

**BEFORE THE
PUBLIC UTILITIES COMMISSION
OF NEW HAMPSHIRE**

**PUBLIC SERVICE COMPANY OF NEW
HAMPSHIRE D/B/A EVERSOURCE ENERGY)
REQUEST FOR CHANGE IN RATES)**

Docket DE 24-070

**Direct Testimony of
Caroline Palmer**

**On Behalf of
The Office of Consumer Advocate**

January 23, 2025

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Attachment CP-1: Resume of Caroline Palmer

Attachment CP-2: The Company’s Responses to Data Requests OCA 2-002, 2-006, 3-012,
4-012, 4-015, 4-016, 4-017, 6-007, 6-009

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q Please state your name, title, and employer.**

3 A My name is Caroline Palmer. I am a Principal Associate at Synapse Energy Economics,
4 Inc. (“Synapse”), located at 485 Massachusetts Avenue, Suite 3, Cambridge, MA 02139.

5 **Q Please describe Synapse Energy Economics, Inc.**

6 A Synapse is a research and consulting firm specializing in electricity and gas industry
7 regulation, planning, and analysis. Our work covers a range of issues, including economic
8 and technical assessments of demand-side and supply-side energy resources; energy
9 efficiency policies and programs; integrated resource planning; electricity market
10 modeling and assessment; renewable resource technologies and policies; and climate
11 change strategies. Synapse works for a wide range of clients, including state attorneys
12 general, offices of consumer advocates, public utility commissions, environmental
13 advocates, the U.S. Environmental Protection Agency, U.S. Department of Energy, U.S.
14 Department of Justice, the Federal Trade Commission, and the National Association of
15 Regulatory Utility Commissioners. Synapse has over 40 professional staff with extensive
16 experience in the electricity industry.

17 **Q Please summarize your professional and educational experience.**

18 A I am a Principal Associate at Synapse, where I provide expert witness and consulting
19 services on behalf of public interest clients in regulatory proceedings. The issues I cover
20 in these cases include marginal and embedded cost-of-service studies, revenue allocation,
21 advanced rate design, low-income rate design, load management, decoupling, distributed
22 energy resource (DER) interconnection and compensation, electric vehicle (EV)
23 infrastructure investments, and pilot frameworks. Prior to joining Synapse I worked at

1 Strategen Consulting for five years performing similar work. I have submitted expert
2 testimony in twelve dockets across seven jurisdictions.

3 I was awarded a Fulbright Research Fellowship to Greece in 2019 and supported
4 clean energy policy consulting at Meister Consultants Group (now Cadmus) before that. I
5 hold a Master of Public Policy from the Goldman School at UC Berkeley and a Bachelor
6 of Science from Georgetown University. I have 10 years of professional experience. My
7 resume is attached as Attachment CP-1.

8 **Q Have you previously testified before the New Hampshire Public Utilities
9 Commission?**

10 A No. I have sponsored testimony before a number of other commissions, including the
11 Missouri Public Service Commission, New York Public Service Commission, the
12 Massachusetts Department of Public Utilities, Maine Public Utilities Commission, the
13 Oklahoma Corporation Commission, the North Carolina Utilities Commission, and the
14 Nova Scotia Utility and Review Board. I have also assisted with testimonies and
15 regulatory analyses in numerous other jurisdictions.

16 **Q On whose behalf are you testifying in this case?**

17 A I am testifying on behalf of the Office of the Consumer Advocate (OCA).

18 **Q What is the purpose of your testimony?**

19 A In this testimony I address certain aspects of Public Service Company of New Hampshire
20 d/b/a Eversource (hereafter “the Company” or “PSNH”)’s allocated cost of service study
21 (ACOSS), revenue allocation, and rate design proposals. The absence of discussion of
22 other topics in this testimony should not be construed as support for, or opposition to, the
23 Company’s positions.

1 **II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS**

2 **Q Please summarize your conclusions.**

3 A My conclusions are as follows:

- 4 • The Company's use of the minimum system method for classifying substantial
5 portions of its distribution system in its ACOSS does not accurately reflect cost-
6 causation principles and inflates cost allocations to residential customers.
- 7 • The Company's allocation of costs among customer classes should reflect cost
8 causation associated with an ACOSS that does not include a minimum system
9 study.
- 10 • The Company's proposed residential customer charge increase disproportionately
11 harms low-usage customers who may be low-income; it reduces customers'
12 ability to control their own bills; and it may discourage conservation and render
13 energy efficiency and load management investments less cost-effective.

14 **Q What are your recommendations?**

15 A I recommend that the Commission:

- 16 • Reject the minimum system method and adopt the basic customer method for
17 distribution cost classification, which limits customer-related costs to those
18 directly tied to the number of customers, such as metering and billing.
- 19 • Direct the Company to allocate costs among customer classes based on an
20 ACOSS that uses the basic customer method rather than a minimum system study.
- 21 • Reject the Company's proposed residential monthly customer charge increase and
22 instead maintain the temporary customer charge of \$15.00 and increase the
23 volumetric rate in order to achieve the necessary revenue requirement increase.

1 **III. ALLOCATED COST OF SERVICE STUDY**

2 *Overview of Cost of Service Studies*

3 **Q What is the purpose of a COSS?**

4 A A COSS is used to assign the utility’s revenue requirement to each customer or rate class
5 in proportion to the costs imposed on the system by those customers. Thus, a cost of
6 service study seeks to determine what costs are incurred to serve each class of customers.

7 **Q How is a COSS performed?**

8 A An allocated cost of service study (ACOSS) typically follows three steps: first, costs are
9 functionalized by separating utility plant and expenses according to the primary functions
10 served. Second, the functionalized rate base and operating costs are classified according
11 to the primary cost driver, as related to energy/commodity, demand/capacity, or
12 customer. Finally, the costs are either directly assigned to customers or allocated among
13 customer classes using allocation factors based on energy use, demand/capacity
14 maximums, or the number of customers.

15 **Q How do analysts determine the appropriate approaches to cost classification and**
16 **allocation?**

17 A When selecting classification factors or allocators, the goal is to fairly allocate costs
18 among different customer classes based on cost causation. Cost causation reflects the
19 notion that the customer or set of customers that caused a cost should pay for the cost. To
20 determine cost causation, analysts often rely on economic theory and power system
21 engineering considerations.

1 **Q In your view, has the Company selected appropriate ACOSS methods?**

2 A No. The Company classifies portions of the electric distribution system as partially
3 “customer-related” based on a flawed minimum system methodology. My testimony
4 recommends an alternative approach that is better supported by economic theory and
5 power system engineering.

6 **Q How should a COSS be used in a rate case?**

7 A Parties and the Commission should exercise judgement when using a COSS to inform
8 revenue allocation or rate design, as it is an inherently imprecise tool in which cost
9 analysts make numerous subjective determinations that may dramatically impact the
10 study results. As such, utility cost of service studies should be one of several
11 considerations used to guide decision-makers in revenue allocation and rate design, rather
12 than being viewed as the sole determinant or final authority.

13 *Classification of Distribution System Costs Using a Minimum System Study*

14 **Q Did the Company classify certain distribution system costs as both customer-related
15 and demand-related?**

16 A Yes. The Company considers poles, transformers, and underground and overhead circuits
17 (FERC accounts 364, 365, 366, 367, and 368) to have both demand- and customer-related
18 components.¹ The Company used a minimum system study to determine the share of
19 each of these accounts to classify as customer-related versus demand-related.

¹ Nieto ACOSS p.5 Bates 19197.

1 **Q What is the minimum system study?**

2 A The minimum system study is a cost analysis that estimates what the cost of the
3 distribution system would be if the total system inventory was composed of the smallest
4 equipment size, reasoning that this system “would serve the minimum loading
5 requirements of a customer in the Company’s service territory.”² The Company
6 calculates the ratio of the minimum system’s cost to the cost of the actual-sized
7 distribution system to determine the customer-related portion of each FERC account
8 evaluated. The Company considers the remaining cost of the actual distribution system to
9 be demand-related.³

10 **Q Does the minimum system study deem significant portions of plant to be customer-**
11 **related?**

12 A Yes. The minimum system study classifies the vast majority of poles, around a third of
13 the overhead distribution system and secondary underground lines, and over 10 percent
14 of the remaining accounts as customer-related.⁴

15 **Q What are your concerns with the minimum system methodology?**

16 A I have three concerns with the minimum system methodology:

- 17 • It does not align with the Company’s definition and treatment of customer costs;
18 • It inflates the costs classified as customer-related; and
19 • It is unsound to use as the basis for determining cost causation.

20 I discuss each concern sequentially.

² OCA 4-012a.

³ Nieto ACOSS p.5 Bates 19197.

⁴ Nieto ACOSS p.6 Bates 19198.

1 **Q Why doesn't the minimum system methodology align with the Company's definition**
2 **and treatment of customer costs?**

3 A Per the Company, a customer-related cost is “the incremental one-time cost that is
4 incurred when a customer is added to the grid.”⁵ This definition complements the 1992
5 National Association of Regulatory Utility Commissioners (NARUC) *Electric Utility*
6 *Cost Allocation Manual* (“NARUC Manual”), which defines customer costs as “directly
7 related to the number of customers served.”⁶ Indeed, after classifying customer-related
8 costs, the Company allocates those costs based on the number of customers associated
9 with each rate class.

10 Although the minimum system study classifies large portions of distribution plant
11 as customer-related, to be allocated based on the number of customers, the equipment in
12 those accounts does not vary directly with the number of customers, i.e., when a customer
13 is added to the grid; rather, it varies with those customers' demand.

14 For example, if the Company adds a new residential customer with a negligible
15 level of demand in a populated area, the additional distribution costs to serve that
16 customer—aside from dedicated customer infrastructure—would generally also be
17 negligible, because residential customers share the majority of the distribution system. A
18 new customer would generally only impose costs for distribution system upgrades to the
19 extent that the customer increases peak demand on the distribution system. Thus, these
20 costs are primarily driven by demand, rather than by the number of customers. It is only
21 when the distribution system must be expanded to a new geographic area that an

⁵ OCA 4-012b.

⁶ NARUC Electric Manual at 20.

1 incremental customer impacts distribution system costs independently from the
2 customer's level of demand.

3 This example demonstrates that the presence of a residential customer does not
4 necessarily impose additional distribution costs (apart from costs related to that
5 customer's demand) unless the system must be expanded to a new geographic area. Thus,
6 there is little justification for classifying costs in these accounts as customer-related.

7 **Q Is it particularly inappropriate to classify the primary electric system as customer-**
8 **related?**

9 A Yes. Primary equipment is higher-voltage and typically moves power from the
10 transmission system to the secondary distribution system. The residential customer class
11 does not receive service directly at primary voltage; rather, the voltage is converted to
12 secondary through a line transformer.⁷ It is unreasonable to suggest that the cause for
13 installing primary equipment (with voltage levels up to 34,500 volts)⁸ is the addition of a
14 residential customer to the distribution system, regardless of that customer's demand.
15 Even PSNH's lowest primary voltage, typically 4.16 or 2.4kV (three phase or single
16 phase), is at least 10 times larger than residential secondary voltages, typically 120/240
17 volts.⁹

18 **Q Does the Company's minimum system also meet residential customers' demands?**

19 A Yes. Any size of equipment in FERC accounts 364–368 will necessarily serve a portion
20 of customers' demand. Not only does the Company's minimum system construct fail to
21 produce a system that serves only to add customers to the grid, but it is also so extensive

⁷ OCA 4-016.

⁸ OCA 6-009.

⁹ OCA 4-016.

1 that it generally meets certain customer classes' peak demand requirements. For example,
2 the minimum size transformer can meet 10 kVA of demand,¹⁰ while the average
3 residential peak demands are almost all well below that, with a residential non-heat
4 customer's peak demand averaging 5.16 kW, a residential heat customer's peak
5 averaging 6.19 kW, a general service customer's peak averaging 6.69 kW and an Outdoor
6 Lighting customer's peak averaging 8.85 kW.¹¹ The Company did not quantify the kW
7 capacity of the minimum size conductor or cable.

8 **Q If the minimum size equipment is likely large enough to accommodate certain**
9 **customer classes' peak demands, is it reasonable to classify such a large portion of**
10 **the system as "customer-related"?**

11 A No. Such a "minimum" system exceeds even the Company's intended theoretical scope,
12 which is to serve the *minimum* loading requirements of a customer in the Company's
13 service territory,¹² not also the maximum loading requirements. It is unreasonable to
14 assign customers hefty distribution system costs based on such a flawed representation of
15 the "customer" portion of the distribution system.

16 **Q Do other limitations of the minimum system methodology also inflate the costs**
17 **classified as customer-related?**

18 A Yes. Witness Nieto described two noteworthy sources of imprecision in the Company's
19 minimum system study, due to reliance on blunt accounting cost records. Several
20 minimum system accounts include equipment that is constructed far upstream from

¹⁰ Table OCA 4-012

¹¹ PSNH does have a small class of 564 customers, comprising 0.01 percent of the residential class, on its R OTOD rate with a slightly higher average peak. Given the small number of these customers, they are not representative of the overall residential class in a way that should determine cost classifications. *See* Table OCA 4-017

¹² OCA 4-012a.

1 individual customer loads and is thus typically built based on diversified, combined
2 demands, not built based on the presence of individual customers.

3 First, the Company indicates that primary step transformers are – but should not
4 be – included in the minimum system plant classified as customer-related. Primary step
5 transformers “convert power voltage down to a lower level but do not directly connect
6 customers’ premises to the grid.”¹³ They “are built based on more diversified demands
7 and could arguably be allocated [like]...distribution substation costs.”¹⁴ Distribution
8 substations are treated as 100 percent demand-related. If primary transformers could
9 reasonably be allocated like 100 percent demand-related equipment, they should be
10 excluded from customer-related costs. However, the transformer plant in Account 368
11 does not distinguish between primary step transformers and secondary service line
12 transformers.¹⁵ Therefore, because the cost of the minimum sized transformer is
13 multiplied by the *total* inventory of transformers¹⁶ (including both primary and secondary
14 transformers), those larger transformers are inappropriately counted as part of the
15 minimum system when they should not be. This inflates the costs that are considered
16 customer-related by an unknown amount.

17 Similarly, the Company states that there is “not enough detail to isolate the costs
18 of trunkline, upstream or backbone primary feeders from the rest of plant in Accounts
19 365-367.”¹⁷ These portions of primary distribution feeders start at the low end of the
20 distribution substation transformer and end where the feeder branches out to primary taps

¹³ Nieto (ACOSS) p.9 Bates 19201.

¹⁴ Nieto (ACOSS) p.9-10 Bates 19201-19202.

¹⁵ Nieto (ACOSS) p.9 Bates 19201.

¹⁶ Nieto (ACOSS) p.5 Bates 19197.

¹⁷ Nieto (ACOSS) p.10 Bates 19202.

1 to connect specific loads to the grid.¹⁸ They “are driven by coincident peak demands at
2 the substation,”¹⁹ which clearly indicates that their cost causation is demand-related, not
3 customer-related. However, a portion of these upstream feeders are inappropriately
4 treated as customer-related, because they are part of the total inventory used in the
5 calculation of the minimum system. Once again, this inflates the costs that are considered
6 customer-related by an unknown amount.

7 Through these examples, the Company has indicated that four out of the five
8 FERC accounts in the minimum system study inappropriately include unquantifiable
9 amounts of non-customer-related infrastructure. Thus, the purported “minimum size”
10 system is exaggerated and inflates the costs considered customer-related. While Witness
11 Nieto raised these assumptions due to concern about mis-allocating the demand-related
12 portion of these costs, the treatment of a percentage of these costs as customer-related
13 should be equally if not more concerning. Given that these costs are based on diversified
14 demands and driven by coincident substation peaks, they are most certainly not related to
15 the number of customers on the system or the addition of a customer to the grid.

16 **Q What are the impacts of using a study that inflates the costs classified as customer-**
17 **related?**

18 **A** Inflating the costs classified as customer-related—whether because of imprecise
19 accounting data or by calculating a minimum system that may meet customer peak
20 demands—has meaningful implications for the residential class. Customer-related costs
21 are far more heavily allocated to residential customers compared to demand-related costs

¹⁸ OCA 4-015.

¹⁹ Nieto (ACOSS) p.10 Bates 19202.

1 because the residential class has many more customer accounts than the other classes.
2 Thus, assigning costs based on the number of customers will allocate the majority of
3 these costs to the residential class. In contrast, the ACOSS assigns demand-related costs
4 based on the relative class non-coincident peak demands (NCPs), to which the residential
5 class contributes a relatively lower level of demand. Indeed, the ACOSS assigns
6 residential customers (R PL+TOD) 85–89 percent of the customer-related costs in
7 accounts 364–368, compared to 48–74 percent of the demand-related costs in those
8 accounts.²⁰

9 **Q Is the minimum system method unsound to use as the basis for determining cost**
10 **causation?**

11 A Yes. The method requires distinguishing a hypothetical system that serves only
12 customers, not their electricity demand. To create this imaginary system, the Company
13 makes subjective assumptions that oversimplify system engineering and impact the study
14 results in unquantifiable ways. The accumulation of falsely precise approximations forms
15 an unreliable basis on which the Company has assigned substantial costs among classes
16 with significant impacts on revenue allocation and rate design.

17 **Q What method do you recommend instead of the minimum system method?**

18 A I recommend classifying distribution costs using the basic customer method. As
19 described in the Regulatory Assistance Project’s manual *Electric Cost Allocation for a*
20 *New Era*, this method is used by states across the country and is intuitive and data-based,
21 as it includes only costs that are directly related to the number of customers on the

²⁰ https://www.puc.nh.gov/Regulatory/Docketbk/2024/24-070/MOTIONS-OBJECTIONS/24-070_2024-06-11_EVERSOURCE_ATT-TESTIMONY-NIETO-ALLOCATED-COS.PDF

1 system. Specifically, the basic customer method generally classifies only costs associated
2 with services, meters, meter reading, and billing as customer-related.

3 Not only have utilities in numerous states used the basic customer method,²¹ but
4 in some cases public utility commissions have explicitly rejected the minimum system
5 method or otherwise required that utilities classify primary and secondary distribution
6 costs as 100 percent demand-related. For example:²²

- 7 • The Arkansas Public Service Commission found that accounts 364–368 should be
8 classified as 100 percent demand-related.
- 9 • The Illinois Commerce Commission has repeatedly rejected the minimum distribution
10 or zero intercept approach.
- 11 • The Washington Utilities and Transportation Commission in 1993 directed the parties
12 not to propose the minimum system approach in the future unless technological
13 changes in the industry emerge, justifying revised proposals.
- 14 • Alaska administrative code prohibits customer-related costs from including “any
15 portion of the distribution system costs, which will be considered and classified as
16 demand-related costs.”²³

²¹ For example, National Grid in Massachusetts does not use a minimum system study for classification. *See* Exhibit NG-PP-1 in D.P.U. 23-150 (November 16, 2023) at 18, stating “the Company has not performed a minimum system study in its last four distribution rate cases, or more, and...did not perform a minimum system study for this ACOSS.”

²² Lazar, J. et al., *Electric Cost Allocation for a New Era: A Manual*. Montpelier, VT: Regulatory Assistance Project (2020) at 145.

²³ 3 Alaska Admin. Code § 48.540.

1 **Q If the Commission chooses not to approve the basic customer method, would a**
2 **hybrid classification method be more appropriate than the full minimum system**
3 **approach?**

4 A Yes. If the Commission does not approve the basic customer method, there are still ways
5 to better align the minimum system study with system costs. I recommend that the
6 Company classify primary distribution costs as 100 percent demand-related and only
7 apply the minimum system methodology to secondary distribution costs, which are the
8 lower-voltage lines that connect most customers to the grid.

9 **Q If the Commission approves any form of minimum system study, whether for only**
10 **secondary plant, or for all plant, do you recommend allocating residential customers**
11 **any demand-related costs for minimum-system accounts?**

12 A No. For any FERC accounts classified using a minimum system study, I recommend that
13 the Company allocate no demand-related costs to the customer classes whose peak
14 demands can be met through the identified “customer-related” portion of the system,
15 which includes several of the residential classes, as noted above. The “customer-related”
16 portion of the system can already meet those customers’ peak demands without requiring
17 any further equipment cost.

18 In New York, National Grid recently proposed this approach, allocating
19 residential and small commercial customer classes \$0 of the demand-related portion of
20 the minimum-system distribution infrastructure, reasoning that “the minimum system
21 would be able to meet the peak load for all or almost all customers in [the relevant
22 classes]; that is, no further investment in higher capacity conductors would be required.

1 Therefore, no demand-related costs for Overhead Assets or Underground Assets were
2 allocated” to those classes.²⁴

3 **Q If the Commission approves a minimum system study for all plant, as Eversource**
4 **has proposed, do you recommend updating the cost accounting to allow for more**
5 **granular classification and allocation?**

6 A Yes. I recommend that the Commission require the Company, in its compliance filing, to
7 propose and commit to an approach for disaggregating its plant account data in order to
8 distinguish between primary step and service line or secondary transformers and between
9 the costs of trunkline, upstream or backbone primary feeders from the rest of plant in
10 Accounts 365–367.

11 **Q What is the ACOSS impact of using the basic customer distribution classification?**

12 A Using the basic customer method significantly impacts the class revenue requirements in
13 the ACOSS, specifically the changes to present rates for each class that would be
14 necessary to achieve equal rates of return on rate base under the Company’s proposed
15 revenue requirement. Table 1 shows the increases in class revenue requirements required
16 under 1) the Company’s ACOSS,²⁵ 2) the Company’s proposed revenue allocation,²⁶ 3)
17 the basic-customer ACOSS,²⁷ and 4) the secondary-minimum-system ACOSS.²⁸

18 Under the scenario with no minimum system study (basic customer method), the
19 required residential revenue increase (R PL+TOD) falls to 35 percent from 60 percent
20 under the Company’s methodology. In other words, the Company’s choice of distribution

²⁴ Testimony of the Electric Rate Design Panel for Niagara Mohawk Power Corporation d/b/a National Grid in 24-E-0322. May 2024. At 33-34.

²⁵ Nieto (ACOSS) p.13 Bates 19205.

²⁶ Attachment ES-EAD-11.

²⁷ Attachment OCA 4-018(a) CONFIDENTIAL.

²⁸ Attachment OCA 4-018(b) CONFIDENTIAL.

1 classification has nearly doubled the revenue increase that the ACOSS deems the
2 residential class to be responsible for. A 35 percent revenue increase is also well below
3 the 47 percent increase that the Company ultimately allocated to the residential class in
4 the interest of gradualism and the impact on overall customer bills.²⁹ Under the basic
5 customer method, cost responsibility for the higher-usage classes increases due to their
6 relatively higher contributions to class NCP demand.³⁰

7 **Table 1. Increase in Class Revenue Requirements Under Different Scenarios**

	Company's ACOSS	Company's Allocation	Basic Customer Method	Secondary Minimum System
R PL+TOD	60%	47%	35%	42%
R LCS	204%	65%	361%	304%
RWH	85%	52%	176%	143%
GPL+TOD	15%	37%	27%	22%
G SH	25%	41%	98%	72%
G LCS	256%	65%	460%	386%
G-WH	64%	52%	130%	106%
GV	20%	39%	83%	67%
LG	35%	43%	103%	92%
RATE B	33%	39%, 43%	101%	99%
OL	3%	36%	10%	7%
EOL	-7%	36%	8%	2%
Total Retail	44%	43%	44%	44%

²⁹ Davis p.5 Bates 19587.

³⁰ Cost responsibility also increases for the already-high Load Controlled Delivery Service Rate LCS. When asked to explain the factors causing the LCS class to require such a high percent rate change to achieve the Company’s target rate of return, the Company responded that LCS’ much higher allocation of revenue requirement compared to current revenue is “due in part to the current LCS rate schedule that is a discounted rate and assumes customer loads will be interrupted when needed to alleviate the peak demand on the transformers or feeder. The ACOS study recognizes the reality that these loads are ultimately not controlled at the time of the peak for distribution-related reasons.” The Company does not explain what it means that loads are ultimately not controlled at the time of the peak or whether the ACOSS accurately represents the value that load control delivers to its power system. *See* OCA 6-007.

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Q What is the ACOSS impact of using a minimum system study only for secondary equipment?

A Per Table 1, under the scenario using the minimum system methodology for only secondary infrastructure,³¹ the required revenue increase for R PL+TOD is 42 percent (though this is likely an overestimation). This is still below the 47 percent that the Company has allocated to the class and well below the 60 percent assigned by the Company’s full-minimum-system ACOSS. Cost responsibility for the higher-usage classes again increases.

Q Why is a 42 percent revenue increase for the residential class likely an overestimation?

A First, as described above, transformer plant data does not distinguish between primary and secondary equipment. Therefore, this estimate inappropriately counts all transformer infrastructure as part of the minimum system and allocates those costs on customer count rather than on demand, when it should exclude primary transformers from the minimum system and allocate them based on demand instead.

Second, the 42 percent would likely also be lower if the ACOSS did not allocate the demand-related costs of the minimum-system-classified infrastructure to the customer classes whose peak demands can be met through the “customer-related” portion of the system, as described above and proposed by National Grid New York.

³¹ Where possible to differentiate; Account 368, transformers, cannot be distinguished, so the entire account maintains the minimum system methodology.

1 **Q Should the results of the Basic Customer and Secondary Minimum System ACOSS**
2 **impact the Company’s revenue allocation?**

3 A Yes. I discuss those impacts next.

4 **IV. REVENUE ALLOCATION**

5 **Q How does the Company determine what revenue increase to apportion to each of the**
6 **customer classes?**

7 A The Company’s proposed permanent rate changes have been designed to recover the
8 distribution revenue operating deficiency by allocating revenue increases for each rate
9 class in a manner that achieves a balance among a number of rate design objectives, such
10 as cost causation and bill impact.³²

11 Specifically, the Company’s methodology for allocating the proposed revenue
12 requirement among the customer classes follows four steps: 1) increase each class’s
13 current distribution revenue uniformly by the overall system increase required to achieve
14 the proposed permanent distribution revenue requirement (43.5%); 2) compare each
15 class’s revenue at the uniform system increase to the revenue requirement that the
16 ACOSS recommends for each class;³³ 3) adjust the allocations incrementally to move
17 “each proposed class revenue requirement closer to the ACOSS class revenue
18 recommendation”,³⁴ such as allocating Rate R PL an additional +2.32%,³⁵ and reducing

³² Davis p.4-5 Bates 19586-7.

³³ Attachment ES-EAD-11.

³⁴ Davis p.5 Bates 19587.

³⁵ Davis p.8 Bates 19590.

1 rate GV by 3%;³⁶ 4) sum the incremental allocation from step 3 with the 43.5% uniform
2 increase from step 1 to yield the overall proposed increase by class.

3 **Q How did the Company calculate the incremental allocations in step 3?**

4 A The Company did not provide any specific or comprehensive methodology.³⁷ When
5 asked how it derived the 2.23% incremental allocation for Rate R PL, the Company
6 referred back to direct testimony, which provides no additional explanation other than
7 declaring the allocation “appropriate” because the residential class increase was still
8 below the ACOS allocators after the 43.5% uniform increase.³⁸

9 **Q Do you recommend alternative revenue allocations based on your ACOSS results?**

10 A Yes. I recommend revenue allocations based on my primary ACOSS recommendation to
11 use the basic customer method for distribution cost classification. I propose a 42.6%
12 revenue increase for RPL+TOD based on the basic customer ACOSS, which found the
13 class responsible for a 35% increase.

14 **Q How did you develop your revenue allocation recommendations?**

15 A I followed the Company’s approach step-for-step, starting with the same step 1 above.³⁹
16 In step 2, I substituted the basic customer ACOSS class revenue requirements for the
17 Company’s. In step 3, I adjusted the incremental allocations to better reflect the basic
18 customer ACOSS results.⁴⁰ Because the Company did not explain how it calculated its
19 incremental allocations, I attempted to reflect the magnitude of the allocations that the
20 Company used in its proposal.

³⁶ Davis p.12 Bates 19594.

³⁷ Davis p.5 Bates 19587.

³⁸ OCA 2-002; Davis p.8 Bates 19590.

³⁹ I have had to treat the Rate B (GV) and Rate B (LG) classes as one, given that the ACOSS yields a single revenue requirement for Rate B.

⁴⁰ I maintained the Company’s incremental allocations for class outliers R LCS, G LCS, RWH, GWH.

1 **Q What do you propose in the event the Commission does not accept your primary**
2 **ACOSS recommendation to rely on the basic customer method?**

3 A I previously recommended a secondary ACOSS method if the Commission rejects my
4 primary recommendation (the basic customer method). Under this method, primary
5 distribution costs are classified as 100 percent demand-related and the minimum system
6 method is only applied to secondary distribution costs. As previously described, the
7 ACOSS results for this method overestimate the residential class revenue requirement
8 due to data limitations and due to allocating demand-related costs of the minimum-
9 system-infrastructure to the residential class despite the fact that the peak demands can be
10 met through the “customer-related” portion of the system. For these reasons, I maintain
11 the same revenue allocation recommendation under both the basic customer and
12 secondary-minimum-system methods.

13 Table 2 depicts steps 2 through 4 for both ACOSS scenarios: the Company’s
14 proposal, the basic customer method, and the secondary-minimum-system-only
15 method.⁴¹

16 **Table 2. Revenue Allocation Steps 2 Through 4 for Company and OCA Methods**

<i>Incremental Percent Allocation Required to Match ACOSS Results</i>			<i>Proposed Incremental Percent Allocation</i>		<i>Overall Allocation Increase</i>	
<i>Company</i>	<i>Basic Customer Method</i>	<i>Secondary Minimum System</i>	<i>Company</i>	<i>OCA</i>	<i>Company</i>	<i>OCA</i>
R	-5.8%	-1.3%	2	-0.6%	4	42.6%
P			.		6	
L					.	

⁴¹ I am not endorsing the Company’s proposed revenue requirement increase, but rather using it for comparison purposes only.

+ T O D	2 %			3 %		8 %
R L C S	1 1 1 . 4 %	220.8%	181.2%	1 5 . 0 %	15.0%	6 5 . 0 %
R W H	2 8 . 7 %	92.6%	69.5%	6 . 0 %	6.0%	5 2 . 1 %
G P L + T O D	- 1 9 . 8 %	-11.4%	-14.9%	- 4 . 5 %	-1.5%	3 7 . 0 %
G S H	- 1 2 . 8 %	37.8%	19.5%	- 1 . 8 %	4.8%	4 0 . 9 %
G L C S	1 4 8 . 2 %	290.0%	238.7%	1 5 . 0 %	15.0%	6 5 . 0 %
G W H	1 4 . 3 %	60.5%	43.8%	6 . 0 %	6.0%	5 2 . 1 %
G V	- 1 6 . 5 %	27.6%	16.6%	- 3 . 0 %	4.0%	3 9 . 2 %
L G	- 5 . 6 %	41.5%	33.7%	- 0 . 4 %	5.3%	4 2 . 9 %

B - (G V) B - (L G) O L E O L	- 7 1 %	40.0%	38.5%	- 3 0 %	5.3%	3 9 2 %	51.0%
- 7 1 %	40.0%	38.5%	- 0 4 %	5.3%	4 2 9 %	51.0%	
- 2 8 6 %	-23.6%	-25.5%	- 5 0 %	-5.9%	3 6 3 %	35.0%	
- 3 5 4 %	-25.0%	-28.9%	- 5 0 %	-5.9%	3 6 3 %	35.0%	

1

2 **V. RATE DESIGN**

3 **Q Describe the Company’s residential customer charge proposal.**

4 A The Company proposes to increase the residential customer charge from \$13.81 per
5 month to \$19.81 per month, which is a 43% increase. The Company derives this increase
6 by raising all components of current Rate R rates (both the customer charge and
7 volumetric rate) by an equi-proportional amount – specifically, the percentage increase
8 called for by the ACOSS to bring the class revenue up to its current share of the
9 permanent revenue requirement, 43.5%.⁴²

⁴² Davis at 8, Bates 19590.

1 **Q What are your concerns with the Company’s customer charge increase?**

2 A I have three concerns with the Company’s customer charge increase:

- 3 • It disproportionately harms low-usage residential customers, who may be low-
4 income customers.
- 5 • It contradicts state policy goals of increasing distributed generation and energy
6 efficiency.
- 7 • It does not reflect cost causation under an improved ACOSS; and
- 8 • The methodology is uncommon and overly blunt for such a large revenue
9 increase.

10 I discuss each concern sequentially.

11 **Q Did the Company present the distribution bill impacts of its rate design proposals?**

12 A Not in testimony. The Company stated that a typical residential customer using 600 kWh
13 per month will see a \$21.53, or 16.78 percent, increase to their current monthly bill.⁴³

14 This statement is somewhat misleading, given that the calculated bill increase includes all
15 bill components, though this docket covers only distribution rates. The *distribution*
16 portion of the bill is increasing by almost 47 percent.⁴⁴ Any external increases in the
17 other bill components (such as transmission, energy service, or stranded cost charge)
18 would be additional to the Company’s distribution increase, but the Company has not
19 contextualized its bill impact estimate by addressing the possibility of those increases,
20 despite including those rate components.

⁴³ Davis at 16, Bates 19598.

⁴⁴ Attachment ES-EAD-13 page 5.

1 **Q Do fixed charge increases disproportionately impact certain customers?**

2 A Yes; bill impacts do not apply to all customer groups the same way. Increasing the fixed
3 charge results in a larger bill impact for lower-usage customers than for higher-usage
4 customers on a percentage basis, because the fixed portion of the bill comprises a
5 relatively larger portion for lower-usage customers. Indeed, while the average residential
6 customer who consumes 600 kWh per month will see a 16.78 percent monthly bill
7 increase under the Company's calculation, a lower-usage (250 kWh) customer bill
8 increases by 20.27 percent. Conversely, a high-usage (1,500 kWh) customer bill would
9 only increase by 14.94 percent.⁴⁵ Therefore, the Company's proposal would also
10 disproportionately harm low-income customers, who tend to consume less electricity than
11 high-income customers.

12 **Q Have you analyzed whether the Company's low-income customers tend to be low-**
13 **usage?**

14 A Yes, I have attempted to; available data suggests that this is the case. When asked to
15 provide all information and data that the Company has about the monthly energy usage of
16 the Company's low-income customers, such as the distribution of low income customers
17 by usage level, the Company provided the monthly energy usage of the customers
18 receiving a discount under New Hampshire's Electric Assistance Program (EAP).⁴⁶ As is
19 clear from Chart 1,⁴⁷ a higher proportion of the Company's EAP customers consume less

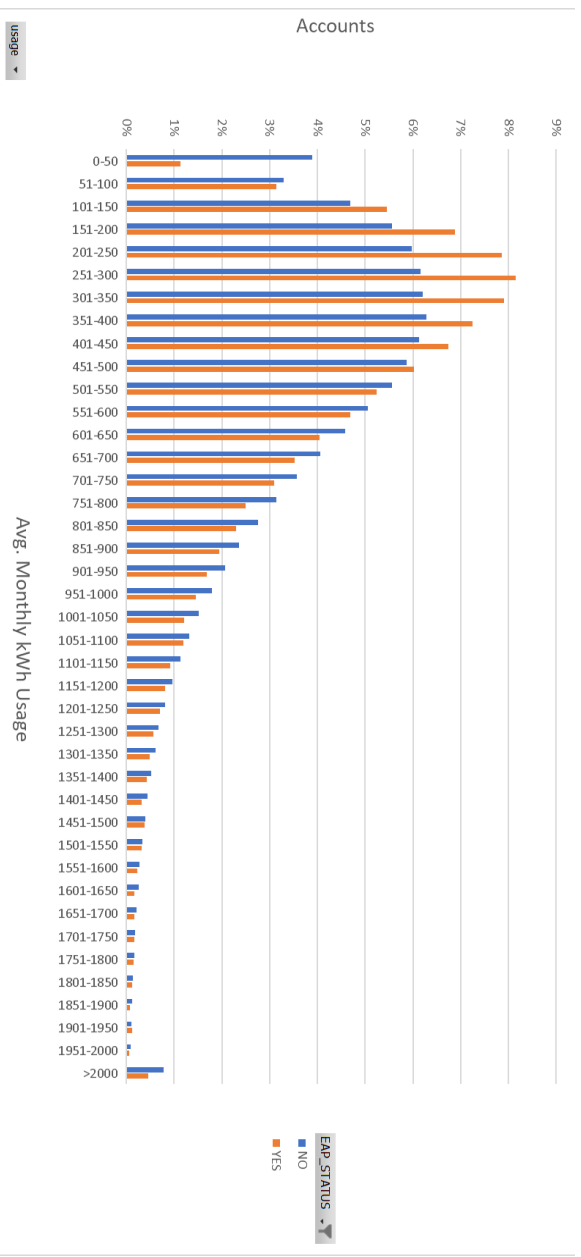
⁴⁵ Attachment ES-EAD-14 p.1.

⁴⁶ OCA 2-006.

⁴⁷ Attachment OCA 2-006.

1 than the Company's identified average 600 kWh a month, relative to those not enrolled in
2 the EAP.⁴⁸

3 **Chart 1. Average Monthly kWh Use for EAP Accounts vs. Non-EAP Accounts**



4 Although more comprehensive data on the income and usage of the Company's
5 residential customer population would be preferable,⁴⁹ data on customer usage from
6 Eversource's New Start program, if available, might similarly support the relationship
7 between income and annual electricity consumption.⁵⁰
8 It is important to consider the impact on low-income households when designing
9 rates because low-income households have higher energy burdens, meaning they spend a
10 disproportionately large amount of their income on energy bills. It is inequitable to
11

⁴⁸ The spike in non-EAP customer accounts with average monthly consumption under 50kWh may include vacation homes with minimal usage outside of periodic visits.

⁴⁹ Using EAP data is likely an imprecise proxy for comprehensive income-based usage data, given that it appears to be a customer-initiated program that could therefore miss significant portions of eligible low-income customers. It is unclear what proportion of the Company's low-income customers are able to participate in the EAP program. Further, the customers receiving assistance may experience a rebound effect, whereby they are able to

consume more upon securing discounted rates.

⁵⁰ New Start customers are also income-verified. See New Start Program.

<https://www.eversource.com/content/residential/account-billing/payment-assistance/new-start>.

1 disproportionately raise the electricity bills of the customers who are least equipped to
2 pay them. Raising the customer charge means increasing the fixed portion of the monthly
3 electric bill, over which customers have no control even if they can reduce their overall
4 electricity consumption. Although the Company “considered the impact on overall
5 customer bills in moving the class revenue requirement closer to cost of service,”⁵¹ doing
6 so comprehensively requires considering the intra-class equity of its high customer
7 charge increase.

8 Further, the minimum system method classifies as customer-related several
9 distribution system components that actually vary with usage. Because the fixed customer
10 charge collects the same amount of cost from low usage customers as high usage
11 customers, lower-income customers are likely cross-subsidizing higher income
12 customers. When compared to a rate design with a higher volumetric rate, high customer
13 charges shift cost collection to lower usage customers. When low-income residents
14 consume less than higher-income residents, high fixed charges shift costs onto lower-
15 income residential customers.

16 **Q Please describe policy goals that the Commission should consider when designing**
17 **rates.**

18 **A** The policy principles enumerated in section 3 of the state’s electric industry restructuring
19 statute (RSA Chapter 374-F) and the Limited Electrical Energy Producers Act (RSA
20 Chapter 362-A), prioritize both energy efficiency and distributed generation.⁵² A higher

⁵¹ Davis p.5 Bates 19587.

⁵² See RSA 374-F:3:VI-a(d) (“utilities shall continue to prepare triennial energy efficiency plans with programming and incentive payments at levels optimized to deliver ratepayer savings”) and RSA 362-A:1 (“It is found to be in the public interest to provide for small scale and diversified sources of supplemental electric power to lessen the state’s dependence upon other sources which may, from time to time, be uncertain”).

1 customer charge could counteract New Hampshire's ratepayer-funded energy efficiency
2 and conservation programs, since both these programs and rate design impact
3 consumption levels. A higher customer charge means a lower volumetric charge than
4 there otherwise would have been. Relatively lower volumetric charges paired with higher
5 fixed charges can discourage conservation and render energy efficiency and load
6 management investments less cost-effective; that reduces the value to customers of
7 adjusting their usage and therefore increases the payback periods for said investments.

8 While it is true that increasing customer charges rather than increasing volumetric
9 charges can make transportation and heating electrification more cost effective by
10 reducing the operating costs of these technologies, it would be more reasonable to offer
11 an optional opt-in rate structure for customers who adopt these technologies. This avoids
12 subjecting all customers, especially in the residential class, to the inequitable impacts of
13 higher fixed charges described above.

14 **Q Does the Company's 43% customer charge increase reflect cost causation under**
15 **your recommended ACOSS methodology?**

16 **A** No. My recommendation to classify more of the Company's distribution costs as
17 demand-related, rather than customer-related, reduces the monthly customer unit costs
18 per the ACOSS. Under the scenario with no minimum system (basic customer method),
19 the monthly customer unit cost falls to \$13.52 from \$40.93⁵³ under the Company's
20 methodology. The Company's proposal even exceeds the purported \$18.14 marginal

⁵³ [Attachments-A. Nieto-Allocated COS](https://www.puc.nh.gov/Regulatory/Docketbk/2024/24-070/MOTIONS-OBJECTIONS/24-070_2024-06-11_EVERSOURCE_ATT-TESTIMONY-NIETO-ALLOCATED-COS.PDF). https://www.puc.nh.gov/Regulatory/Docketbk/2024/24-070/MOTIONS-OBJECTIONS/24-070_2024-06-11_EVERSOURCE_ATT-TESTIMONY-NIETO-ALLOCATED-COS.PDF

1 customer cost from its marginal COSS. A 43% customer charge increase is not justified
2 on the basis of cost causation.

3 **Q Is the Company's equi-proportional customer charge increase methodology typical?**

4 A No. This is a relatively uncommon methodology for determining customer costs. Usually,
5 the customer charge is separately justified based on customer-related unit costs; then, the
6 remaining revenue increase manifests in the volumetric charge. When asked to identify
7 other jurisdictions that use the same methodology, the Company provided a series of
8 Vermont cases in which the uniform percentage used to adjust volumetric and fixed rates
9 never surpassed 5.29 percent⁵⁴ and which summed to 17.5 percent over four years -
10 which is just a fraction per year of the Company's proposed 43.5 percent uniform
11 percentage and only 40 percent of the Company's total proposed increase. In the context
12 of such a large overall revenue requirement increase, it is not appropriate to use this
13 unusual and blunt equi-proportional approach, particularly when considering the intra-
14 class rate impacts I describe above.

15 **Q What residential customer charge do you recommend?**

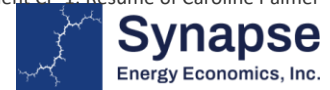
16 A I recommend that the Company maintain its current, temporary \$15.00 monthly fixed
17 charge and increase the residential volumetric rate as necessary in order to achieve the
18 required revenue requirement increase.

19 **VI. CONCLUSION**

20 **Q Does this conclude your testimony?**

21 A Yes, it does.

⁵⁴ Attachment OCA 3-012.



Caroline Palmer, Principal Associate

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cpalmer@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Cambridge, MA. *Principal Associate*, June 2024 – present.

- Conduct analysis and provide expert witness and consulting services on behalf of public interest clients in regulatory proceedings, on topics including electric utility class cost of service, revenue allocation, advanced rate design, avoided cost methodology, and distributed generation interconnection and planning.

Strategen Consulting, Oakland, CA. *Senior Manager*, 2024; *Manager*, 2023 - 2024; *Senior Consultant*, 2021 - 2022; *Consultant*, 2019 - 2021.

- Conducted analysis and provided expert witness and consulting services to state regulatory commissions, state consumer advocates, and non-profits to advance the public interest in regulatory decision-making around electricity service, pricing, and decarbonization.

Metropolitan Area Planning Council Boston, MA. *Clean Energy Fellow*, 2017.

- Provided technical assistance to Massachusetts local government on renewable energy technology and energy planning.

Fulbright Foundation Athens, Greece. *Fulbright Research Fellow*, 2015 – 2016.

- Designed and conducted original, independent research on renewable energy policymaking and implementation in the context of Greece's severe economic crisis

Meister Consultants Group (now Cadmus), Boston, MA. *Analyst*, 2014 – 2015.

- Performed research and writing for renewable energy policy design, analysis, and implementation.

EDUCATION

University of California, Berkley, CA

Master of Public Policy – Energy Policy, 2019

Georgetown University, Washington, DC

Bachelor of Science in Foreign Service – Science, Technology, and International Affairs, 2013

TESTIMONY

Missouri Public Service Commission (WR-2024-0320). Direct Testimony of Caroline Palmer (Cost-of-Service/Rate Design) regarding Missouri-American Water Company's Request for Authority to Implement a General Rate Increase for Water and Sewer Service. On behalf of Consumers Council of Missouri. December 20, 2024.

Missouri Public Service Commission (ER-2024-0319). Direct Testimonies of Caroline Palmer (Revenue Requirement and Cost-of-Service/Rate Design) regarding Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust Its Revenues for Electric Service. On behalf of Consumers Council of Missouri. December 3, 2024 and December 17, 2024.

Nova Scotia Utility and Review Board (M11874). Direct Testimony of Caroline Palmer regarding costs incurred to implement the Renewable to Retail market. On behalf of Counsel to Nova Scotia Utility and Review Board. November 1, 2024.

Maine Public Utilities Commission (Docket No. 2024-00137). Direct Testimony of Caroline Palmer and Eric Borden regarding Stranded Cost Rate Design. On behalf of the Maine Office of the Public Advocate. October 1, 2024.

New York Public Service Commission (Cases 24-E-0322 & 24-G-0323): Direct Testimony of Caroline Palmer, Melissa Whited, and Ben Havumaki regarding the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation d/b/a National Grid for Electric and Gas Service. On behalf of the Utility Intervention Unit (UIU) of the New York Department of State's Division of Consumer Protection. September 26, 2024.

Massachusetts Department of Public Utilities (D.P.U. 23-150): Direct Testimony, Surrebuttal Testimony, and Cross-examination of Caroline Palmer and Ron Nelson regarding Petition of Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid, pursuant to G.L. c. 164, § 94 and 220 CMR 5.00, for Approval of a General Increase in Base Distribution Rates for Electric Service and a Performance-Based Ratemaking Plan. On behalf of the Massachusetts Office of the Attorney General. March 29, 2024, May 3, 2024, and May 20, 2024.

North Carolina Utilities Commission (Docket No. E-7, Sub 1276): Direct Testimony of Caroline Palmer regarding the Application of Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina and Performance-Based Regulation. On behalf of the North Carolina Attorney General's Office. July 19, 2023.

Oklahoma Corporation Commission (Case No. PUD 2022-000093.): Adoption of Direct Testimony and Cross-examination regarding the Application of Public Service Company of Oklahoma, for an adjustment in its rates and charges and the electric service rules, regulations, and conditions of service for electric service in the state of Oklahoma and to approve a formula-based rate proposal. On behalf of AARP. May 22, 2023.

Maine Public Utilities Commission (Case No. 2022-00152): Direct Testimony and Surrebuttal Testimony of Caroline Palmer, Nikhil Balakumar, and Ron Nelson regarding the Central Maine Power Company's request for Approval of a Rate Change - 307 (7/30/23). On behalf of the Maine Governor's Energy Office. December 2, 2022 and April 6, 2023.

Massachusetts Department of Public Utilities (D.P.U. 21-91): Direct Testimony and Cross-examination of Caroline Palmer and Ron Nelson regarding the Petition of NSTAR Electric Company d/b/a Eversource Energy for approval of its Phase II Electric Vehicle Infrastructure Program and EV Demand Charge Alternative Proposal. On behalf of the Massachusetts Office of the Attorney General. January 5, 2022, and March 22, 2022.

Massachusetts Department of Public Utilities (D.P.U. 21-90): Direct Testimony and Cross-examination of Caroline Palmer and Ron Nelson regarding the Petition of Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid, for approval of its Phase III EV Market Development Program and EV Demand Charge Alternative Proposal. On behalf of the Massachusetts Office of the Attorney General. January 5, 2022, and March 22, 2022.

Massachusetts Department of Public Utilities (D.P.U. 21-92): Direct Testimony and Cross-examination of Caroline Palmer and Ron Nelson regarding the Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil for approval of its EV Infrastructure Program, EV Demand Charge Alternative Proposal, and Residential EV Time-of-Use Rate Proposal. On behalf of the Massachusetts Office of the Attorney General. January 5, 2022, and March 22, 2022.

PUBLICATIONS

Yuang, C., M. Whited, T. Nguyen, S. Schadler, R. Anderson, W. Dejeanlouis, C. Palmer, C. Mattioda, A. Glaser Schoff, S. Koester, J. Hittinger, P. Eash-Gates. 2024. *Utility Engagement Playbook for Industrial Customers: Addressing Power Sector Barriers to Electrification*. Synapse Energy Economics and World Wildlife Fund for Renewable Thermal Collaborative.

Palmer, C. 2019. *Using Low Carbon Fuel Standard Proceeds from EV Adoption to Improve the Efficiency of Electricity Rates*. Berkeley Public Policy Journal.

PRESENTATIONS

Palmer, C. 2022. Utility Transportation Electrification from a Consumer Advocate Perspective. NASUCA Mid-Year Meeting. Indianapolis, IN.

Palmer, C. 2017. Integration of renewable energy in Greek energy markets: A case study. 2nd HAEE International Conference. Athens, Greece.

Resume last updated January 2025

Request from: Office of Consumer Advocate

Witness: Davis, Edward A.

Request:

Refer to the Direct Testimony of Edward Davis at 8 (Bates 19590), describing “the +2.32% incremental allocation per the MCOS.”

- a. Explain how the 2.23 percent incremental allocation is “per the MCOS.”
- b. Explain how the Company derived the 2.23 percent incremental allocation and provide all supporting workpapers for all customer class’s recommended percent re-allocation in live Excel file format with all formulas and links intact.

Response:

- a) There is an inadvertent, typographical error on line 18 of Bates Page 19590. The reference should have stated “per the ACOSS”, not “per the MCOS”. As noted on Bates 19587, line 7-10, “The Company relied primarily on the fully allocated, total class revenue requirements from the ACOSS conducted by Ms. Nieto to allocate revenue requirements to each rate class, with modifications to avoid unacceptable bill impacts.”
- b) Please refer to the Testimony of Edward A. Davis at Bates Pages 19586 through 19597. In the Revenue Allocation and Rate Design section, the Company explains how it derived the 2.23 percent Rate R and R-OTOD-2 incremental allocation as well as each customer class’s recommended percent re-allocations. The live Excel file that shows these calculations is provided in Attachment ES-EAD-11.

Public Service Company of New Hampshire d/b/a Eversource Energy
Docket No. DE 24-070

Date Request Received: August 20, 2024
Data Request No. OCA 2-006

Date of Response: September 06, 2024
Page 1 of 1

Request from: Office of Consumer Advocate

Witness: Davis, Edward A.

Request:

Refer to Attachment ES-EAD-14, p. 1 Rate R.

- a) Provide the percentage of customers with monthly energy usage at each increment represented (i.e. 100 kWh and below, >100 and ≤200 kWh, >200 and ≤250 kWh, etc).
- b) Provide all information and data that the Company has about the monthly energy usage of the Company's low-income customers (except for any personally identifying information), aggregated to the extent necessary to protect privacy (ex: the distribution of low income customers by usage level). Identify the source of all information about low-income customer usage.
- c) Does the Company know the monthly energy usage of the customers receiving a discount under New Hampshire's Electric Assistance Program? Provide this data, without personally identifying information, in live Excel file format with all formulas and links intact.

Response:

- a) Please refer to Attachment OCA 2-006. To respond to this data request, the Company calculated the average monthly usage into usage groups in increments of 50 kWh for only those accounts that had all twelve months during the year that data was collected. Customers were divided into two populations; those not enrolled in the Electric Assistance Program ("EAP") and those enrolled in the EAP.
- b) Please refer to the response to subpart c below.
- c) Please refer to Attachment OCA 2-006. The Company calculated that the average monthly use is identical to subpart (a) above for customers who participate in the EAP. If a customer was enrolled mid-year, the Company included the full twelve months of data when calculating average monthly usage for this population of customers. The Company also includes a bar graph in Attachment OCA 2-006 comparing the percentage of customers in each population for each 50-kWh usage level.

Request from: New Hampshire Public Utilities Commission

Witness: Davis, Edward A.

Request:

Reference is made to Eversources response to OCA 2-001(b), in which Mr. Davis did not respond to the OCAs request that he identify every utility of which [he is] aware that has calculated its customer charge by using an equi-proportional customer charge increase for implementing revenue requirement increases in rate design. Mr. Davis stated that Eversource does not maintain a national database of regulatory proceedings that would be necessary to respond to this question. But he added that Eversource is aware that there are regulatory cases where a rate increase or decrease is accomplished by across-the-board rate adjustments (increasing or decreasing individual rates by a uniform percentage) and that rate change adjustment becomes the de facto rate design for these cases. Please confirm that Mr. Davis is not aware of any specific cases in which a utility has been authorized by its regulator to increase its fixed customer charge according to an across-the-board formula i.e., an equi-proportional increase. If Mr. Davis is aware of any such specific cases please identify them by jurisdiction, docket number, name of witness supporting this approach to rate-setting, and final order approving such an outcome.

Response:

Please refer to Attachment OCA 3-012 which provides a small sample of cases in Vermont where Green Mountain Power adjusted base rates across-the-board (including customer charges) by the base rate percentage, an increase authorized by the Vermont Public Utility Commission.

Please also refer to the Company's response to OCA 2-001 subpart (a), that describes the equi-proportional adjustment to the customer charge as a first step in adjusting the customer charge for the Company's Residential Rate R, where no subsequent changes to the customer charge were made in further allocating costs and designing rates for Residential Rate R.

Request from: Office of Consumer Advocate

Witness: Nieto, Amparo

Request:

Re Nieto Testimony

Refer to the Direct Testimony of Amparo Nieto (ACOSS) at 5 (Bates 19197) regarding the minimum system study.

- a. Why does the Company believe that the identified minimum sized plant equates to the customer-related portion of distribution plant investment?
- b. How does the Company define "customer-related"?
- c. Provide a table showing the capacity of the minimum size equipment the Company identified for each FERC account.

Response:

- a. Please refer to NARUC Cost Allocation Manual ("Manual"), Section II at 90-91, for a description of the Minimum System ("MS") Study method and the rationale behind it. As referenced in the Manual, NARUC considers that the minimum size distribution equipment (pole, conductor, cable, etc.) what would serve the minimum loading requirements of a customer in the Company's service territory represents the customer-related portion of the distribution grid, for that equipment type. Therefore, the Company engineers provided the minimum size for each of the accounts included in the MS study, e.g., Acc. 364, 365, 366/367 and 368 and its installed cost.
- b. The Company understands customer-related cost as the incremental one-time cost that is incurred when a customer is added to the grid. To identify the separation of plant between customer and demand-related cost, the Company followed NARUC's definition of customer-related portion as per the MS Study.
- c. Please refer to Table OCA 4-012 below for the capacity of the minimum size equipment by FERC account in the Company's MS Study.

Attachment CP-2: The Company's Responses to DR
OCA 2-002, 2-006, 3-012, 4-012, 4-015, 4-016, 4-017, 6-007, 6-009

Table OCA 4-012. Minimum system study – Minimum equipment sizes

Account	Minimum size	Capacity
364	45' Class 2 (P) 35' Class 4 (S)	22,391 lbs * 17,322 lbs *
365	1/0 kW 175 mil ACSR (P) 1/0 TPX OH (S)	220 Amps 205 Amps
366/367	1 AL Prim UG (P) 4/0 3CT UG (S)	150 Amps 240 Amps
368	10 (1PH, OH)	10 kVA

* Denotes vertical load capacity.

**Public Service Company of New Hampshire d/b/a Eversource Energy
Docket No. DE 24-070**

**Date Request Received: October 10, 2024
Data Request No. OCA 4-015**

**Date of Response: October 24, 2024
Page 1 of 1**

Request from: Office of Consumer Advocate

Witness: Nieto, Amparo

Request:

Re Nieto Testimony

Refer to the Direct Testimony of Amparo Nieto (ACOSS) at 9-10 (Bates 19201-2). What is the difference between the trunkline, upstream or backbone primary feeders in Accounts 365-367 that cannot be isolated, and the infrastructure that the MS study *does* isolate (i.e., primary OH lines in Account 365 and primary UG lines 1-PH and 3-PH in Account 366 and 367)?

Response:

Ms. Nieto's reference to trunkline, upstream or backbone primary feeder in her direct testimony refers to that portion of the primary distribution feeder that starts at the low end of the distribution substation transformer and ends at the point where the feeder branches out to primary taps to connect specific loads to the grid. This level of distinction is not tracked in FERC accounts. The MS Study does calculate separate demand /customer shares, but they do not isolate the primary lines that are closer to loads and therefore less diversified than the primary backbone or trunkline feeder.

**Public Service Company of New Hampshire d/b/a Eversource Energy
Docket No. DE 24-070**

**Date Request Received: October 10, 2024
Data Request No. OCA 4-016**

**Date of Response: October 24, 2024
Page 1 of 1**

Request from: Office of Consumer Advocate

Witness: Nieto, Amparo

Request:

Re Nieto Testimony

Refer to the Direct Testimony of Amparo Nieto (ACOSS).

- a. How does the Company distinguish between primary equipment and secondary equipment? Provide definitions of secondary and primary per the Company's distribution system planning manual or other engineering source and identify the source of the definition.
- b. Confirm that residential customers do not receive service at primary voltages.

Response:

- a. The plant is separated in the Company's continuing property record by voltage category based on how the work orders were written and entered into the system. PSNH's lowest primary voltage is typically 4.16/2.4kV (three phase/single phase), with Secondary voltages being typically 120/240 volts.
- b. The residential customer class does not receive service directly at primary voltage, rather the voltage is converted to secondary through a line transformer.

**Public Service Company of New Hampshire d/b/a Eversource Energy
Docket No. DE 24-070**

**Date Request Received: October 10, 2024
Data Request No. OCA 4-017**

**Date of Response: October 24, 2024
Page 1 of 1**

Request from: Office of Consumer Advocate

Witness: Nieto, Amparo

Request:

Re Nieto Testimony

Refer to the Direct Testimony of Amparo Nieto and the Company's ACOSS. Using the Company's load research data or most granular data available, provide a summary of individual customer maximum demands for each customer class (ex: in the form of a box and whisker plot, or boxplot).

Response:

The Company provided, as inputs for the external allocators into the ACOS Study, the "Average Customer Peak Demand Per Account" for the major rate classes. Such information is provided in Table OCA 4-017 below. The Company only provided the class hourly load used to determine the class demands in the top 20 hours for the 20 CP allocator, however hourly load data was aggregated across all customers.

Table OCA 4-017 Average Customer Peak Demand per Account by Class

Customer Class	Average Customer Peak Demand (kW)
Residential Non-Heat	5.16
Residential Heat	6.19
Residential OTOD	10.11
G	6.69
G - OTOD	53.8
GV	307.64
Rate B	1,528.97
LG -D	1,995.2
OL	8.85
EOL	14.72

Request from: Office of Consumer Advocate

Witness: Nieto, Amparo

Request:

Re Testimony of Amparo Nieto on Allocated Cost of Service Study

Refer to the Direct Testimony of Amparo Nieto (ACOSS) at 12 (Bates 19204) and Attachment ES-EAD-8, Rate LCS. Explain the factors causing the Load Controlled Delivery Service Rate LCS to require such a high percent rate change to achieve the Company target rate of return of 7.44 percent.

Response:

The calculation of required revenue requirement by LCS customer account is based on data on these customer demands during the 20 top distribution hours and the LCS class non-coincident peak ("NCP"). The kW of demand per customer on the Residential LCS and GS LCS account is a small fraction of the demand per customer for the average residential and general service account since they only include the separately metered radio-controlled loads. Nevertheless, this results in a much higher allocation of revenue requirement compared to current revenue. This is due in part to the current LCS rate schedule that is a discounted rate and assumes customer loads will be interrupted when needed to alleviate the peak demand on the transformers or feeder. The ACOS study recognizes the reality that these loads are ultimately not controlled at the time of the peak for distribution-related reasons.

Request from: Office of Consumer Advocate

Witness: Nieto, Amparo

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Re Testimony of Amparo Nieto on Allocated Cost of Service Study

Refer to the response to OCA 4-016. What is PSNH's highest primary voltage?

Response:

PSNH's highest distribution voltage is nominally 34.5 kV. The Company only has two separate distribution feed sections that are higher voltage (46 kV) that are associated with the former CVEC (GMP) service territory that the Company acquired in the mid-2000s.