

National Grid Investigation into NH Load Zone Loss Factor Decline

1.0 Background

Granite State Electric Company d/b/a National Grid (“National Grid” or “Company”) issues Requests for Proposals for Default Service Supply for its customers in New Hampshire four times a year. In September 2008, National Grid filed both new retail rates and a procurement summary with the New Hampshire Public Utilities Commission (“NHPUC”). While reviewing the data in the procurement summary, NHPUC Staff noticed that the monthly loss factor (the comparison of wholesale purchases to retail sales) used to calculate retail rates had declined from that provided in previous filings. At that time National Grid was unable to explain why the loss factor had declined. In its order approving the September 2008 rate filing, the NHPUC requested a report on this issue be provided in the next retail rate filing. In December 2008, National Grid filed new retail rates but informed the NHPUC that the investigation into the declining loss factor issue had not yet identified any factor to account for the change in the loss factor. Pursuant to Order No. 24,922 in Docket DE 08-011, the NHPUC ordered National Grid to file with Staff, no later than March 16, 2009, a report describing the investigation into and the causes of the declining loss factor.

The monthly loss factor is determined from the commodity settlement process administered by the New England Independent System Operator (“ISO-NE”). National Grid has specific meter reporting and settlement responsibilities in support of commodity market settlement. The commodity settlement process has two interrelated components, wholesale settlement and retail settlement that combine to establish hourly loss factors by load zone. Wholesale settlement establishes the energy that is consumed within a load zone from reported zone transmission tie line and generation meter data. The retail settlement process reconciles the wholesale energy consumed within a zone to the retail metered customer energy within the zone accounting for service delivery level specific thermal losses and the inherent meter error that exists within the process. In simple terms, the loss factor is the difference between the wholesale energy and the retail metered energy in a load zone.

The New Hampshire load zone loss factor has declined approximately 1% to 2% over the 15-month period ending August 2008 as set forth in Exhibit 1. To investigate the change in the loss factor National Grid undertook a comprehensive review of the wholesale and retail settlement process responsibilities that are carried out by National Grid, as well as the meter data inputs to the process that are provided by other meter readers. The investigation is complete with respect to the process review and National Grid has identified a wholesale meter reporting issue that we believe is the major contributing factor to the recent reduction in the loss factor. The investigation into meter data reported by other meter readers hasn’t identified any additional issues that would contribute to the loss factor reduction. However, we are still looking for verification of our findings in this area with the various meter reporting entities.

The New Hampshire load zone contains 25 wholesale settlement points. Certain settlement points (otherwise known as “assets” in ISO-NE energy settlement) are comprised of multiple metering measurements that are rolled up into specified and reported Load Assets, Generation Assets and Tie Assets for the purposes of wholesale energy settlement at ISO-NE. ISO-NE

wholesale settlement processes for this zone require reporting and interaction from other meter readers and ISO-NE in addition to National Grid. Exhibit 2 depicts the New Hampshire load zone (#4002) and its approximate relationship to the surrounding geographic area.

Characteristics of the New Hampshire retail settlement zone include: over 500 customers with competitive suppliers; six competitive suppliers; and two direct customers providing their own self service in the zone.

Upon review of National Grid's wholesale settlement reporting for the time period in question, National Grid has identified a change in meter point reporting for the Tewksbury to North Litchfield N-214 and O-215 zonal tie lines that we believe is responsible for the change in the NH load zone loss factor. Based on ISO-NE defined zone boundaries, referred to as Pool Transmission Facility Points ("PTF Points"), tie line flows for the Tewksbury to North Litchfield N-214 and O-215 zonal tie lines are to be reported from the Tewksbury end of the transmission tie line. Due to concerns over the quality of the data at the Tewksbury PTF Point, National Grid began reporting meter data from the North Litchfield Substation as the next best source of meter data beginning in January 2008. In making this change National Grid didn't account for the losses between the Tewksbury to North Litchfield N-214 and O-215 zonal tie lines which introduced an error into the wholesale settlement process. In effect, the NH wholesale zone load was understated by the losses on the transmission tie lines. To illustrate the impact, Exhibit 4 compares the NH zone wholesale settlement energy with and without the tie line losses for a single day in 2008. The tie line losses for that day resulted in the understatement of the zone load by about 4 MW/hr. National Grid doesn't have the systems capability to recalculate the NH loss factor over the time period in question, but relying on the illustrative example, believes it's the factor that contributed to the reduction in the loss factor.

As of 2/18/2009 the Tewksbury to North Litchfield N-214 and O-215 zonal tie lines are being reported from metering at Tewksbury. To the extent North Litchfield is used in the future as an alternative meter data source, loss compensation will be factored into National Grid's ISO-NE reporting. In addition to the procedure change, National Grid is in the process of evaluating a meter investment plan that includes the installation of revenue grade metering at 60 meter points, including Tewksbury. Improving the Tewksbury metering would eliminate the need to use the alternate meter source data at North Litchfield.

Exhibits 3 and 3A illustrate the New England Wholesale and Retail Settlement processes as they are administered by National Grid under parameters set by ISO-NE. The processes are used in the settlement of National Grid loads. Exhibits 3 and 3A also support the understanding of the loss factor calculation illustrated in Exhibit 5, National Grid Monthly average Transmission Losses and UFE's.

The following is a description of the settlement processes based on ISO-NE and National Grid specific definitions and terms. A glossary of these definitions and terms is included as the last section of this report.

The validation of direct metered asset loads (PTF reporting by assigned meter readers) via the wholesale settlement process results in a final hourly direct metered load ("FLD") for the zone. The zone model and PTF points have been defined by ISO-NE.

Exhibit 3 depicts the wholesale settlement and retail settlement process convergence upon the FLD, otherwise stated as the virtual PTF Point. This represents the wholesale settlement results of the direct metered generation and tie line assets and applies operation information losses (“OI Losses”) provided by ISO-NE both in the initial 37 hour open settlement window, reflecting an initial hourly direct metered load (“NLD”) and a subsequent FLD reflecting any pertinent adjustment made from the “Day 45 to Day 65” allowed re-settlement period.

In the initial 37 hour open settlement period, the retail settlement process utilizes class average load shapes and customer interval data that are adjusted by a use factor (use/class average load shape) and distribution loss factors. Profiled assets are allowed by ISO-NE settlement convention, to be adjusted, as need be, in the “Day 66-Day 85 re-settlement” window.

The resulting Preliminary Estimate loads are then reconciled in the initial settlement period to the direct metered substation load at the low voltage non-Pool Transmission Facility (non-“PTF”) level. The substation loads are also referenced as delivered load or (“DLD”). These reconciliation quantities are termed “residuals”.

The DLD will differ from the FLD by the amount of low voltage non-PTF losses.

Exhibit 3A offers a complementary view of the retail settlement process. Class average load shapes and customer interval data are adjusted by use factors and the reconciled residuals to result in a Loads Without Losses quantity. The Loads Without Losses quantities are adjusted by distribution loss factors to result in the DLD. This reflects the total load within National Grid’s territory as measured by the direct metered substation load at the low voltage non-PTF level.

The concepts illustrated in Exhibits 3 and 3A support the calculation of the loss factor in Exhibit 5, National Grid Monthly Average Transmission Losses and UFE’s for the time period June 2007 through August 2008. The loss factor computed at the zone level (column 10) is calculated as FLD (column 7) minus Loads without Losses (column 3) divided by Loads without Losses (column 3).

2.0 Study Approach

The quality of the FLD and Loads without Losses are the key factors that impact the loss factor. The distribution loss factors and other thermal losses, OI Losses provided by ISO-NE, and retail use factors are very predictable settlement variables. As a result, the investigation into the declining loss factor focused on any notable component process element and/or settlement software application element that is associated with the FLD and Loads Without Losses.

It is appropriate to separately highlight the fact that the FLD pertaining to National Grid is settled, in part, from the wholesale settlement process results that are obtained from both direct metered assets where National Grid is the meter reader and also direct metered assets from other companies such as VELCo. Exhibit 6 shows the Assets pertaining to the wholesale settlement process for the New Hampshire Load zone. (Note that Asset 7205 and Asset 86 are also reported in the West Central Massachusetts 4007 Load Zone). Exhibits 7 and 8 illustrate the tie metering

points in the high zonal tie line flow in Asset 86 NetNEP-VEL EAST and Asset 7205 NetNEP-VEL SOUTH that National Grid uses to check the submission of the VELCo “other Company” tie lines. This other Company data supports establishment of the final hourly load pertaining to the settlement in the New Hampshire Load Zone. The study includes investigation into other Company data.

3.0 Study Findings

Specific discussion of the data investigation elements, including any associated findings supporting a rationale for lowered loss causation is as follows:

A. Retail Settlement:

The following inputs to the retail settlement process were reviewed in order to assess any associated findings supporting a rationale for lowered loss causation:

1. CSS Retail Billing System & Supplier Switching: National Grid personnel examined the PULSE application (National Grid retail settlement application) quality control reports and performed ad hoc analysis associated with supplier switching. The customer counts appeared to be stable and were not seen as problematic. The customer allocations appeared to be correct by supplier, company and zone. The results also indicated that there are not outstanding uncorrected input errors that would have an adverse affect upon retail settlement.
2. PULSE Retail Settlement Application: The daily process customer count and loss adjustment factors in the PULSE retail settlement system do not show any large differences that would have an adverse affect on retail settlement.
3. Residuals & Retail Methodology: The methodology is stable and not seen as problematic.
4. Substation delivered load (“DLD”) & Estimated Data: The PULSE software application “T20” table showed some minor device and load changes that were not of sufficient magnitude to cause the observed loss factor decrease. The DLD investigation did not show errors in data estimation.

B. Wholesale Settlement:

The following inputs to the wholesale settlement process were reviewed in order to assess any associated findings supporting a rationale for lowered loss causation:

1. WSA: The Wholesale Settlement Application input mechanisms and assets are constant and are commensurate with the Asset Registration Process over the data study period. Wholesale Settlement is practiced in accord with

NEPOOL Market Rule 1 Accounting and Manual M-28. Telemetered installations are in accord with OP-18 requirements. The construct of the Wholesale Settlement Application does not appear to have any adverse affect on wholesale settlement.

2. The initial direct metered generator and tie line load with losses (“NLD”)/ Substation Delivered load (“DLD”) comparison: The loss comparison reflects varying repetitive negative magnitudes during the 2008 time period and is indicative of an undetermined settlement concern. Measurement uncertainties associated with the meter data and resulting non-thermal losses contribute to the increased difficulty in detecting any data or modeling anomalies or relevant trend that would explain the causation of the decline in losses.
3. No variations were found in the application of the thermal losses. These are consistently used over the data study period.
4. The wholesale settlement model appears to be modeled to support accurate settlement in terms of National Grid internal settlement methodology point definitions and sign conventions. This is under continual examination. Further comment pertaining to model effectiveness is detailed in Sections 5 and 6 that follow.
5. As stated previously, the settlement of National Grid loads in the New Hampshire Load Zone is dependent upon successful meter reading and reporting that is completed by National Grid and ‘other companies’ such as VELCo.

Accordingly, it is thought appropriate to examine and discuss significant “other company” interfaces that are used as inputs to the settlement process and other known issues, under present discussion, in order to determine the effects, if any of VELCO, PSNH, CVPS, NHEC “other company” data on energy settlement in the NH Load Zone.

a. The PSNH Haverhill tie line data was examined in order to determine if there is any adverse impact to Asset # 86 Net NEP-VEL EAST. The PSNH Haverhill point is captured and reflected in metered values through a National Grid meter at the Ryegate Station. Load is also reported by VELCo. This matter was discussed with the National Grid Transmission Commercial Services Department in order to learn the facts of the CVPS/VELCO load reporting (PSNH Haverhill) to determine the impact on Asset #86 Net NEP-VEL EAST hourly flow data reported to the ISO-NE for Energy Settlement purposes. The reported Asset #86 Net NEP-VEL EAST data also in part establishes the basis for the National Grid initial wholesale generator and tie line direct metered initial hourly loads (“NLD”) with OI Losses and final hourly load (“FLD”). At this time, it’s believed that VELCo’s separate and incorrect reporting of the PSNH Haverill load to the ISO-NE, a known issue,

is thought to have no bearing on the Asset #86 Net NEP-VEL EAST reported values. Hence, there does not appear to be any adverse impact in the stated National Grid load values. National Grid awaits confirmation of this fact from CVPS.

b. The matter of the switching position and effect of load reporting at Ryegate and VELCO Hartford was discussed with National Grid Transmission Commercial Services to learn the extent of CVPS/VELCO switching at the normally open switch #736 adjacent to the Bradford Tap to determine the impact on Asset #86 Net NEP-VEL EAST hourly flow data reported to the ISO-NE for Energy Settlement, if any. The reported data for Asset #86 also in part establishes the basis for the National Grid NLD and FLD load. This switch closure can transfer load normally supplied through the Ryegate delivery point (e.g. PSNH Haverill load) to the VELCO transmission delivery point source at Hartford. It has been represented that this switch has only been operated a few times over the past year or so and only for short periods of time during line outage conditions. A transfer of load to the VELCO source would need to be accurately accounted for within the Asset #86 Net NEP-VEL EAST hourly flow values prepared by VELCO staff in order to correctly reflect the internal National Grid load within the New Hampshire Load Zone.

VELCO is the Meter Reader for the Asset #86 Net NEP-VEL EAST tie interchange flow and is responsible for reporting the interchange between VELCO and National Grid accurately in accordance with ISO-NE rules, policy and established procedures (Market Rule #28). National Grid recognizes that the load involved is small and may range between 1 and 10 megawatts peak depending on load levels and various switching scenarios that could be utilized to pick up sections of load inside Vermont. Further, these abnormal switching conditions are only present for short periods of times to allow for a few hours while line repair returns line configurations to their normal supply.

National Grid understands that VELCO personnel utilize the physical Ryegate metered values to formulate tie Asset #86 Net NEP-VEL EAST reported flows and hence the reported hourly energy flows should be accurately represented under both normal and cited abnormal switching conditions. National Grid awaits confirmation of this fact from CVPS.

It is important to note that even if VELCO didn't accurately capture the load transfer, this abnormal switching could not explain the observed "step" discontinuity in stated transmission losses. National Grid believes that VELCO personnel correctly reported the loads during these abnormal switching conditions but is pursuing validation of that fact. National Grid continues to monitor the interchange flow values reported on National Grid's behalf for reasonableness against internally derived flow values in any event. If it is ultimately found that isolated hourly interchange was reported in error for any of the known abnormal switching conditions, National Grid will

confirm that the impact is of insignificant consequence as it relates to the change in NH load zone losses.

c. Discussion pertaining to the generator load reporting issues at Pettyboro, Bath and Woodsville Hydros has led National Grid to conclude that the presence of generation from these three entities has no adverse impact on tie Asset #86 NEP-VEL EAST reporting nor National Grid's load and load loss figures being questioned. The generators are located deep within the Vermont electrical system and although connected to PSNH they are buried behind both CVPS and GMP systems. National Grid awaits confirmation of this fact from CVPS.

d. Discussion related to the VELCO Hartford switch closure coincident with Ryegate at the National Grid peak load time relates to the same switch discussed in item 5b. above except that this condition has the switch closed and no line is out. The switch closure simply connects the National Grid supply with that of VELCo and National Grid believes that the Ryegate physical metering correctly states the interchange between the parties under these abnormal switching conditions. Please refer to further discussion under item 5b. above for a fuller explanation of the facts surrounding this matter. National Grid awaits confirmation of its understandings of this matter from CVPS.

e. National Grid has just received as requested a breakdown of the Asset #7205 Net NEP-VEL SOUTH and Asset #86 Net NEP-VEL EAST components and associated hourly load from VELCo for a representative day (8/20/08). National Grid needs additional time to evaluate this information to determine if there are any issues that would affect the change in NH load zone losses.

f. National Grid has examined other small tie lines in order to determine if there was any effect upon the New Hampshire Load Zone settlement processes. National Grid has confirmed that the Goose Pond interchange point was correctly included in both the NLD and DLD processing when that interchange point was commissioned mid-way through 2008. No further activity is necessary unless new information surfaces from National Grid field supervision re: addition of any other new metering points introduced over the past two years that may impact modeling within the DLD and NLD. National Grid is awaiting response from its field supervisors.

g. National Grid is presently investigating if any bordering North Shore Massachusetts electrical grid construction activity has any effect upon the New Hampshire Load Zone settlement. This is inconclusive at this time.

6. National Grid reported Generator and Tie Meter Data:

National Grid examined the NH load zone points for which it is responsible for reporting to ISO-NE for any trends or changes that would indicate a potential impact on the loss factor. Through this effort it was discovered that there was a meter reporting source change on Tewksbury to North Litchfield N-214 and O-215 zonal tie line that is thought to be the key factor affecting the loss factor.

The use of the Tewksbury PTF Point source data in the wholesale settlement model, as initially designed, has been limited due to the inconsistent nature of the data at that point. Data reflecting the next best source at the North Litchfield Substation zonal tie equivalent point at the opposite end of the tie line segment has been used extensively during the sample data timeframe.

The measuring devices at the zonal tie at North Litchfield Substation and at the zonal PTF Point at Tewksbury are Bitronics meters that have an error range of $\pm .5\%$. Additional error is introduced by the current transformers and potential transformers at the Tewksbury and North Litchfield Substation zonal tie point that are most likely relay grade equipment.

In the instance of the Tewksbury to North Litchfield N-214 and O-215 zonal tie line segments, there is an approximate 0 - 8 MW per hour loss measured between the PTF Point at Tewksbury and the alternate North Litchfield Substation zonal settlement point. This zonal tie line experiences a characteristically high line flow in relation to the New Hampshire load. Accordingly, relatively small measurement errors are seen as larger percent variance in a loss analysis.

Analysis suggests that a further process improvement that will complement the use of the next best source of data at the North Litchfield Substation zonal tie equivalent point will have the associated OI Losses from the ISO-NE associated with the PTF data point at Tewksbury applied to the North Litchfield alternate zonal point when it is used in the wholesale settlement model.

This concept will apply to any use of any alternate PTF Point in the wholesale settlement model. Daily and monthly wholesale settlement processing reflecting the “next best source” of data including adjustment for OI Losses imported into the wholesale settlement model for settlement points needing repair will be completed in an ongoing manner.

Exhibits 4 reflects a before and after daily view of the loss application to the North Litchfield Substation zonal tie alternate data point and application of the associated OI Losses into the FLD for the New Hampshire Load Zone on 8/20/08. This comparison indicates that the change in meter source reduced

the FLD by about 4 MW/hr. This in turn would reduce the loss factor as illustrated by the percent change in FLD.

On 2/18/09, National Grid returned to the use of the initial wholesale settlement model Tewksbury PTF measurement in New Hampshire load zone wholesale settlement reporting.

National Grid is in the process of approving a meter investment plan that will re-classify 60 meter points including the zonal wholesale settlement tie points to revenue grade accuracy. This will allow for a more accurate settlement measurement at Tewksbury.

The wholesale settlement process improvement that is outlined above, will compliment the use of the “next best source” of data when a repair of the zonal tie line data is required. It is believed that the implementation of the meter re-classification effort at the New Hampshire zonal tie points would, to a large extent, alleviate the concern about the decline in losses associated with National Grid Default Service loads.

4.0 Glossary of Terms

Loads Without Losses are the sum of the class average load shapes and customer interval data adjusted by usage factors and residuals.

Preliminary Estimates are the sum of the class average load shapes and customer interval data adjusted by usage factors and distribution loss factors.

Residuals are the difference between the preliminary estimates and the delivered loads divided by the preliminary estimates.

Delivered loads are the total load within GSECo territory and are measured by the substation meters in GSECo territory.

“NLD”s are the wholesale generator and tie line direct metered hourly loads with OI Losses received from the ISO-NE within National Grid territory as established in the initial 37 hour settlement window at the Pool Transmission Facility /non- Pool Transmission Facility point.

“FLD”s are the final hourly direct metered asset loads within National Grid territory measured at the PTF/non-PTF point (Pool Transmission Facility Point) as of the close of the direct metered re-settlement period. The final direct metered hourly loads are used to establish Supplier Loads.

Percent Transmission losses are calculated as the difference between the Delivered loads and the FLDs divided by Delivered loads.

Percent UFEs (unaccounted for energy) is calculated as the difference between the preliminary estimates and the FLDs divided by the preliminary estimates.

Percent Losses calculated as FLDs minus Loads without losses divided by loads without losses.

Pool Transmission Facility Points (“PTF Points”) reflect the established virtual wholesale settlement points and are the basis for the Standard Market design measurement basis. The “PTF” Points reflect generator and tie metered data with applied OI Losses that are provided by the ISO-NE.

PULSE - The National Grid Process Underlying Load Settlement software application used for retail settlement with the ISO-NE.

Asset #86 - NetNEP-VEL EAST – Defined in Exhibit 5

Asset # 7205 - NetNEP-VEL SOUTH – defined in Exhibit 6

VELCo – Vermont Electric Power Company

PSNH – Public Service Company of New Hampshire

CVPS – Central Vermont Public Service

NHEC – New Hampshire Electric Cooperative

Exhibit 1 NH Losses: Trends

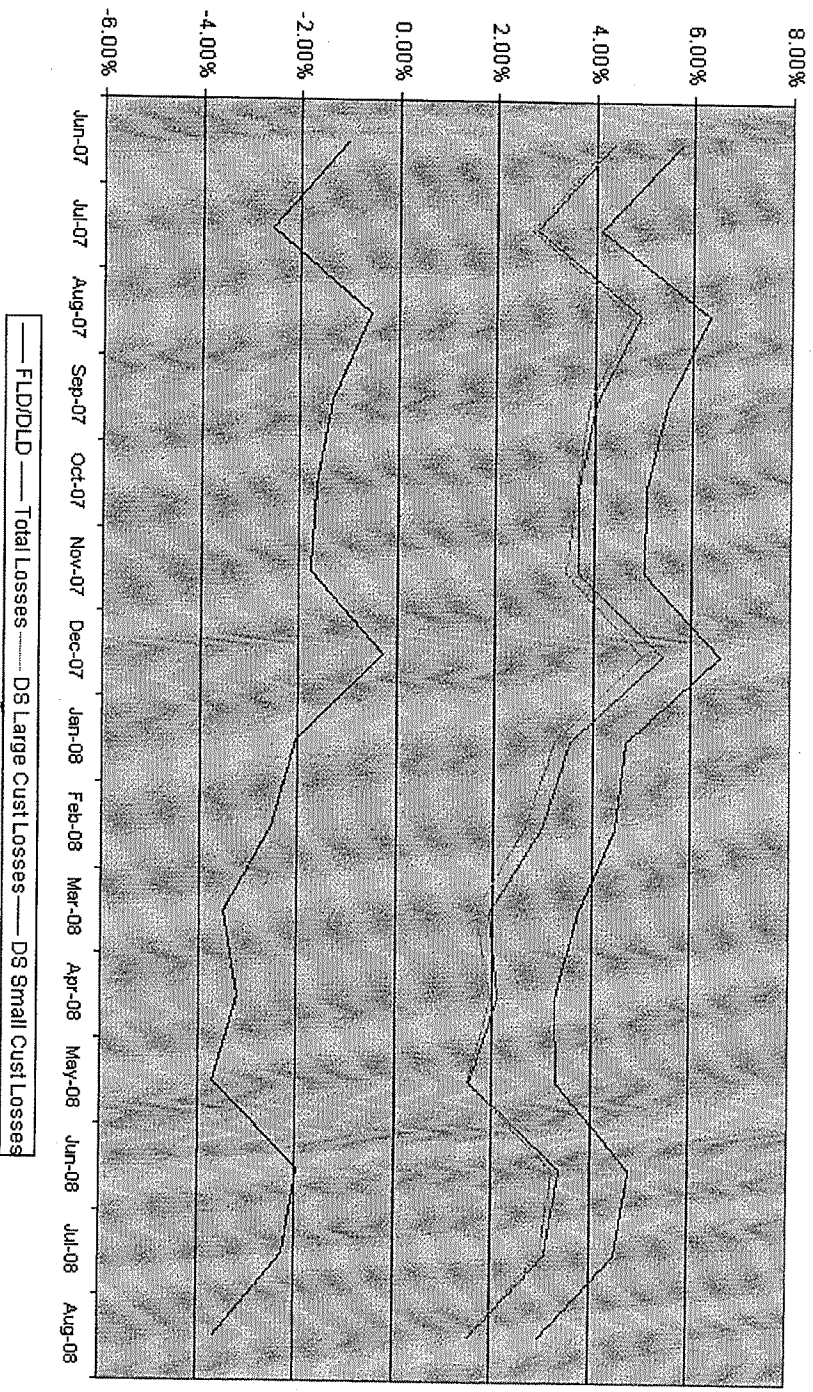


EXHIBIT 2

QUEBEC

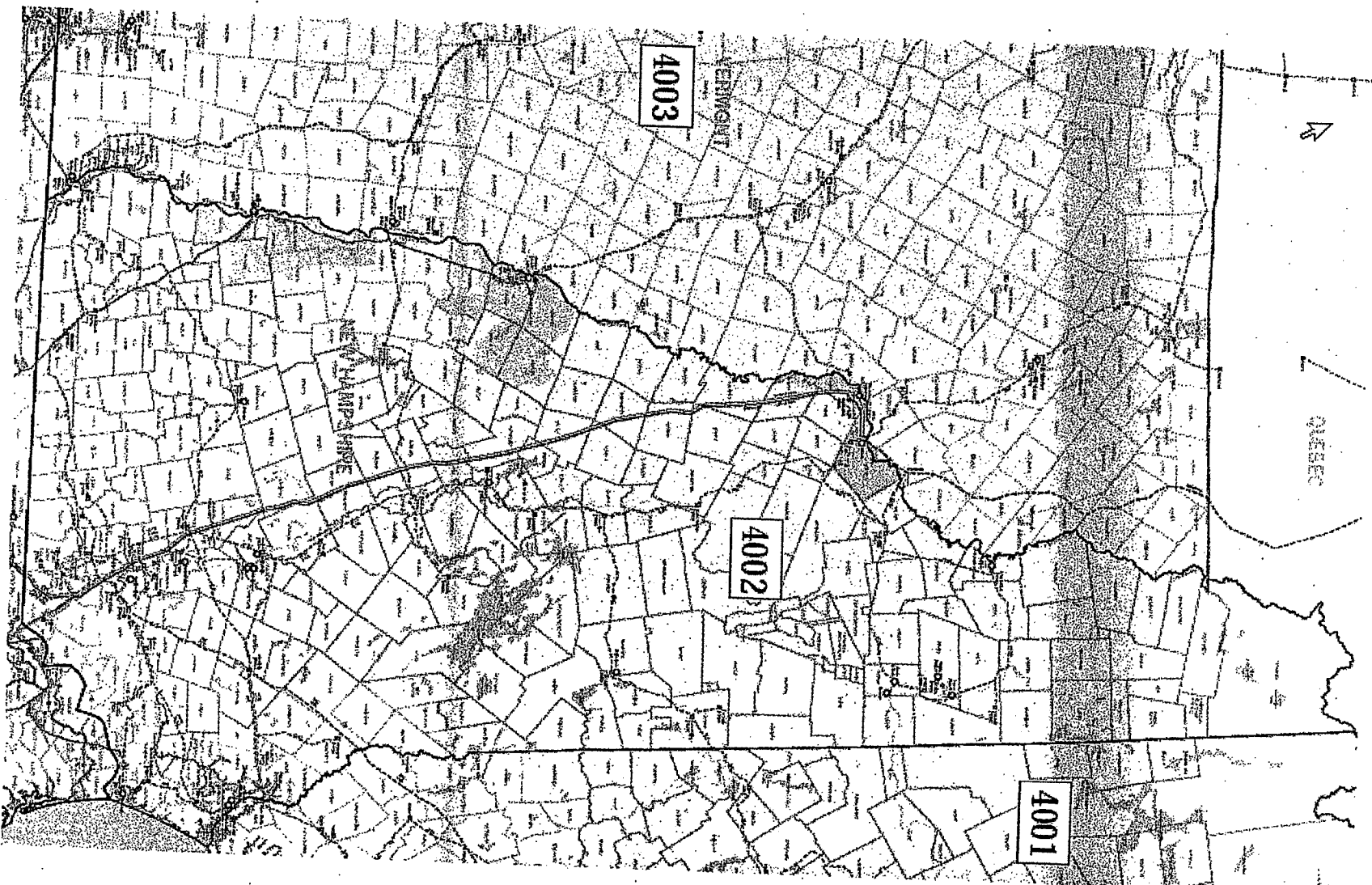


EXHIBIT 3
National Grid NE Retail and Wholesale Settlement Process Flow

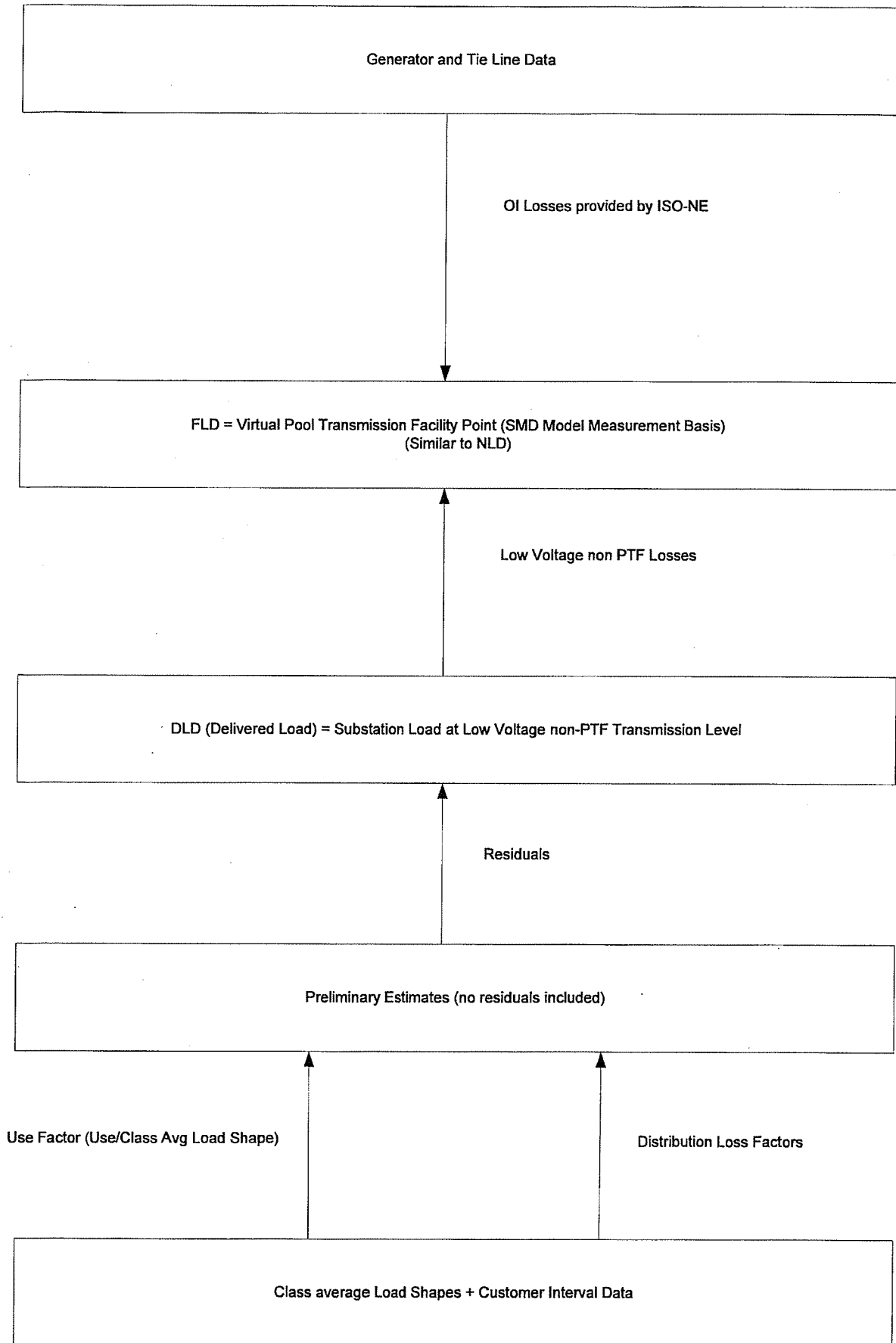


EXHIBIT 3A
National Grid NE Retail and Wholesale Settlement Process Flow

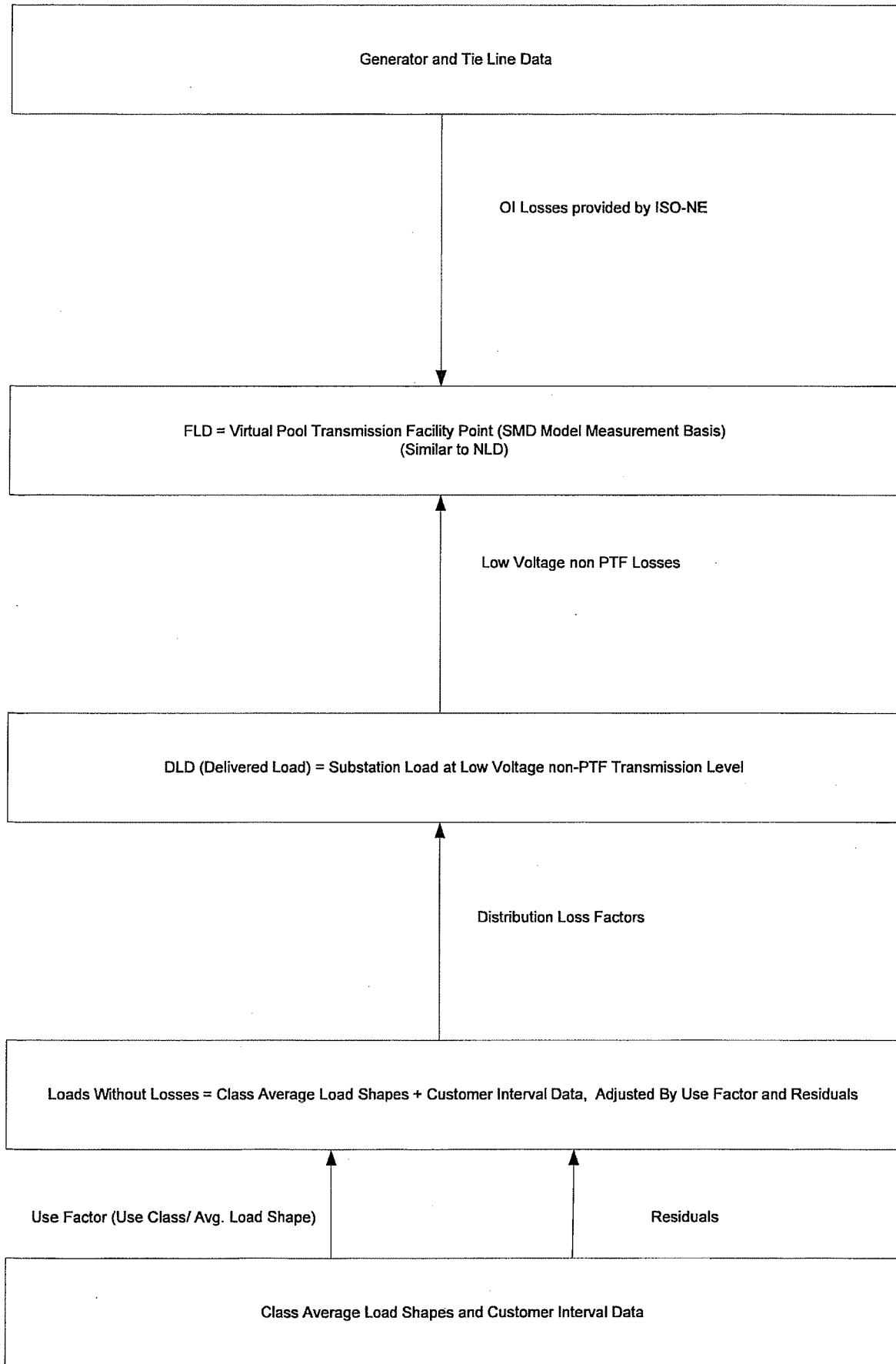


EXHIBIT 4

New Hampshire Load Zone Final Load Comparison Reflecting Present and Alternative Estimation Methods

Date used 08/20/2008

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>HOUR</u> <u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>
Wholesale Load Losses as reported w/o loss adj.	78,996	76,697	72,092	71,643	73,459	78,816	90,791	103,466	112,394	118,662	122,480	126,920
Wholesale Load Losses as reported with loss adj.	82,900	79,019	74,062	73,772	75,454	80,662	94,672	106,507	114,211	121,329	126,220	130,582
Variance	3,904	2,322	1,970	2,129	1,995	1,846	3,881	3,041	1,817	2,667	3,740	3,662
% Variance	4.94%	3.03%	2.73%	2.97%	2.72%	2.34%	4.27%	2.94%	1.62%	2.25%	3.05%	2.89%
	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>HOUR</u> <u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>
Wholesale Load Losses as reported w/o loss adj.	126,984	128,058	127,501	127,385	129,148	124,930	120,317	116,056	120,494	108,981	96,592	84,418
Wholesale Load Losses as reported with loss adj.	130,658	132,182	131,982	131,924	133,626	129,845	125,294	121,532	124,352	113,138	102,301	93,013
Variance	3,674	4,124	4,481	4,539	4,478	4,915	4,977	5,476	3,858	4,157	5,709	8,595
% Variance	2.89%	3.22%	3.51%	3.56%	3.47%	3.93%	4.14%	4.72%	3.20%	3.81%	5.91%	10.18%

Exhibit 5

**Granite State Electric Company
Monthly Average Transmission Losses and UFEs
June 2007 through August 2008**

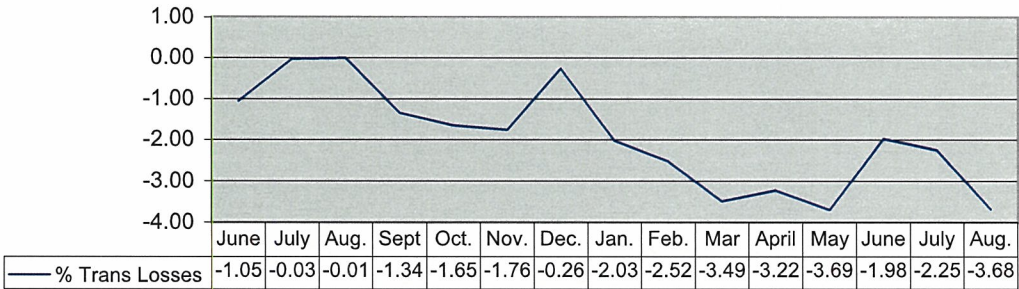
Year	Month	Loads without Losses	Preliminary Estimates	Residuals	Delivered Loads	FLDS (Load at PTF)	Percent Transmission Losses	Percent UFEs	Percent Losses as calculated by Energy Supply
<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>	<u>(8)</u>	<u>(9)</u>	<u>(10)</u>
2007	6	75,412,095	79,119,014	0.51%	79,525,495	78,690,390	(1.05%)	(0.54%)	4.35%
2007	7	82,031,027	87,121,871	(0.65%)	86,552,244	84,323,217	(2.58%)	(3.21%)	2.79%
2007	8	83,798,867	86,915,727	1.72%	88,413,827	87,934,881	(0.54%)	1.17%	4.94%
2007	9	72,409,503	76,724,460	(0.47%)	76,364,329	75,341,581	(1.34%)	(1.80%)	4.05%
2007	10	72,448,006	74,869,386	2.01%	76,372,481	75,113,397	(1.65%)	0.33%	3.68%
2007	11	71,056,168	72,835,268	2.98%	75,006,799	73,683,092	(1.76%)	1.16%	3.70%
2007	12	78,212,090	76,275,306	8.37%	82,657,072	82,446,228	(0.26%)	8.09%	5.41%
2008	1	77,826,310	81,773,291	0.59%	82,253,050	80,587,116	(2.03%)	(1.45%)	3.55%
2008	2	72,015,007	76,634,809	(0.71%)	76,089,188	74,170,040	(2.52%)	(3.22%)	2.99%
2008	3	73,713,128	77,091,337	0.99%	77,857,598	75,139,391	(3.49%)	(2.53%)	1.93%
2008	4	67,985,203	71,459,131	0.35%	71,711,133	69,404,381	(3.22%)	(2.88%)	2.09%
2008	5	69,464,822	72,391,071	1.16%	73,231,623	70,526,092	(3.69%)	(2.58%)	1.53%
2008	6	76,749,136	80,982,164	(0.04%)	80,948,272	79,343,808	(1.98%)	(2.02%)	3.38%
2008	7	86,317,915	89,541,052	1.66%	91,027,093	88,974,571	(2.25%)	(0.63%)	3.08%
2008	8	80,351,338	84,325,033	0.44%	84,694,053	81,579,304	(3.68%)	(3.26%)	1.53%

Notes:

- (3) Loads without losses are the sum of the class average load shapes and customer interval data adjusted by usage factors and residuals
- (4) Preliminary Estimates are the sum of the class average loadshapes and customer interval data adjusted by usage factors and distribution loss factors
- (5) Residuals are the difference between the preliminary estimates and the delivered loads divided by the preliminary estimates
- (6) Delivered loads are the total load within GSECo territory and are measured by the substation meters in GSECo territory
- (7) FLDs are the loads within GSECo territory measured at the PTF/non-PTF point (Pool Transmission Facility) minus LV losses.
- (8) Percent Transmission losses are calculated as the difference between the Delivered loads and the FLDs divided by Delivered loads
- (9) Percent UFEs are calculated as the difference between the preliminary estimates and the FLDs divided by the preliminary estimates
- (10) Percent Losses calculated as FLDs minus Loads without losses divided by loads without losses

% Transmisison Losses "FLD" / "DLD"

% Transmission Losses



June 2007-August 2008

% transmission losses		
2007 June	-1.05	
2007 July	-0.03	
2007 Aug.	-0.01	
2007 Sept	-1.34	
2007 Oct.	-1.65	
2007 Nov.	-1.76	
2007 Dec.	-0.26	
2008 Jan.	-2.03	
2008 Feb.	-2.52	
2008 Mar	-3.49	
2008 April	-3.22	
2008 May	-3.69	
2008 June	-1.98	
2008 July	-2.25	
2008 Aug.	-3.68	

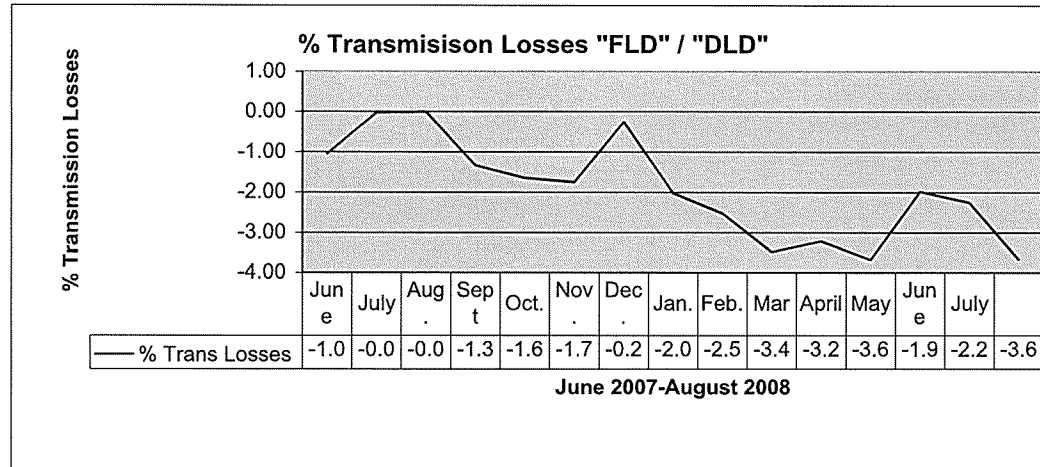


Exhibit 6	
New Hampshire Load Zone 4002	
<u>Asset Number</u>	<u>Asset Name</u>
86	NETNEP-VEL EAST
90	MORELIVERN TIE
95	HUDSONY151 TIE
99	MERRIMACK TIE
224	PATTENVLE LOAD
335	BELLOWS FALLS
380	COMERFORD
473	MCINDOES
496	MOORE
620	WILDER
795	RIVER MILL HYDRO
951	BALTIC MILLS - QF
972	NHEC-NEET S/S CMFD LOAD
1022	NEET COMERFORD IN
1023	NEET COMERFORD OUT
1061	MASCOMA HYDRO
1164	NHEC-NEP 8L1 TIELINE
1628	AES GRANITE RIDGE-NEP TIE
7201	SPICKET RIVER 2353/2376
7202	BELLOWS FALLS_I135_J136
7203	GOLDEN RCK L164
7204	DRACUT JCT Y151
7299	NGRID 7082 LOSS LOAD
7728	BRIDGE ST_DRACUT
7735	N.LITCHFLD N241_O215
7827	METHUEN JCT 2353_2376

SOLD 86 Asset Type Tie Line
 Asset NETNEP-VEL EAST

Meter ID	Channel	Multiplier	Name	Pulse Multiplier
0710	1	-1.0298	American Paper (Simpson)	1.2000
0710	3	0.9702	American Paper (Simpson)	1.2000
1005342	1	-1.0298	GILMAN CVPS	10.0000
1005343	1	-1.0398	WATERFORD GMP	0.1200
1006328	1	-1.0000	Vilas Bridge T1 Rec	7.5000
1006328	2	-1.0000	Vilas Bridge T2 Rec	7.5000
1006328	3	1.0000	Vilas Bridge T1 Del	7.5000
1006328	4	1.0000	Vilas Bridge T2 Del	7.5000
1050044	1	-1.0100	BELLOWS G33 TO GMP	15.0000
1050044	2	1.0000	BELLOWS G33 TO NEP	15.0000
1050047	1	-1.0000	COMERFORD 3386 TO CVPS	7.2000
1050047	2	1.0000	COMERFORD 3386 TO NEP	7.2000
1050047	3	-1.0100	COMERFORD 3316 TO GMP	7.2000
1050047	4	1.0000	COMERFORD 3316 TO NEP	7.2000
1050048	3	1.0000	MCINDOES 3311/24 TO NEP	100.0000
1050048	4	-1.0298	MCINDOES 3311/24 TO GMP	000.0000
1050070	1	-1.0000	GRANITE F206 TO VELCO	100.0000
1050070	2	1.0000	GRANITE F206 TO NEP	100.0000
1050071	1	-1.0000	ASCUTNEY K149 TO VELCO	100.0000
1050071	2	1.0000	ASCUTNEY K149 TO NEP	100.0000
1050144	1	1.0000	Bellows 4401/02 from CVPS	15.0000
1050144	2	-1.0000	BELLOWS 4401/02 TO CVPS	15.0000
1050144	3	1.0000	Bellows 4401/02 from CVPS	15.0000
1050144	4	-1.0000	Bellows 4401/02 to CVPS	15.0000
1051052	1	-1.0000	WILDER K26 TO VELCO	200.0000
1051052	2	1.0000	WILDER K26 TO NEP	200.0000
1150053	1	-1.0000	WILDER 1344 TO CVPS	45.0000
1150053	2	1.0000	WILDER 1344 TO NEP	15.0000
1150053	4	-1.0100	WILDER 1302 TO GMP	15.0000
1150279	1	1.0200	NH ELEC COOP	5.0000
9199941	2	-1.0200	BELLOWS BRIDGE ST (67H7)	5.0000
			LOAD GMP	
9199941	3	-1.0200	BELLOWS BRIDGE ST TOTAL 8KV	10.0800
			LOAD GMP	
1050060	3	1.0000	Charlestown (GESCo) T1 Comp.	15.0000

ISOID 7205 Asset Type Tie Line

Asset NETNEP-VEL SOUTH

Meter ID	Channel	Multiplier	Name	Pulse Multiplier
1004340	1	-1.0000	SS TR1	0.1200
1040051	1	-1.0000	VERNON G33 TO CVPS	12.6000
1040051	2	1.0000	VERNON G33 TO NEP	12.6000
1040051	3	-1.0100	VERNON 13L1 & 13L2 TO GMP	1.2600
1040051	6	1.0100	VERNON 13L2 (VY SS)	3.3600
1110072	1	-1.0000	ADAMS Q117 TO VELCO	43.2000
1110072	2	1.0000	ADAMS Q117 TO NEP	43.2000
4085991	1	-1.0000	SEARSBURG to nep	19.2000
4085991	2	1.0000	SEARSBURG to cvps	19.2000
7757949	1	1.0000	SEARSBURG 2.4kV ss	0.0012
Z8000		1.0000	Sleepy hollow	1.0000
7759288	1	-1.0100	Searsburg 2.4kv to gmp	0.0600
7759288	4	0.9900	Searsburg 2.4 kv from gmp	0.0600