Type): Distribution - Line           |
| Project Initiator: Eric Sutton         | Project Type: Specific                                |
| Project Manager: Eric Sutton           | Capital Investment Part of Original Operating Plan? Y |
| Project Sponsor: Marc Geaumont         | O&M Expenses Part of the Original Operating Plan? Y   |
| Current Authorized Amount: \$3,001,000 | Estimated in service date(s): January 2018            |
| Supplement Request: \$5,694,000        | Other:  |
| Total Request: \$8,695,000             |   |

## Supplement Justification

### Justification for Additional Resources

The Eversource Maintenance Program (EMP) and the Intercompany Operating Procedures (IOPs) both require all wood poles in Eversource maintenance territory to be inspected every 10 years. This project was part of the 2015-2017 Reliability Enhancement Program (REP 3) approved as part of the global settlement agreement related to the Generation divestiture. It was intended to fund the replacement decayed or damaged poles identified through the Company's annual inspection program.

The initial budget for the reject pole replacement is funded based on historical spending and/or known future investment needed within the overall distribution budget constraints of the REP 3 program. Program spending is monitored throughout the year through a budget review committee. As work is identified throughout the year, the budget committee determines whether the additional investment needed can be funded by reducing funding in other projects within the REP 3 program or whether the additional investment must be deferred to a future year to stay within the budget.

Investment in the reject pole replacement program was higher than originally budgeted due to the decision to replace older class 4 poles with new Class 2 poles rather than treat the smaller poles with insecticides to prolong their service life. The change to Class 2 poles serves to harden the distribution system and reduce damage during weather events. Eversource inspects approximately 35,000 wood poles each year as part of its annual pole inspection program with an average failure rate of 1.5-2% failure rate. Over the two years of the REP 3 program, approximately 1,497 poles were replaced under this R15RPR project. The cost of this work is currently being recovered through rates approved by the NHPUC.

Additional spending under this program was approved as part of the Company's capital budget process, however the supplemental authorization was never submitted. This form is intended to address that oversight.

# EVERSOURCE

## APS 1 - Project Authorization Policy

### Supplement Cost Summary

Note: Dollar values are in thousands:

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 1,626            | \$ 3,829              | \$ 5,455        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | 170                 | 728                   | 898             |
| Total Direct Spending         | \$ 1,796            | \$ 4,557              | \$ 6,353        |
| Capital Additions - Indirect  | 1,177               | 1,159                 | 2,336           |
| AFUDC                         | 28                  | (22)                  | 6               |
| Total Capital Request         | \$ 3,001            | \$ 5,694              | \$ 8,695        |
| O&M                           |                     |                       |                 |
| <b>Total Request</b>          | <b>\$ 3,001</b>     | <b>\$ 5,694</b>       | <b>\$ 8,695</b> |

Note: Dollar values are in thousands:

Total Supplement Request by year view:

|                               | Year 2017       | Year 20__   | Year 20__ + | Total           |
|-------------------------------|-----------------|-------------|-------------|-----------------|
| Capital Additions - Direct    | \$ 3,829        | \$ -        | \$ -        | \$ 3,829        |
| Less Customer Contribution    | -               | -           | -           | -               |
| Removals net of Salvage ____% | 728             | -           | -           | 728             |
| Total Direct Spending         | \$ 4,557        | \$ -        | \$ -        | \$ 4,557        |
| Capital Additions - Indirect  | 1,159           | -           | -           | 1,159           |
| AFUDC                         | (22)            | -           | -           | (22)            |
| Total Capital Request         | \$ 5,694        | \$ -        | \$ -        | \$ 5,694        |
| O&M                           | -               | -           | -           | -               |
| <b>Total Request</b>          | <b>\$ 5,694</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 5,694</b> |

**Funding Project Information**

New Approval Type  Budget Version 2015 Working (inactive)

Funding Project Revision R15RPR 1 Rev [K] < > >I

Approval Type Amount FP PSNH - Dist - alternate \$3,600,563.79

Status Sent By Date Sent Date Appr Approved Herk, Randy 8/4/2015 8/12/2015

Send for Approval Refresh

|                          | Approver              | Required                            | Date Approved | Authority Limit |
|--------------------------|-----------------------|-------------------------------------|---------------|-----------------|
| + Project Manager - - -  | Menard, Erica         | <input checked="" type="checkbox"/> | 8/4/2015      | \$0             |
| + Plant Accounting - - - | Errato Jr. Jr., Frank | <input checked="" type="checkbox"/> | 8/5/2015      | \$0             |
| + Manager - PSNH Dist    | Sulton, Eric          | <input checked="" type="checkbox"/> | 8/5/2015      | \$100,000       |
| + Vice President - PSNH  | Ramsey_TERMINATE      | <input checked="" type="checkbox"/> | 8/5/2015      | \$1,000,000     |
| + Sr. VP/President - Ops | Clarke_TERMINATED     | <input checked="" type="checkbox"/> | 8/12/2015     | \$5,000,000     |

Details  
 Accounts  
 Departments  
 Contacts  
 Tasks  
 Class Codes  
 Justification  
 Tax Status  
 Authorizations  
 User Comment  
 Review  
 Related FPs

Audits  
 Delete FP  
 Cancel FP  
 Suspend FP  
 Estimates  
 Update  
 Print  
 Cancel

Record 1 of 1 [K] < > >I



## APS 1 - Project Authorization Policy

### Project Authorization Form

#### General Information

|                                    |   |
|------------------------------------|---|
| Date Prepared: 7/28/15             | Project Title: Reject Pole Replacement  |
| Company: Eversource - NH           | Project ID Number: R15RPR   |
| Organization: Electric Operations  | Class(es) of Plant: Distribution  |
| Project Initiator: Eric Sutton     | Project Category: Regulatory Commitments  |
| Project Owner/Manager: Eric Sutton | Project Purpose: part of regulatory tracked program?<br>Yes – Reliability Enhancement Program 3 |
| Project Sponsor: Paul Ramsey       | Project Type: Annual  |
| Estimated in service date: 6/30/17 | Capital Investment Part of Original Operating Plan?<br>No                                       |
| If Transmission Project: N/A       | Supplement to Existing Authorization? No  |
|                                    | O&M Expenses Part of the Original Operating Plan?<br>No   |

If Chief Executive Officer or subsidiary board approval is required, document the review by Enterprise Risk Management (ERM) and Financial Planning and Analysis (FP&A)

ERM: \_\_\_\_\_

FP&A: \_\_\_\_\_

#### Executive Summary

Replace defective poles identified through the pole inspection program.

This project is part of the 2015-2017 Reliability Enhancement Program (REP) approved as part of the global settlement agreement related to the Generation divestiture

#### Project Costs Summary

| (\$000)                      | Prior<br>Authorized* | 2015   | 2016     | 2017+  | Totals   |
|------------------------------|----------------------|--------|----------|--------|----------|
| Capital Additions - Direct   |                      | \$ 459 | \$ 876   | \$ 291 | \$ 1,626 |
| Customer Contribution        |                      | \$ -   | \$ -     | \$ -   | \$ -     |
| Removals net of Salvage      |                      | \$ 54  | \$ 84    | \$ 32  | \$ 170   |
| Total - Direct Spending      | \$ -                 | \$ 513 | \$ 960   | \$ 323 | \$ 1,796 |
| Capital Additions - Indirect |                      | \$ 336 | \$ 625   | \$ 216 | \$ 1,177 |
| Subtotal Request             | \$ -                 | \$ 849 | \$ 1,585 | \$ 539 | \$ 2,973 |
| AFUDC (half-year convention) |                      | \$ 1   | \$ 15    | \$ 11  | \$ 27    |
| Total Request                | \$ -                 | \$ 850 | \$ 1,600 | \$ 550 | \$ 3,000 |

\* to be completed if supplemental authorization is required

# EVERSOURCE

## APS 1 - Project Authorization Policy

### Summary Project Description

Approximately 24,000 poles are inspected each year with an estimated rejection rate of 2%. This project funds the replacement of the rejected poles.

| (\$000s) | Total Project Costs | Amount in Operating Plan | Difference |
|----------|---------------------|--------------------------|------------|
| Capital  | \$3,000             | \$0                      | \$3,000    |
| O&M      | \$600               | \$0                      | \$600      |
| Total    | \$3,600             | \$0                      | \$3,600    |

The funding for this program is part of a 2 year Reliability Enhancement Program (REP) extension granted as part of the Generation divestiture global settlement agreement.

### Project Authorization

Project authorization below must be in accordance with the approval levels included in the Delegation of Authority Policy (DOA).

| Approver           | Approver Name     | Approver Signature | Date |
|--------------------|-------------------|--------------------|------|
| Project initiator  | Robert Mission    |                    |      |
| Project manager    | Eric Sutton       |                    |      |
| Plant Accounting   | Frank Errato, Jr. |                    |      |
| Vice President     | Paul Ramsey       |                    |      |
| Sr. Vice President | Peter Clarke      |                    |      |

### Overall Justification

25,666 poles were inspected in 2014 and 440 were found to be defective(1.7% defective rate)

This project is part of the 2015-2017 Reliability Enhancement Program 3

### Project Scope

For program year 2015-2016, 320 poles are expected to be replaced.

### Project Objectives

Continue the pole inspection program by inspecting 24,000 poles and replace the defective poles to prevent pole failures and harden the system thereby improving reliability.



## APS 1 - Project Authorization Policy

### Business Process and / or Technical Improvements:

Improve the reliable performance and safety of the poles in high winds, limb/tree contact, ice loading, heavy wet snow, pole accidents or other events that result in loss of service.

### Assumptions

Approximately 24,000 poles are inspected each year with an estimated rejection rate of 2%

### Alternatives Considered

Reinforcement. Where appropriate, reinforcement will be evaluated. In most cases replacing the pole with a higher class pole to improve system resiliency is preferred.

### Project Schedule

Describe the project schedule and milestones. Include estimated start and end dates.

| Milestone/Phase Name                                    | Estimated Completion Date |
|---|---------------------------|
| 120 poles expected to be replaced in 2015 (\$850K)      | 12/31/2015                |
| 250 poles expected to be replaced in 2016 (\$1,600,000) | 12/31/2016                |
| 100 poles expected to be replaced in 2017 (\$550K)      | 6/30/2017                 |





## APS 1 - Project Authorization Policy

### Financial Evaluation

| Direct Capital Costs (\$000)                    | Year 1 | Year 2 | Year 3+ | Total   |
|---|--------|--------|---------|---------|
| Straight Time Labor                             | \$204  | \$380  | \$133   | \$717   |
| Overtime Labor                                  | \$28   | \$42   | \$14    | \$84    |
| Outside Services                                | \$52   | \$101  | \$34    | \$187   |
| Materials                                       | \$204  | \$380  | \$133   | \$717   |
| Other, including contingency amounts (describe) | \$25   | \$57   | \$9     | \$91    |
| Total   | \$513  | \$960  | \$323   | \$1,796 |

| Indirect Capital Costs (\$000)        | Year 1 | Year 2 | Year 3+ | Total   |
|---------------------------------------|--------|--------|---------|---------|
| Benefits / Loaders                    | \$336  | \$625  | \$216   | \$1,177 |
| Capitalized interest or AFUDC, if any | \$1    | \$15   | \$11    | \$28    |
| Total                                 | \$337  | \$640  | \$227   | \$1,205 |

|                             |         |         |       |         |
|-----------------------------|---------|---------|-------|---------|
| Total Capital Costs         | \$850   | \$1,600 | \$550 | \$3,000 |
| Total O&M Costs             | \$176   | \$312   | \$112 | \$600   |
| Total Project Costs (\$000) | \$1,026 | \$1,912 | \$662 | \$3,600 |

Note: Explain unique payment provisions, if applicable

### Regulatory Approvals

This project is a part of the REP 3 program and will be audited at the end of each program year.

### Risks and Risk Mitigation Plans

Not applicable

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 10/28/2019**

**Date of Response: 11/18/2019**

**Request No. TS 2-070**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Joseph A. Purington, Lee G. Lajoie**

---

**Request:**

Re: Reject Pole Replacement, #R15RPR, 12-045M. Please provide the following information for this project:

- a. Re: Supplemental Request Form at page 2: Explain why this form was submitted on 2/13/19 and not in 2015.
- b. Re: Justification for Additional Resources at page 2: Please provide a detailed explanation for the significant increase (\$3.0 million budget v. \$5.6 million) in pole replacement costs in 2015. Why was it cheaper to install new Class 2 poles rather than treating the existing poles to prolong their life? What was the remaining life of the existing poles that were replaced by the new poles.
- c. Please confirm the total number of poles replaced including:
  - i. Total number of poles rejected by the pole inspection contractor.
  - ii. Total number of poles rejected by others – please indicate the number and identities of other contractors.
- e. Were any of the class 4 poles replaced by steel or composite poles?
- d. Please provide an itemized breakout of overheads, AFUDC, and other costs leading up to the variance.
- e. Re: Eversource 2016 REP Report to the Commission, at pages 23 and 39: Please reconcile and explain the differences in the amounts reported in the REP Report with the amounts referenced in Staff Attachment 12-045M.

**Response:**

- a) As stated on page 2 of Excel Attachment TS 2-070, contained within this response, this was an oversight which the form was intended to address.
- b) The supplemental funding request was submitted to formally authorize spending for work which had been approved by Eversource management. New Class 2 poles were installed in an effort to harden the distribution system. A new class 2 pole is 50% stronger than a new class 4 pole and the difference is even greater when compared to a partially decayed, insect infested pole which is treated. The Company does not track the history of individual poles installed at a location, only the current pole at a location. When a pole is replaced with a new one the old unit is retired in the Plant Accounting system.
- c) All 1,497 poles discussed in the attachment were rejected by the Company's contractor, Smith Mountain Investments.
- e) No steel or composite poles were installed under this project.
- d) See Attachment TS 2-070
- e) Page 23 of the 2016 REP Report to the Commission deals with base REP and not project R15RPR which is Attachment 12-045M so there is no reconciliation to be made. Page 39 of the 2016 REP Report to the Commission reports on plant in service for the period July 1, 2015 through June 30, 2016. Attachment 12-045M reflects spending for the entire period the project was in use: August 2015 through September of 2017.

| Project                        | Version | Charge Type          | Jan 2014          | Feb 2014        | Mar 2014          |
|--------------------------------|---------|----------------------|-------------------|-----------------|-------------------|
| R15RPR:Reject Pole Replacement | Actual  | Materials            | \$364.71          | \$477.07        | \$330.93          |
| R15RPR:Reject Pole Replacement | Actual  | Other                | \$0.00            | \$0.00          | \$0.00            |
| R15RPR:Reject Pole Replacement | Actual  | Outside Services     | \$0.00            | \$0.00          | \$288.47          |
| R15RPR:Reject Pole Replacement | Actual  | Overtime Labor       | \$0.00            | \$0.00          | \$0.00            |
| R15RPR:Reject Pole Replacement | Actual  | Straight Time Labor  | \$491.48          | \$61.41         | \$604.86          |
| R15RPR:Reject Pole Replacement | Actual  | Total Direct Costs   | <u>\$856.19</u>   | <u>\$538.48</u> | <u>\$1,224.26</u> |
| R15RPR:Reject Pole Replacement | Actual  | AFUDC                | \$7.62            | \$1.69          | \$4.09            |
| R15RPR:Reject Pole Replacement | Actual  | AS&E                 | \$31.98           | \$24.69         | \$32.66           |
| R15RPR:Reject Pole Replacement | Actual  | E&S                  | \$214.26          | \$26.88         | \$269.51          |
| R15RPR:Reject Pole Replacement | Actual  | MDEC                 | \$0.00            | \$0.00          | \$0.00            |
| R15RPR:Reject Pole Replacement | Actual  | Payroll              | \$365.41          | \$46.12         | \$454.26          |
| R15RPR:Reject Pole Replacement | Actual  | Stores & Lobby Stock | \$210.74          | \$481.31        | \$228.26          |
| R15RPR:Reject Pole Replacement | Actual  | Vehicle              | \$179.58          | \$317.53        | \$0.91            |
| R15RPR:Reject Pole Replacement | Actual  | Total Allocations    | <u>\$1,009.59</u> | <u>\$898.22</u> | <u>\$989.69</u>   |
| R15RPR:Reject Pole Replacement | Actual  | Total Cost           | \$1,865.78        | \$1,436.70      | \$2,213.95        |

| Apr 2014   | May 2014   | Jun 2014   | Jul 2014 | Aug 2014 | Sep 2014   | Oct 2014   | Nov 2014    | Dec 2014    |
|------------|------------|------------|----------|----------|------------|------------|-------------|-------------|
| \$731.50   | \$474.32   | \$0.50     | \$0.00   | \$288.39 | \$387.86   | \$2,132.55 | \$6,077.83  | \$7,378.97  |
| \$0.00     | \$0.00     | \$0.00     | \$0.00   | \$0.00   | \$0.00     | \$0.00     | \$0.00      | \$8,811.11  |
| \$0.00     | \$0.00     | \$1,448.40 | \$0.00   | \$0.00   | \$0.00     | \$179.03   | \$3,558.35  | \$3,875.32  |
| \$0.00     | \$43.17    | \$0.00     | \$0.00   | \$0.00   | \$0.00     | \$0.00     | \$686.73    | \$0.00      |
| \$0.00     | \$158.29   | \$47.80    | \$0.00   | \$148.87 | \$394.19   | \$2,040.98 | \$1,700.07  | \$78.93     |
| \$731.50   | \$675.78   | \$1,496.70 | \$0.00   | \$437.26 | \$782.05   | \$4,352.56 | \$12,022.98 | \$20,144.33 |
| \$16.00    | \$20.84    | \$26.62    | \$17.92  | \$4.33   | \$4.87     | \$5.22     | \$18.36     | \$37.50     |
| \$22.02    | \$8.83     | \$11.77    | \$1.24   | \$70.93  | \$190.78   | (\$137.29) | \$203.01    | \$65.41     |
| \$0.00     | \$84.76    | \$20.11    | \$0.00   | \$0.00   | \$355.47   | \$1,362.59 | \$1,216.09  | \$1,105.80  |
| \$0.00     | \$0.00     | \$0.00     | \$0.00   | \$0.00   | \$74.10    | \$379.79   | \$313.51    | \$1,096.93  |
| \$0.00     | \$137.54   | \$32.64    | \$0.00   | \$104.32 | \$268.60   | \$1,378.35 | \$1,613.40  | (\$18.97)   |
| \$736.67   | \$227.01   | \$6.25     | \$164.68 | \$193.14 | \$76.79    | \$1,700.51 | (\$47.19)   | \$1,896.20  |
| \$0.00     | \$53.95    | \$13.78    | \$0.00   | \$38.63  | \$86.37    | \$594.27   | \$1,016.73  | \$14.76     |
| \$774.69   | \$532.93   | \$111.17   | \$183.84 | \$411.35 | \$1,056.98 | \$5,283.44 | \$4,333.91  | \$4,197.63  |
| \$1,506.19 | \$1,208.71 | \$1,607.87 | \$183.84 | \$848.61 | \$1,839.03 | \$9,636.00 | \$16,356.89 | \$24,341.96 |

| Jan 2015     | Feb 2015     | Mar 2015   | Apr 2015   | May 2015   | Jun 2015   | Jul 2015   | Aug 2015   | Sep 2015   |
|--------------|--------------|------------|------------|------------|------------|------------|------------|------------|
| \$105.50     | \$272.08     | \$414.92   | \$0.00     | \$0.00     | \$278.84   | \$2,325.70 | \$0.00     | \$167.28   |
| (\$8,750.36) | (\$11.24)    | \$0.00     | \$0.00     | \$0.00     | \$0.00     | \$9.39     | \$0.00     | \$0.00     |
| \$11,568.91  | (\$1,710.05) | \$57.35    | \$117.30   | \$214.48   | (\$237.19) | \$559.46   | \$505.07   | (\$189.67) |
| \$0.00       | \$0.00       | \$0.00     | \$0.00     | \$0.00     | (\$70.20)  | \$413.12   | \$228.89   | (\$8.39)   |
| (\$12.49)    | \$182.59     | \$570.00   | \$304.53   | \$428.54   | \$1,610.33 | \$1,038.21 | \$239.45   | (\$45.76)  |
| \$2,911.56   | (\$1,266.62) | \$1,042.27 | \$421.83   | \$643.02   | \$1,581.78 | \$4,345.88 | \$973.41   | (\$76.54)  |
| \$37.68      | \$55.05      | \$28.64    | \$33.19    | \$36.13    | \$43.46    | \$50.96    | \$54.67    | \$110.45   |
| (\$943.34)   | \$372.27     | \$185.13   | \$239.72   | \$112.42   | \$146.33   | \$94.06    | \$80.48    | \$21.85    |
| \$2,853.37   | (\$410.59)   | \$3,236.53 | (\$25.12)  | \$146.16   | \$895.82   | \$168.63   | \$769.58   | (\$579.06) |
| \$304.73     | (\$114.65)   | \$67.26    | \$55.80    | \$85.25    | \$79.52    | \$102.31   | \$35.44    | (\$14.25)  |
| (\$7.59)     | \$110.71     | \$345.60   | \$184.64   | \$259.82   | \$933.83   | \$879.93   | \$283.95   | (\$32.81)  |
| \$41.15      | \$106.11     | \$67.54    | \$0.00     | \$0.00     | \$341.54   | \$894.75   | \$0.00     | \$628.83   |
| (\$6.30)     | \$82.37      | \$157.46   | \$118.55   | \$0.00     | \$1,774.36 | \$235.91   | \$156.49   | (\$28.30)  |
| \$2,279.70   | \$201.27     | \$4,088.16 | \$606.78   | \$639.78   | \$4,214.86 | \$2,426.55 | \$1,380.61 | \$106.71   |
| \$5,191.26   | (\$1,065.35) | \$5,130.43 | \$1,028.61 | \$1,282.80 | \$5,796.64 | \$6,772.43 | \$2,354.02 | \$30.17    |

| Oct 2015    | Nov 2015    | Dec 2015    | Jan 2016     | Feb 2016      | Mar 2016      | Apr 2016      | May 2016     |
|-------------|-------------|-------------|--------------|---------------|---------------|---------------|--------------|
| \$432.53    | \$0.00      | \$10,819.92 | \$30,143.20  | \$10,964.86   | \$5,672.06    | \$12,541.91   | \$6,545.21   |
| (\$620.00)  | \$20.87     | \$29.48     | (\$2,340.00) | (\$21,695.86) | (\$21,700.00) | (\$29,886.60) | (\$1,890.82) |
| \$6,713.42  | \$20,352.89 | \$59,967.10 | \$54,820.42  | \$132,876.97  | \$82,028.82   | \$112,050.71  | \$15,552.69  |
| \$48.16     | \$20.13     | \$374.22    | \$6,751.41   | \$169.05      | \$369.62      | \$2,043.68    | (\$0.74)     |
| \$597.76    | \$185.19    | \$394.40    | \$732.59     | \$3,048.59    | \$5,080.10    | \$12,544.97   | \$11,231.90  |
| \$7,171.87  | \$20,579.08 | \$71,585.12 | \$90,107.62  | \$125,363.61  | \$71,450.60   | \$109,294.67  | \$31,438.24  |
| \$136.51    | \$180.30    | \$233.26    | \$332.03     | \$228.57      | \$180.92      | \$739.46      | \$101.97     |
| \$81.06     | \$309.38    | \$368.95    | \$1,302.44   | \$1,351.34    | \$1,211.73    | \$2,027.10    | \$784.11     |
| \$2,709.56  | \$7,276.48  | \$15,027.73 | \$16,012.35  | \$35,739.95   | \$33,466.41   | \$57,436.90   | \$17,373.53  |
| \$223.30    | \$875.81    | \$574.56    | \$2,331.61   | \$5,205.04    | \$4,873.06    | \$8,406.07    | \$2,529.75   |
| \$391.60    | \$124.48    | \$466.01    | \$3,799.74   | \$1,721.12    | \$3,318.01    | \$8,321.03    | \$6,100.83   |
| \$168.68    | \$0.00      | \$2,526.23  | \$12,525.14  | \$4,779.42    | \$559.39      | \$4,549.37    | \$2,950.87   |
| \$176.26    | \$312.24    | \$213.53    | \$3,031.31   | \$961.39      | \$1,512.70    | \$5,198.03    | \$4,814.25   |
| \$3,886.97  | \$9,078.69  | \$19,410.27 | \$39,334.62  | \$49,986.83   | \$45,122.22   | \$86,677.96   | \$34,655.31  |
| \$11,058.84 | \$29,657.77 | \$90,995.39 | \$129,442.24 | \$175,350.44  | \$116,572.82  | \$195,972.63  | \$66,093.55  |

| Jun 2016     | Jul 2016     | Aug 2016     | Sep 2016     | Oct 2016     | Nov 2016     | Dec 2016     |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| \$1,478.23   | \$8,540.54   | \$10,678.44  | \$6,984.19   | \$2,263.84   | \$43,282.44  | \$7,516.16   |
| (\$4,310.97) | (\$3,132.20) | (\$4,203.15) | (\$4,340.00) | \$31.15      | \$1,097.05   | (\$3,720.00) |
| \$87,254.64  | \$132,384.64 | \$140,207.00 | \$79,090.25  | \$95,810.56  | \$61,882.84  | \$47,648.25  |
| \$56.56      | \$816.65     | \$24.41      | \$1,801.75   | \$103.93     | \$190.88     | \$1,061.34   |
| \$6,453.81   | \$11,500.06  | \$1,006.35   | \$15,840.96  | \$4,633.29   | \$4,954.69   | \$9,709.61   |
| \$90,932.27  | \$150,109.69 | \$147,713.05 | \$99,377.15  | \$102,842.77 | \$111,407.90 | \$62,215.36  |
| \$74.78      | \$105.18     | \$94.62      | \$83.70      | \$82.18      | \$53.81      | \$34.54      |
| \$815.73     | \$2,111.02   | \$1,598.79   | \$1,475.87   | \$1,116.22   | \$1,577.53   | \$570.59     |
| \$30,139.69  | \$21,259.78  | \$19,321.56  | \$15,336.18  | \$13,962.22  | \$9,350.64   | \$9,266.03   |
| \$4,388.64   | \$4,263.22   | \$3,864.27   | \$3,067.29   | \$9.24       | \$4.64       | \$6.06       |
| \$3,579.88   | \$6,678.85   | \$518.12     | \$9,548.98   | \$2,581.62   | \$2,779.27   | \$5,814.18   |
| \$1,617.87   | \$4,598.52   | \$4,624.78   | (\$2,721.96) | \$869.66     | \$17,763.62  | (\$1,170.58) |
| \$1,801.87   | \$3,801.37   | \$619.67     | \$5,746.89   | \$1,315.26   | \$2,297.47   | \$2,905.75   |
| \$42,418.46  | \$42,817.94  | \$30,641.81  | \$32,536.95  | \$19,936.40  | \$33,826.98  | \$17,426.57  |
| \$133,350.73 | \$192,927.63 | \$178,354.86 | \$131,914.10 | \$122,779.17 | \$145,234.88 | \$79,641.93  |

| Jan 2017     | Feb 2017     | Mar 2017     | Apr 2017     | May 2017     | Jun 2017       | Jul 2017      |
|--------------|--------------|--------------|--------------|--------------|----------------|---------------|
| \$33,510.63  | \$33,821.66  | \$41,747.51  | \$44,465.05  | \$71,135.97  | \$85,867.86    | \$76,529.69   |
| (\$5,039.56) | \$753.03     | \$454.30     | (\$59.62)    | \$788.95     | (\$4,619.73)   | (\$40,397.65) |
| \$147,416.96 | \$464,739.34 | \$150,415.90 | \$283,996.14 | \$419,143.09 | \$1,124,033.22 | \$564,888.78  |
| \$5,252.40   | \$3,542.40   | \$2,195.99   | \$226.15     | \$1,003.98   | \$3,855.84     | \$574.82      |
| \$9,360.37   | \$22,420.58  | \$20,708.54  | \$12,678.12  | \$10,478.36  | \$19,696.81    | \$44,184.94   |
| \$190,500.80 | \$525,277.01 | \$215,522.24 | \$341,305.84 | \$502,550.35 | \$1,228,834.00 | \$645,780.58  |
| \$82.82      | \$193.30     | \$258.83     | \$260.19     | \$318.01     | \$349.33       | \$348.68      |
| \$1,866.50   | \$11,560.56  | \$7,481.80   | \$5,658.43   | \$9,148.94   | \$13,083.89    | \$17,422.44   |
| \$25,185.51  | \$109,380.95 | \$38,511.12  | \$65,288.68  | \$94,454.05  | \$253,274.71   | \$138,478.81  |
| \$16.56      | \$4,976.18   | \$1,750.96   | \$2,967.68   | \$4,293.44   | \$11,513.96    | \$6,289.62    |
| \$8,721.33   | \$13,888.65  | \$12,309.58  | \$6,944.36   | \$6,226.90   | \$12,748.10    | \$24,226.52   |
| \$12,046.15  | \$12,500.08  | (\$3,620.99) | \$16,241.05  | \$26,058.65  | \$18,669.13    | \$27,785.20   |
| \$3,724.78   | \$9,033.44   | \$5,565.77   | \$4,365.37   | \$4,379.06   | \$9,226.00     | \$13,760.59   |
| \$51,643.65  | \$161,533.16 | \$62,257.07  | \$101,725.76 | \$144,879.05 | \$318,865.12   | \$228,311.86  |
| \$242,144.45 | \$686,810.17 | \$277,779.31 | \$443,031.60 | \$647,429.40 | \$1,547,699.12 | \$874,092.44  |



| Aug 2017      | Sep 2017       | Oct 2017      | Nov 2017      | Dec 2017     | Jan 2018      | Feb 2018      |
|---------------|----------------|---------------|---------------|--------------|---------------|---------------|
| \$104,000.92  | \$40,904.23    | \$5,015.56    | \$6,258.82    | \$3,807.96   | (\$3,902.83)  | \$7,497.44    |
| (\$14,239.66) | (\$23,214.26)  | (\$27,280.01) | (\$38,544.99) | (\$8,532.56) | (\$27,280.00) | (\$20,034.00) |
| \$593,583.33  | (\$141,928.24) | \$260,428.28  | \$21,119.78   | \$196,049.18 | \$121,924.49  | (\$24,067.40) |
| \$16.61       | \$237.40       | \$114.67      | \$468.97      | \$644.11     | \$116.95      | \$127.22      |
| \$7,177.39    | \$5,167.69     | \$2,066.78    | \$2,800.79    | \$996.69     | \$431.21      | \$9,643.93    |
| \$690,538.59  | (\$118,833.18) | \$240,345.28  | (\$7,896.63)  | \$192,965.38 | \$91,289.82   | (\$26,832.81) |
| \$233.80      | \$14.79        | \$3.60        | \$11.96       | \$29.36      | \$39.13       | \$31.42       |
| \$12,484.53   | \$6,161.06     | \$3,367.93    | \$114.33      | \$1,528.27   | \$1,812.65    | (\$79.45)     |
| \$131,057.36  | (\$31,432.64)  | \$52,553.51   | \$4,517.76    | \$76,366.35  | \$47,267.60   | (\$3,766.13)  |
| \$9,089.56    | (\$2,053.17)   | \$3,949.82    | \$338.85      | \$5,950.72   | \$3,683.22    | (\$293.45)    |
| \$3,946.55    | \$2,925.52     | \$1,060.07    | \$1,706.21    | \$843.77     | \$291.35      | \$5,181.93    |
| \$46,574.20   | \$170,085.66   | \$2,981.36    | \$2,451.54    | \$5,756.71   | \$292.05      | \$3,066.02    |
| \$2,670.00    | \$2,091.01     | \$982.49      | \$525.65      | \$350.83     | \$81.66       | \$4,739.03    |
| \$206,056.00  | \$147,792.23   | \$64,898.78   | \$9,666.30    | \$90,826.01  | \$53,467.66   | \$8,879.37    |
| \$896,594.59  | \$28,959.05    | \$305,244.06  | \$1,769.67    | \$283,791.39 | \$144,757.48  | (\$17,953.44) |

| Mar 2018      | Apr 2018      | May 2018     | Jun 2018      | Jul 2018     | Aug 2018      | Sep 2018      |
|---------------|---------------|--------------|---------------|--------------|---------------|---------------|
| \$1,508.97    | (\$105.13)    | \$9,019.26   | \$837.44      | \$1,773.98   | (\$367.32)    | \$0.00        |
| (\$24,700.03) | (\$12,250.00) | \$14.40      | (\$13,957.34) | (\$4,340.00) | (\$4,339.72)  | (\$8,010.00)  |
| \$41,318.16   | \$4,568.82    | \$72,814.18  | \$78,140.41   | \$156,530.59 | (\$10,147.86) | (\$269.79)    |
| \$13.82       | (\$14.00)     | \$345.77     | \$840.16      | \$374.39     | \$0.01        | \$0.00        |
| \$793.18      | \$648.56      | \$2,952.19   | \$3,427.12    | \$879.87     | \$363.26      | \$132.64      |
| \$18,934.10   | (\$7,151.75)  | \$85,145.80  | \$69,287.79   | \$155,218.83 | (\$14,491.63) | (\$8,147.15)  |
| \$23.26       | \$28.02       | \$52.62      | \$57.11       | (\$12.66)    | (\$1.19)      | (\$5.46)      |
| (\$1,334.28)  | \$54.35       | \$1,919.38   | \$774.27      | \$1,042.56   | (\$46.16)     | (\$413.51)    |
| \$15,899.37   | \$1,965.34    | \$42,846.18  | \$29,125.19   | \$51,930.27  | (\$3,841.29)  | (\$4,389.07)  |
| \$1,192.37    | \$107.41      | \$2,335.80   | \$2,503.68    | \$4,745.70   | (\$329.26)    | (\$264.41)    |
| \$428.70      | \$334.79      | \$1,749.09   | \$2,270.76    | \$665.19     | \$144.45      | \$68.81       |
| (\$678.66)    | \$344.77      | \$3,126.87   | \$1,764.59    | \$593.74     | (\$10.35)     | (\$196.83)    |
| \$165.38      | \$202.72      | \$939.12     | \$1,229.21    | \$482.76     | \$128.92      | \$16.99       |
| \$15,696.14   | \$3,037.40    | \$52,969.06  | \$37,724.81   | \$59,447.56  | (\$3,954.88)  | (\$5,183.48)  |
| \$34,630.24   | (\$4,114.35)  | \$138,114.86 | \$107,012.60  | \$214,666.39 | (\$18,446.51) | (\$13,330.63) |

| Oct 2018     | Nov 2018     | Dec 2018     | Jan 2019      | Feb 2019     | Mar 2019      | Apr 2019     | May 2019     |
|--------------|--------------|--------------|---------------|--------------|---------------|--------------|--------------|
| \$143.20     | \$0.00       | \$34.26      | \$0.00        | (\$4,310.40) | (\$8,793.74)  | \$0.41       | \$0.00       |
| (\$1,140.00) | \$0.00       | (\$4,290.00) | (\$1,857.01)  | \$0.00       | \$0.00        | \$0.00       | (\$619.99)   |
| \$2,562.25   | \$172.61     | (\$295.74)   | \$32.89       | (\$1,055.36) | (\$43,292.99) | (\$1,681.22) | (\$30.66)    |
| \$0.59       | \$0.62       | \$14.36      | (\$5.48)      | \$121.97     | (\$1,426.46)  | \$0.00       | \$0.00       |
| \$1.01       | \$0.00       | \$28.71      | \$66.80       | \$860.85     | (\$13,867.01) | \$1.80       | \$0.00       |
| \$1,567.05   | \$173.23     | (\$4,508.41) | (\$1,762.80)  | (\$4,382.94) | (\$67,380.20) | (\$1,679.01) | (\$650.65)   |
| \$0.00       | \$0.00       | \$0.00       | \$0.00        | \$6.81       | (\$153.62)    | \$0.00       | \$0.00       |
| (\$646.40)   | (\$150.17)   | (\$187.91)   | (\$895.90)    | (\$719.74)   | (\$1,092.33)  | (\$109.61)   | (\$54.31)    |
| (\$7,486.07) | (\$1,734.32) | (\$2,987.42) | (\$10,549.85) | (\$520.06)   | (\$11,204.57) | (\$4,526.75) | (\$1,222.88) |
| (\$475.32)   | (\$102.05)   | (\$171.85)   | (\$572.94)    | (\$62.36)    | (\$1,507.00)  | (\$307.69)   | (\$49.00)    |
| (\$1.89)     | \$0.34       | \$22.26      | \$38.07       | \$547.05     | (\$8,242.22)  | \$0.96       | \$0.00       |
| \$87.69      | \$0.00       | \$20.59      | \$0.00        | (\$4,451.19) | (\$2,186.37)  | \$0.12       | \$0.00       |
| \$7.55       | \$0.18       | \$4.56       | \$1.71        | \$119.89     | (\$5,678.56)  | \$0.82       | \$0.00       |
| (\$8,514.44) | (\$1,986.02) | (\$3,299.77) | (\$11,978.91) | (\$5,079.60) | (\$30,064.67) | (\$4,942.15) | (\$1,326.19) |
| (\$6,947.39) | (\$1,812.79) | (\$7,808.18) | (\$13,741.71) | (\$9,462.54) | (\$97,444.87) | (\$6,621.16) | (\$1,976.84) |

| Jul 2019  | Aug 2019     | Sep 2019   | Oct 2019     | Total Cost     |
|-----------|--------------|------------|--------------|----------------|
| \$0.00    | (\$83.76)    | (\$0.29)   | \$0.88       | \$730,390.71   |
| \$17.39   | \$0.00       | \$0.00     | \$0.00       | (\$379,320.21) |
| \$0.03    | \$3,548.55   | (\$64.00)  | \$395.62     | \$5,633,865.77 |
| \$320.17  | \$0.00       | (\$6.02)   | \$0.01       | \$34,081.79    |
| \$0.00    | \$186.01     | (\$6.32)   | \$18.82      | \$262,256.24   |
| \$337.59  | \$3,650.80   | (\$76.63)  | \$415.33     | \$6,281,274.30 |
| \$0.00    | \$0.00       | \$0.00     | \$0.00       | \$5,447.23     |
| (\$13.48) | (\$228.28)   | (\$64.77)  | (\$169.28)   | \$106,813.12   |
| \$71.15   | (\$3,334.95) | (\$465.56) | (\$2,305.07) | \$1,403,797.08 |
| (\$7.79)  | (\$239.21)   | (\$19.33)  | (\$159.11)   | \$102,179.89   |
| \$196.43  | \$114.14     | (\$6.66)   | \$9.96       | \$162,444.54   |
| \$0.00    | (\$104.08)   | \$0.15     | \$0.92       | \$400,794.07   |
| \$0.00    | \$80.53      | (\$1.42)   | \$5.76       | \$98,716.84    |
| \$246.31  | (\$3,711.85) | (\$557.59) | (\$2,616.82) | \$2,280,192.77 |
| \$583.90  | (\$61.05)    | (\$634.22) | (\$2,201.49) | \$8,561,467.07 |

Public Service of New Hampshire d/b/a Eversource Energy  
Docket No. DE 19-057

Date Request Received: 03/10/2020

Date of Response: 03/20/2020

Request No. STAFF 16-005

Page 1 of 2

Request from: New Hampshire Public Utilities Commission Staff

Witness: Joseph A. Purington

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**Request:**

Reference Purington Rebuttal Testimony at Bates 017, Lines 4-7, describing benefits of steel poles in right of ways (ROW) as including resistance to bugs, woodpeckers, dry rot, and moisture rot. Please describe how many of the Company's wooden poles located in ROWs have been removed in each of the last ten years due to problems associated with: (1) bugs; (2) woodpeckers; (3) dry rot; and (4) moisture rot. Please also provide who made that determination.

**Response:**

Ground Line Inspection results from 2010 through 2019 are shown below and these poles have been replaced. The Company contracted for Ground Line Inspection with Utility Pole Technologies Inc (UPT) in 2010 through 2012, Osmose in 2013, and Smith Mountain Investments since 2014.

| Year | Decay | Insects | External Damage | Split |
|------|-------|---------|-----------------|-------|
| 2010 | 3     | 0       | 0               | 1     |
| 2011 | 5     | 2       | 0               | 0     |
| 2012 | 0     | 0       | 0               | 0     |
| 2013 | 18    | 4       | 2               | 2     |
| 2014 | 17    | 0       | 0               | 0     |
| 2015 | 0     | 0       | 0               | 0     |
| 2016 | 196   | 0       | 14              | 30    |
| 2017 | 18    | 0       | 0               | 27    |
| 2018 | 41    | 0       | 0               | 0     |
| 2019 | 11    | 0       | 1               | 1     |

Additional ROW poles were replaced each year as a result of routine Company aerial and foot patrols. Need for replacement of these poles was determined by Company employees, typically Construction Representatives who perform the aerial patrols.

|      | Decay | Insects | External Damage | Split | Woodpecker |
|------|-------|---------|-----------------|-------|------------|
| 2010 | 0     | 0       | 0               | 0     | 0          |
| 2011 | 1     | 0       | 0               | 0     | 0          |
| 2012 | 5     | 1       | 5               | 0     | 2          |
| 2013 | 20    | 4       | 6               | 2     | 4          |
| 2014 | 0     | 0       | 1               | 4     | 1          |
| 2015 | 7     | 0       | 3               | 4     | 7          |
| 2016 | 3     | 0       | 2               | 5     | 17         |
| 2017 | 9     | 1       | 17              | 3     | 3          |
| 2018 | 2     | 1       | 0               | 1     | 4          |
| 2019 | 4     | 0       | 3               | 1     | 4          |

Examples of damage are shown in Attachment STAFF 16-005, which was assembled for another purpose but is included here for illustrative purposes.

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Request No. STAFF 16-006**

**Request from: New Hampshire Public Utilities Commission Staff**

**Date of Response: 03/27/2020**

**Page 1 of 1**

**Witness: Joseph A. Purington**

---

**Request:**

Reference Purington Rebuttal Testimony at Bates 023, Line 12 through Bates 024, Line 5, describing Mr. Demmer's analysis as lacking consideration of life cycle cost related to steel and wooden poles, composite and wooden cross arms, and class two and class four poles.

- a. Please provide any lifecycle analysis completed by the Company showing any incremental benefit to ratepayers of the above-mentioned materials that might justify the incremental cost, stating when such analysis was conducted by the Company.
- b. How does the Company account for risk associated with long-term investments (50+ years) that could "tether [customers] to particular technologies that may become outmoded or provide only partial solutions" to a customer need within their projected lifecycle? (citing Eversource April 2019 Comment in IR 15-296)

**Response:**

- a. The installation of steel poles in rights-of-way will provide financial and environmental benefits. The poles are more durable and last twice as long as wood poles; therefore the cost of installing and accessing these poles is reduced effectively by half. For example, the cost of wetlands matting to limit the impact of heavy equipment has proven to be significant, as regulations and permitting requirements have become more burdensome. Although wood was the construction material of choice in the last century, it has been displaced by steel and composite materials in many cases due to the strength and resilience, including resistance to rot, of these other products. Steel poles also allow for longer spans and fewer pole sets. The Company's calculation of life-cycle benefits for steel poles is as follows:

Labor to install is the same, whether steel or wood. A valid assumption of installation cost is \$5,000.

Material cost of a steel pole is \$2,152. A steel pole installed today lasts for 59 years, on average. Thus, total cost is \$7,152.

Material cost of a wood pole is \$899. A wood pole installed today lasts for 30 years, on average. Thus, for a 59-year span to match the life-cycle of the steel pole, the cost is double or \$1,798, without consideration of inflation and installation costs are incurred twice. This means that, over the course of the 59 years, the cost of the wood pole is \$11,798, without inflation (which would make the cost higher) and holding all other costs constant (such as any costs arising from new environmental requirements associated with placement). Attachment STAFF 16-006 provides further information and examples of the benefits of steel poles versus wood poles.

- b. The Company expects that poles, cross-arms, and electric lines will still be required in 50+ years and does not see that the proposed investments would become outmoded within their projected lifecycle.

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/20/2020**

**Request No. STAFF 16-010**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Lee G. Lajoie, David L. Plante**

---

**Request:**

Reference Menard, Lajoie, and Plante Rebuttal Testimony at Bates 091, Lines 20-21, describing the refurbished Viper reclosers as having been redeployed in the field. Please describe the accounting treatment of the costs associated with the Viper recloser purchase, installation, removal, and redeployment. If costs associated with removal and redeployment were booked as capital expenses, rather than maintenance, please explain why that is the case.

**Response:**

Viper reclosers were purchased into inventory, installed as a capital plant addition (FERC Account 101 Electric Plant in Service), and removed under FERC Account 108. Redeployment was done at no material cost for the redeployed units. The reimbursement from G&W for the cost to install and remove the defective units was applied to the individual work orders to offset the labor associated with removal and replacement.



**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/20/2020**

**Request No. STAFF 16-011**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Lee G. Lajoie, David L. Plante**

---

**Request:**

Reference Menard, Lajoie, and Plante Rebuttal Testimony at Bates 092, Line 9, "negotiated arrangement." Please provide any and all copies of the referenced negotiated arrangement between Eversource and the Viper manufacturer.

**Response:**

Please see the attached confidential documents for the requested information.

Pursuant to Puc 203.08(d) and RSA 363:28, VI, Eversource provides this response on a confidential basis to the Commission Staff and the Office of Consumer Advocate. Eversource submits that it has a good faith basis for seeking confidential treatment of the documents in this response and that it intends to submit a motion for confidential treatment of the documents prior to the commencement of any hearing in this proceeding.

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/19/2020**

**Request No. STAFF 16-012**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Lee G. Lajoie, David L. Plante**

---

**Request:**

Reference Menard, Lajoie, and Plante Rebuttal Testimony at Bates 088 – 090, describing “significant negative impact to reliability” and “address an urgent reliability and safety issue” involving the defective Viper reclosers. Please provide any and all failure and safety reports that describe in detail the number, nature, and location of the actual incidents that negatively impacted reliability and safety occurring prior to replacement of the defective Viper reclosers.

**Response:**

Details on Viper recloser failures in 2016, 2017, and 2018 and the associated reliability impact are shown in the attached Excel spreadsheet, Attachment Staff 16-012.

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/20/2020**

**Request No. STAFF 16-013**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Lee G. Lajoie, David L. Plante**

---

**Request:**

Reference Menard, Lajoie, and Plante Rebuttal Testimony at Bates 066. Are projects included by the Company for recovery in this rate case, and designated by Eversource to be in service and "used and useful," exempt from any type of prudence review undertaken by Staff? If so, under what circumstances (and project type) would such an exemption be triggered?

**Response:**

The Company is not requesting, and does not expect, any sort of "exemption" from a review of prudence for projects that were completed, are "used and useful" and presented for cost recovery in this case. The Company presented detailed authorizations and project documentation on more than 100 capital projects in this proceeding through the discovery and audit process for the sole purpose of enabling a prudence review. There is no statement or language on Bates 066 that indicates anything to the contrary and none is intended.

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/20/2020**

**Request No. STAFF 16-015**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Lee G. Lajoie, David L. Plante**

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**Request:**

Reference Menard, Lajoie, and Plante Rebuttal Testimony at Bates 078, "forecast load growth." Please provide any studies or reports that update and/or substantiate the load growth forecasted for the "Lakes Region" from the date of the original forecast to present.

**Response:**

The annual forecasts for the Lakes Region for years 2010 through 2017 used in planning studies is provided in Attachment Staff 16-015. A specific customer name has been redacted within the attachment. The Company transitioned from a planning region forecast to a substation level forecast after 2017, therefore a "Lakes Region" forecast is not available after 2017.

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Public Service of New Hampshire d/b/a Eversource Energy  
Docket No. DE 19-057

Date Request Received: 03/10/2020

Date of Response: 03/20/2020

Request No. STAFF 16-005

Page 1 of 2

Request from: New Hampshire Public Utilities Commission Staff

Witness: Joseph A. Purington

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**Request:**

Reference Purington Rebuttal Testimony at Bates 017, Lines 4-7, describing benefits of steel poles in right of ways (ROW) as including resistance to bugs, woodpeckers, dry rot, and moisture rot. Please describe how many of the Company's wooden poles located in ROWs have been removed in each of the last ten years due to problems associated with: (1) bugs; (2) woodpeckers; (3) dry rot; and (4) moisture rot. Please also provide who made that determination.

**Response:**

Ground Line Inspection results from 2010 through 2019 are shown below and these poles have been replaced. The Company contracted for Ground Line Inspection with Utility Pole Technologies Inc (UPT) in 2010 through 2012, Osmose in 2013, and Smith Mountain Investments since 2014.

| Year | Decay | Insects | External Damage | Split |
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| 2010 | 3     | 0       | 0               | 1     |
| 2011 | 5     | 2       | 0               | 0     |
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| 2013 | 18    | 4       | 2               | 2     |
| 2014 | 17    | 0       | 0               | 0     |
| 2015 | 0     | 0       | 0               | 0     |
| 2016 | 196   | 0       | 14              | 30    |
| 2017 | 18    | 0       | 0               | 27    |
| 2018 | 41    | 0       | 0               | 0     |
| 2019 | 11    | 0       | 1               | 1     |

Additional ROW poles were replaced each year as a result of routine Company aerial and foot patrols. Need for replacement of these poles was determined by Company employees, typically Construction Representatives who perform the aerial patrols.

|      | Decay | Insects | External Damage | Split | Woodpecker |
|------|-------|---------|-----------------|-------|------------|
| 2010 | 0     | 0       | 0               | 0     | 0          |
| 2011 | 1     | 0       | 0               | 0     | 0          |
| 2012 | 5     | 1       | 5               | 0     | 2          |
| 2013 | 20    | 4       | 6               | 2     | 4          |
| 2014 | 0     | 0       | 1               | 4     | 1          |
| 2015 | 7     | 0       | 3               | 4     | 7          |
| 2016 | 3     | 0       | 2               | 5     | 17         |
| 2017 | 9     | 1       | 17              | 3     | 3          |
| 2018 | 2     | 1       | 0               | 1     | 4          |
| 2019 | 4     | 0       | 3               | 1     | 4          |

Examples of damage are shown in Attachment STAFF 16-005, which was assembled for another purpose but is included here for illustrative purposes.

**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Request No. STAFF 16-006**

**Request from: New Hampshire Public Utilities Commission Staff**

**Date of Response: 03/27/2020**

**Page 1 of 1**

**Witness: Joseph A. Purington**

---

**Request:**

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**Response:**

- a. The installation of steel poles in rights-of-way will provide financial and environmental benefits. The poles are more durable and last twice as long as wood poles; therefore the cost of installing and accessing these poles is reduced effectively by half. For example, the cost of wetlands matting to limit the impact of heavy equipment has proven to be significant, as regulations and permitting requirements have become more burdensome. Although wood was the construction material of choice in the last century, it has been displaced by steel and composite materials in many cases due to the strength and resilience, including resistance to rot, of these other products. Steel poles also allow for longer spans and fewer pole sets. The Company's calculation of life-cycle benefits for steel poles is as follows:

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**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/20/2020**

**Request No. STAFF 16-010**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Lee G. Lajoie, David L. Plante**

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**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/20/2020**

**Request No. STAFF 16-011**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Lee G. Lajoie, David L. Plante**

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**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/19/2020**

**Request No. STAFF 16-012**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Lee G. Lajoie, David L. Plante**

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**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/20/2020**

**Request No. STAFF 16-013**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

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**Public Service of New Hampshire d/b/a Eversource Energy**  
**Docket No. DE 19-057**

**Date Request Received: 03/10/2020**

**Date of Response: 03/20/2020**

**Request No. STAFF 16-015**

**Page 1 of 1**

**Request from: New Hampshire Public Utilities Commission Staff**

**Witness: Erica L. Menard, Lee G. Lajoie, David L. Plante**

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Docket No. DE 19-057  
Data Request STAFF 12-045  
Dated 9/20/2019  
Attachment STAFF 12-045 E  
Page 1 of 6

## Public Service Co of New Hampshire Project Approval Information

|   |   |                    |
|---|---|--------------------|
| <b>Fund Project Number</b> A15CDA           | <b>Status</b> open                      | <b>Revision</b> 30 |
| <b>Project Title</b> CENTRAL REGION 2015 DA | <b>Operating Unit</b>                   |                    |
| <b>Initiated By</b> Randy Herk              | <b>Initiated Date</b> 1/2/2015 09:47:35 |                    |

|                            |  |
|----------------------------|--|
| <b>Description of Work</b> | Installation and commissioning of 25 SCADA devices on the 34.5KV system. all associated line work deemed to be minor in detail to support the DA deployment. |
| <b>Location</b>            | Distribution Line - New Hampshire  |

|  |             |                |                |                         |                |                            |            |
|--|-------------|----------------|----------------|-------------------------|----------------|----------------------------|------------|
| <b>Project Schedule / Expenditures</b> |             |                |                | <b>Est Start Date :</b> | 1/2/2015       | <b>Est Complete Date :</b> | 12/31/2017 |
| 2015                                   | 2016        | 2017           | 2018           | 2019                    | Future Years   | <b>Total</b>               |            |
| \$1,648,945.47                         | \$0.00      | \$3,936,000.00 | \$0.00         | \$0.00                  | \$0.00         | <u><b>\$5,584,945</b></u>  |            |
| <b>Capital</b>                         |             | <b>Expense</b> | <b>Removal</b> | <b>Retirements</b>      | <b>Credits</b> |                            |            |
| <b>Cost Breakdown</b>                  | \$5,584,945 | \$0            | \$0            | \$0                     | \$0            | \$5,584,945.47             |            |

Reason For Work

Background Information

### Approvals

| Level                  | Approver                      | Approval Limit | Date Approved |
|------------------------|-------------------------------|----------------|---------------|
| Project Manager        | Menard, Erica                 | \$0            | 10/24/2017    |
| Plant Accounting       | Salbinski, Chris              | \$0            | 10/24/2017    |
| Manager - PSNH Dist    | Lajoie, Lee                   | \$100,000      | 10/25/2017    |
| Director - PSNH Dist   | Eilenberger_TERMINATED, James | \$250,000      | 11/8/2017     |
| Sr. VP/President - Ops | Clarke_TERMINATED, Peter      | \$5,000,000    | 11/9/2017     |
| Executive VP - COO     | Schweiger, Werner             | \$12,500,000   | 11/10/2017    |



APS 1 - Project Authorization Policy

## Supplement Request Form

|  |   |
|--|---|
| Date Prepared: 10/2/17                 | Project Title: Central Region 2015 DA                 |
| Company/Companies: NH                  | Project ID Number: A15CDA                             |
| Organization: NH Engineering           | Plant Class/(F.P.Type): Distribution                  |
| Project Initiator: Ryan West           | Project Type: Specific                                |
| Project Manager: Lee Lajoie            | Capital Investment Part of Original Operating Plan? N |
| Project Sponsor: James Eilenberger     | O&M Expenses Part of the Original Operating Plan? N   |
| Current Authorized Amount: \$1,649,000 | Estimated in service date(s): 12/31/2017              |
| Supplement Request: \$3,936,000        | Other:  |
| Total Request: \$5,585,000             |   |

### Supplement Justification

*Supplement Request Forms must be completed for projects in accordance with the Project Authorization Policy and approval levels in the Delegation of Authority Policy (DOA) as follows:*

For Corporate Shared Services Projects:

*For projects \$500K to \$10M - An increase in total authorized cost > 15% or;  
 For projects > \$10M - An increase in total authorized cost > \$1.5M*

For Distribution Operations Projects:

*For projects <= \$250K - An increase in direct costs >= \$25K or;  
 For projects >\$250K - An increase in direct costs >10%*

For Transmission Operations Projects:

*For projects <= \$500K - An increase in total authorized cost >= \$75K  
 For projects \$500K to \$16.5M- An increase in total authorized cost > 15% or;  
 For projects > \$16.5M - An increase in total authorized cost > \$2.5M*

### Justification for Additional Resources

In this section, please provide a detailed and comprehensive justification for the additional resources. Please include, scope changes, dollar changes, the reasons for the changes, etc.

In addition, please attach a copy of the prior authorized PAF as reference

Total Request figure of \$5,585,000 reflects total anticipated expenditures to meet targeted installations of pole top Distribution Automation devices in Central Region under Base Budget. When this project was approved, the Company expected the REP to be extended at its existing funding level through the end of 2017. In July of 2017 the NHPUC approved a funding level for REP for the remainder of 2017 at half its previous level. In order to maintain the pole top DA installations at the planned level, the decision was made to change the funding source for non-REP installations to base budget. Original Authorized Amount did not include funding for installations in the July 1 2017 to December 31, 2017 time period. Expenditures have been approved as part of the capital budget tracking process.

# EVERSOURCE

## APS 1 - Project Authorization Policy

### Supplement Cost Summary

Note: Dollar values are in thousands:

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 1,649            | \$ 2,731              | \$ 4,380        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | -                   | -                     | -               |
| Total Direct Spending         | \$ 1,649            | \$ 2,731              | \$ 4,380        |
| Capital Additions - Indirect  | -                   | 1,166                 | 1,166           |
| AFUDC                         | -                   | 39                    | 39              |
| Total Capital Request         | \$ 1,649            | \$ 3,936              | \$ 5,585        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 1,649</b>     | <b>\$ 3,936</b>       | <b>\$ 5,585</b> |

Note: Dollar values are in thousands:

Total Supplement Request by year view:

|                               | Year 2017       | Year 20__   | Year 20__ + | Total           |
|-------------------------------|-----------------|-------------|-------------|-----------------|
| Capital Additions - Direct    | \$ 2,731        | \$ -        | \$ -        | \$ 2,731        |
| Less Customer Contribution    | -               | -           | -           | -               |
| Removals net of Salvage ____% | -               | -           | -           | -               |
| Total Direct Spending         | \$ 2,731        | \$ -        | \$ -        | \$ 2,731        |
| Capital Additions - Indirect  | 1,166           | -           | -           | 1,166           |
| AFUDC                         | 39              | -           | -           | 39              |
| Total Capital Request         | \$ 3,936        | \$ -        | \$ -        | \$ 3,936        |
| O&M                           | -               | -           | -           | -               |
| <b>Total Request</b>          | <b>\$ 3,936</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 3,936</b> |

Funding Project Information

New Approval Type

Budget Version **2015 Working (inactive)**

Funding Project **A15CDA** Revision **1**

Rev

Approval Type **FP PSNH - Dist - alternate** Amount **\$1,648,945.47**

Status **Approved** Sent By **Herk, Randy** Date Sent **1/7/2015** Date Appr **1/12/2015**

|                          | Approver            | Required                            | Date Approved | Authority Limit |
|--------------------------|---------------------|-------------------------------------|---------------|-----------------|
| + Project Manager - - -  | Menard, Erica       | <input checked="" type="checkbox"/> | 1/7/2015      | \$0             |
| + Plant Accounting - - - | Roncioli, TERMINATE | <input checked="" type="checkbox"/> | 1/7/2015      | \$0             |
| + Manager - PSNH Dist    | Dickie, Brian       | <input checked="" type="checkbox"/> | 1/8/2015      | \$250,000       |
| + Vice President - PSNH  | Ramsey, TERMINATE   | <input checked="" type="checkbox"/> | 1/12/2015     | \$3,000,000     |

Details  
 Accounts  
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 Class Codes  
 Justification  
 Tax Status  
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 Related FPs

Record **1** of 1



**PSNH**  
**2015 Capital Construction Budget**  
**Project Authorization Form**

**Project Title:** Central Region 2015 DA  
**Business Group:** Distribution **Project Area:** Central  
**Project Category:** Reliability **Project ID:** A15CDA  
**Project Cost:** **Budgeted** ☒ **Unbudgeted** ☐  
**Current Year Capital:** \$1,648,945 **Expense:** \$0  
**Total Project Capital:** **Expense:** \$0  
**Start Date: (mm/yy)** Jan-15 **In-service Date: (mm/yy)** Dec-15  
**Project Initiator:** PSNH DA plan  
**Project Owner/Manager:** Brian Dickie

**Project Description:**

Project includes the following:  
Installation and commissioning of 25 SCADA devices on the 34.5 kV system  
All associated line work deemed to be minor in detail to support the DA deployment

**Project Justification:**

**Problem Statement**

• *Project is part of the long term Distribution Automation strategy. This sub-project will Start the 34.5 kV Central area Distribution Automation plan.*

**Project Objectives**

*Increase system awareness*  
*Increase reliability*  
*Increase customer satisfaction*  
*Decrease large customer impacts per single outage event and outage duration*

**PSNH 2014 Capital Construction Budget Project Authorization Form**

(complete if over \$200K Capital, including contingency and indirects)

**Risk: (describe the risk of not doing the work)**

- Not completing the PSNH DA strategy
- \*continued reliability issues associated with large single contingency outage events

**Benefit:**

- \*System reliability increase
- \*Customer satisfaction will increase
- \*efficiencies in line operations and increased system awareness

**Alternatives Considered: (if applicable)**

N/A

**Financial Evaluation: (Describe the project schedule and milestones)**

Ongoing yearly five year project  
 devices installs complete by May 30, 2105.  
 SCADA comissioning by October 2015

| Direct Capital Costs                                      | Year 1      | Year 2 | Year 3 | Total Direct Capital Costs |
|---|-------------|--------|--------|----------------------------|
| NU Labor  | \$200,000   |        |        | \$200,000                  |
| Contract Labor  | \$0         |        |        | \$0                        |
| Outside Services  |             |        |        | \$0                        |
| Materials & Supplies                                      | \$856,200   |        |        | \$856,200                  |
| Other (Fees & Payments, Rents & Leases, Emp Exp, Salvage) |             |        |        | \$0                        |
| Contingency   |             |        |        | \$0                        |
| Total   | \$1,056,200 | \$0    | \$0    | \$1,056,200                |

| Indirect Capital Costs | Year 1      | Year 2 | Year 3 | Total Indirect Capital Costs |
|------------------------|-------------|--------|--------|------------------------------|
| Benefits               | \$131,326   |        |        | \$131,326                    |
| Loaders                | \$333,918   |        |        | \$333,918                    |
| AFUDC                  | \$9,604     |        |        | \$9,604                      |
| Other                  | \$117,897   |        |        | \$117,897                    |
| Total                  | \$592,745   | \$0    | \$0    | \$592,745                    |
| Total Capital Costs    | \$1,648,945 | \$0    | \$0    | \$1,648,945                  |
| Total O&M Costs        |             |        |        | \$0                          |

**Other Comments:**

## Public Service Co of New Hampshire Project Approval Information

|   |                    |   |
|---|--------------------|---|
| <b>Fund Project Number</b> A15EDA           | <b>Status</b> open | <b>Revision</b> 34                      |
| <b>Project Title</b> EASTERN REGION 2015 DA |                    | <b>Operating Unit</b>                   |
| <b>Initiated By</b> Randy Herk              |                    | <b>Initiated Date</b> 1/2/2015 11:10:44 |

|                            |   |
|----------------------------|---|
| <b>Description of Work</b> | Installation and commissioning of 4 SCADA devices on the 34.5kv system. all associated line work deemed to be minor in detail to support the DA deployment. |
| <b>Location</b>            | Distribution Line - New Hampshire   |

| <b>Project Schedule / Expenditures</b>  | <b>Est Start Date :</b> | 1/2/2015       | <b>Est Complete Date :</b> | 1/31/2018   |                |                           |             |              |          |                |                |                |        |                           |  |  |  |  |
|---|-------------------------|----------------|----------------------------|-------------|----------------|---------------------------|-------------|--------------|----------|----------------|----------------|----------------|--------|---------------------------|--|--|--|--|
| <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 15%;">2015</th> <th style="width: 15%;">2016</th> <th style="width: 15%;">2017</th> <th style="width: 15%;">2018</th> <th style="width: 15%;">2019</th> <th style="width: 15%;">Future Years</th> <th style="width: 15%;">Total</th> </tr> <tr> <td style="text-align: right;">\$358,550.71</td> <td style="text-align: right;">\$0.00</td> <td style="text-align: right;">\$3,372,449.29</td> <td style="text-align: right;">\$1,452,000.00</td> <td style="text-align: right;">\$0.00</td> <td style="text-align: right;">\$0.00</td> <td style="text-align: right;"><b><u>\$5,183,000</u></b></td> </tr> </table> | 2015                    | 2016           | 2017                       | 2018        | 2019           | Future Years              | Total       | \$358,550.71 | \$0.00   | \$3,372,449.29 | \$1,452,000.00 | \$0.00         | \$0.00 | <b><u>\$5,183,000</u></b> |  |  |  |  |
| 2015  | 2016                    | 2017           | 2018                       | 2019        | Future Years   | Total                     |             |              |          |                |                |                |        |                           |  |  |  |  |
| \$358,550.71  | \$0.00                  | \$3,372,449.29 | \$1,452,000.00             | \$0.00      | \$0.00         | <b><u>\$5,183,000</u></b> |             |              |          |                |                |                |        |                           |  |  |  |  |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 15%;">Capital</th> <th style="width: 15%;">Expense</th> <th style="width: 15%;">Removal</th> <th style="width: 15%;">Retirements</th> <th style="width: 15%;">Credits</th> <th style="width: 15%;"></th> </tr> <tr> <td style="text-align: right;">\$5,130,000</td> <td style="text-align: right;">\$0</td> <td style="text-align: right;">\$53,000</td> <td style="text-align: right;">\$0</td> <td style="text-align: right;">\$0</td> <td style="text-align: right;">\$5,183,000.00</td> </tr> </table>   | Capital                 | Expense        | Removal                    | Retirements | Credits        |                           | \$5,130,000 | \$0          | \$53,000 | \$0            | \$0            | \$5,183,000.00 |        |                           |  |  |  |  |
| Capital   | Expense                 | Removal        | Retirements                | Credits     |                |                           |             |              |          |                |                |                |        |                           |  |  |  |  |
| \$5,130,000   | \$0                     | \$53,000       | \$0                        | \$0         | \$5,183,000.00 |                           |             |              |          |                |                |                |        |                           |  |  |  |  |

**Reason For Work**

**Background Information**

### Approvals

| Level                  | Approver                      | Approval Limit | Date Approved |
|------------------------|-------------------------------|----------------|---------------|
| Project Manager        | Menard, Erica                 | \$0            | 2/7/2019      |
| Plant Accounting       | Salbinski, Chris              | \$0            | 2/7/2019      |
| Manager - PSNH Dist    | Lajoie, Lee                   | \$100,000      | 2/7/2019      |
| Director - PSNH Dist   | Eilenberger_TERMINATED, James | \$250,000      | 2/7/2019      |
| Vice President - PSNH  | Purington, Joseph             | \$1,000,000    | 2/11/2019     |
| Sr. VP/President - Ops | Quinlan, William              | \$5,000,000    | 10/9/2019     |
| Executive VP - COO     | Schweiger, Werner             | \$12,500,000   | 10/9/2019     |



APS 1 - Project Authorization Policy

## Supplement Request Form

|  |   |
|--|---|
| Date Prepared: 1/23/2019               | Project Title: Eastern Region 2015 DA                   |
| Company/Companies: NH                  | Project ID Number: A15EDA                               |
| Organization: NH Engineering           | Plant Class/(F.P.Type): Distribution                    |
| Project Initiator: Ryan West           | Project Type: Specific                                  |
| Project Manager: Lee Lajoie            | Capital Investment Part of Original Operating Plan? Yes |
| Project Sponsor: James Eilenberger     | O&M Expenses Part of the Original Operating Plan? Yes   |
| Current Authorized Amount: \$3,731,000 | Estimated in service date(s): 1/31/2018                 |
| Supplement Request: \$1,452,000        | Other:  |
| Total Request: \$5,183,000             |   |

## Supplement Justification

### Justification for Additional Resources

Total Request figure of \$5,183,000 reflects total expenditures under this project to meet targeted installations of pole top Distribution Automation devices in Eastern Region under Base Budget in the 2015 – 2018 timeframe.

The Current Authorized Amount above did not include 17 devices which were installed and commissioned under this project in early 2018. These installations were written under this project in the Work Management System well in advance of the actual installation date and changing the project number would have required extensive work to re-write under a new project number so it was decided to continue with the installations under A15EDA. Processes have been put in place to prevent this situation from occurring again by gaining approval for the next year's expenditures late in the current year."

Expenditures had been approved as part of the capital budget tracking process, but the proper Supplemental Authorization was not completed. This document is intended to address that oversight.

# EVERSOURCE

## APS 1 - Project Authorization Policy

### Supplement Cost Summary

*Note: Dollar values are in thousands:*

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 2,845            | \$ 794                | \$ 3,639        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | -                   | 53                    | 53              |
| Total Direct Spending         | \$ 2,845            | \$ 847                | \$ 3,692        |
| Capital Additions - Indirect  | 850                 | 627                   | 1,477           |
| AFUDC                         | 36                  | (22)                  | 14              |
| Total Capital Request         | \$ 3,731            | \$ 1,452              | \$ 5,183        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 3,731</b>     | <b>\$ 1,452</b>       | <b>\$ 5,183</b> |

*Note: Dollar values are in thousands:*

Total Supplement Request by year view:

|                               | Year 2018       | Year 20__   | Year 20__ + | Total           |
|-------------------------------|-----------------|-------------|-------------|-----------------|
| Capital Additions - Direct    | \$ 794          | \$ -        | \$ -        | \$ 794          |
| Less Customer Contribution    | -               | -           | -           | -               |
| Removals net of Salvage ____% | 53              | -           | -           | 53              |
| Total Direct Spending         | \$ 847          | \$ -        | \$ -        | \$ 847          |
| Capital Additions - Indirect  | 627             | -           | -           | 627             |
| AFUDC                         | (22)            | -           | -           | (22)            |
| Total Capital Request         | \$ 1,452        | \$ -        | \$ -        | \$ 1,452        |
| O&M                           | -               | -           | -           | -               |
| <b>Total Request</b>          | <b>\$ 1,452</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 1,452</b> |

Confirmed Prior Authorized had no removals. LGL

**Funding Project Information**

**New Approval Type** ▼

**Budget Version** 2017 Working (inactive)

**Funding Project** A15EDA **Revision** 32 **Rev** |< < > >|

**Approval Type** FP PSNH - Distribution - Eng **Amount** \$3,731,050.71 Send for Approval

**Status** Approved **Sent By** Herk, Randy **Date Sent** 10/19/2017 **Date Appr** 11/9/2017 Refresh

|                          | Approver  | Required                            | Date Approved  | Authority Limit   |
|--------------------------|---|-------------------------------------|--|---|
| + Project Manager        | <span style="border: 1px solid black; padding: 2px;">Menard, Erica ▼</span>       | <input checked="" type="checkbox"/> | <span style="border: 1px solid black; padding: 2px;">10/24/2017</span> | <span style="border: 1px solid black; padding: 2px;">\$0</span>         |
| + Plant Accounting       | <span style="border: 1px solid black; padding: 2px;">Salbinski, Chris ▼</span>    | <input checked="" type="checkbox"/> | <span style="border: 1px solid black; padding: 2px;">10/24/2017</span> | <span style="border: 1px solid black; padding: 2px;">\$0</span>         |
| + Manager - PSNH Dist    | <span style="border: 1px solid black; padding: 2px;">Lajoie, Lee ▼</span>         | <input checked="" type="checkbox"/> | <span style="border: 1px solid black; padding: 2px;">10/25/2017</span> | <span style="border: 1px solid black; padding: 2px;">\$100,000</span>   |
| + Director - PSNH Dist   | <span style="border: 1px solid black; padding: 2px;">Eilenberger_TERMINA ▼</span> | <input checked="" type="checkbox"/> | <span style="border: 1px solid black; padding: 2px;">11/8/2017</span>  | <span style="border: 1px solid black; padding: 2px;">\$250,000</span>   |
| + Sr. VP/President - Ops | <span style="border: 1px solid black; padding: 2px;">Clarke_TERMINATED ▼</span>   | <input checked="" type="checkbox"/> | <span style="border: 1px solid black; padding: 2px;">11/9/2017</span>  | <span style="border: 1px solid black; padding: 2px;">\$5,000,000</span> |

**Details**  
**Accounts**  
**Departments**  
**Contacts**  
**Tasks**  
**Class Codes**  
**Justification**  
**Tax Status**

**Authorizations**  
**User Comment**  
**Review**  
**Related FPs**

**Audits**  
Delete FP  
Cancel FP  
Suspend FP

**Estimates**  
Update  
Print  
Cancel

**Record** 1 **of** 1 |< < > >|

# EVERSOURCE

## APS 1 - Project Authorization Policy

### Supplement Request Form

|                                      |   |
|--------------------------------------|---|
| Date Prepared: 10/2/17               | Project Title: Eastern Region 2015 DA                 |
| Company/Companies: NH                | Project ID Number: A15EDA                             |
| Organization: NH Engineering         | Plant Class/(F.P.Type): Distribution                  |
| Project Initiator: Ryan West         | Project Type: Specific                                |
| Project Manager: Lee Lajoie          | Capital Investment Part of Original Operating Plan? N |
| Project Sponsor: James Eilenberger   | O&M Expenses Part of the Original Operating Plan? N   |
| Current Authorized Amount: \$359,000 | Estimated in service date(s): 12/31/2017              |
| Supplement Request: \$3,372,000      | Other:  |
| Total Request: \$3,731,000           |   |

### Supplement Justification

*Supplement Request Forms must be completed for projects in accordance with the Project Authorization Policy and approval levels in the Delegation of Authority Policy (DOA) as follows:*

For Corporate Shared Services Projects:

*For projects \$500K to \$10M - An increase in total authorized cost > 15% or;  
 For projects > \$10M - An increase in total authorized cost > \$1.5M*

For Distribution Operations Projects:

*For projects <= \$250K - An increase in direct costs >= \$25K or;  
 For projects >\$250K - An increase in direct costs >10%*

For Transmission Operations Projects:

*For projects <= \$500K - An increase in total authorized cost >= \$75K  
 For projects \$500K to \$16.5M- An increase in total authorized cost > 15% or;  
 For projects > \$16.5M - An increase in total authorized cost > \$2.5M*

### Justification for Additional Resources

In this section, please provide a detailed and comprehensive justification for the additional resources. Please include, scope changes, dollar changes, the reasons for the changes, etc.

In addition, please attach a copy of the prior authorized PAF as reference

Total Request figure of \$3,731,000 reflects total anticipated expenditures to meet targeted installations of pole top Distribution Automation devices in Eastern Region under Base Budget. When this project was approved, the Company expected the REP to be extended at its existing funding level through the end of 2017. In July of 2017 the NHPUC approved a funding level for REP for the remainder of 2017 at half its previous level. In order to maintain the pole top DA installations at the planned level, the decision was made to change the funding source for non-REP installations to base budget. Original Authorized Amount did not include funding for installations in the July 1 2017 to December 31, 2017 time period. Expenditures have been approved as part of the capital budget tracking process.

# EVERSOURCE

## APS 1 - Project Authorization Policy

### Supplement Cost Summary

*Note: Dollar values are in thousands:*

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 359              | \$ 2,608              | \$ 2,967        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | -                   | -                     | -               |
| Total Direct Spending         | \$ 359              | \$ 2,608              | \$ 2,967        |
| Capital Additions - Indirect  | -                   | 730                   | 730             |
| AFUDC                         | -                   | 34                    | 34              |
| Total Capital Request         | \$ 359              | \$ 3,372              | \$ 3,731        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 359</b>       | <b>\$ 3,372</b>       | <b>\$ 3,731</b> |

*Note: Dollar values are in thousands:*

Total Supplement Request by year view:

|                               | Year 2017       | Year 20__   | Year 20__ + | Total           |
|-------------------------------|-----------------|-------------|-------------|-----------------|
| Capital Additions - Direct    | \$ 2,608        | \$ -        | \$ -        | \$ 2,608        |
| Less Customer Contribution    | -               | -           | -           | -               |
| Removals net of Salvage ____% | -               | -           | -           | -               |
| Total Direct Spending         | \$ 2,608        | \$ -        | \$ -        | \$ 2,608        |
| Capital Additions - Indirect  | 730             | -           | -           | 730             |
| AFUDC                         | 34              | -           | -           | 34              |
| Total Capital Request         | \$ 3,372        | \$ -        | \$ -        | \$ 3,372        |
| O&M                           | -               | -           | -           | -               |
| <b>Total Request</b>          | <b>\$ 3,372</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 3,372</b> |



Funding Project Information

New Approval Type

Budget Version 2015 Working (inactive)

Funding Project A15EDA Revision 1

Rev [K] [ ] [ ] [ ] [ ] [ ]

Approval Type FP PSNH - Dist - alternate Amount \$358,550.71

Status Approved Sent By Herk, Randy Date Sent 1/7/2015 Date Appr 1/12/2015

Send for Approval Refresh

|                          | Approver             | Required                            | Date Approved | Authority Limit |
|--------------------------|----------------------|-------------------------------------|---------------|-----------------|
| + Project Manager - - -  | Menard, Erica        | <input checked="" type="checkbox"/> | 1/7/2015      | \$0             |
| + Plant Accounting - - - | Roncaloli, TERMINATI | <input checked="" type="checkbox"/> | 1/7/2015      | \$0             |
| + Manager - PSNH Dist    | Dickie, Brian        | <input checked="" type="checkbox"/> | 1/8/2015      | \$250,000       |
| + Vice President - PSNH  | Ramsey, TERMINATE    | <input checked="" type="checkbox"/> | 1/12/2015     | \$3,000,000     |

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Audits  
 Delete FP  
 Cancel FP  
 Suspend FP

Estimates  
 Update  
 Print  
 Cancel

Record 1 of 1 [K] [ ] [ ] [ ] [ ] [ ]

**PSNH**  
**2015 Capital Construction Budget**  
**Project Authorization Form**

**Project Title:** Eastern Region 2015 DA  
**Business Group:** Distribution **Project Area:** Eastern  
**Project Category:** Reliability **Project ID:** A15EDA  
**Project Cost:** **Budgeted** ☒ **Unbudgeted** ☐  
**Current Year Capital:** \$358,551 **Expense:** \$0  
**Total Project Capital:** **Expense:** \$0  
**Start Date: (mm/yy)** Jan-15 **In-service Date: (mm/yy)** Dec-15  
**Project Initiator:** PSNH DA plan  
**Project Owner/Manager:** Brian Dickie

**Project Description:**

Project includes the following:  
Installation and comissioning of 4 SCADA devices on the 34.5 kV system  
All associated line work deemed to be minor in detail to support the DA deployment

**Project Justification:**

**Problem Statement**

• *Project is part of the long term Distribution Automation strategy. This sub-project will Start the 34.5 kV Central area Distribution Automation plan.*

**Project Objectives**

*Increase system awareness  
Increase reliability  
Increase customer satisfaction  
Decrease large customer impacts per single outage event and outage duration*

**PSNH 2014 Capital Construction Budget Project Authorization Form**

(complete if over \$200K Capital, including contingency and indirects)

**Risk: (describe the risk of not doing the work)**

- Not completing the PSNH DA strategy
- \*continued reliability issues associated with large single contingency outage events

**Benefit:**

- \*System reliability increase
- \*Customer satisfaction will increase
- \*efficiencies in line operations and increased system awareness

**Alternatives Considered: (if applicable)**

N/A

**Financial Evaluation: (Describe the project schedule and milestones)**

Ongoing yearly five year project  
 devices installs complete by May 30, 2105.  
 SCADA comissioning by October 2015

| Direct Capital Costs                                      | Year 1    | Year 2 | Year 3 | Total Direct Capital Costs |
|---|-----------|--------|--------|----------------------------|
| NU Labor  | \$40,000  |        |        | \$40,000                   |
| Contract Labor  | \$0       |        |        | \$0                        |
| Outside Services  |           |        |        | \$0                        |
| Materials & Supplies                                      | \$180,000 |        |        | \$180,000                  |
| Other (Fees & Payments, Rents & Leases, Emp Exp, Salvage) | \$16,240  |        |        | \$16,240                   |
| Contingency   |           |        |        | \$0                        |
| Total   | \$236,240 | \$0    | \$0    | \$236,240                  |

| Indirect Capital Costs | Year 1    | Year 2 | Year 3 | Total Indirect Capital Costs |
|------------------------|-----------|--------|--------|------------------------------|
| Benefits               | \$26,265  |        |        | \$26,265                     |
| Loaders                | \$70,200  |        |        | \$70,200                     |
| AFUDC                  | \$2,066   |        |        | \$2,066                      |
| Other                  | \$23,780  |        |        | \$23,780                     |
| Total                  | \$122,311 | \$0    | \$0    | \$122,311                    |
| Total Capital Costs    | \$358,551 | \$0    | \$0    | \$358,551                    |
| Total O&M Costs        |           |        |        | \$0                          |

**Other Comments:**

## Public Service Co of New Hampshire Project Approval Information

|   |  |                           |
|---|--|---------------------------|
| <b>Fund Project Number</b> <u>A15NDA</u>            | <b>Status</b> <u>open</u>                      | <b>Revision</b> <u>29</u> |
| <b>Project Title</b> <u>NORTHERN REGION 2015 DA</u> | <b>Operating Unit</b> _____                    |                           |
| <b>Initiated By</b> <u>Randy Herk</u>               | <b>Initiated Date</b> <u>1/2/2015 13:30:31</u> |                           |

|                            |  |
|----------------------------|--|
| <b>Description of Work</b> | Installation and commissioning of 59 SCADA devices on the 34.5kv system. Installation of 3 12.47kv SCADA devices at Lancaster substation. all associated line work deemed to be minor in detail to support the DA deployment |
| <b>Location</b>            | Distribution Line - New Hampshire  |

|  |             |                         |                 |                            |                           |
|--|-------------|-------------------------|-----------------|----------------------------|---------------------------|
| <b>Project Schedule / Expenditures</b> |             | <b>Est Start Date :</b> | <u>1/2/2015</u> | <b>Est Complete Date :</b> | <u>12/31/2017</u>         |
| <b>2015</b>                            | <b>2016</b> | <b>2017</b>             | <b>2018</b>     | <b>2019</b>                | <b>Future Years</b>       |
| \$3,578,105.89                         | \$0.00      | \$3,562,900.00          | \$0.00          | \$0.00                     | \$0.00                    |
|  |             |                         |                 |                            | <b>Total</b>              |
|  |             |                         |                 |                            | <b><u>\$7,141,006</u></b> |
|  |             | <b>Capital</b>          | <b>Expense</b>  | <b>Removal</b>             | <b>Retirements</b>        |
| <b>Cost Breakdown</b>                  | \$7,141,006 | \$0                     | \$0             | \$0                        | \$0                       |

**Reason For Work**

**Background Information**

### Approvals ~

| Level                  | Approver                      | Approval Limit | Date Approved |
|------------------------|-------------------------------|----------------|---------------|
| Project Manager        | Menard, Erica                 | \$0            | 10/24/2017    |
| Plant Accounting       | Salbinski, Chris              | \$0            | 10/24/2017    |
| Manager - PSNH Dist    | Lajoie, Lee                   | \$100,000      | 10/25/2017    |
| Director - PSNH Dist   | Eilenberger_TERMINATED, James | \$250,000      | 11/8/2017     |
| Sr. VP/President - Ops | Clarke_TERMINATED, Peter      | \$5,000,000    | 11/9/2017     |
| Executive VP - COO     | Schweiger, Werner             | \$12,500,000   | 11/10/2017    |



APS 1 - Project Authorization Policy

## Supplement Request Form

|  |   |
|--|---|
| Date Prepared: 10/2/17                 | Project Title: Northern Region 2015 DA                |
| Company/Companies: NH                  | Project ID Number: A15NDA                             |
| Organization: NH Engineering           | Plant Class/(F.P.Type): Distribution                  |
| Project Initiator: Ryan West           | Project Type: Specific                                |
| Project Manager: Lee Lajoie            | Capital Investment Part of Original Operating Plan? N |
| Project Sponsor: James Eilenberger     | O&M Expenses Part of the Original Operating Plan? N   |
| Current Authorized Amount: \$3,578,000 | Estimated in service date(s): 12/31/2017              |
| Supplement Request: \$3,563,000        | Other:  |
| Total Request: \$7,141,000             |   |

### Supplement Justification

*Supplement Request Forms must be completed for projects in accordance with the Project Authorization Policy and approval levels in the Delegation of Authority Policy (DOA) as follows:*

For Corporate Shared Services Projects:

*For projects \$500K to \$10M - An increase in total authorized cost > 15% or;  
 For projects > \$10M - An increase in total authorized cost > \$1.5M*

For Distribution Operations Projects:

*For projects <= \$250K - An increase in direct costs >= \$25K or;  
 For projects >\$250K - An increase in direct costs >10%*

For Transmission Operations Projects:

*For projects <= \$500K - An increase in total authorized cost >= \$75K  
 For projects \$500K to \$16.5M- An increase in total authorized cost > 15% or;  
 For projects > \$16.5M - An increase in total authorized cost > \$2.5M*

### Justification for Additional Resources

In this section, please provide a detailed and comprehensive justification for the additional resources. Please include, scope changes, dollar changes, the reasons for the changes, etc.

In addition, please attach a copy of the prior authorized PAF as reference

Total Request figure of \$7,141,000 reflects total anticipated expenditures to meet targeted installations of pole top Distribution Automation devices in Northern Region under Base Budget. When this project was approved, the Company expected the REP to be extended at its existing funding level through the end of 2017. In July of 2017 the NHPUC approved a funding level for REP for the remainder of 2017 at half its previous level. In order to maintain the pole top DA installations at the planned level, the decision was made to change the funding source for non-REP installations to base budget. Original Authorized Amount did not include funding for installations in the July 1 2017 to December 31, 2017 time period.

# EVERSOURCE

APS 1 - Project Authorization Policy

## Supplement Cost Summary

*Note: Dollar values are in thousands:*

|                               | Prior<br>Authorized | Supplement<br>Request | Total           |
|-------------------------------|---------------------|-----------------------|-----------------|
| Capital Additions - Direct    | \$ 3,578            | \$ 2,518              | \$ 6,096        |
| Less Customer Contribution    | -                   | -                     | -               |
| Removals net of Salvage ____% | -                   | -                     | -               |
| Total Direct Spending         | \$ 3,578            | \$ 2,518              | \$ 6,096        |
| Capital Additions - Indirect  | -                   | 1,009                 | 1,009           |
| AFUDC                         | -                   | 36                    | 36              |
| Total Capital Request         | \$ 3,578            | \$ 3,563              | \$ 7,141        |
| O&M                           | -                   | -                     | -               |
| <b>Total Request</b>          | <b>\$ 3,578</b>     | <b>\$ 3,563</b>       | <b>\$ 7,141</b> |

*Note: Dollar values are in thousands:*

Total Supplement Request by year view:

|                               | Year 2017       | Year 20__   | Year 20__ + | Total           |
|-------------------------------|-----------------|-------------|-------------|-----------------|
| Capital Additions - Direct    | \$ 2,518        | \$ -        | \$ -        | \$ 2,518        |
| Less Customer Contribution    | -               | -           | -           | -               |
| Removals net of Salvage ____% | -               | -           | -           | -               |
| Total Direct Spending         | \$ 2,518        | \$ -        | \$ -        | \$ 2,518        |
| Capital Additions - Indirect  | 1,009           | -           | -           | 1,009           |
| AFUDC                         | 36              | -           | -           | 36              |
| Total Capital Request         | \$ 3,563        | \$ -        | \$ -        | \$ 3,563        |
| O&M                           | -               | -           | -           | -               |
| <b>Total Request</b>          | <b>\$ 3,563</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 3,563</b> |

Funding Project Information

New Approval Type

Budget Version

2015 Working (inactive)

Funding Project

A15NDA

Revision

1

Rev

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Approval Type

FP PSNH - Dist - alternate

Amount

\$3,578,105.89

Send for Approval

Status

Approved

Sent By

Herk, Randy

Date Sent

1/7/2015

Date Appr

1/16/2015

Refresh

|                           | Approver            | Required                            | Date Approved | Authority Limit |
|---------------------------|---------------------|-------------------------------------|---------------|-----------------|
| + Project Manager - - - - | Menard, Erica       | <input checked="" type="checkbox"/> | 1/7/2015      | \$0             |
| + Plant Accounting - - -  | Roncaoli, TERMINATE | <input checked="" type="checkbox"/> | 1/7/2015      | \$0             |
| + Manager - PSNH Dist     | Dickie, Brian       | <input checked="" type="checkbox"/> | 1/8/2015      | \$250,000       |
| + Vice President - PSNH   | Ramsey, TERMINATE   | <input checked="" type="checkbox"/> | 1/12/2015     | \$3,000,000     |
| + Sr. VP/President - Ops  | Quinlan, William    | <input checked="" type="checkbox"/> | 1/16/2015     | \$7,500,000     |

Details

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Tasks

Class Codes

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Review

Related FPs

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Cancel FP

Suspend FP

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**PSNH**  
**2015 Capital Construction Budget**  
**Project Authorization Form**

**Project Title:** Northern Region 2015 DA

**Business Group:** Distribution      **Project Area:** Northern

**Project Category:** Reliability      **Project ID:** A15NDA

**Project Cost:**      **Budgeted** ☒      **Unbudgeted** ☐

**Current Year**      **Capital:** \$3,578,106      **Expense:** \$0

**Total Project**      **Capital:**      **Expense:** \$0

**Start Date: (mm/yy)** Jan-15      **In-service Date: (mm/yy)** Dec-15

**Project Initiator:** PSNH DA plan

**Project Owner/Manager** Brian Dickie

**Project Description:**

Project includes the following:  
Installation and comissioning of 59 SCADA devices on the 34.5 kV system  
Installation of 3 12.47 kV SCADA devices at Lancaster substation  
All associated line work deemed to be minor in detail to support the DA deployment

**Project Justification:**

**Problem Statement**

• *Project is part of the long term Distribution Automation strategy. This sub-project will complete the 34.5 kV northern area Distribution Automation plan.*

**Project Objectives**

*Increase system awareness*  
*Increase reliability*  
*Increase customer satisfaction*  
*Decrease large customer impacts per single outage event and outage duration*



**PSNH 2014 Capital Construction Budget Project Authorization Form**  
 (complete if over \$200K Capital, including contingency and indirects)

**Risk: (describe the risk of not doing the work)**

- Not completing the PSNH DA strategy
- \*continued reliability issues associated with large single contingency outage events

**Benefit:**

- \*System reliability increase
- \*Customer satisfaction will increase
- \*efficiencies in line operations and increased system awareness

**Alternatives Considered: (if applicable)**

N/A

**Financial Evaluation: (Describe the project schedule and milestones)**

Ongoing yearly five year project  
 devices installs complete by May 30, 2105.  
 SCADA comissioning by October 2015

| Direct Capital Costs                                      | Year 1      | Year 2 | Year 3 | Total Direct Capital Costs |
|---|-------------|--------|--------|----------------------------|
| NU Labor  | \$372,000   |        |        | \$372,000                  |
| Contract Labor  | \$180,000   |        |        | \$180,000                  |
| Outside Services  |             |        |        | \$0                        |
| Materials & Supplies                                      | \$1,781,600 |        |        | \$1,781,600                |
| Other (Fees & Payments, Rents & Leases, Emp Exp, Salvage) |             |        |        | \$0                        |
| Contingency   |             |        |        | \$0                        |
| Total   | \$2,333,600 | \$0    | \$0    | \$2,333,600                |

| Indirect Capital Costs | Year 1      | Year 2 | Year 3 | Total Indirect Capital Costs |
|------------------------|-------------|--------|--------|------------------------------|
| Benefits               | \$244,266   |        |        | \$244,266                    |
| Loaders                | \$694,824   |        |        | \$694,824                    |
| AFUDC                  | \$21,614    |        |        | \$21,614                     |
| Other                  | \$283,802   |        |        | \$283,802                    |
| Total                  | \$1,244,506 | \$0    | \$0    | \$1,244,506                  |
| Total Capital Costs    | \$3,578,106 | \$0    | \$0    | \$3,578,106                  |
| Total O&M Costs        |             |        |        | \$0                          |

**Other Comments:**