Liberty Utilities

STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. DG 20-105

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Distribution Service Rate Case

DIRECT TESTIMONY

OF

MATTHEW J. DECOURCEY

July 31, 2020

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1   **I.**   **INTRODUCTION AND BACKGROUND**

2   **Q.**   **Please state your full name, position, business address, and professional**

3   **qualifications.**

4   A.   My name is Matthew DeCourcey. I am a Managing Director at FTI Consulting, Inc.

5   ("FTI"), 200 State Street, 9th Floor, Boston, Massachusetts. My professional

6   qualifications and experience are included as Attachment MJD-1.

7   **Q.**   **Please describe FTI's Power & Utilities practice.**

8   A.   FTI is a worldwide consulting firm dedicated to helping organizations manage change,

9   mitigate risk, and resolve disputes. Our Power & Utilities practice brings these services

10   to firms in regulated and competitive energy industries. The services we provide our

11   utility clients include expert testimony, regulatory advice, support for strategic decision-

12   making, and advice regarding investments and capital allocation. Our team is comprised

13   of former utility executives, regulators, investors, and financial analysts that combine

14   hundreds of years of experience in the regulated energy space.

15   **Q.**   **What is your responsibility in connection with this proceeding?**

16   A.   I am responsible for preparing the Marginal Cost Study ("MCS") for Liberty Utilities

17   (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities ("EnergyNorth" or "the

18   Company") and for designing proposed rates for each of the Company's customer

19   classes.

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1 **Q. How is your testimony organized?**

2 A. My testimony is organized into three sections. This section, Section I, includes

3 introductory material and describes the scope of my testimony. Section II describes the

4 MCS that I prepared and its results. Section III discusses the development of the

5 proposed customer class revenue targets, the proposed rates for each class, and describes

6 bill impacts.

7 **II. MARGINAL COST OF SERVICE STUDY**

8 **A. Overview and Summary of the MCS**

9 **Q. Please explain the concept of marginal costs and their applicability to natural gas**

10 **utilities.**

11 A. Marginal costs are defined as the change in total cost that results from increasing the

12 output of a good or service by one unit. In the context of a gas utility, this means the

13 added cost to serve one additional dekatherm ("dth") of demand or one additional

14 customer. When a utility such as EnergyNorth is required to serve new demand or a new

15 customer, it incurs a number of costs, including the cost of new infrastructure, increased

16 Operations and Maintenance ("O&M") expenses and other administrative and operational

17 costs. The MCS measures the degree to which each of those costs increases when an

18 additional increment of demand or a new customer is added to the system. In addition to

19 these costs, a utility would also need to procure gas supply to meet the needs of

20 incremental demand or new customers; however, for purposes of this proceeding, that

21 cost is excluded from the MCS because EnergyNorth's gas supply costs are recovered

22 through the Company's Cost of Gas mechanism.

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1 **Q.** **How are the results of the MCS used in the ratemaking process?**

2 A. The MCS establishes the marginal cost of a new customer or new increment of demand

3 for each of EnergyNorth's rate classes. Marginal costs are then translated into revenue

4 requirements, which reflect the annual levelized costs of incurring the marginal costs,

5 inclusive of capital returns, taxes, depreciation, and other factors that are typically

6 accounted for in utility ratemaking; annual levelized costs are equivalent to the

7 Company's revenue requirement for each marginal cost incurred. The annualized

8 levelized costs are, in turn, used to allocate the Company's revenue requirement, which is

9 described in the joint testimony of Company witnesses David Simek and Kenneth

10 Sosnick, to establish rates for each rate class. I discuss the development of the

11 Company's rates in Section III of my testimony.

12 **Q.** **Please briefly explain the economic theory underlying marginal cost analysis and its**

13 **applicability to utility ratemaking.**

14 A. It is an established principle in economics that when prices for goods or services are

15 equal to the marginal costs to provide those goods or services, consumers will make

16 decisions about their consumption that tend to optimize the allocation of resources. Thus,

17 using marginal costs to establish EnergyNorth's distribution rates will help encourage

18 consumers to make efficient decisions regarding their gas consumption. The New

19 Hampshire Public Utilities Commission ("Commission") has recognized the

20 appropriateness of using marginal costs for purposes of utility ratemaking in numerous

21 proceedings, including the case in which the Company's gas distribution rates were last

22 adjusted, Docket No. DG 17-048.

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1   **B. MCS Methodology**

2   **Q.**   **Please explain your approach to conducting the MCS.**

3   A.   In conducting the MCS, I used data provided by the Company and approaches and

4   methods that are generally consistent with the MCS EnergyNorth filed in Docket No. DG

5   17-048. The study was conducted in three parts. First, I analyzed the relationships

6   between EnergyNorth's costs, its peak day demand, and its customer count. Some of

7   EnergyNorth's costs increase primarily as a function of new demand, which I have

8   categorized as capacity-related expenses. Other costs increase primarily as a function of

9   new customers, which I have categorized as customer-related expenses. I also calculated

10   a number of "loading factors," which account for relatively small costs whose causal

11   relationships to other cost drivers are difficult to determine statistically. The results of

12   these analyses indicate the initial marginal costs that EnergyNorth would incur to serve

13   incremental demand and/or new customers. Second, I calculated Fixed Carrying Charge

14   Rates ("FCCRs") to convert the initial marginal costs into the levelized, annual payment

15   that the Company would require to recover its initial investment. Third, I summarized

16   my findings and estimated the total marginal costs per dth of peak day demand and per

17   customer for each of the Company's rate classes.

18   Table 1 below identifies each category of marginal costs that I analyzed and identifies the

19   attachment to my testimony associated with each aspect of my analysis.

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Table 1. Summary of MCS Analyses

Marginal Cost Category		Attachment
Capacity-Related Marginal Costs		
1	Addition of production plant used in lieu of mains reinforcement	MCOS-1
2	Costs of mains reinforcements to meet incremental demand	MCOS-2
3	Costs of mains extensions to meet incremental demand	MCOS-2
4	Costs of distribution O&M to meet incremental demand	MCOS-2
5	Costs of production O&M to meet incremental demand	MCOS-2
Customer-Related Marginal Costs		
6	Costs to new plant additions (meters and services) to serve incremental customers	MCOS-3
7	Costs of O&M to serve incremental customers	MCOS-3
8	Costs of Accounting and Marketing to serve incremental customers	MCOS-3
Loading and Adjustment Factors		
9	Plant-related A&G loading factor	MCOS-4
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11	MS and prepayments loading factor	MCOS-4
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1   **Q.**   **Please summarize the method you used to estimate the capacity- and customer-**

2   **related marginal costs shown above.**

3   A.   My estimate of the marginal cost to add production plant in lieu of mains reinforcement,

4   listed above as Item 1, is based on an analysis of engineering data provided by the

5   Company, as I explain in detail later in my testimony. To estimate the marginal costs

6   associated with Items 2 through 8, I first conducted regression analyses using data the

7   Company provided. If the resulting regression equation that I estimated to parameterize

8   the driver of each cost category was sufficiently robust, it was used to estimate the

9   marginal cost. If it was not, I based the marginal cost for each category on historical

10   actual cost rates, as I explain in more detail below.

11   **Q.**   **Please explain the general approach that you used in conducting the regression**

12   **analyses.**

13   A.   The Company provided annual cost data for the period 1989 to present for each of the

14   cost categories listed as Items 2 through 8 in Table 1. I adjusted expense data using a

15   general inflation index and adjusted the plant cost data using the most recent version of

16   the Handy Whitman Index.[1] EnergyNorth also provided annual peak day consumption

17   and annual customer counts for the same period. For each of the capacity-related

18   marginal costs (Items 2–5 above), I regressed the cost items against peak day

19   consumption. For the customer-related marginal costs (Items 6–8), I regressed the cost

20   items against annual customer count. Among the results produced is a coefficient that

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[1]   The Handy Whitman Index calculates cost trends for specific sectors, which allows for the estimation of industry-specific inflation calculations. To develop the calculations described in my testimony I used Bulletin No. 191, the most recent available, of the Handy-Whitman Index of Public Utility Costs.

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1   indicates the slope of the regression line found to be the best fit in the data. The

2   coefficient indicates the rate at which the cost variable would increase for every unit

3   change in the independent variable, either demand, in which case the rate of change in

4   costs is expressed on a $/peak day dth basis, or customer count, in which case the rate of

5   change is expressed on a $/customer basis.

6   More formally, the regression equations can be summarized as follows:

7    $$Cost\ Variable = a + b * Cost\ Driver\ Variable$$

8   where the *Cost Variable* is the cost data provided by the Company for each category

9   identified in Items 2–8 in Table 1. The *Cost Driver Variable* is the Company data for

10   either demand (for capacity-related marginal costs) or customer count (for customer-

11   related marginal costs). *a* is the y-axis intercept of a line that is fit to the data available

12   using regression analysis; that line is often referred to as being defined by the regression

13   line. *b* is the coefficient that represents the slope of the regression line, which is the rate

14   at which the *Cost Variable* increases with each unit of the *Cost Driver Variable*; thus, for

15   purposes of the MCS, *b* indicates the unit marginal cost for each of the cost categories

16   shown above for which I was able to estimate a sufficiently robust relationship using

17   linear regression.

18 **Q.**   **Is regression analysis a widely accepted method for conducting marginal cost**

19   **studies?**

20 A.   Yes, the method I used is widely accepted. Regression analysis is used in New

21   Hampshire and elsewhere for marginal cost studies for gas and electric utilities and was

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1   also used in Docket No. DG 17-048, the last rate case where the Company's distribution

2   rates were adjusted. Additionally, the use of historical cost rates in instances in which a

3   sufficiently robust relationship between cost and driver variables cannot be found using

4   regression is also common practice in New Hampshire and other jurisdictions.

5   **Q.   How did you determine which of the regressions satisfactorily capture the**

6   **relationship between the cost and driver variables?**

7   A.   There were three primary criteria I utilized to confirm that the regression equations I have

8   identified adequately capture the relationship between the cost variable and the cost

9   driver variable. *First*, I reviewed the R-squared statistic, which is sometimes referred to

10   as the coefficient of determination. R-squared is the square of the coefficient of

11   correlation between the *Cost Variable* and the *Cost Driver Variable* and is a statistical

12   measure of how closely the data fit the regression line. *Second*, I confirmed that each of

13   the regression coefficients – the *b* or slope variables – had the expected sign. In this case,

14   that means that all of the coefficients should be positive, indicating that as peak demand

15   increased, expense would as well. *Third*, I reviewed the t-statistic and p-value for each

16   regression, both of which are measures of the explanatory power of the *b* coefficient.

17   **Q.   Did you reject any regressions?**

18   A.   Yes, I did. In several instances I rejected the results of the regression analysis because

19   the equation indicated a coefficient with a negative sign, a low R-squared value, or both.

20   As I describe in detail below, in each of those instances I based my estimate of the

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1 marginal cost for that cost category on long-run cost rates that I calculated using the data

2 provided by the Company.

1. Capacity-Related Marginal Costs

4 **Q.** **Please summarize the capacity-related marginal costs that you estimated using**

5 **regression analysis.**

6 A. I estimated five types of marginal costs that the Company would incur for each additional

7 increment of design day demand, each of which are listed in Table 1: (Item 1) marginal

8 costs associated with the addition of new production plant that the Company could install

9 in lieu of reinforcing its network of distribution mains; (Item 2) marginal costs of

10 investing to reinforce mains to meet each increment of new demand; (Item 3) marginal

11 costs of extending mains to meet each increment of new demand; (Item 4) marginal

12 distribution O&M costs associated with serving each increment of new demand; and

13 (Item 5) marginal production O&M costs associated with serving each increment of new

14 demand.

15 **Q.** **How did you estimate Item 1, the marginal cost of new production in lieu of mains**

16 **reinforcement to serve incremental demand?**

17 A. EnergyNorth owns Liquid Propane ("LP") and Liquefied Natural Gas ("LNG") facilities

18 in its service territory, which it uses to maintain pressure when its system is at or near

19 peak demand conditions. I asked the Company to develop an estimate of the costs of

20 hypothetical additions to expand the capacity of its LP and LNG facilities and also to

21 determine how much of that new capacity would be used to maintain system pressure.

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1   Upon review of its engineering data, the Company determined that the cost estimates and

2   allocation to pressure support used for the MCS in Docket No. DG 17-048 were still

3   current. Those costs indicated that LNG was the preferred alternative; that in 2016 it

4   would have cost $6,417,870 to increase its LNG capacity by 10,000 dth; and that 8.73%

5   of that capacity would be used to maintain pressure during peak conditions. I therefore

6   increased the capital expense amount by approximately 6.2% to account for three years of

7   inflation between 2016 and 2019. I determined this rate by reviewing the U.S. Bureau of

8   Economic Analysis's Gross Domestic Product Implicit Deflator, which was most recently

9   published in May 2020. The result is a marginal unit cost estimate for production plant to

10   maintain pressure support of $59.52/dth of incremental design day demand. My

11   calculations are shown in Attachment MCOS-1.

12 **Q.   How did you estimate Item 2, the marginal cost of mains reinforcement to serve**

13 **incremental demand?**

14 A.   Mains reinforcement costs are the costs that the Company incurs for reinforcing its

15   system to maintain operations to meet incremental demand. I asked the Company to

16   prepare an engineering study that forecasted system reinforcement projects that

17   EnergyNorth expects to install over the period 2021 to 2030 in response to growing

18   demand and the expected costs of those projects. I then developed a regression analysis

19   to estimate the statistical relationship between the cost of those reinforcement costs and

20   demand. As shown in Attachment MCOS-2 at page 1, I found that the marginal cost of

21   mains reinforcement is $1,261.97/dth of incremental design day demand.

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1 **Q.** **How did you estimate Item 3, the marginal cost of mains extensions to meet**

2 **incremental demand?**

3 A. The marginal cost for mains extension is the cost that EnergyNorth will incur to extend

4 its network for each dth by which demand grows. The Company provided me with data

5 for the period 1989–2019 that included the costs of new mains and peak day demand for

6 each year. Using this data, I conducted regression analysis to estimate the relationship

7 between those two variables and determined that the marginal cost of mains extensions is

8 $1,090.65/dth of incremental design day demand, as shown in Attachment MCOS-2 at

9 page 2.

10 **Q.** **How did you estimate Item 4, the marginal cost of distribution O&M to serve**

11 **incremental demand?**

12 A. The Company provided me with data for O&M related to distribution operations for the

13 period 1989–2019. I conducted regression analysis to estimate the relationship between

14 those cost data and peak day demand, which indicated that the Company's marginal cost

15 of distribution O&M is $46.87/dth of incremental design day demand, as shown in

16 Attachment MCOS-2 at page 3.

17 **Q.** **How did you estimate Item 5, the marginal cost of production O&M to meet**

18 **incremental demand?**

19 A. Production O&M costs are those costs that EnergyNorth incurs for the operation and

20 maintenance of its LNG and LP facilities. To estimate that cost, I first ran a regression to

21 determine the relationship between design day demand and total production related

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1   expenses using data provided by the Company. However, the resulting equation had a

2   negative sign and low R-squared value, so I rejected it and instead estimated the marginal

3   cost using EnergyNorth's historical average production cost, which I determined to be

4    $13.21/dth of incremental design day demand. Because that estimate is total production

5   cost, it must be allocated to the distribution function, since the objective is to determine

6   the marginal cost of pressure support. To do so, I utilized the same rate, 8.73%, that was

7   used to allocate the cost of new production in lieu of mains to the pressure support

8   function. The resulting estimate of the marginal cost for production O&M is $1.15/dth of

9   incremental design day demand, as shown in Attachment MCOS-2 at page 4.

10   **2. Customer-Related Marginal Costs**

11   **Q.   Please explain the concept of customer-driven marginal costs.**

12   A.   For some cost categories, the Company's costs are driven more by the number of its

13   customers than by customers' total consumption. For example, EnergyNorth's cost of

14   meters is driven entirely by its customer count – a meter must be installed for each new

15   customer regardless of consumption. For each of the customer-driven cost categories, the

16   marginal cost is equal to the Company's additional expense in that category that results

17   from a single new customer. Accordingly, each of the customer-driven marginal costs

18   are expressed on a $/customer basis.

19   **Q.   Please summarize the customer-related marginal costs that you estimated.**

20   A.   I estimated three types of marginal costs that the Company would incur for each new

21   customer: (Item 6 from Table 1) the costs of new plant additions for each incremental

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1   customer; (Item 7) O&M costs associated with the new plant additions for each

2   incremental customer; and (Item 8) Accounting and Marketing costs the Company will

3   incur for each new customer.

4   **Q.**   **How did you estimate Item 6, the marginal cost of plant additions to serve**

5   **incremental customers?**

6   A.   Customer-driven marginal costs of plant additions are the costs of installing a meter and

7   service for new customers. The Company provided me with its current costs by rate

8   class, which are shown below. Additional detail is provided in Attachment MCOS-3 at

9   page 1:

10   **Table 2. Marginal Costs of Customer-Related Plant Additions**

	R-1	**R3, R-4**	**G-41**	**G-42**	**G-43**	**G-51**	**G-52**	**G-53**	**G-54**
Service	$4,063	$4,063	$3,796	$6,346	$10,913	$11,894	$6,583	$39,407	$9,647
Meter	$440	$440	$1,077	$2,750	$9,333	$3,483	$2,750	$3,995	$11,904
Total	$4,503	$4,503	$4,873	$9,097	$20,245	$15,376	$9,333	$43,403	$21,552

11

12   **Q.**   **How did you estimate Item 7, the marginal cost of O&M to serve incremental**

13   **customers?**

14   A.   Customer-driven O&M expense is the expense that the Company incurs to operate and

15   maintain its meters and services; as such, it is separate from the Company's distribution

16   O&M discussed above. To estimate the marginal cost of customer-related O&M, I first

17   developed regressions based on historical data for customer-related O&M and annual

18   customer count which the Company provided. Because the resulting regression equation

19   had an extremely low R-squared value, I rejected it and instead based my estimate of the

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1   marginal cost on the Company's long-run average O&M cost per customer, which is

2    $66.45/customer, as shown at page 2 of Attachment MCOS-3. Because customer-related

3   O&M is likely to vary by rate class, I conducted additional analysis to weight the

4   marginal costs for each class based on the contribution of each class to total costs, as

5   shown at page 3 of Attachment MCOS-3. The resulting marginal cost for O&M to serve

6   incremental customers for each rate class is shown below:

7   **Table 3. Weighted Customer-Related Marginal O&M Cost by Class**

Class	Class weighted marginal cost per customer
R1	$62.26
R-3, R-4	$62.26
G-41	$67.38
G-42	$125.77
G-43	$279.92
G-51	$212.60
G-52	$129.04
G-53	$600.10
G-54	$297.99

8

9   **Q.   How did you estimate Item 8, marginal Accounting and Marketing costs to serve**

10   **incremental customers?**

11   A.   The Company provided historical data for Accounting and Marketing expenses for the

12   period 1989 to present. I prepared a regression analysis to determine the statistical

13   relationship between those expenses and annual customer count. Because that analysis

14   showed a very weak relationship, as measured by the correlation value, between customer

15   count and Accounting and Marketing expense and also a negative coefficient, I chose to

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1   base my estimate of the marginal cost for that category of $65.88/customer using the

2   Company's actual long-run average rate. My calculations are shown at page 4 of

3   Attachment MCOS-3.

4   **3. Loading and Adjustment Factors**

5 **Q.**   **Please identify the loading factors you estimated.**

6 A.   The loading factors I calculate are for (a) plant-related administrative and general

7   ("A&G") expense, (b) non-plant-related A&G expense, (c) materials and supplies

8   ("M&S") and prepayments, and (d) general plant.

9 **Q.**   **What is the relevance of the loading factors to the MCS?**

10 A.   Each of the loading factors define relatively small costs that the Company will incur as a

11   result of increasing demand and/or customer count that should be included in its marginal

12   cost but that are difficult to estimate directly using the statistical approaches described

13   above. I therefore based my estimates of the loading factors on the historical relationship

14   between these cost categories and other costs from data that was provided by the

15   Company. For example, I compiled the Company's total utility plant cost and its plant-

16   related A&G expense for each year for the period 1989 through the present and

17   determined that, on average, plant-related A&G expense was approximately 0.61% of the

18   total utility plant cost. I conducted similar analyses for each of the other loading factors,

19   including comparisons of non-plant A&G expense to adjusted O&M, M&S and

20   prepayments to total utility plant, and general plant to total utility plant. My calculations

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1   are provided at pages 1–4 of Attachment MCOS-4 and are summarized in Table 4,

2   below:

3   ### Table 4. Summary of Loading Factors

Category	Loading Factor	Unit
Plant-related A&G expense	$0.0061	/$ of utility plant
Non-plant related A&G expense	$0.6616	/$ of adjusted O&M
M&S and prepayments	$0.0131	/$ of utility plant
General Plant	$0.0549	/$ of utility plant

4

5   **Q.   Did you calculate any other adjustment factors?**

6   A.   Yes, using data provided by the Company, I calculated a percentage-based estimate of

7   bad debt expense per customer class, as shown at page 5 of Attachment MCOS-4.

8   ### 4. Levelized Marginal Costs

9   **Q.   Please explain the relevance of the levelized marginal costs.**

10   A.   Each of the marginal costs for investments in infrastructure described earlier in my

11   testimony are the initial costs that will be incurred by the Company to place services,

12   meters, and plant into service to serve new demand or customers. These costs must be

13   converted into levelized, annual costs that include recovery of the Company's authorized

14   return and other factors in order to establish marginal costs that reflect EnergyNorth's

15   cost of service.

16   **Q.   How did you convert the initial marginal costs into levelized marginal costs?**

17   A.   I calculated FCCRs for each type of investment that the Company would incur to meet

18   new demand or to serve new customers: (a) production plant, (b) mains, (c) services, and

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1 (d) meters. For each, I calculated an Engineer's FCCR and an Economist's FCCR, which

2 are the annual revenue requirements, expressed as a percentage of the initial capital

3 investment, for each type of investment, inclusive of the Company's required returns,

4 taxes, depreciation, and other factors that are reflected in utility ratemaking for capital

5 investment. The only difference between the two rates is that the Engineer's FCCR is

6 expressed in nominal dollars while the Economist's FCCR is expressed in constant

7 dollars that account for the value of inflation; the Present Value ("PV") of the income

8 streams that underlie the FCCR calculations are the same for both. For purposes of

9 marginal cost analyses, it is generally accepted that use of the Economist's FCCR is most

10 appropriate, which is consistent with the Company's MCS in Docket No. DG 17-048.

11 The inputs that I used to conduct the levelized cost analysis are shown at pages 1–2 of

12 Attachment MCOS-5, the detailed calculation of the four FCCRs are shown at pages 3–6

13 of Attachment MCOS-5, and the Economist's and Engineer's FCCRs are shown at page 7

14 of Attachment MCOS-5.

15 **C.** **MCS Results**

16 **Q.** **Please identify the schedules you have prepared to summarize the results of the**

17 **Marginal Cost Study.**

18 A. Attachment MCOS-6, page 1, shows the calculation of capacity-related marginal costs

19 inclusive of loading factors and adjustments. Attachment MCOS-6, page 2, shows the

20 calculation of customer-related marginal costs, including all loading factors and

21 adjustments. Attachment MCOS-6, page 3, summarizes the cost estimates.

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1   **Q.**   **Please summarize the results of the MCS.**

2   A.   The results of the MCS are summarized in Table 5, below.

3

Table 5. Marginal Costs by Rate Class ($,000)

Class	Customer -related	Capacity- related	Total	Share
R-1	$2,403	$176	$2,579	2.0%
R3, R-4	$53,177	$25,674	$78,851	61.6%
G-41	$6,620	$11,246	$17,866	14.0%
G-42	$1,746	$13,608	$15,354	12.0%
G-43	$154	$3,900	$4,054	3.2%
G-51	$2,620	$815	$3,434	2.7%
G-52	$494	$1,863	$2,357	1.8%
G-53	$182	$1,998	$2,180	1.7%
G-54	$79	$1,152	$1,230	1.0%

4

5   **III.**   **RATE DESIGN**

6   **Q.**   **What is the purpose of this section of your testimony?**

7   A.   In this section of my testimony I describe the analysis I undertook to develop proposed

8   rates for each of the Company's rate classes. I also discuss an issue with the decoupling

9   mechanism approved in the Company's last rate case that I believe merits an adjustment

10   by the Commission.

11   **Q.**   **How is this section of your testimony organized?**

12   A.   In this section of my testimony I summarize at a high level my approach to undertaking

13   the rate design. I also describe the billing and revenue data that the Company provided

14   me and describe in detail my calculation of the proposed distribution rates. Additionally,

15   I explain the analyses that I undertook to calculate the changes to other pass-through

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1   charges allowed by the Company's tariff. Finally, I describe the analysis of bill impacts

2   by customer class that I conducted.

3   **A. Rate Design Overview**

4 **Q.   Please summarize at a high level your approach to developing proposed rates.**

5 A.   The objective of the rate design analysis is to identify a set of rates that allows the

6   Company to recover its allowed revenue requirement given normal throughput volumes,

7   that adheres to principles related to rate continuity that I describe in more detail below,

8   and that reflect the Company's marginal cost to serve customers in each class. To do so,

9   I calculated the revenues that the Company would earn at current rates, assuming that

10   throughput is the same as was observed in the test year, subject to certain adjustments I

11   describe later in this section of my testimony.[2] When I determined that those revenues

12   would be less than the Company's requirements, I calculated the increase, expressed on a

13   percentage basis, that would eliminate any revenue shortfall. The required increase and

14   the results of the MCS were used to determine how much to increase rates in each class.

15   After I had calculated the proposed rates, I confirmed that they would generate revenues

16   that would meet the Company's revenue requirement.

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[2]   The test year is 2019.

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1 **Q.** **Have there been any significant, recent changes to the Company's rate design?**

2 A. In August 2016, the Company received permission from the Commission to offer a new

3 set of rates to customers initiating service under the Managed Expansion Program

4 ("MEP").[3]

5 **Q.** **Please summarize the MEP and the relevant rates.**

6 A. Previously, new customers who required the construction of new facilities, often in the

7 form of mains extensions, were frequently required to make an upfront payment for the

8 costs of those facilities, referred to as a Contribution in Aid of Construction ("CIAC"), as

9 a condition of starting service. The Company found that in some cases, developers were

10 opting for propane service to avoid having to pay the CIAC.[4] The MEP was designed as

11 an alternative to the CIAC and imposes a premium of 30% on both customer and

12 volumetric charges on the rates for the class of which the customer would otherwise be a

13 part. For example, a C&I customer initiating service who meets all the criteria of the G-

14 41 rate class could be assigned to the G-44 class, in which case the customer would

15 receive service subject to all the same terms as a G-41 customer except for the higher

16 rate. The value proposition for such customers is the avoidance of the CIAC. The

17 premium embedded in the MEP rate is designed to generate approximately the same

18 amount of revenue, over time, that would have been recovered on an upfront basis via the

19 CIAC. New customers assigned to a MEP rate class receive service under that tariff for

20 10 years, after which they revert to the applicable non-MEP tariff. There is a MEP

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[3] Commission Order No. 25,933, issued August 4, 2016.
[4] *Id.* at p. 3.

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1   variant for each of the rate classes that have typically been in use for the Company

2   (herein referred to as the "standard" rate classes for simplicity). Table 6 shows the

3   Company's standard rate class and equivalent MEP rate class for each type of customer.

4   **Table 6. Standard and MEP Rate Classes**

Type	Description	Standard Rate Class	Equivalent MEP Rate Class
Residential	Non-Heating	R-1	R-5
	Heating	R-3	R-6
	Heating (Low Income)	R-4	R-7
C&I	Low Annual Use, High Winter Use	G-41	G-44
	Medium Annual Use, High Winter Use	G-42	G-45
	High Annual Use, High Winter Use	G-43	G-46
	Low Annual Use, Low Winter Use	G-51	G-55
	Medium Annual Use, Low Winter Use	G-52	G-56
	High Annual Use, Low Winter Use	G-53	G-57
	High Annual Use, Load Factor > 90%	G-54	G-58

5

6   **Q.   Aside from the MEP rate classes, are rates for any other class a function of some**

7   **related class?**

8   A.   Yes. Rate class R-4 is provided under the Residential Low Income Assistance Program

9   ("RLIAP"). Each component of the R-4 distribution rates is set at 60% of R-3 rates.

10   There is also an equivalent MEP rate, such that R-7 rates are set at a discount to R-6 rates

11   (or, alternatively a 30% premium to the R-4 rates). Customers are eligible for service

12   under one of the RLIAP rates if they receive food stamps, disability or old age assistance,

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1   participate in a fuel assistance program, or receive some other support program.[5] The

2   RLIAP discount applies only to distribution rates, not the cost of gas.

3   **Q.   Have there been any other notable changes to the Company's ratemaking?**

4   A.   Yes. This is the first proceeding in which the Company is proposing a single set of

5   distribution rates for all its customers, including the Keene service territory. Previously,

6   Keene customers had received service under a separate set of rates. All of the volume,

7   revenue, and related data discussed in the remainder of my testimony includes the Keene

8   customers.

9   **Q.   Are you proposing any adjustments to reflect the impact of the Concord Steam**

10   **acquisition?**

11   A.   No. In previous proceedings, the Company had included adjustments in its calculation of

12   rates that reflected certain aspects of its 2017 acquisition of Concord Steam, many of

13   whose customers have chosen to take service from EnergyNorth after the transaction and

14   subsequent closure of Concord Steam's plant. Those customers that did so have been

15   fully integrated into EnergyNorth's systems. As such, an adjustment is no longer

16   required.

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[5]   A detailed listing of programs that define the RLIAP eligibility criteria is available on the Commission's
website at:
https://www.puc.nh.gov/consumer/gasassistanceprogram.htm#:~:text=The%20Gas%20Residential%20Low%2
0Income,delivery%20portion%20of%20their%20bill

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1   **B. Billing and Revenue Data**

2   **Q.   What data did you use to develop the rates you are proposing?**

3   A.   In addition to the MCS results, I used the output of the Cost of Service and Functional

4   Cost of Service Studies (collectively the "COS Studies") that Messrs. Simek and Sosnick

5   describe in their joint testimony. I also used information from Company rates already

6   approved by the Commission. Finally, I utilized billing data from the test year and gas

7   cost data for the 2019/20 winter that were provided to me by the Company.

8   **Q.   Has the test year data that the Company provided been validated?**

9   A.   Yes. Included with my testimony as Attachment RATES-1 is a revenue proof that

10   validates the billing data I used. The proof contains data from the Company's billing

11   system showing customer count, sales, and revenues by month and by rate class for the

12   test year that indicate that the Company earned $86,453,445 over that period.[6] It also

13   includes a re-calculation of revenues for the same period based on actual rates in effect

14   which, indicating earnings of $86,454,281, a difference of roughly 0.001%.[7,8]

15   **Q.   Were the billing determinants shown in RATES-1 adjusted in any way before you**

16   **used them in your rate design calculations?**

17   A.   Yes, four adjustments were made: (a) a calendarization adjustment; (b) an adjustment to

18   separate sales volumes into usage blocks; (c) a weather normalization adjustment; and (d)

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[6]   p. 2, ln. 25
[7]   ln. 50
[8]   p 3, ln. 50

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1   an adjustment to correct for changes that occurred to the Company's customer base over

2   the course of the test year.

3   **Q.**   **Please explain the calendarization adjustment.**

4   A.   The calendarization adjustment accounts for differences between the billing cycles that

5   EnergyNorth uses and calendar months. It was calculated by the Company and provided

6   to me. Adjustments to monthly customer counts and sales volumes are shown on p. 1–2

7   and p. 3–4, respectively, of Attachment RATES-2.

8   **Q.**   **Please explain the block rate structure EnergyNorth uses to set rates for some of its**

9   **customers.**

10   A.   The Company's tariffs define volumetric charges for several classes of C&I customers

11   using what is referred to as a block rate structure. Each month, customers in those classes

12   are charged a rate for all usage up to a pre-defined limit. If usage exceeds that limit, a

13   different rate is applied for consumption for the remainder of the month. EnergyNorth

14   refers to the two quantities as the "headblock" and "tailblock" volumes, respectively. For

15   all classes that use this structure, the tailblock rate is lower than the headblock rate, a

16   design sometimes referred to as a "declining block structure." Table 7 shows the size of

17   the headblock for each of the rate classes that use the block rate structure. Note that in

18   some instances, the size of the headblock differs by season.

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1   **Table 7. EnergyNorth Customer Classes Using Block Rate Structures (therms)**

Standard Rate Class	Equivalent MEP Rate Class	Summer Headlock Size	Winter Headblock Size
G-41	G-44	20	100
G-42	G-45	400	1,000
G-51	G-55	100	100
G-52	G-56	1,000	1,000

2

3   No changes are being proposed to the structure or sizes of any of the blocks.

4   Additionally, as I explain below, the rates I propose maintain the pricing relationships

5   embedded in the current tariff between headblock and tailblock volumes as well as the

6   relationships between summer and winter volumes.

7   **Q.   Please explain the adjustment that was made to the determinants to determine**

8   **headblock and tailblock volumes.**

9   A.   The Company maintains billing data from actual (un-calendarized) sales that shows the

10   percentage, each month, of sales that fall into each of the headblock and tailblock for

11   customers in each of the classes shown in Table 7. Those percentages were applied to the

12   calendarized data to show usage by block. The adjustment is shown on p. 4 of

13   Attachment RATES-2 at Lines 26–47. The resulting headblock and tailblock volumes by

14   month and by rate class are shown at p. 5 of the same attachment.

15   **Q.   Please explain the weather normalization adjustment.**

16   A.   The purpose of using billing determinants from a test year is to define the quantity of

17   sales likely to occur in subsequent years. Although the historical data are indicative of

18   future volumes for obvious reasons, in some years, weather will be colder than normal,

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1   which tends to increase throughput, while in some years it will be warmer, which has the

2   opposite effect. In order to project annual sales, on average, moving forward,

3   adjustments need to be made to correct for the particular weather outcomes that affected

4   test year volumes. To do so, the Company analyzed weather data on a month by month

5   basis for all winter months to determine the degree to which temperatures during the test

6   year diverged from long-run averages. Because weather variances primarily impact

7   heating demand and because there is little heating demand during the non-winter months,

8   weather normalization of summer sales volumes is unnecessary. The results of the

9   temperature analysis were input into models of the relationships between weather and

10 volumes that the Company maintains to develop a counterfactual estimate of what sales

11 would have been had the weather been normal – which is to say completely consistent

12 with historical average temperatures – each winter month during the test year. The

13 resulting adjustment is calculated separately for each rate class and for each month of the

14 test period and is shown at p. 6 of RATES-2. The normalized volumes that result from

15 applying the adjustment are shown at page 7–8. As the adjustment data indicate, January

16 and November during the test year were colder than normal, so an adjustment was made

17 to normalize the sales volumes by reducing actuals for those months. February, March,

18 April, and December were warmer than normal, so an adjustment was made to increase

19 actual sales for those months. For the entire test period, the normalization adjustment

20 reduced volumes by 1,789,257 therms, or about 1% of throughput. The weather

21 normalization applied to each class is shown in Table 8.

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1 **Table 8. Weather Normalization Adjustment by Class (therms)**

	Non-Normalized	Adjustment	Normalized
R-1	730,007	(4,929)	725,078
R-3	58,627,344	(724,476)	57,902,868
R-4	4,592,696	(55,270)	4,537,425
R-5	15,553	0	15,553
R-6	165,208	0	165,208
R-7	1,767	0	1,767
G-41	24,966,957	(327,756)	24,639,201
G-42	35,010,164	(445,124)	34,565,040
G-43	11,283,618	(120,548)	11,163,070
G-44	10,101	0	10,101
G-45	133,489	0	133,489
G-51	4,129,466	(18,262)	4,111,204
G-52	9,564,929	(46,454)	9,518,475
G-53	10,522,907	(46,438)	10,476,470
G-54	18,002,982	0	18,002,982
G-55	3,525	0	3,525
G-58	278,754	0	278,754
Total	178,039,468	(1,789,257)	176,250,211

2

3   Rate classes G-45, G-56, and G-57, each of which are MEP rates, are excluded because

4   no sales were recorded for those classes during the test year.

5 **Q.   Is the weather normalization adjustment necessary given that the Company's rates**

6   **are decoupled?**

7 A.   Yes. Rate decoupling adjusts revenues the Company earns on a per-customer basis to

8   enable it to recover its revenue requirement despite changes in weather, customer

9   consumption patterns, economic conditions, and other factors that could otherwise affect

10   throughput and revenues. This fact notwithstanding, it is still important to establish rates

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1   that reflect the Company's operational and financial reality to the greatest extent possible

2   in order to provide customers with information they need to make efficient consumption

3   and investment decisions and promote transparency.

4   **Q.   Please summarize the End of Year ("EOY") Adjustments.**

5   A.   Over the course of any year, including the test year, the Company gains and loses

6   customers. The EOY Adjustments recognizes this effect by annualizing the billing units

7   and revenues of new customers present at the end of the test year while removing the

8   billing units and revenues of customers who terminate service during the year. The

9   Company provided me with separate adjustments to customer bill counts, sales volumes,

10   and revenues, which were calculated using data from its billing system.

11   **Q.   Please describe the adjustments to customer bill counts.**

12   A.   For each of the non-MEP classes, the Company identified each customer who had been

13   added during the test year and determined how long they had taken service, from which it

14   calculated how many bills such customers had received during the year (an amount which

15   includes fractions of months). Based on this information, an adjustment was made to the

16   monthly bill count for each customer class that effectively adds new customers to the bill

17   count as if it had been there all year. Using the same approach, a similar adjustment was

18   calculated to the bill count based on customers who started the year receiving service

19   from EnergyNorth but then departed.

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1 **Q.** **Can you provide an example?**

2 A. Yes. Assume that a customer began taking service from EnergyNorth on September 1.

3 Without an adjustment, it would contribute to the customer bill count, sales volumes, and

4 revenues for September, October, November, and December only. The bill count

5 adjustment increases the bill count by one customer for each of the eight months that

6 precede September. The example is simplified in the sense that there may be slight

7 variances in the number of bills issued per month based on the number of days in each

8 month since the Company's billing periods are each 30 days rather than a calendar

9 month.

10 **Q.** **What is the net impact on customer bill count from the adjustment?**

11 A. Because more customers began taking service than terminated service during the year,

12 there was an aggregate increase, which is shown by month below for residential and C&I

13 customers. Note that the adjustment is largest in January and smallest in December since

14 it is intended to reconcile against EOY effects.

15 **Table 9. EOY Customer Bill Count Adjustment**

	Residential	C&I	Total
January	936.1	148.4	1,084.5
February	754.2	115.1	869.4
March	782.4	126.4	908.7
April	738.5	122.4	861.0
May	746.1	141.2	887.3
June	674.5	151.1	825.7
July	703.3	173.8	877.1
August	683.2	179.5	862.7
September	500.7	168.8	669.6
October	330.2	122.7	452.9

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	Residential	C&I	Total
November	165.2	49.4	214.6
December	(8.6)	14.3	5.7

1

2 **Q.   Were sales volumes also adjusted?**

3 A.   Yes. The Company calculated average headblock and tailblock usage per customer bill

4   for each class, which was applied to the changes in customer bill count shown above to

5   generate the adjustment to volumes. The volumetric adjustment for residential and C&I

6   customers that results is shown in Table 10.

7   **Table 10. EOY Volumetric Adjustment (therms)**

	Residential	C&I		Total
	Headblock	Headblock	Tailblock	
January	131,310.2	82,034.4	113,384.4	326,728.9
February	99,225.7	59,135.8	96,311.3	254,672.7
March	84,235.1	68,534.3	87,444.0	240,213.5
April	41,673.9	41,930.5	38,544.5	122,149.0
May	25,373.2	17,096.5	24,185.1	66,654.8
June	13,149.3	5,138.1	16,015.0	34,302.3
July	9,770.4	18,396.2	11,464.4	39,631.0
August	9,611.0	18,751.0	10,722.5	39,084.4
September	9,336.1	20,989.1	13,435.9	43,761.1
October	12,677.5	18,572.6	21,968.7	53,218.7
November	12,300.3	8,794.8	19,498.0	40,593.1
December	(409.2)	4,115.3	7,797.6	11,503.7

8

9 **Q.   Do these adjustments increase the Company's test year revenues assumed for**

10   **ratemaking purposes?**

11 A.   Yes. Revenues from customer charges are increased based on the adjustment to customer

12   bill count and the currently effective customer charges while revenues from volumetric

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1   sales are increased based on the adjustment to sales quantities and the volumetric rates

2   currently in effect. Note that these calculations are conducted on a class-by-class basis,

3   despite the adjustments being aggregated for simplicity above in Table 9 and Table 10.

4   The net effect is an increase in the Company's revenues for ratemaking purposes of

5   approximately $756,000. The result is summarized below while detailed calculations

6   showing the derivation of that amount are provided in the Workpaper entitled "RATES-5

7   WP – EOY Adjustment," which is included in Attachment RATES-5 to this testimony.

8   **Table 11. Revenue Impact of EOY Adjustments**

	Residential	C&I	Total
January	$93,481	$73,593	$167,074
February	$71,832	$57,429	$129,261
March	$63,491	$58,164	$121,655
April	$37,205	$37,522	$74,727
May	$27,184	$25,479	$52,663
June	$18,736	$19,936	$38,672
July	$16,952	$21,615	$38,567
August	$16,352	$21,103	$37,455
September	$13,146	$21,381	$34,527
October	$12,302	$20,533	$32,835
November	$9,898	$12,590	$22,488
December	$582	$5,065	$5,647
Total	$381,160	$374,410	$755,571

9

10   **Q.   Where are the EOY Adjustments reflected and how does it affect the rate**

11   **calculations?**

12   A.   As I explain later in my testimony, the rate calculations shown in Attachment RATES-5

13   are based on the shortfall between revenues at current rates and the Company's revenue

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1   requirement. The adjustment to revenues, which is shown at Line 9 of RATES-5,

2   reduces that shortfall. The increases to customer bill count and sales volumes are also

3   accounted for when rates are calculated. In both respects, inclusion of the adjustment

4   puts downward pressure on the proposed rates.

5   C. Rate Calculations

6 Q. **Please summarize the steps you undertook to develop the rates you are proposing.**

7 A. Summarized at a high level, my approach consisted of eight steps. *First,* I determined the

8   target amount of revenue the Company would be required to recover through its

9   distribution rates. That amount is based on the COS Studies, the results of which I

10   adjusted for a number of factors. *Second,* I compared the Company's total marginal cost

11   of service, whose calculation I describe in Section II, to the Company's revenue target.

12   Since the marginal cost of service is greater than the amount to be recovered, I applied an

13   adjustment using the Equiproportional Method ("EPM") to achieve consistency between

14   the MCS and the COS Studies. *Third*, I calculated the amount of revenue the Company

15   would generate given test year billing determinants and the distribution rates currently in

16   effect. Since those revenues are insufficient to recover the revenue requirement, I also

17   calculated the increase in revenues that would be required to achieve the revenue target.

18   *Fourth*, I increased the customer charge for each rate classes by a factor equal to the total

19   required revenue increase, expressed on a percentage basis. I also calculated the amount

20   of revenue the Company would generate from the new customer charge rates. *Fifth,* I

21   adjusted the expected revenue for certain classes to limit the potential for inconsistent bill

22   impacts and to promote rate continuity objectives. *Sixth*, I determined how much the

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1   Company would be required to recover from rates for each class based on current rates,

2   the results of the MCS, and additional adjustments I applied. In doing so, I established

3   for each class a total revenue target and the revenue required from volumetric sales.

4   *Seventh*, I calculated the volumetric rates that would recover each class revenue target.

5   *Eight*, I validated that the rates that resulted would allow the Company to generate

6   revenues equal to the revenue target for each class and to the Company's overall

7   requirement. All of the calculations I undertook to do so are shown in Attachment

8   RATES-5 and its associated workpapers.

9 **Q.   How much revenue are your proposed rates designed to recover?**

10 A.   The proposed rates are designed to recover revenue of $103,936,008. That amount is

11   established by the COS Studies, reduced by non-delivery revenues, increased by the step

12   adjustment described by Messrs. Simek and Sosnick in their testimony, and increased by

13   the amount required to recover the discount the Company provides to its RLIAP

14   customers. The derivation of the revenue target is shown below, additional detail is

15   provided at Lines 59-66 of RATES-5.

16 **Table 12. Calculation of Total Rate Recovery Amount**

Line Item	Amount	Reference
Delivery revenue requirement	$97,277,247	COS Studies
Non-delivery revenues	($1,197,776)	RR-EN-2-1
RLIAP recovery	$2,175,896	RATES-5
Step adjustment	$5,680,641	RR-EN-1
Total	$103,936,008	

17

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1   **Q.**   **Please explain the RLIAP recovery amount.**

2   A.   The Company recovers the discount it provides to RLIAP customers through sales to

3   other customers. To calculate the value of that discount, I calculated the difference

4   between the revenues from the RLIAP customers and the amount their payments would

5   be under the corresponding non-RLIAP rates (R-3 rates for the R-4 customers and R-6

6   rates for the small handful of those customers taking service under R-7). The result

7   indicates that the total value of the discount to RLIAP customers is $2,175,896. Detail

8   supporting my calculation of that amount is provided in the workpaper labelled "RATES-

9   5 WP – RLIAP", which is attached to RATES-5.

10   **Q.**   **Is the amount the Company must recover from rates the same as its marginal cost of**

11   **service?**

12   A.   No. The Company's total marginal cost is approximately $128 million, based on the

13   results of the MCS that are shown above in Table 5. That amount is roughly 18.7%

14   greater than the revenues the Company will recover under the proposed rates. To

15   reconcile the difference, I applied an EPM adjustment factor to my estimate of the

16   Company's marginal cost to serve each rate class so that its total marginal cost would

17   match the Company-wide revenue target. As I explain below, differences remained

18   between the Company's marginal cost to serve specific rate classes and the corresponding

19   revenue targets for each class. Calculation of the EPM adjustment is shown below in

20   Table 13 and also at Lines 67–76 of RATES-5.

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1   **Table 13. Calculation of the EPM Adjustment Factor to the MCS**

Customer-related marginal costs	$67,473,706	*a*
Capacity-related marginal costs	$60,430,869	*b*
Total marginal costs	$127,904,576	*c=a+b*
Recovery amount	$103,936,008	*d*
EPM adjustment factor	-18.7%	*e=(d-c)/c*

2

3   **Q.   Please explain the EPM adjustment factor and how you applied it.**

4   A.   Simply put, it is the adjustment to the marginal cost of service estimate that is required

5   for the total marginal cost of service to match the amount to be recovered in rates. The

6   adjustment is "equiproportional" in the sense that it is applied uniformly to the calculated

7   marginal cost of providing service to each rate class. In this instance, proportionality is

8   achieved by making the adjustment to both customer-related and capacity-related

9   marginal costs on the basis of a single factor, the percentage differential shown above.

10   **Q.   Would the Company generate sufficient revenue at current rates?**

11   A.   No. Using the determinants I described previously and the distribution rates the

12   Commission approved in June 2020 in Docket No. DG 20-049, I found that the Company

13   would earn approximately $88.8 million per year at current rates.[9] My calculations are

14   summarized below and shown in detail in the workpaper labelled "RATES-5 WP –

15   Determinants", which is attached to RATES-5, and at Lines 3–8 of RATES-5.

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[9]   Commission Order No. 26,374, issued June 30, 2020.

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1 **Table 14. Revenue at Current Rates**

	Winter	**Summer**	**Total**
Customer revenues	$13,506,098	$13,499,124	$27,005,223
Volumetric revenues	$50,918,418	$10,847,346	$61,765,764
Total	$64,424,516	$24,346,470	$88,770,986

2

3 Based on these results I concluded that distribution revenues would need to increase by

4 16.1%, on average (the "System-Wide Increase"), in order for the Company to achieve its

5 revenue target, as shown at Lines 88–89 of RATES-5.

6 **Q. Did you use this result as the basis for the estimation of class-specific revenue**

7 **targets?**

8 A. Yes. I determined how much revenue would be generated by each class of customers at

9 current rates, which is shown at Line 82 of RATES-5, and aggregated those revenues by

10 customer class type, as shown at Line 83. Multiplying those results by 16.1% yielded the

11 preliminary revenue target for each class grouping, which is shown at Line 89. As

12 indicated, the total of the preliminary revenue targets for all the class groupings is equal

13 to the Company-wide revenue target, $103.9 million.

14 **Q. Did you make any additional adjustments?**

15 A. Yes. In the course of conducting my analysis, it became clear that for certain rate classes,

16 using these preliminary revenue targets without adjustment would create inconsistent bill

17 impacts that conflicted with rate continuity objectives. For that reason, I reduced the

18 targets for the residential classes and for one of the C&I (G-51) classes, including all the

19 derivative classes (e.g. RLIAP and MEP variants). This adjustment is designed to

1   promote consistency across the rate classes. This adjustment and the resulting

2   preliminary class revenue targets are shown at Lines 91–96 of RATES-5. Because the

3   adjustment is revenue-neutral, the total of the revenue targets for each of the class

4   groupings remains the same, $103.9 million, after the adjustment is applied, as shown at

5   Line 96.

6   **Q.   Why did you group the rate classes?**

7   A.   For two reasons. The first is that each of the MEP rates are a function of their

8   corresponding standard rate. The same is true for the RLIAP rates, which are each a

9   function of R-3 rates. Attempting to calculate changes to these rates separately could

10   lead to unintended inconsistencies or changes in the relationship between the rates. The

11   second reason for grouping the classes in this manner is that the marginal cost to serve

12   each customer class is the same. In the case of the MEP rates, the only difference in costs

13   compared to the equivalent non-MEP rates is the upfront interconnection costs that had

14   historically been offset by the CIAC but that are now paid for via the premium added to

15   the MEP rates. In the case of the RLIAP rates, there is no meaningful difference in the

16   cost to serve customers R-4 and/or R-7 customers and the cost to serve customers in the

17   corresponding, non-RLIAP classes.

18   **Q.   What did you do next?**

19   A.   I increased the existing customer charges by 16.1% as shown at Lines 98–100 of

20   RATES-5. The increased rates generate approximately $31.6 million in revenues,

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1   meaning that the Company must recover approximately $72.3 million in volumetric

2   revenues; see Lines 106–107 for details.

3   **Q.**   **Did you increase the volumetric rates by the same amount?**

4   A.   No, I did not. Although the system-wide increase and the adjustments I made for

5   consistency described above were important inputs to my calculation of the volumetric

6   rates, they were not the only factors. The revenue requirement that I calculated also

7   accounted for the results of the MCS, from which I then developed volumetric rates.

8   **Q.**   **How did you account for the results of the MCS when calculating your volumetric**

9   **rates?**

10   A.   I had previously calculated the increase in the revenue target for each class grouping,

11   based on the System-Wide Increase, which is shown at Line 111 of RATES-5. I also

12   calculated the increase in each class grouping revenue target implied by the results of the

13   MCS, which is shown at Line 85. In order to move the Company's ratemaking inputs

14   towards convergence with the MCS results, I adjusted the change implied by the System-

15   Wide Increase based on the results of the MCS, subject to the constraint that only a 15%

16   variance in the change to the total revenue target for each class grouping was allowed. .

17   In all cases, the constraint bound, which is to say that the increase to the class grouping

18   revenue requirement was either increased or decreased by 15%. Line 115 shows the

19   preliminary result for each grouping.

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1   **Q.**   **Why is it necessary to limit the adjustment to the revenue targets to less than the**

2   **amount implied in the MCS?**

3   **A.**   To balance the competing interests of efficient rate design and rate continuity. As I

4   explain previously in my testimony, the theory that pricing utility services at their

5   marginal costs helps customers make more efficient decisions regarding their

6   consumption of those services is well established. On the other hand, rate continuity is

7   an important policy priority. A limited change that moves rates towards convergence

8   with the utility's marginal cost of service without resulting in dramatic impacts to

9   customer costs may accomplish both objectives.

10   **Q.**   **What did you do next?**

11   **A.**   The net effect of making the constrained adjustment to each class grouping was to create

12   a set of revenue targets that would have resulted in the slight under-recovery shown at

13   Line 118 of RATES-5. I therefore applied the adjustment shown at Line 119 to the target

14   for each grouping in order to maintain revenue neutrality, the result of which was the new

15   set of revenue targets that are shown at Line 120. From each of these I deducted the

16   revenues expected from customer charges. The remaining amount, shown at Line 121, is

17   the amount to be recovered by each grouping from gas sales at the applicable volumetric

18   charges.

19   **Q.**   **How did you calculate the volumetric rates?**

20   **A.**   From the rates in the Company's currently effective tariff, I calculated the ratios of winter

21   to summer and of headblock to tailblock rates for each class, which are shown at Lines

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1   127–132 of RATES-5. I have assumed that those rations will not change. As a result,

2   there is only a single set of rates for each class grouping that will simultaneously

3   maintain those ratios, maintain the relationships between base and derivative rates (*e.g.*

4   MEP rates 30% higher than standard rates and RLIAP rates 60% lower), and generate

5   exactly the amount of revenue required to meet the revenue target. I used a "goal seek"

6   algorithm to identify those rates, which are shown at Lines 135–139.[10]

7   **Q.   Did you validate whether your proposed rates generate the appropriate amount of**

8   **revenue?**

9   A.   Yes. Lines 146–148 and Lines 162–165 demonstrate that these rates result in

10   achievement of the revenue target for each class and for the Company as a whole.

11   **Q.   Please summarize your proposed rates.**

12   A.   The rates I propose are shown below.

13   **Table 15. Proposed Distribution Rates**

Class	Customer Charge ($/month)	Winter Headblock ($/therm)	Winter Tailblock ($/therm)	Summer Headblock ($/therm)	Summer Tailblock ($/therm)
R-1	$17.99	$0.4137		$0.4137	
R-5	$23.39	$0.5378		$0.5378	
R-3	$17.99	$0.6520		$0.6520	
R-6	$23.39	$0.8476		$0.8476	
R-4	$7.20	$0.2608		$0.2608	

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[10]   Specifically, for each rate class, I defined each of the volumetric rates as a function of the winter headblock rate, based on the ratios described above. The goal seek function then automatically tested different inputs to the winter headblock rate until it converged on a solution that resulted in revenues equal to the revenue requirement for each class grouping. The algorithm is a standard element of Microsoft Excel and the electronic version of RATES-5 that I have submitted with this testimony includes a macro to quickly execute the goal seek function in the same manner as I did, which will allow participants in this proceeding to replicate my calculations.

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Class	Customer Charge ($/month)	Winter Headblock ($/therm)	Winter Tailblock ($/therm)	Summer Headblock ($/therm)	Summer Tailblock ($/therm)
R-7	$9.36	$0.3390		$0.3390	
G-41	$66.71	$0.5433	$0.3650	$0.5433	$0.3650
G-44	$86.72	$0.7063	$0.4745	$0.7063	$0.4745
G-42	$200.14	$0.4999	$0.3331	$0.4999	$0.3331
G-45	$260.18	$0.6498	$0.4330	$0.6498	$0.4330
G-43	$858.91	$0.3126		$0.1429	
G-46	$1,116.58	$0.4064		$0.1858	
G-51	$66.71	$0.3408	$0.2216	$0.3408	$0.2216
G-55	$86.72	$0.4430	$0.2881	$0.4430	$0.2881
G-52	$200.14	$0.2926	$0.1948	$0.2120	$0.1205
G-56	$260.18	$0.3804	$0.2533	$0.2756	$0.1566
G-53	$883.94	$0.2092		$0.1003	
G-57	$1,149.12	$0.2720		$0.1305	
G-54	$883.94	$0.0900		$0.0488	
G-58	$1,149.12	$0.1170		$0.0634	

1

2   **D. Other Rate Changes**

3 **Q.   Are you proposing any other changes to rates?**

4 A.   Yes, I have calculated changes to charges that the Company uses to pass through to

5   customers, specifically the charges associated with the Local Distribution Adjustment

6   Clause ("LDAC") and the Cost of Gas ("COG") Clause that are described in the

7   EnergyNorth tariff.

8 **Q.   What is the LDAC?**

9 A.   The LDAC allows the Company to recover a number of costs and expenses it incurs in

10   the course of doing business. Among them is the cost of providing discounts to RLIAP

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1   customers.[11] Using the same information I used to calculate proposed distribution rates, I

2   also calculated the change to the Company's cost to provide the RLIAP discount. The

3   LDAC charge I propose is simply the existing LDAC increased by that amount.

4   **Q.   Please explain how you calculated the increase in the RLIAP cost.**

5   A.   As I explain above, the calculations shown in the "RATES-5 WP – RLIAP" workpaper

6   indicates that the value of the RLIAP discount at current rates is roughly $2.2 million.

7   The Company recovers the RLIAP discount from all customers on a volumetric basis.

8   Based on total test year volumes, the current value of the RLIAP is $0.0123/therm

9   (RATES-5 at Line 12). To measure the change that arises when distribution rates are

10   increased, I re-calculated the value of the RLIAP discount using the rates I am proposing

11   and determined that it increases to $2.6 million, or $0.0141/therm (Lines 156–157). The

12   difference of $0.0019/therm (Line 159) is the basis for the increase in the LDAC.

13   Current and proposed LDAC rates are provided in Attachment RATES-4 and

14   summarized below.[12]

15   **Table 16. Proposed LDAC Charge Update ($/therm)**

	Current	Proposed
Residential	$0.0310	$0.0329
C&I	$0.0478	$0.0497

16

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[11]   See Section 17 at p. 32 of the EnergyNorth tariff for a detailed description of the LDAC.
[12]   All customers, including those served under the MEP and RLIAP classes, pay the same LDAC charge, no
       discounting or premiums are applied. This is also true for the COG charge.

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1 **Q.   Please explain your calculation of the increase in the COG charge.**

2 A.   Section 16 of the EnergyNorth tariff allows it to recover certain costs of service,

3   including costs incurred for Liquid Propane ("LP") and/or Liquefied Natural Gas

4   ("LNG") storage, the cost of bad debt, allowable working capital from demand- and

5   commodity-related costs, and other administrative and general expenses through a COG

6   charge that varies by season. Costs are recovered volumetrically based on Company

7   sales volumes (transportation-only customers are excluded). LP and LNG storage costs

8   are recovered through winter sales, all other costs are recovered based on annual sales.

9   Costs for each category were calculated by Messrs. Simek and Sosnick and are described

10   in the COS Studies. To calculate the change in the COG charge that arises from those

11   costs, I reviewed data provided to me by the Company that details sales and

12   transportation volumes for the 12 months ending June 2020, from which I was able to

13   determine the relative contributions of sales and transportation service for each rate class

14   for that period. I then applied those proportions to the test year volumes to estimate test

15   year sales by rate class. My calculations are shown in the workpaper labelled "WP –

16   RATES-6", which is provided with Attachment RATES-6. Using those data, I calculated

17   that the COG charge would increase by $0.0023/therm for summer sales and decrease by

18       $0.0019/therm for winter sales, as shown in RATES-6. The change in the COG provides

19   the basis for the proposed COG charge. Separate charges are applied to residential, high

20   load-factor, and low load-factor C&I customers. The proposed COG charge for each

21   class is simply the seasonal charge adjusted by the amounts I calculated in RATES-6.

22   The revised COG charges that result are shown below.

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1

Table 17. Proposed COG Charge Update ($/therm)

	Current	**Proposed**
Residential *R-1, R-5, R-3, R-6, R-4, R-7*		
Winter	$0.2679	$0.2660
Summer	$0.3715	$0.3738
C&I Low Load Factor *G-41, G-44, G-42, G-45, G-43, G-46*		
Winter	$0.2734	$0.2715
Summer	$0.3786	$0.3809
C&I High Load Factor *G-51, G-55, G-52, G-56, G-53, G-57, G-54, G-58*		
Winter	$0.2734	$0.2715
Summer	$0.3786	$0.3809

2

3   **E. Rate and Bill Impacts**

4   **Q.   Have you calculated the impacts on average bills?**

5   A.   Yes, bill impacts by season for each non-MEP rate class are provided in Attachment

6   RATES-8. Annual impacts are summarized below.

7

Table 18. Average Bill Impacts

R-1	9.9%
R-3	9.5%
R-4	6.2%
G-41	8.7%
G-42	7.6%
G-43	6.6%
G-51	8.8%
G-52	6.8%
G-53	5.7%
G-54	4.3%

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1 **Q.   What is the basis for these bill impact estimates?**

2 A.   Bill impacts were calculated based on the proposed distribution rates as well as the

3   proposed LDAC and COG adders shown in Table 16 and Table 17. Using that data I

4   calculated average bills at the proposed rates based on the calculations of average

5   customer usage for each class shown in the workpaper entitled "RATES-8 WP". Next, I

6   developed estimates of average monthly bills, which were then aggregated on a seasonal

7   and annual basis. Those results were compared to the same calculation conducted at the

8   rates currently in effect, the only exception to which was my use of the Company's

9   average actual COG rates for Winter 2019/20 rather than the Winter COG rate in effect at

10   the end of the Winter period.

11 **Q.   Have you provided this information in any other format?**

12 A.   Yes. Attachment RATES-7 conducts similar comparisons at various usage levels for

13   customers in each of the non-MEP Classes.

14   **F. Decoupling Issue**

15 **Q.   Earlier in your testimony you indicate that you have identified a problem with the**

16   **Company's decoupling mechanism; please explain the issue.**

17 A.   The Company's decoupling mechanism establishes an earnings target that is based on a

18   revenue per customer amount. Each year, the Company reports its customer count, from

19   which the allowed earnings is calculated. That amount is then reconciled with the

20   Company's actual earnings over the same period. The problem arises in the

21   determination of the customer count. At present, actual customer counts are extracted

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1   from EnergyNorth's billing system, including customers who started or stopped service.

2   All of the new and departed customers are identified, and adjustment is made that is

3   conceptually similar to the EOY Adjustment I describe above, whereby the year's

4   customer count is adjusted for customers who received service for only part of the year.

5   The result is to effectively re-compute the Company's allowed revenues as if any

6   customer who received service during the year, for no matter how long, received service

7   for the entire year.

8   **Q.   Why is this problematic?**

9   A.   Because, when the Company experiences growth, such adjustments artificially inflate

10   revenues for no clear reason. Applying certain adjustments like the EOY Adjustment to

11   billing determinants for ratemaking purposes may be reasonable insofar as doing so

12   captures prospective impacts from changes that occurred during a test year which may

13   affect the entirety of future years. Such adjustments are forward-looking since their

14   intent is to develop assumptions that are expected to provide a just and reasonable basis

15   for calculating rates in the future. The decoupling true-up, on the other hand, is intended

16   to be backward-looking. Its purpose is to determine how much revenue the Company

17   actually earned in a given year and reconcile those earnings to an amount based on its

18   number of customers during the year.

19   **Q.   What are some of the risks that arise from this circumstance?**

20   A.   During periods of growth, the Company may be less able to achieve its authorized returns

21   since its revenues could be overstated for decoupling purposes. EnergyNorth may also

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1   have less incentive to grow its customer base if doing so creates unintended impacts on

2   earnings.

3 **Q.** **Do you recommend a solution?**

4 A.   The reconciliation should be based on unadjusted actuals. Doing so would inherently

5   recognize, among other things, that customers who received service for only a portion of

6   a year only contributed to the Company's earnings for that same portion of that year. The

7   data from EnergyNorth's billing systems that is currently used for the annualization

8   adjustment can instead be used to generate a customer count that includes fractional

9   customers whose contribution to the total count is a function of how long they took

10   service for the year. For example, a customer who received service for exactly half the

11   year would count as 0.5 customers.

12 **Q.** **How do you recommend that the Company proceed?**

13 A.   I recommend that the Commission direct the Company and the parties to this proceeding

14   to discuss revisions to the decoupling mechanism that avoids this distortion with the aim

15   of developing an acceptable modification to the decoupling mechanism that can be filed

16   with the Commission.

17 **Q.** **Does this conclude your testimony?**

18 A.   Yes, it does.

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Education

MBA in Finance, University of Massachusetts at Amherst

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Matthew DeCourcey is a **Managing Director** in the Power and Utilities practice, where he provides advisory services to utilities, investors, regulators, and infrastructure developers in jurisdictions throughout North America. His practice focuses on the utility ratemaking and regulatory strategy, analysis of gas and power markets, market design, investment advisory, and policy analysis.

PROFESSIONAL EXPERIENCE

- *FTI Consulting,* Managing Director, Boston MA, March 2018 – Present
- *Concentric Energy Advisors*, Project Manager and Principal, Marlborough MA, January 2016 – February 2018
- *Levitan & Associates*, Senior Consultant, Boston MA, October 2004 – December 2015

SELECTED ENGAGEMENTS

Engagements listed below comprise a representative sampling of recent consulting projects Mr. DeCourcey has undertaken that relate to utility rate making, energy markets, and policy. They include assignments undertaken while at FTI and at previous employers.

Spire Missouri. Provided advisory services to Spire Missouri, an LDC subsidiary of Spire Energy, in the most recent rate case for Mississippi River Transmission ("MRT"), on which Spire is a shipper (RP18-923). Analyzed system flows to determine the appropriateness of proposed tariff designs on MRT, analyzed market conditions to estimate the commercial outlook for MRT capacity, and supported negotiations.

Emera Energy. Advised Emera regarding a taxation dispute related to the cross-border shipments of natural gas between Canada and the U.S.

District of Columbia Office of People's Counsel. Currently representing OPC in Pepco's ongoing rate case in the District (FC 1156). Responsible for the analysis of Pepco's proposed Multi-Year Rate Plan ("MRP"), including the identification of key flaws, inconsistencies with Commission precedent, and development of alternative MRP formulations.

Jacksonville Electric Authority. Served as a regulatory advisor for its proposed privatization. The FTI team, along with JEA's financial and legal advisors, was responsible for evaluation of the risks, opportunities, and requirements of JEA and the NewCo as they relate to approval by the Florida Public Service Commission ("FPSC"), including the FPSC's approval of the transaction, ratemaking for the NewCo, the transition from regulatory to IOU accounting, and related advisory.

Municipal Light & Power. Advisory services for the municipal utility serving Anchorage, AK, in its rate case (U-17-008) before the Regulatory Commission in

Alaska on matters related to the prudence of its investment in new generation. Managed a consulting team that conducted research of prudence issues and standards in Alaska and other jurisdictions, drafted testimony, managed discovery, and developed analyses related to current and expected operational benefits used to rationalize the investment.

Maryland of Office of People's Council ("OPC"). Advised OPC regarding a request for a change in rates filed at the FERC by the Exelon companies serving Maryland. Analyzed the companies' proposal regarding rate changes attributable to the Tax Cuts and Jobs Act and its effect on Accumulated Deferred Income Taxes and related matters.

Atmos Pipeline Texas ("APT"). Advised APT on its general rate case before the Texas Railroad Commission. Prepared testimony, conducted analyses of captive customers, and evaluated APT's competitiveness in support of a recommendation on the high end of the zone of reasonableness on ROE.

Equinor. Represented Equinor in multiple proceedings before the Federal Energy Regulatory Commission ("FERC") regarding proposed changes to the New York Independent System ("NYISO") market mitigation rules (ER16-1404, ER20-1710).

NYISO. Assisted with the development of the first estimate of the Net Cost of New Entry ("Net CONE") used to establish the demand curves used in NYISO's Installed Capacity ("ICAP") spot auction. Recommendations were accepted at the FERC.

Industrial Power Consumers Association of Alberta. Advised IPCAA, a consortium of industrial consumers, regarding proposals to implement a capacity market mechanism in Alberta. Conducted comparative reviews of proposed market designs, analyzed economic impacts, and proposed improvements. FTI's findings were presented in an expert report filed with the Alberta Utilities Commission.

Atlantic Wind Connection. On behalf of the developers of the New Jersey Energy Link project, conducted modeling to quantify market benefits to customers deriving from relieve of capacity price congestion, and environmental benefits associated with providing access to offshore wind.

Millennium Pipeline. Developed an expert report estimating the gas and electric market benefits of the Eastern System Upgrade ("ESU"). Analyzed markets via simulation to determine ESU's impacts on delivered gas and electric prices in Eastern New York.

Connecticut Department of Energy and Environmental Protection ("DEEP"). Working as a contractor to DEEP, advised the two Connecticut EDCs (United Illuminating and Connecticut Light & Power) on their procurement of energy from wholesale suppliers for purposes of Standard Offer supply. Assisted with the design of the "laddering" strategy in place to reduce rate shock while tracking market conditions, negotiated with suppliers, designed and executed a sealed bid auction scheme, and conducted price benchmarking to analyze the competitiveness of offers.

Industrial Power Consumers Association of Alberta. Advised a group of industrial consumers of electricity on matters related to the implementation of a capacity market in Alberta. Analyzed proposed market rules, identified potential

weaknesses, and assisted in the development of an expert report filed with the provincial regulator.

Independent System Operator of New England. Conducted studies to support the triennial Net CONE reset. Developed financial and simulation models to determine the levelized net cost, inclusive of energy and ancillaries revenues, to develop various types of generation technologies. Recommendations and related tariff revisions were accepted by the FERC and are currently in effect.

Millennium Pipeline. Developed an expert report estimating the gas and electric market benefits of the Eastern System Upgrade ("ESU"). Analyzed markets via simulation to determine ESU's impacts on delivered gas and electric prices in Eastern New York. Expert report submitted to the FERC in support of CPCN application.

Eastern Interconnect Planning Collaborative. EIPC is a consortium of the six ISOs that comprise the North American Eastern Interconnect. As part of a major study on gas-electric interdependence issues funded by the U.S. Department of Energy and administered by EIPC, conducted simulation modeling to analyze gas deliverability under peak demand conditions and quantify generation at risk arising from gas pipeline constraints.

Mitsubishi Heavy Industries. Analyzed gas and electric markets in California to support MHI in arbitration proceedings regarding the failure of the San Onofre Nuclear Generation Station ("SONGS"). Developed a market outlook to parameterize the damages associated with lost production and conducted diligence and rebuttal on the claimant's own market outlook.

Maryland Public Service Commission. Advised Maryland's state regulator to evaluate long-term options for the state's energy future. Developed long-run economic outlooks of various conventional and renewable generation options as well as demand-side measures to quantify the impact of achieving renewable policy mandates on ratepayers.

Multinational Energy Company. Advised a major institutional investor regarding the purchase of U.S. utilities in the U.S. Developed a study to compare regulatory environments on a state-by-state basis and estimated the regulatory advantage in each jurisdiction.

EnergyFairness. On behalf of an advocacy group representing the interests of regulated utilities, provided advisory and advocacy related to a proposed Florida ballot initiative to deregulate the electric market in that state. Conducted analyses, supported outreach, and delivered presentations regarding the risks and costs of the proposed measure to a joint committee of the Florida legislature.

RECENT PUBLICATIONS AND MEMBERSHIPS

Member, Energy Bar Association, Renewables and Natural Gas Committees

Member, Global Association of Risk Professionals

"Renewable Portfolio Standards– Recent Experience and Auction Design Options." *Selected for presentation at the Center for Research in Regulated Industries Annual Conference*, with David Salant, May 2020 (pending delay)

"PJM Market Fundamentals, Operations, and Value Dynamics." *EUCI Course*, with Kenneth Sosnick, January 2020.

"U.S. Observations and Experiences in Natural Gas Infrastructure Investment." *Working Paper of the US-India Strategic Partnership Forum*, with Kenneth Sosnick, et al, December 2019

"Developing the Generation Fleet of the Future." *PowerGen University*, with Keith Paul, November 2019

"Investing in Infrastructure Projects." *Workshop at the 23rd Platts Mexican Energy Conference*, with Dino Barajas, November 2019

"It's Time for Electric Utilities to Re-Energize Their Cybersecurity Efforts." *FTI Journal*, with Jordan Rae Kelly, November 2019

"A Roadmap for Developing the Public Utility of the Future." Working Paper of the American Public Power Association, April 2019

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Incremental Production Cost Support Summary (LNG Facility)

Line	Description	Total	Units	
1	Cost of incremental LNG capacity	6,417,840	*$, 2016*	[1]
2	Incremental capacity	10,000	*dth*	[2]
3	Unit cost of incremental capacity	641.78	*$/dth*	[3]
4	Year of pressure support analysis	2016		[4]
5	Base year of MCS study	2019		[5]
6	Period adjustment	1.062		[6]
7	Current-year unit cost of incremental capacity	681.48	*$/dth*	[7]
8	Percentage related to pressure support	8.73%		[8]
9	Marginal cost of production plant for distribution function ($/dth)	59.52	*$/dth*	[9]

[1] Source: Company data
[2] Source: Company data
[3] Equals [1]/[2]
[6] Source: U.S. Bureau of Economic Analysis, Gross Domestic Product Implicit Price Deflator
[7] Equals [3]*[6]
[8] Source: Company data
[9] Equals [7]*[8]

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Marginal Capacity-Related Distribution Plant Costs for Reinforcements

Line No.	Year	Design Day Demand (Dth)	Dummy Variable: 2022 - 2030	Incremental Design Day Demand (Dth)	Reinforcement Cost (Constant $)	Cumulative Total
		[1]	[2]	[3]	[4]	[5]
1	2020	168,699	0	0	$0	$0
2	2021	170,932	0	2,232	$3,950,000	$3,950,000
3	2022	173,377	1	2,445	$4,700,000	$8,650,000
4	2023	181,097	1	7,720	$10,400,000	$19,050,000
5	2024	184,065	1	2,967	$2,880,000	$21,930,000
6	2025	186,987	1	2,923	$3,900,000	$25,830,000
7	2026	189,963	1	2,975	$3,420,000	$29,250,000
8	2027	192,968	1	3,006	$3,420,000	$32,670,000
9	2028	196,015	1	3,047	$3,420,000	$36,090,000
10	2029	199,042	1	3,027	$3,420,000	$39,510,000
11	2030	202,065	1	3,023	$3,420,000	$42,930,000
12						
13	Total (2021 - 2030)			33,366	$42,930,000	
14						
15	**REGRESSION RESULTS**				Col. [5] vs. Col. [2]	
16	Slope				1,261.973	
17	Y Intercept				(211,012,698.480)	
18	R^2				0.995	
19	t-stat				0.000	
20	p-value				1,195.043	
21						
22	Regression Estimate		[Line 16]		$1,261.97	
23						
24	ASSUMED MARGINAL COSTS FOR REINFORCEMENT					
25	$s per Design Day Therm				**$1,261.97**	

NOTES:
1

Forecast used to develop marginal distribution investment taken from engineer's estimates (company data).

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.997535661
R Square	0.995077395
Adjusted R Square	0.994530439
Standard Error	1069689.807
Observations	11

ANOVA

	df	SS	MS	F	Significance F
Regression	1	2.08171E+15	2.08171E+15	1819.3004	1.06791E-11
Residual	9	1.02981E+13	1.14424E+12		
Total	10	2.09201E+15			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-211012698.5	5510464.544	-38.29308706	2.80489E-11	-223478235.3	-198547161.6	-223478235.3	-198547161.6
X Variable 1	1261.972627	29.58678171	42.65325779	1.06791E-11	1195.042677	1328.902578	1195.042677	1328.902578

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Marginal Capacity Related Distribution Plant Costs for Mains Extensions

Line No.	Year	Design Day Demand (Dth)	Dummy Variable: 2009 -2019	Interaction Variable: Col [2] x Col [3]	Dummy Variable: 2001 - 2003	Incremental Design Day Demand (Dth)	Cost of Mains Installed ($)	Handy-Whitman Cost Index	Conversion Factor	Cost of Mains Installed ($2019)	Cumulative Total
		[1]		[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
		[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
1	1989	94,340	0	0	0	0	$2,102,827	280	2.15	$4,528,588	$4,528,588
2	1990	95,525	0	0	0	1,185	$1,724,250	289	2.09	$3,600,771	$8,129,360
3	1991	97,891	0	0	0	2,366	$1,341,529	297	2.03	$2,723,710	$10,853,070
4	1992	101,018	0	0	0	3,127	$1,489,922	302	2.00	$2,977,375	$13,830,445
5	1993	101,899	0	0	0	882	$1,018,848	310	1.95	$1,981,824	$15,812,269
6	1994	104,535	0	0	0	2,635	$975,268	316	1.91	$1,863,983	$17,676,252
7	1995	107,163	0	0	0	2,628	$667,884	322	1.87	$1,250,727	$18,926,979
8	1996	112,323	0	0	0	5,160	$1,138,184	330	1.83	$2,082,929	$21,009,907
9	1997	118,475	0	0	0	6,152	$4,396,282	337	1.79	$7,866,344	$28,876,252
10	1998	119,650	0	0	0	1,176	$1,792,794	344	1.75	$3,144,887	$32,021,138
11	1999	127,994	0	0	0	8,344	$2,415,815	351	1.72	$4,156,167	$36,177,305
12	2000	123,296	0	0	0	-4,698	$3,440,754	358	1.68	$5,795,459	$41,972,764
13	2001	120,420	0	0	1	-2,876	$8,588,507	367	1.64	$14,120,980	$56,093,744
14	2002	117,163	0	0	1	-3,257	$5,787,927	374	1.61	$9,325,638	$65,419,383
15	2003	129,188	0	0	1	12,025	$6,335,289	381	1.58	$10,033,300	$75,452,683
16	2004	135,096	0	0	0	5,908	$2,804,933	397	1.52	$4,260,389	$79,713,072
17	2005	138,566	0	0	0	3,470	$1,761,281	422	1.43	$2,519,698	$82,232,770
18	2006	142,066	0	0	0	3,500	$1,531,679	443	1.36	$2,083,705	$84,316,475
19	2007	146,269	0	0	0	4,203	$2,092,072	467	1.29	$2,699,721	$87,016,196
20	2008	148,760	0	0	0	2,491	$1,779,635	492	1.23	$2,183,357	$89,199,553
21	2009	147,487	1	147,487	0	-1,273	$5,177,230	512	1.18	$6,097,401	$95,296,954
22	2010	150,439	1	150,439	0	2,952	$1,853,067	505	1.19	$2,213,768	$97,510,722
23	2011	145,478	1	145,478	0	-4,961	$1,419,065	522	1.16	$1,640,050	$99,150,773
24	2012	149,203	1	149,203	0	3,725	$3,379,136	541	1.11	$3,766,393	$102,917,166
25	2013	154,471	1	154,471	0	5,268	$2,245,707	545	1.11	$2,486,981	$105,404,147
26	2014	160,216	1	160,216	0	5,745	$2,424,524	551	1.10	$2,655,746	$108,059,893
27	2015	158,060	1	158,060	0	-2,157	$2,684,371	559	1.08	$2,896,959	$110,956,852
28	2016	163,606	1	163,606	0	5,546	$2,246,935	567	1.06	$2,391,707	$113,348,558
29	2017	169,976	1	169,976	0	6,370	$4,426,087	575	1.05	$4,643,637	$117,992,195
30	2018	173,822	1	173,822	0	3,846	$9,277,518	584	1.03	$9,579,355	$127,571,550
31	2019	179,564	1	179,564	0	5,742	$8,477,001	603	1.00	$8,477,001	$136,048,551
32											
33	Total (1989 - 2019)	4,133,957				85,224	$96,796,320			$136,048,551	
34	Total (2009 - 2019)	1,752,320				30,804	$43,610,640			$46,848,998	
35	Total (2014 - 2019)	1,005,243				25,093	$29,536,436			$30,644,404	
36											
37											
38	**REGRESSION RESULTS**					Col. [11] vs. Col. [2] to Col [5]					
39	Slope for the period 2009 and beyond					1,090.652					
40	Y Intercept					(153,632,473.80)					
41	R^2					0.975					
42	t-stat					17.374					
43	p-value					0.000					
44											
45	Regression Estimate				[Line 37]	$1,090.65					
46	Incremental Average Cost										
47	1989 - 2019				[Line 33], Col [10] / Col [6]	$1,596.37					
48	2009 - 2019				[Line 34], Col [10] / Col [6]	$1,520.88					
49	2014 - 2019				[Line 35], Col [10] / Col [6]	$1,221.25					
50											
51	MARGINAL COSTS FOR MAINS ADDITIONS										
52	$s per Design Day Therm					**$1,090.65**					

NOTES:
1   Source: Company data.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.987425289
R Square	0.975008702
Adjusted R Square	0.971163887
Standard Error	7014710.273
Observations	31

ANOVA

	df	SS	MS	F	Significance F
Regression	4	4.99129E+16	1.24782E+16	253.5905293	2.02855E-20
Residual	26	1.27936E+15	4.92062E+13		
Total	30	5.11922E+16			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-153632473.8	11248002.62	-13.65864492	2.25894E-13	-176753074.3	-130511873.3	-176753074.3	-130511873.3
X Variable 1	1629.907125	93.81073488	17.37442018	7.89617E-16	1437.076397	1822.737852	1437.076397	1822.737852
X Variable 2	90276727.76	33141817.26	2.723952252	0.011375037	22152746.73	158400708.8	22152746.73	158400708.8
X Variable 3	-539.2555105	216.6126968	-2.489491699	0.019515686	-984.5092855	-94.00173548	-984.5092855	-94.00173548
X Variable 4	20020070.27	4406737.732	4.543059171	0.000112291	10961891.13	29078249.41	10961891.13	29078249.41

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Marginal Capacity-Related Distribution O&M Expense

Line No.	Year	Design Day Demand (Dth)	Capacity-Related O&M Expense ($)	GDP Implicit Price Deflator	Conversion Factor ($2019)	Capacity-Related O&M Expense ($2019)
		[1]	[2]	[3]	[4]	[5]	[6]
1	1989	94,340	$1,945,026	61.37	1.83	$3,560,503
2	1990	95,525	$1,893,462	63.67	1.76	$3,340,785
3	1991	97,891	$1,918,550	65.82	1.71	$3,274,506
4	1992	101,018	$2,040,158	67.32	1.67	$3,404,580
5	1993	101,899	$2,151,230	68.92	1.63	$3,506,770
6	1994	104,535	$2,529,506	70.39	1.60	$4,037,247
7	1995	107,163	$2,598,141	71.86	1.56	$4,061,537
8	1996	112,323	$2,558,264	73.18	1.54	$3,927,350
9	1997	118,475	$2,645,969	74.44	1.51	$3,993,101
10	1998	119,650	$2,768,391	75.28	1.49	$4,131,372
11	1999	127,994	$2,626,392	76.37	1.47	$3,863,710
12	2000	123,296	$2,781,957	78.07	1.44	$4,003,044
13	2001	120,420	$2,518,609	79.79	1.41	$3,546,140
14	2002	117,163	$2,241,570	81.05	1.39	$3,106,982
15	2003	129,188	$3,479,902	82.55	1.36	$4,735,729
16	2004	135,096	$3,370,059	84.77	1.33	$4,466,035
17	2005	138,566	$3,675,620	87.41	1.29	$4,723,763
18	2006	142,066	$4,093,085	90.06	1.25	$5,105,554
19	2007	146,269	$4,154,511	92.48	1.21	$5,046,643
20	2008	148,760	$4,431,308	94.29	1.19	$5,279,760
21	2009	147,487	$4,882,340	95.00	1.18	$5,773,431
22	2010	150,439	$5,316,649	96.11	1.17	$6,214,788
23	2011	145,478	$4,976,899	98.12	1.15	$5,698,551
24	2012	149,203	$3,277,420	100.00	1.12	$3,681,966
25	2013	154,471	$4,743,594	101.75	1.10	$5,237,330
26	2014	160,216	$7,930,472	103.63	1.08	$8,596,987
27	2015	158,060	$7,395,141	104.72	1.07	$7,933,734
28	2016	163,606	$6,414,281	105.80	1.06	$6,811,028
29	2017	169,976	$5,679,124	107.79	1.04	$5,919,024
30	2018	173,822	$6,515,569	110.41	1.02	$6,629,295
31	2019	179,564	$6,384,488	112.34	1.00	$6,384,488
32						
33	Total (1989 - 2019)	4,133,957	$119,937,688			$149,995,733
34	Total (2009 - 2019)	1,752,320	$63,515,978			$68,880,622
35	Total (2014 - 2019)	1,005,243	$40,319,075			$42,274,556
36						
37	**REGRESSION RESULTS**				Col. [6] vs. Col. [2]	
38	Slope				46.871	
39	Y Intercept				(1,411,780.50)	
40	R^2				0.678	
41	t-stat				7.817	
42	p-value				0.000	
43						
44	Regression Estimate		[Line 38]		$46.87	
45	Average Cost					
46	1989 - 2019		[Line 33], Col [6] / Col [2]		$36.28	
47	2009 - 2019		[Line 34], Col [6] / Col [2]		$39.31	
48	2014 - 2019		[Line 35], Col [6] / Col [2]		$42.05	
49						
50	ASSUMED MARGINAL COSTS FOR CAPACITY-RELATED O&M					
51	$s per Design Day Therm				**$46.87**	

NOTES:

1 Source: Company data.
2 GDP implicit price deflator obtained from Bureau of Economic Analysis/FRED database.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.823507575
R Square	0.678164726
Adjusted R Square	0.667066958
Standard Error	813266.6835
Observations	31

ANOVA

	df	SS	MS	F	Significance F
Regression	1	4.04171E+13	4.04171E+13	61.10820858	1.27524E-08
Residual	29	1.91807E+13	6.61403E+11		
Total	30	5.95978E+13			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-1411780.495	812799.2309	-1.736936308	0.09301097	-3074141.575	250580.5849	-3074142	250580.6
X Variable 1	46.87057	5.995845851	7.817173951	1.27524E-08	34.60768833	59.13345166	34.60769	59.13345

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Marginal Capacity-Related Production Expense

Line No.	Year	Design Day Demand (Dth)	Capacity-Related Production Expense ($)	GDP Implicit Price Deflator	Conversion Factor ($2019)	Capacity-Related Production Expense ($2019)
		[1]	[2]	[3]	[4]	[5]	[6]
1	1989	94,340	$1,544,027	61.37	1.83	$2,826,447
2	1990	95,525	$1,752,291	63.67	1.76	$3,091,706
3	1991	97,891	$1,620,490	65.82	1.71	$2,765,789
4	1992	101,018	$1,467,204	67.32	1.67	$2,448,444
5	1993	101,899	$1,566,459	68.92	1.63	$2,553,522
6	1994	104,535	$1,714,538	70.39	1.60	$2,736,509
7	1995	107,163	$1,647,159	71.86	1.56	$2,574,917
8	1996	112,323	$1,722,081	73.18	1.54	$2,643,673
9	1997	118,475	$1,784,059	74.44	1.51	$2,692,370
10	1998	119,650	$1,760,381	75.28	1.49	$2,627,081
11	1999	127,994	$1,591,292	76.37	1.47	$2,340,965
12	2000	123,296	$679,438	78.07	1.44	$977,664
13	2001	120,420	$575,485	79.79	1.41	$810,269
14	2002	117,163	$845,341	81.05	1.39	$1,171,705
15	2003	129,188	$545,839	82.55	1.36	$742,821
16	2004	135,096	$591,437	84.77	1.33	$783,778
17	2005	138,566	$699,365	87.41	1.29	$898,796
18	2006	142,066	$768,391	90.06	1.25	$958,461
19	2007	146,269	$757,630	92.48	1.21	$920,322
20	2008	148,760	$812,189	94.29	1.19	$967,697
21	2009	147,487	$693,185	95.00	1.18	$819,700
22	2010	150,439	$592,199	96.11	1.17	$692,239
23	2011	145,478	$472,046	98.12	1.15	$540,493
24	2012	149,203	($69,221)	100.00	1.12	($77,765)
25	2013	154,471	$1,412,098	101.75	1.10	$1,559,076
26	2014	160,216	$2,057,282	103.63	1.08	$2,230,186
27	2015	158,060	$1,818,960	104.72	1.07	$1,951,436
28	2016	163,606	$1,666,705	105.80	1.06	$1,769,797
29	2017	169,976	$2,656,076	107.79	1.04	$2,768,275
30	2018	173,822	$2,971,810	110.41	1.02	$3,023,682
31	2019	179,564	$1,796,152	112.34	1.00	$1,796,152
32						
33	Total (1989 - 2019)	4,133,957	$40,512,388			$54,606,207
34	Total (2000 - 2019)	2,953,145	$22,342,407			$25,304,784
35	Total (2014 - 2019)	1,005,243	$12,966,985			$13,539,527
36						
37	**REGRESSION RESULTS**				Col. [6] vs. Col. [2]	
38	Slope				(13.394)	
39	Y Intercept				3,547,617.18	
40	R^2				0.128	
41	t-stat				(2.065)	
42	p-value				0.048	
43						
44	Regression Estimate		[Line 38]		($13.39)	
45	Average Cost					
46	1989-2019		[Line 33], Col [6] / Col [2]		$13.21	

	Allocation to Distribution Function	Production (Pressure Support) Expense
48 ASSUMED MARGINAL COSTS FOR CAPACITY-RELATED PRODUCTION		
49 $s per Design Day Therm **$13.21**	**8.73%**	**$1.15**

NOTES:

1 Source: Company data.
2 GDP implicit price deflator obtained from Bureau of Economic Analysis/FRED database.
3 Regression results show negative coefficient, low R^2 value, so average cost estimate used.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.358017477
R Square	0.128176514
Adjusted R Square	0.098113635
Standard Error	879835.6324
Observations	31

ANOVA

	df	SS	MS	F	Significance F
Regression	1	3.30051E+12	3.30051E+12	4.263614085	0.047980153
Residual	29	2.24492E+13	7.74111E+11		
Total	30	2.57497E+13			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	3547617.185	879329.917	4.034455233	0.000364302	1749185.573	5346048.796	1749185.573	5346048.796
X Variable 1	-13.39392825	6.486628474	-2.064852073	0.047980153	-26.66057309	-0.127283422	-26.66057309	-0.127283422

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Services and Meters Plant Investment Costs

Line	Description	R-1	R3, R-4	G-41	G-42	G-43	G-51	G-52	G-53	G-54	
1	Service Costs										
2	Representative Cost	$5,346	$5,346	$4,995	$6,346	$10,913	$15,649	$6,583	$39,407	$9,647	[1]
3	Services per Customer	0.76	0.76	0.76	1.00	1.00	0.76	1.00	1.00	1.00	[2]
4	Average Service Cost Per Customer	$4,063	$4,063	$3,796	$6,346	$10,913	$11,894	$6,583	$39,407	$9,647	[3]
5	Meter Costs										
6	Installed Cost per Customer	$440	$440	$1,077	$2,750	$9,333	$3,483	$2,750	$3,995	$11,904	[4]
7	Meters per Customer	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	[5]
8	Average Meter Cost per Customer	$440	$440	$1,077	$2,750	$9,333	$3,483	$2,750	$3,995	$11,904	[6]

[1] Source: Company data
[2] Source: Company data
[3] Equals [1]*[2]
[4] Source: Company data
[5] Source: Company data
[6] Equals [4]*[5]

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Marginal Customer-Related O&M Expense

Line No.	Year	Annual Customers	Customer-Related O&M Expense ($)	GDP Implicit Price Deflator	Conversion Factor ($2019)	Customer-Related O&M Expense ($2019)
		[2]	[3]	[4]	[5]	[6]
1	1989	58,809	$3,265,009	61.37	1.83	$5,976,824
2	1990	60,216	$3,297,919	63.67	1.76	$5,818,781
3	1991	60,958	$3,391,122	65.82	1.71	$5,787,835
4	1992	61,725	$3,502,421	67.32	1.67	$5,844,777
5	1993	62,566	$3,522,064	68.92	1.63	$5,741,400
6	1994	64,044	$3,720,493	70.39	1.60	$5,938,137
7	1995	65,385	$3,736,123	71.86	1.56	$5,840,486
8	1996	66,464	$3,391,523	73.18	1.54	$5,206,537
9	1997	67,928	$3,405,043	74.44	1.51	$5,138,640
10	1998	69,588	$3,507,511	75.28	1.49	$5,234,387
11	1999	71,291	$3,481,936	76.37	1.47	$5,122,309
12	2000	73,106	$2,984,429	78.07	1.44	$4,294,386
13	2001	74,959	$3,275,394	79.79	1.41	$4,611,674
14	2002	74,721	$2,439,210	81.05	1.39	$3,380,926
15	2003	78,438	$2,340,691	82.55	1.36	$3,185,399
16	2004	80,221	$2,348,327	84.77	1.33	$3,112,025
17	2005	81,735	$2,621,664	87.41	1.29	$3,369,259
18	2006	82,474	$2,750,067	90.06	1.25	$3,430,326
19	2007	83,637	$3,087,832	92.48	1.21	$3,750,906
20	2008	83,943	$3,445,440	94.29	1.19	$4,105,130
21	2009	84,346	$3,828,174	95.00	1.18	$4,526,866
22	2010	84,420	$4,444,691	96.11	1.17	$5,195,529
23	2011	85,286	$4,037,750	98.12	1.15	$4,623,226
24	2012	85,862	$3,209,604	100.00	1.12	$3,605,778
25	2013	86,972	$3,817,221	101.75	1.10	$4,214,536
26	2014	87,754	$6,271,678	103.63	1.08	$6,798,779
27	2015	90,335	$5,696,782	104.72	1.07	$6,111,683
28	2016	90,867	$5,706,842	105.80	1.06	$6,059,831
29	2017	93,291	$7,314,420	107.79	1.04	$7,623,398
30	2018	94,965	$8,073,464	110.41	1.02	$8,214,384
31	2019	96,597	$7,803,263	112.34	1.00	$7,803,263
32						
33	Total (1989 - 2019)		$123,718,105			$159,667,416
34	Total (2009 - 2019)		$60,203,888			$64,777,272
35	Total (2014 - 2019)		$40,866,448			$42,611,338
36						
37	**REGRESSION RESULTS**				Col. [6] vs. Col. [2]	
38	Slope				12.554	
39	Y Intercept				4,177,475.84	
40	R^2				0.011	
41	t-stat				0.567	
42	p-value				0.575	
43						
44	Regression Estimate		[Line 38]		$12.55	
45	Average Cost					
46	1989 - 2019				$66.45	
47	2009 - 2019				$66.05	
48	2014 - 2019				$76.94	
49	Current Average Cost per Customer				$80.78	
50						
51	ASSUMED MARGINAL COSTS FOR CUSTOMER-RELATED O&M					
52	$s per Customer				**$66.45**	

NOTES:
1 Source: Company data.
2 GDP implicit price deflator obtained from Bureau of Economic Analysis/FRED database.
3 Regression results show extremely low R^2 value, so average cost estimate used.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.104743591
R Square	0.01097122
Adjusted R Square	-0.023133221
Standard Error	1379106.995
Observations	31

ANOVA

	df	SS	MS	F	Significance F
Regression	1	6.11843E+11	6.11843E+11	0.321694758	0.574955508
Residual	29	5.51561E+13	1.90194E+12		
Total	30	5.5768E+13			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Ipper 95.0%
Intercept	4177475.84	1733440.165	2.409933682	0.022525612	632192.6313	7722759.048	632192.6313	7722759
X Variable 1	12.55384836	22.1337442	0.567181415	0.574955508	-32.71474136	57.82243808	-32.71474136	57.82244

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Class Weighting of Services and Meter Plant Expense

Line	Description	R1	R-3, R-4	G-41	G-42	G-43	G-51	G-52	G-53	G-54	Total	
1	Test year customers	3,549	79,448	9,349	1,423	58	1,319	394	34	28	95,602	[1]
2	Meters cost per customer	$440	$440	$1,077	$2,750	$9,333	$3,483	$2,750	$3,995	$11,904		[2]
3	Services cost per customer	$4,063	$4,063	$3,796	$6,346	$10,913	$11,894	$6,583	$39,407	$9,647		[3]
4	Services and meters per customer total	$4,503	$4,503	$4,873	$9,097	$20,245	$15,376	$9,333	$43,403	$21,552		[4]
5	Total cost	$15,979,776	$357,739,395	$45,555,875	$12,942,386	$1,180,127	$20,280,736	$3,673,679	$1,494,249	$599,082	$459,445,305	[5]
6	Average cost per customer										$4,806	[6]
7	Relative weight per customer	0.94	0.94	1.01	1.89	4.21	3.20	1.94	9.03	4.48		[7]
8	System average marginal cost per customer	$66.45	$66.45	$66.45	$66.45	$66.45	$66.45	$66.45	$66.45	$66.45		[8]
9	Class weighted marginal cost per customer	$62.26	$62.26	$67.38	$125.77	$279.92	$212.60	$129.04	$600.10	$297.99		[9]

[1] Source: Company data
[2] MCOS-3, p. 1, ln 8
[3] MCOS-3, p. 1, ln 4
[4] Equals [2]+[3]
[5] Equals [1]*[4]
[6] Equals $\Sigma_{[5]}/\Sigma_{[1]}$
[7] Equals [3]/[6]
[8] MCOS-3, p. 2, ln 52
[9] Equals [7]*[8]

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Marginal Customer-Related Accounting & Marketing Expense

Line No.	Year	Annual Customers	Customer-Related Accounting & Marketing Expense ($)	GDP Implicit Price Deflator	Conversion Factor ($2019)	Customer-Related Accounting & Marketing Expense ($2019)
		[2]	[3]	[4]	[5]	[6]
1	1989	58,809	$2,864,392	61.37	1.83	$5,243,466
2	1990	60,216	$3,442,112	63.67	1.76	$6,073,191
3	1991	60,958	$3,565,057	65.82	1.71	$6,084,700
4	1992	61,725	$3,740,667	67.32	1.67	$6,242,358
5	1993	62,566	$4,032,636	68.92	1.63	$6,573,695
6	1994	64,044	$3,935,631	70.39	1.60	$6,281,510
7	1995	65,385	$3,677,860	71.86	1.56	$5,749,405
8	1996	66,464	$3,695,729	73.18	1.54	$5,673,543
9	1997	67,928	$3,390,219	74.44	1.51	$5,116,269
10	1998	69,588	$3,377,588	75.28	1.49	$5,040,499
11	1999	71,291	$3,319,897	76.37	1.47	$4,883,931
12	2000	73,106	$3,042,687	78.07	1.44	$4,378,216
13	2001	74,959	$1,318,450	79.79	1.41	$1,856,345
14	2002	74,721	$1,114,892	81.05	1.39	$1,545,323
15	2003	78,438	$2,340,981	82.55	1.36	$3,185,794
16	2004	80,221	$3,171,337	84.77	1.33	$4,202,686
17	2005	81,735	$3,204,083	87.41	1.29	$4,117,762
18	2006	82,474	$4,130,827	90.06	1.25	$5,152,632
19	2007	83,637	$3,990,833	92.48	1.21	$4,847,816
20	2008	83,943	$3,927,632	94.29	1.19	$4,679,647
21	2009	84,346	$4,317,533	95.00	1.18	$5,105,539
22	2010	84,420	$4,816,133	96.11	1.17	$5,629,719
23	2011	85,286	$7,556,567	98.12	1.15	$8,652,272
24	2012	85,862	$9,647,965	100.00	1.12	$10,838,852
25	2013	86,972	$3,519,219	101.75	1.10	$3,885,516
26	2014	87,754	$5,036,775	103.63	1.08	$5,460,090
27	2015	90,335	$5,637,886	104.72	1.07	$6,048,497
28	2016	90,867	$4,737,995	105.80	1.06	$5,031,057
29	2017	93,291	$3,544,533	107.79	1.04	$3,694,262
30	2018	94,965	$3,005,303	110.41	1.02	$3,057,759
31	2019	96,597	$3,977,788	112.34	1.00	$3,977,788
32						
33	Total (1989 - 2019)		$121,081,206			$158,310,142
34	Total (2009 - 2019)		$55,797,696			$61,381,353
35	Total (2014 - 2019)		$25,940,280			$27,269,454
36						
37	**REGRESSION RESULTS**				Col. [6] vs. Col. [2]	
38	Slope				(23.662)	
39	Y Intercept				6,940,889.07	
40	R^2				0.023	
41	t-stat				(0.834)	
42	p-value				0.411	
43						
44	Regression Estimate		[Line 38]		($23.66)	
45	Average Cost					
46	1989 - 2019				$65.88	
47	2009 - 2019				$62.59	
48	2014 - 2019				$49.24	
49	Current Average Cost per Customer				$41.18	
50						
51	ASSUMED MARGINAL COSTS FOR CUSTOMER-RELATED O&M					
52	$s per Customer				**$65.88**	

NOTES:
1 Source: Company data.
2 GDP implicit price deflator obtained from Bureau of Economic Analysis/FRED database.
3 Regression results show extremely low R^2 value and negative coefficient, so average cost estimate used.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.153116387
R Square	0.023444628
Adjusted R Square	-0.010229695
Standard Error	1766940.628
Observations	31

ANOVA

	df	SS	MS	F	Significance F
Regression	1	2.17364E+12	2.17364E+12	0.69621675	0.410878792
Residual	29	9.05403E+13	3.12208E+12		
Total	30	9.27139E+13			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	ower 95.0%	Upper 95.0%
Intercept	6940889.069	2220919.672	3.125231929	0.004013654	2398598.324	11483179.81	2398598	11483180
X Variable 1	-23.66198178	28.35821443	-0.834396039	0.410878792	-81.66104253	34.33707896	-81.661	34.33708

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Plant-Related A&G Marginal Loading Factor

Line No.	Year	Plant Related A&G Expense ($)	Total Utility Plant ($)	Loading Factor
		[1]	[2]	[3]	[4]
1	1989	$1,364,240	$90,119,098	1.51%
2	1990	$1,429,254	$99,467,339	1.44%
3	1991	$1,427,802	$106,202,255	1.34%
4	1992	$1,435,822	$112,423,806	1.28%
5	1993	$1,445,997	$118,656,821	1.22%
6	1994	$1,342,813	$124,120,097	1.08%
7	1995	$1,200,572	$129,472,654	0.93%
8	1996	$1,405,850	$135,806,318	1.04%
9	1997	$1,422,193	$145,866,429	0.97%
10	1998	$1,311,090	$156,424,246	0.84%
11	1999	$1,624,095	$166,682,099	0.97%
12	2000	$2,209,040	$174,018,261	1.27%
13	2001	$1,000,753	$189,363,169	0.53%
14	2002	$1,127,386	$202,252,941	0.56%
15	2003	$413,762	$227,692,187	0.18%
16	2004	$401,446	$239,474,276	0.17%
17	2005	$686,615	$242,115,491	0.28%
18	2006	$696,565	$263,405,595	0.26%
19	2007	$705,896	$280,967,870	0.25%
20	2008	$734,523	$298,931,548	0.25%
21	2009	$756,942	$318,900,861	0.24%
22	2010	$1,218,997	$328,222,369	0.37%
23	2011	$388,947	$338,986,146	0.11%
24	2012	$689,718	$339,610,905	0.20%
25	2013	$1,071,232	$360,914,157	0.30%
26	2014	$1,132,042	$379,562,429	0.30%
27	2015	$1,135,511	$426,165,148	0.27%
28	2016	$850,423	$453,429,242	0.19%
29	2017	$776,521	$485,723,431	0.16%
30	2018	$939,134	$595,016,259	0.16%
31	2019	$1,039,393	$665,854,695	0.16%
32				
33	Average Loading Factor			Col [2] / Col [3]
34	1989 - 2019			0.61%
35	2009 - 2019			0.22%
36	2014 - 2019			0.20%
37	Current			0.16%
38				
39	MARGINAL LOADING FACTOR FOR PLANT A&G			
40	%			**0.61%**

NOTES:

1   Source: Company data.

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Non-Plant Related A&G Marginal Loading Factor

Line No.	Year	Non-Plant Related A&G Expense ($)	Adjusted O&M ($)	Loading Factor
		[1]	[2]	[3]	[4]
1	1989	$5,909,986	$8,789,813	67.24%
2	1990	$5,916,868	$9,468,756	62.49%
3	1991	$6,262,331	$9,604,565	65.20%
4	1992	$6,307,455	$9,919,580	63.59%
5	1993	$6,311,505	$10,375,088	60.83%
6	1994	$6,463,160	$10,955,356	59.00%
7	1995	$5,625,812	$10,756,889	52.30%
8	1996	$5,708,347	$10,442,201	54.67%
9	1997	$5,543,252	$10,255,675	54.05%
10	1998	$5,620,410	$10,423,880	53.92%
11	1999	$6,187,199	$10,155,876	60.92%
12	2000	$6,308,523	$9,150,670	68.94%
13	2001	$11,088,012	$7,533,407	147.18%
14	2002	$4,904,823	$6,352,629	77.21%
15	2003	$4,376,775	$8,615,202	50.80%
16	2004	$5,713,357	$9,367,067	60.99%
17	2005	$4,218,671	$10,090,659	41.81%
18	2006	$5,464,787	$11,466,986	47.66%
19	2007	$5,829,666	$11,734,639	49.68%
20	2008	$7,666,805	$12,318,347	62.24%
21	2009	$7,997,073	$13,469,376	59.37%
22	2010	$9,072,506	$14,925,410	60.79%
23	2011	$6,668,773	$16,907,246	39.44%
24	2012	$14,901,222	$16,624,967	89.63%
25	2013	$13,527,831	$12,972,812	104.28%
26	2014	$9,650,588	$20,243,503	47.67%
27	2015	$11,452,287	$19,797,077	57.85%
28	2016	$11,771,039	$17,879,185	65.84%
29	2017	$16,019,761	$18,922,068	84.66%
30	2018	$17,481,590	$20,052,772	87.18%
31	2019	$16,834,917	$17,994,219	93.56%
32				
33	Average Loading Factor			Col [2] / Col [3]
34	1989 - 2019			66.16%
35	2009 - 2019			71.84%
36	2014 - 2019			72.79%
37	Current			93.56%
38				
39	MARGINAL LOADING FACTOR FOR NON-PLANT A&G			
40	%			**66.16%**

NOTES:

1   Source: Company data.

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Materials & Supplies and Prepayments Marginal Loading Factor

Line No.	Year	Materials & Supplies and Prepayments ($)	Total Utility Plant ($)	Loading Factor
		[1]		
		[2]	[3]	[4]
1	1989	$3,629,263	$90,119,098	4.03%
2	1990	$2,814,685	$99,467,339	2.83%
3	1991	$2,978,851	$106,202,255	2.80%
4	1992	$2,903,000	$112,423,806	2.58%
5	1993	$2,911,222	$118,656,821	2.45%
6	1994	$2,603,364	$124,120,097	2.10%
7	1995	$2,653,717	$129,472,654	2.05%
8	1996	$2,551,060	$135,806,318	1.88%
9	1997	$2,737,535	$145,866,429	1.88%
10	1998	$2,351,916	$156,424,246	1.50%
11	1999	$2,472,925	$166,682,099	1.48%
12	2000	$1,694,816	$174,018,261	0.97%
13	2001	$1,423,213	$189,363,169	0.75%
14	2002	$688,197	$202,252,941	0.34%
15	2003	$12,491	$227,692,187	0.01%
16	2004	$89,880	$239,474,276	0.04%
17	2005	$464,721	$242,115,491	0.19%
18	2006	$570,708	$263,405,595	0.22%
19	2007	$556,729	$280,967,870	0.20%
20	2008	$338,049	$298,931,548	0.11%
21	2009	$356,896	$318,900,861	0.11%
22	2010	$46,167	$328,222,369	0.01%
23	2011	$2,715,050	$338,986,146	0.80%
24	2012	$3,479,465	$339,610,905	1.02%
25	2013	$2,870,074	$360,914,157	0.80%
26	2014	$4,730,829	$379,562,429	1.25%
27	2015	$6,132,549	$426,165,148	1.44%
28	2016	$6,861,095	$453,429,242	1.51%
29	2017	$8,629,234	$485,723,431	1.78%
30	2018	$11,010,586	$595,016,259	1.85%
31	2019	$11,753,766	$665,854,695	1.77%
32				
33	Average Loading Factor			Col [2] / Col [3]
34	1989 - 2019			1.31%
35	2009 - 2019			1.12%
36	2014 - 2019			1.60%
37	Current			1.77%
38				
39	MARGINAL LOADING FACTOR FOR MATERIALS & SUPPLIES AND PREPAYMENTS			
40	%			**1.31%**

NOTES:

1   Source: Company data.

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

General Plant Marginal Loading Factor

Line No.	Year	General Plant ($)	Total Utility Plant ($)	Total Utility Plant Less General Plant ($)	Loading Factor
		[1]	[2]	[3]	[4]	[5]
1	1989	$5,933,582	$90,119,098	$84,185,516	7.05%
2	1990	$6,503,724	$99,467,339	$92,963,615	7.00%
3	1991	$6,849,445	$106,202,255	$99,352,810	6.89%
4	1992	$7,659,250	$112,423,806	$104,764,556	7.31%
5	1993	$7,970,207	$118,656,821	$110,686,614	7.20%
6	1994	$8,384,740	$124,120,097	$115,735,357	7.24%
7	1995	$8,221,795	$129,472,654	$121,250,859	6.78%
8	1996	$8,870,155	$135,806,318	$126,936,163	6.99%
9	1997	$9,203,222	$145,866,429	$136,663,207	6.73%
10	1998	$9,478,301	$156,424,246	$146,945,945	6.45%
11	1999	$11,244,509	$166,682,099	$155,437,590	7.23%
12	2000	$7,255,965	$174,018,261	$166,762,296	4.35%
13	2001	$8,348,042	$189,363,169	$181,015,127	4.61%
14	2002	$11,173,887	$202,252,941	$191,079,054	5.85%
15	2003	$11,582,178	$227,692,187	$216,110,009	5.36%
16	2004	$10,499,392	$239,474,276	$228,974,884	4.59%
17	2005	$10,220,042	$242,115,491	$231,895,449	4.41%
18	2006	$11,333,343	$263,405,595	$252,072,252	4.50%
19	2007	$12,089,175	$280,967,870	$268,878,695	4.50%
20	2008	$15,097,758	$298,931,548	$283,833,790	5.32%
21	2009	$16,049,203	$318,900,861	$302,851,658	5.30%
22	2010	$16,060,707	$328,222,369	$312,161,662	5.14%
23	2011	$16,195,189	$338,986,146	$322,790,957	5.02%
24	2012	$8,811,783	$339,610,905	$330,799,122	2.66%
25	2013	$9,473,843	$360,914,157	$351,440,314	2.70%
26	2014	$10,590,671	$379,562,429	$368,971,758	2.87%
27	2015	$18,670,190	$426,165,148	$407,494,958	4.58%
28	2016	$23,326,152	$453,429,242	$430,103,090	5.42%
29	2017	$24,927,246	$485,723,431	$460,796,185	5.41%
30	2018	$29,522,360	$595,016,259	$565,493,899	5.22%
31	2019	$35,197,100	$665,854,695	$630,657,595	5.58%
32					
33	Average Loading Factor			Col [2] / Col [4]	
34	1989 - 2019			5.49%	
35	2009 - 2019			4.54%	
36	2014 - 2019			4.85%	
37	Current Average Cost per Customer			5.29%	
38					
39	MARGINAL LOADING FACTOR FOR GENERAL PLANT				
40	%			**5.49%**	

NOTES:

1   Source: Company data.

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Class Weighted Bad Debt Expense

Line No.	Rate Class	Gross Bad Debt Expense	Percent of Total	Adjusted Bad Debt Accounts Expense	Total Normalized Distribution Revenues	Bad Debt Expense Percentage
		[1]	[2]	[3]	[4]	[5]
1	R-1	$54,638	2.33%	$39,236	$895,559	4.38%
2	R-3, R-4	$2,072,985	88.57%	$1,488,642	$46,836,151	3.18%
3	G-41	$168,920	7.22%	$121,304	$14,691,765	0.83%
4	G-42	$28,979	1.24%	$20,810	$13,862,372	0.15%
5	G-43	$0	0.00%	$0	$2,979,914	0.00%
6	G-51	$13,411	0.57%	$9,631	$1,687,389	0.57%
7	G-52	$1,597	0.07%	$1,147	$2,248,398	0.05%
8	G-53	$0	0.00%	$0	$1,703,104	0.00%
9	G-54	$0	0.00%	$0	$1,105,561	0.00%
10	Total	$2,340,529	100.00%	$1,680,770	$86,010,213	1.95%

[1] Company data
[2] Col [1] Line (n) / Col [1] Line 10
[3] Col [2] Line (n) x Col [3] Line 10
[4] Company data.
[5] Col [3] / Col [4]

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Carrying Charges Inputs

Line	Description	Peaking plant	Distribution	Services	Meters	
1	Plant data					
2	Capitalized cost	$1,000	$1,000	$1,000	$1,000	
3	Book life	35	59	45	29	[1]
4	Salvage value	0%	-15%	-60%	0%	[2]
5	MACRS life	20	20	20	20	[3]
6	Capital structure					
7	Long-term debt ratio	49.85%	49.85%	49.85%	49.85%	[4]
8	Short-term debt ratio	0.00%	0.00%	0.00%	0.00%	[5]
9	Preferred ratio	0.00%	0.00%	0.00%	0.00%	[6]
10	Common ratio	50.15%	50.15%	50.15%	50.15%	[7]
11	Other	0.00%	0.00%	0.00%	0.00%	[8]
12	Cost of capital					
13	Long-term debt cost	4.42%	4.42%	4.42%	4.42%	[9]
14	Short-term debt cost	0.00%	0.00%	0.00%	0.00%	
15	Preferred cost	0.00%	0.00%	0.00%	0.00%	[10]
16	Common cost	10.51%	10.51%	10.51%	10.51%	[11]
17	Other	0.00%	0.00%	0.00%	0.00%	[12]
18	WACC	7.47%	7.47%	7.47%	7.47%	[13]
19	After tax WACC	6.88%	6.88%	6.88%	6.88%	[14]
20	Tax affected cost of capital	9.43%	9.43%	9.43%	9.43%	[15]
21	Tax info					
22	Tax rate	27.08%	27.08%	27.08%	27.08%	[16]
23	Property tax rate	2.58%	2.58%	2.58%	2.58%	[17]
24	Property insurance rate	0.18%	0.18%	0.18%	0.18%	[18]
25	Misc data					
26	Inflation rate	2.14%	2.14%	2.14%	2.14%	[19]
27	Constant $ disc rate	4.73%	4.73%	4.73%	4.73%	[20]
28	Property tax escalation rate	2.14%	2.14%	2.14%	2.14%	[21]

[1] MCOS-5 Page 2
[2] MCOS-5 Page 2
[3] MCOS-5 Page 2
[4] Direct testimony of John Cochrane
[5] Direct testimony of John Cochrane
[6] Direct testimony of John Cochrane
[7] Direct testimony of John Cochrane
[8] Direct testimony of John Cochrane
[9] Direct testimony of John Cochrane
[10] Direct testimony of John Cochrane
[11] Direct testimony of John Cochrane
[12] Direct testimony of John Cochrane
[13] Line 7 x Line 13 + Line 8 x Line 14 + Line 9 x Line 15 + Line 10 x Line 16 + Line 11 x Line 17
[14] (1 - Line 22) * Line 20
[15] Line 19 / (1 - Line 22)
[16] Revenue Requirements RR-1
[17] Revenue Requirements Step-EN
[18] Revenue Requirements Step-EN
[20] Line 19 - Line 26
[21] Line 26

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Development of Plant Service Lives and Net Salvage

Line	Account	Description	[A] Test Year Plant Balance	[B] Average Service Life	[C] Net Salvage Value	
1		Production Plant				
2	361	Structures and Improvements	$96,980	35.0	0%	[1]
3	361.5	Other Equipment	$0	35.0	0%	[2]
4		**Production Plant Total**	$96,980	35.0	0%	[3]
5		Distribution				
6	366.2	Structures and Improvements	$252,675	35.0	0%	[4]
7	366.3	Structures and Improvements	$353,851	35.0	0%	[5]
8	367.0	Mains	$239,064,768	60.0	-15%	[6]
9	369.0	Measuring and Regulation Stat	$4,881,531	35.0	0%	[7]
10	387	Other Equipment	$1,044,334	19.0	0%	[8]
		Distribution Total	$245,597,159	59.3	-15%	[9]
11		Services				
12	380	Services	$185,013,119	45.0	-60%	[10]
13	380.1	Services - Stub	$2,225,746	45.0	-60%	[11]
		Services Total	$187,238,865	45.0	-60%	[12]
14		Meters				
15	381.0	Meters	$13,396,339	32.0	0%	[13]
16	381.1	Meters-Instrument	$276,522	32.0	0%	[14]
17	381.2	Meters - ERTs	$6,038,019	15.0	0%	[15]
18	382	Meter Installation	$18,597,177	32.0	0%	[16]
19		**Meters Total**	$38,308,057	29.3	0%	[17]

[1] Source: Company data

[2] Source: Company data

[3] Col A Equals [1]+[2], Cols B,C = Weighted Average of Lines [1] to [2]

[4] Source: Company data

[5] Source: Company data

[6] Source: Company data

[7] Source: Company data

[8] Source: Company data

[9] Col A Equals ∑ lines [4] to [8], Cols B, C Equal Weighted Average of Lines [4] to [8]

[10] Source: Company data

[11] Source: Company data

[12] Col A Equals [10]+[11], Cols B,C Equal Weighted Average of Lines [10] to [11]

[13] Source: Company data

[14] Source: Company data

[15] Source: Company data

[16] Source: Company data

[17] Col A = ∑ lines [13] to [16], Cols B, C = Weighted Average of Lines [13] to [16]

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Development of Revenue Requirements Stream
Peaker Plant

Year	PV Factor	Rate Base	Interest on Debt	Return on Preferred Equity	Return on Common Equity	Tax Depreciation	Tax Depreciation Rate	Book Depreciation	Deferred Taxes	Taxable Income	Income Taxes	Property Tax	Property Insurance	Revenue Requirement	% of Original Investment Revenue	PV of Revenue Requirement
0	1.00	1000														
1	0.94	969.01	21.35	0.00	51.07	37.50	3.75%	28.57	2.42	61.11	16.55	25.80	1.80	147.56	14.76%	138.07
2	0.88	928.63	20.46	0.00	48.95	72.19	7.22%	28.57	11.81	23.50	6.36	26.35	1.84	144.35	14.43%	126.37
3	0.82	889.71	19.60	0.00	46.89	66.77	6.68%	28.57	10.34	26.11	7.07	26.92	1.88	141.28	14.13%	115.72
4	0.77	852.15	18.78	0.00	44.91	61.77	6.18%	28.57	8.99	28.40	7.69	27.50	1.92	138.36	13.84%	106.04
5	0.72	815.85	17.98	0.00	43.00	57.13	5.71%	28.57	7.73	30.41	8.24	28.09	1.96	135.56	13.56%	97.21
6	0.67	780.70	17.20	0.00	41.15	52.85	5.29%	28.57	6.57	32.15	8.71	28.69	2.00	132.89	13.29%	89.16
7	0.63	746.63	16.45	0.00	39.35	48.88	4.89%	28.57	5.50	33.66	9.11	29.30	2.04	130.34	13.03%	81.82
8	0.59	713.55	15.72	0.00	37.61	45.22	4.52%	28.57	4.51	34.93	9.46	29.93	2.09	127.89	12.79%	75.12
9	0.55	680.63	15.00	0.00	35.87	44.62	4.46%	28.57	4.35	33.15	8.98	30.57	2.13	125.47	12.55%	68.96
10	0.51	647.72	14.27	0.00	34.14	44.61	4.46%	28.57	4.34	30.78	8.34	31.23	2.18	123.07	12.31%	63.28
11	0.48	614.80	13.55	0.00	32.40	44.62	4.46%	28.57	4.35	28.39	7.69	31.90	2.23	120.68	12.07%	58.06
12	0.45	581.88	12.82	0.00	30.67	44.61	4.46%	28.57	4.34	26.02	7.05	32.58	2.27	118.31	11.83%	53.26
13	0.42	548.97	12.10	0.00	28.93	44.62	4.46%	28.57	4.35	23.63	6.40	33.28	2.32	115.95	11.59%	48.84
14	0.39	516.05	11.37	0.00	27.20	44.61	4.46%	28.57	4.34	21.26	5.76	33.99	2.37	113.61	11.36%	44.77
15	0.37	483.13	10.65	0.00	25.46	44.62	4.46%	28.57	4.35	18.87	5.11	34.72	2.42	111.28	11.13%	41.03
16	0.35	450.22	9.92	0.00	23.73	44.61	4.46%	28.57	4.34	16.50	4.47	35.47	2.47	108.98	10.90%	37.60
17	0.32	417.30	9.19	0.00	22.00	44.62	4.46%	28.57	4.35	14.11	3.82	36.23	2.53	106.68	10.67%	34.44
18	0.30	384.39	8.47	0.00	20.26	44.61	4.46%	28.57	4.34	11.75	3.18	37.00	2.58	104.41	10.44%	31.54
19	0.28	351.47	7.74	0.00	18.53	44.62	4.46%	28.57	4.35	9.36	2.53	37.80	2.64	102.16	10.22%	28.87
20	0.26	318.56	7.02	0.00	16.79	44.61	4.46%	28.57	4.34	6.99	1.89	38.61	2.69	99.92	9.99%	26.42
21	0.25	291.68	6.43	0.00	15.37	22.31	2.23%	28.57	(1.70)	27.34	7.40	39.44	2.75	98.27	9.83%	24.31
22	0.23	270.85	5.97	0.00	14.28	0.00		28.57	(7.74)	48.15	13.04	40.28	2.81	97.21	9.72%	22.50
23	0.22	250.01	5.51	0.00	13.18	0.00		28.57	(7.74)	46.64	12.63	41.15	2.87	96.17	9.62%	20.83
24	0.20	229.18	5.05	0.00	12.08	0.00		28.57	(7.74)	45.14	12.22	42.03	2.93	95.15	9.51%	19.28
25	0.19	208.34	4.59	0.00	10.98	0.00		28.57	(7.74)	43.63	11.82	42.93	3.00	94.15	9.41%	17.85
26	0.18	187.51	4.13	0.00	9.88	0.00		28.57	(7.74)	42.12	11.41	43.85	3.06	93.17	9.32%	16.53
27	0.17	166.67	3.67	0.00	8.79	0.00		28.57	(7.74)	40.62	11.00	44.79	3.12	92.21	9.22%	15.31
28	0.16	145.84	3.21	0.00	7.69	0.00		28.57	(7.74)	39.11	10.59	45.75	3.19	91.27	9.13%	14.17
29	0.15	125.01	2.75	0.00	6.59	0.00		28.57	(7.74)	37.61	10.18	46.73	3.26	90.35	9.04%	13.13
30	0.14	104.17	2.30	0.00	5.49	0.00		28.57	(7.74)	36.10	9.78	47.73	3.33	89.46	8.95%	12.16
31	0.13	83.34	1.84	0.00	4.39	0.00		28.57	(7.74)	34.60	9.37	48.76	3.40	88.59	8.86%	11.27
32	0.12	62.50	1.38	0.00	3.29	0.00		28.57	(7.74)	33.09	8.96	49.80	3.47	87.74	8.77%	10.44
33	0.11	41.67	0.92	0.00	2.20	0.00		28.57	(7.74)	31.58	8.55	50.87	3.55	86.92	8.69%	9.68
34	0.10	20.83	0.46	0.00	1.10	0.00		28.57	(7.74)	30.08	8.14	51.96	3.63	86.12	8.61%	8.97
35	0.10	0.00	0.00	0.00	0.00	0.00		28.57	(7.74)	28.57	7.74	53.08	3.70	85.35	8.54%	8.32

			Interest on Debt		Return on Common Equity	Tax Depreciation		Book Depreciation	Deferred Taxes	Taxable Income	Income Taxes	Property Tax	Property Insurance	Revenue Requirement	%	PV of Revenue Requirement
Total			327.84		784.23	1,000.00		1,000.00	0.00	1,075.47	291.24	1,325.11	92.45	3,820.87	382.09%	1,591.33
PV			175.85		420.67	549.02		374.93	47.14	402.80	109.08	433.42	30.24	1,591.33	159.13%	
Levelized payment current $			13.40		32.06	41.84		28.57	3.59	30.70	8.31	33.03	2.30	121.27	12.13%	
Levelized payment constant $			10.38		24.83	32.41		22.13	2.78	23.78	6.44	25.58	1.78	93.94	9.39%	

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Development of Revenue Requirements Stream
Capacity-Related Distribution

Year	Rate Base	Interest on Debt	Return on Preferred Equity	Return on Common Equity	Tax Depreciation	Tax Depreciation Rate	Book Depreciation	Deferred Taxes	Taxable Income	Income Taxes	Property Tax	Property Insurance	Revenue Requirement	% of Original Investment Revenue	PV of Revenue Requirement
0	1000.00														
1	975.68	21.50	0.00	51.43	37.50	3.75%	19.42	4.90	52.45	14.20	25.80	1.80	139.05	13.90%	130.10
2	941.97	20.76	0.00	49.65	72.19	7.22%	19.42	14.29	15.32	4.15	26.35	1.84	136.46	13.65%	119.46
3	909.72	20.04	0.00	47.95	66.77	6.68%	19.42	12.82	18.41	4.99	26.92	1.88	134.02	13.40%	109.78
4	878.83	19.36	0.00	46.32	61.77	6.18%	19.42	11.47	21.18	5.73	27.50	1.92	131.72	13.17%	100.95
5	849.20	18.71	0.00	44.76	57.13	5.71%	19.42	10.21	23.68	6.41	28.09	1.96	129.56	12.96%	92.91
6	820.72	18.08	0.00	43.26	52.85	5.29%	19.42	9.05	25.90	7.01	28.69	2.00	127.52	12.75%	85.56
7	793.32	17.48	0.00	41.81	48.88	4.89%	19.42	7.98	27.89	7.55	29.30	2.04	125.59	12.56%	78.84
8	766.91	16.90	0.00	40.42	45.22	4.52%	19.42	6.99	29.64	8.03	29.93	2.09	123.77	12.38%	72.70
9	740.66	16.32	0.00	39.04	44.62	4.46%	19.42	6.82	28.34	7.67	30.57	2.13	121.99	12.20%	67.04
10	714.42	15.74	0.00	37.66	44.61	4.46%	19.42	6.82	26.45	7.16	31.23	2.18	120.21	12.02%	61.81
11	688.17	15.16	0.00	36.27	44.62	4.46%	19.42	6.82	24.55	6.65	31.90	2.23	118.45	11.85%	56.99
12	661.93	14.58	0.00	34.89	44.61	4.46%	19.42	6.82	22.66	6.14	32.58	2.27	116.71	11.67%	52.54
13	635.68	14.01	0.00	33.51	44.62	4.46%	19.42	6.82	20.75	5.62	33.28	2.32	114.98	11.50%	48.43
14	609.44	13.43	0.00	32.12	44.61	4.46%	19.42	6.82	18.86	5.11	33.99	2.37	113.27	11.33%	44.64
15	583.19	12.85	0.00	30.74	44.62	4.46%	19.42	6.82	16.96	4.59	34.72	2.42	111.57	11.16%	41.14
16	556.95	12.27	0.00	29.36	44.61	4.46%	19.42	6.82	15.07	4.08	35.47	2.47	109.89	10.99%	37.91
17	530.70	11.69	0.00	27.97	44.62	4.46%	19.42	6.82	13.16	3.56	36.23	2.53	108.23	10.82%	34.94
18	504.45	11.12	0.00	26.59	44.61	4.46%	19.42	6.82	11.28	3.05	37.00	2.58	106.59	10.66%	32.19
19	478.21	10.54	0.00	25.21	44.62	4.46%	19.42	6.82	9.37	2.54	37.80	2.64	104.96	10.50%	29.66
20	451.96	9.96	0.00	23.82	44.61	4.46%	19.42	6.82	7.48	2.03	38.61	2.69	103.35	10.34%	27.33
21	431.76	9.51	0.00	22.76	22.31	2.23%	19.42	0.78	28.32	7.67	39.44	2.75	101.90	10.19%	25.32
22	417.59	9.20	0.00	22.01	0.00		19.42	(5.26)	49.61	13.43	40.28	2.81	101.49	10.15%	23.59
23	403.43	8.89	0.00	21.26	0.00		19.42	(5.26)	48.58	13.16	41.15	2.87	101.49	10.15%	21.98
24	389.27	8.58	0.00	20.52	0.00		19.42	(5.26)	47.56	12.88	42.03	2.93	101.10	10.11%	20.49
25	375.10	8.26	0.00	19.77	0.00		19.42	(5.26)	46.54	12.60	42.93	3.00	100.73	10.07%	19.10
26	360.94	7.95	0.00	19.02	0.00		19.42	(5.26)	45.51	12.32	43.85	3.06	100.38	10.04%	17.81
27	346.77	7.64	0.00	18.28	0.00		19.42	(5.26)	44.49	12.05	44.79	3.12	100.05	10.00%	16.61
28	332.61	7.33	0.00	17.53	0.00		19.42	(5.26)	43.47	11.77	45.75	3.19	99.74	9.97%	15.49
29	318.45	7.02	0.00	16.78	0.00		19.42	(5.26)	42.44	11.49	46.73	3.26	99.45	9.95%	14.45
30	304.28	6.70	0.00	16.04	0.00		19.42	(5.26)	41.42	11.22	47.73	3.33	99.19	9.92%	13.49
31	290.12	6.39	0.00	15.29	0.00		19.42	(5.26)	40.39	10.94	48.76	3.40	98.95	9.89%	12.59
32	275.95	6.08	0.00	14.54	0.00		19.42	(5.26)	39.37	10.66	49.80	3.47	98.73	9.87%	11.75
33	261.79	5.77	0.00	13.80	0.00		19.42	(5.26)	38.35	10.38	50.87	3.55	98.53	9.85%	10.97
34	247.63	5.46	0.00	13.05	0.00		19.42	(5.26)	37.32	10.11	51.96	3.63	98.37	9.84%	10.25
35	233.46	5.14	0.00	12.31	0.00		19.42	(5.26)	36.30	9.83	53.08	3.70	98.22	9.82%	9.58
36	219.30	4.83	0.00	11.56	0.00		19.42	(5.26)	35.28	9.55	54.21	3.78	98.10	9.81%	8.95
37	205.14	4.52	0.00	10.81	0.00		19.42	(5.26)	34.25	9.28	55.38	3.86	98.01	9.80%	8.37
38	190.97	4.21	0.00	10.07	0.00		19.42	(5.26)	33.23	9.00	56.56	3.95	97.95	9.79%	7.82
39	176.81	3.90	0.00	9.32	0.00		19.42	(5.26)	32.20	8.72	57.78	4.03	97.91	9.79%	7.32
40	162.64	3.58	0.00	8.57	0.00		19.42	(5.26)	31.18	8.44	59.02	4.12	97.90	9.79%	6.84
41	148.48	3.27	0.00	7.83	0.00		19.42	(5.26)	30.16	8.17	60.28	4.21	97.91	9.79%	6.40
42	134.32	2.96	0.00	7.08	0.00		19.42	(5.26)	29.13	7.89	61.57	4.30	97.96	9.80%	6.00
43	120.15	2.65	0.00	6.33	0.00		19.42	(5.26)	28.11	7.61	62.89	4.39	98.04	9.80%	5.61
44	105.99	2.34	0.00	5.59	0.00		19.42	(5.26)	27.08	7.33	64.24	4.48	98.15	9.81%	5.26
45	91.82	2.02	0.00	4.84	0.00		19.42	(5.26)	26.06	7.06	65.62	4.58	98.28	9.83%	4.93
46	77.66	1.71	0.00	4.09	0.00		19.42	(5.26)	25.04	6.78	67.03	4.68	98.45	9.85%	4.62
47	63.50	1.40	0.00	3.35	0.00		19.42	(5.26)	24.01	6.50	68.46	4.78	98.65	9.87%	4.33
48	49.33	1.09	0.00	2.60	0.00		19.42	(5.26)	22.99	6.23	69.93	4.88	98.89	9.89%	4.06
49	35.17	0.77	0.00	1.85	0.00		19.42	(5.26)	21.97	5.95	71.43	4.98	99.16	9.92%	3.81
50	21.00	0.46	0.00	1.11	0.00		19.42	(5.26)	20.94	5.67	72.96	5.09	99.46	9.95%	3.58
51	6.84	0.15	0.00	0.36	0.00		19.42	(5.26)	19.92	5.39	74.53	5.20	99.80	9.98%	3.36
52	(7.32)	(0.16)	0.00	(0.39)	0.00		19.42	(5.26)	18.89	5.12	0.00	5.31	24.04	2.40%	0.76
53	(21.49)	(0.47)	0.00	(1.13)	0.00		19.42	(5.26)	17.87	4.84	0.00	5.43	22.82	2.28%	0.67
54	(35.65)	(0.79)	0.00	(1.88)	0.00		19.42	(5.26)	16.85	4.56	0.00	5.54	21.60	2.16%	0.60
55	(49.82)	(1.10)	0.00	(2.63)	0.00		19.42	(5.26)	15.82	4.28	0.00	5.66	20.39	2.04%	0.53
56	(63.98)	(1.41)	0.00	(3.37)	0.00		19.42	(5.26)	14.80	4.01	0.00	5.78	19.17	1.92%	0.46
57	(78.14)	(1.72)	0.00	(4.12)	0.00		19.42	(5.26)	13.78	3.73	0.00	5.91	17.96	1.80%	0.41
58	(92.31)	(2.03)	0.00	(4.87)	0.00		19.42	(5.26)	12.75	3.45	0.00	6.03	16.75	1.68%	0.35
59	(146.01)	(3.22)	0.00	(7.70)	146.01		19.42	34.28	-137.14	(37.14)	0.00	6.16	11.81	1.18%	0.23

Total		449.39		1075.01	1146.01		1146.01	0.00	1,474.23	399.22	2,347.02	209.56	5,626.22	562.62%	1,663.62
PV		201.00		480.82	551.90		276.85	74.48	384.33	104.08	490.99	35.40	1,663.62	166.36%	
Levelized payment current $		14.10		33.73	38.72		19.42	5.23	26.96	7.30	34.45	2.48	116.72	11.67%	
Levelized payment constant $		10.18		24.35	27.95		14.02	3.77	19.46	5.27	24.86	1.79	84.24	8.42%	

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Development of Revenue Requirements Stream
Services

Year	Rate Base	Interest on Debt	Return on Preferred Equity	Return on Common Equity	Tax Depreciation	Tax Depreciation Rate	Book Depreciation	Deferred Taxes	Taxable Income	Income Taxes	Property Tax	Property Insurance	Revenue Requirement	% of Original Investment Revenue	PV of Revenue Requirement
0	1000.00														
1	963.92	21.24	0.00	50.81	37.50	3.75%	35.56	0.53	67.73	18.34	25.80	1.80	154.07	15.41%	144.15
2	918.44	20.24	0.00	48.41	72.19	7.22%	35.56	9.92	29.75	8.06	26.35	1.84	150.37	15.04%	131.64
3	874.43	19.27	0.00	46.09	66.77	6.68%	35.56	8.45	31.99	8.66	26.92	1.88	146.82	14.68%	120.27
4	831.78	18.33	0.00	43.84	61.77	6.18%	35.56	7.10	33.91	9.18	27.50	1.92	143.42	14.34%	109.92
5	790.38	17.42	0.00	41.66	57.13	5.71%	35.56	5.84	35.56	9.63	28.09	1.96	140.15	14.01%	100.50
6	750.14	16.53	0.00	39.54	52.85	5.29%	35.56	4.68	36.93	10.00	28.69	2.00	136.99	13.70%	91.91
7	710.98	15.67	0.00	37.47	48.88	4.89%	35.56	3.61	38.07	10.31	29.30	2.04	133.96	13.40%	84.09
8	672.81	14.82	0.00	35.46	45.22	4.52%	35.56	2.62	38.97	10.55	29.93	2.09	131.03	13.10%	76.96
9	634.80	13.99	0.00	33.46	44.62	4.46%	35.56	2.45	36.82	9.97	30.57	2.13	128.13	12.81%	70.42
10	596.79	13.15	0.00	31.46	44.61	4.46%	35.56	2.45	34.08	9.23	31.23	2.18	125.25	12.52%	64.40
11	558.78	12.31	0.00	29.45	44.62	4.46%	35.56	2.45	31.32	8.48	31.90	2.23	122.38	12.24%	58.88
12	520.77	11.47	0.00	27.45	44.61	4.46%	35.56	2.45	28.59	7.74	32.58	2.27	119.53	11.95%	53.81
13	482.76	10.64	0.00	25.45	44.62	4.46%	35.56	2.45	25.83	6.99	33.28	2.32	116.69	11.67%	49.15
14	444.75	9.80	0.00	23.44	44.61	4.46%	35.56	2.45	23.09	6.25	33.99	2.37	113.87	11.39%	44.87
15	406.74	8.96	0.00	21.44	44.62	4.46%	35.56	2.45	20.34	5.51	34.72	2.42	111.06	11.11%	40.95
16	368.73	8.12	0.00	19.44	44.61	4.46%	35.56	2.45	17.60	4.77	35.47	2.47	108.27	10.83%	37.36
17	330.72	7.29	0.00	17.43	44.62	4.46%	35.56	2.45	14.84	4.02	36.23	2.53	105.50	10.55%	34.06
18	292.72	6.45	0.00	15.43	44.61	4.46%	35.56	2.45	12.10	3.28	37.00	2.58	102.75	10.27%	31.03
19	254.71	5.61	0.00	13.42	44.62	4.46%	35.56	2.45	9.35	2.53	37.80	2.64	100.01	10.00%	28.26
20	216.70	4.77	0.00	11.42	44.61	4.46%	35.56	2.45	6.61	1.79	38.61	2.69	97.30	9.73%	25.73
21	184.73	4.07	0.00	9.74	22.31	2.23%	35.56	(3.59)	26.60	7.20	39.44	2.75	95.17	9.52%	23.54
22	158.80	3.50	0.00	8.37	0.00		35.56	(9.63)	47.03	12.74	40.28	2.81	93.63	9.36%	21.67
23	132.88	2.93	0.00	7.00	0.00		35.56	(9.63)	45.16	12.23	41.15	2.87	92.10	9.21%	19.95
24	106.95	2.36	0.00	5.64	0.00		35.56	(9.63)	43.29	11.72	42.03	2.93	90.60	9.06%	18.36
25	81.02	1.79	0.00	4.27	0.00		35.56	(9.63)	41.41	11.21	42.93	3.00	89.12	8.91%	16.90
26	55.10	1.21	0.00	2.90	0.00		35.56	(9.63)	39.54	10.71	43.85	3.06	87.66	8.77%	15.55
27	29.17	0.64	0.00	1.54	0.00		35.56	(9.63)	37.66	10.20	44.79	3.12	86.22	8.62%	14.31
28	3.24	0.07	0.00	0.17	0.00		35.56	(9.63)	35.79	9.69	45.75	3.19	84.80	8.48%	13.17
29	(22.69)	(0.50)	0.00	(1.20)	0.00		35.56	(9.63)	33.92	9.18	0.00	0.00	33.42	3.34%	4.86
30	(48.61)	(1.07)	0.00	(2.56)	0.00		35.56	(9.63)	32.04	8.68	0.00	0.00	30.97	3.10%	4.21
31	(74.54)	(1.64)	0.00	(3.93)	0.00		35.56	(9.63)	30.17	8.17	0.00	0.00	28.53	2.85%	3.63
32	(100.47)	(2.21)	0.00	(5.30)	0.00		35.56	(9.63)	28.29	7.66	0.00	0.00	26.08	2.61%	3.10
33	(126.39)	(2.78)	0.00	(6.66)	0.00		35.56	(9.63)	26.42	7.15	0.00	0.00	23.63	2.36%	2.63
34	(152.32)	(3.36)	0.00	(8.03)	0.00		35.56	(9.63)	24.55	6.65	0.00	0.00	21.19	2.12%	2.21
35	(178.25)	(3.93)	0.00	(9.40)	0.00		35.56	(9.63)	22.67	6.14	0.00	0.00	18.74	1.87%	1.83
36	(204.18)	(4.50)	0.00	(10.76)	0.00		35.56	(9.63)	20.80	5.63	0.00	0.00	16.30	1.63%	1.49
37	(230.10)	(5.07)	0.00	(12.13)	0.00		35.56	(9.63)	18.92	5.12	0.00	0.00	13.85	1.39%	1.18
38	(256.03)	(5.64)	0.00	(13.49)	0.00		35.56	(9.63)	17.05	4.62	0.00	0.00	11.41	1.14%	0.91
39	(281.96)	(6.21)	0.00	(14.86)	0.00		35.56	(9.63)	15.18	4.11	0.00	0.00	8.96	0.90%	0.67
40	(307.88)	(6.78)	0.00	(16.23)	0.00		35.56	(9.63)	13.30	3.60	0.00	0.00	6.52	0.65%	0.46
41	(333.81)	(7.36)	0.00	(17.59)	0.00		35.56	(9.63)	11.43	3.09	0.00	0.00	4.07	0.41%	0.27
42	(359.74)	(7.93)	0.00	(18.96)	0.00		35.56	(9.63)	9.55	2.59	0.00	0.00	1.63	0.16%	0.10
43	(385.67)	(8.50)	0.00	(20.33)	0.00		35.56	(9.63)	7.68	2.08	0.00	0.00	-0.82	-0.08%	-0.05
44	(411.59)	(9.07)	0.00	(21.69)	0.00		35.56	(9.63)	5.81	1.57	0.00	0.00	-3.26	-0.33%	-0.17
45	(600.00)	(13.22)	0.00	(31.62)	600.00		35.56	152.85	-607.81	(164.60)	0.00	0.00	-21.03	-2.10%	-1.05

		Interest on Debt		Return on Common Equity	Tax Depreciation		Book Depreciation	Deferred Taxes	Taxable Income	Income Taxes	Property Tax	Property Insurance	Revenue Requirement	% of Original Investment Revenue	PV of Revenue Requirement
Total		182.87		437.45	1,600.00		1,600.00	0.00	599.90	162.45	976.17	68.11	3,427.05	342.70%	1,568.08
PV		153.70		367.68	579.10		491.07	23.84	416.19	112.71	391.75	27.33	1,568.08	156.81%	
Levelized payment current $		11.13		26.62	41.93		35.56	1.73	30.13	8.16	28.36	1.98	113.54	11.35%	
Levelized payment constant $		8.31		19.88	31.32		26.56	1.29	22.51	6.10	21.19	1.48	84.80	8.48%	

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Development of Revenue Requirements Stream
Meters

Year	Rate Base	Interest on Debt	Return on Preferred Equity	Return on Common Equity	Tax Depreciation	Tax Depreciation Rate	Book Depreciation	Deferred Taxes	Taxable Income	Income Taxes	Property Tax	Property Insurance	Revenue Requirement	% of Original Investment Revenue	PV of Revenue Requirement
0	1000.00														
1	964.70	21.26	0.00	50.85	37.50	3.75%	34.48	0.82	66.71	18.07	25.80	1.80	153.07	15.31%	143.22
2	920.01	20.27	0.00	48.49	72.19	7.22%	34.48	10.21	28.79	7.80	26.35	1.84	149.45	14.94%	130.83
3	876.78	19.32	0.00	46.21	66.77	6.68%	34.48	8.74	31.09	8.42	26.92	1.88	145.97	14.60%	119.57
4	834.91	18.40	0.00	44.01	61.77	6.18%	34.48	7.39	33.06	8.95	27.50	1.92	142.64	14.26%	109.32
5	794.29	17.50	0.00	41.87	57.13	5.71%	34.48	6.13	34.77	9.41	28.09	1.96	139.44	13.94%	99.99
6	754.84	16.63	0.00	39.79	52.85	5.29%	34.48	4.97	36.19	9.80	28.69	2.00	136.36	13.64%	91.49
7	716.45	15.79	0.00	37.76	48.88	4.89%	34.48	3.90	37.39	10.12	29.30	2.04	133.40	13.34%	83.75
8	679.06	14.96	0.00	35.79	45.22	4.52%	34.48	2.91	38.35	10.38	29.93	2.09	130.55	13.05%	76.68
9	641.84	14.14	0.00	33.83	44.62	4.46%	34.48	2.75	36.26	9.82	30.57	2.13	127.72	12.77%	70.19
10	604.61	13.32	0.00	31.87	44.61	4.46%	34.48	2.74	33.57	9.09	31.23	2.18	124.91	12.49%	64.23
11	567.38	12.50	0.00	29.91	44.62	4.46%	34.48	2.75	30.87	8.36	31.90	2.23	122.12	12.21%	58.75
12	530.16	11.68	0.00	27.94	44.61	4.46%	34.48	2.74	28.19	7.63	32.58	2.27	119.34	11.93%	53.72
13	492.93	10.86	0.00	25.98	44.62	4.46%	34.48	2.75	25.49	6.90	33.28	2.32	116.58	11.66%	49.10
14	455.70	10.04	0.00	24.02	44.61	4.46%	34.48	2.74	22.81	6.18	33.99	2.37	113.83	11.38%	44.86
15	418.48	9.22	0.00	22.06	44.62	4.46%	34.48	2.75	20.11	5.45	34.72	2.42	111.10	11.11%	40.96
16	381.25	8.40	0.00	20.09	44.61	4.46%	34.48	2.74	17.43	4.72	35.47	2.47	108.38	10.84%	37.39
17	344.02	7.58	0.00	18.13	44.62	4.46%	34.48	2.75	14.73	3.99	36.23	2.53	105.68	10.57%	34.12
18	306.80	6.76	0.00	16.17	44.61	4.46%	34.48	2.74	12.05	3.26	37.00	2.58	103.01	10.30%	31.11
19	269.57	5.94	0.00	14.21	44.62	4.46%	34.48	2.75	9.35	2.53	37.80	2.64	100.34	10.03%	28.36
20	232.34	5.12	0.00	12.25	44.61	4.46%	34.48	2.74	6.67	1.81	38.61	2.69	97.70	9.77%	25.83
21	201.16	4.43	0.00	10.60	22.31	2.23%	34.48	(3.30)	26.71	7.23	39.44	2.75	95.64	9.56%	23.66
22	176.01	3.88	0.00	9.28	0.00		34.48	(9.34)	47.21	12.78	40.28	2.81	94.18	9.42%	21.80
23	150.87	3.32	0.00	7.95	0.00		34.48	(9.34)	45.39	12.29	41.15	2.87	92.73	9.27%	20.08
24	125.72	2.77	0.00	6.63	0.00		34.48	(9.34)	43.57	11.80	42.03	2.93	91.30	9.13%	18.50
25	100.58	2.22	0.00	5.30	0.00		34.48	(9.34)	41.75	11.31	42.93	3.00	89.89	8.99%	17.04
26	75.43	1.66	0.00	3.98	0.00		34.48	(9.34)	39.94	10.81	43.85	3.06	88.51	8.85%	15.70
27	50.29	1.11	0.00	2.65	0.00		34.48	(9.34)	38.12	10.32	44.79	3.12	87.14	8.71%	14.46
28	25.14	0.55	0.00	1.33	0.00		34.48	(9.34)	36.30	9.83	45.75	3.19	85.80	8.58%	13.32
29	(0.00)	(0.00)	0.00	(0.00)	0.00		34.48	(9.34)	34.48	9.34	46.73	3.26	84.48	8.45%	12.28

		Interest on Debt	Return on Preferred Equity	Return on Common Equity			Book Depreciation	Deferred Taxes	Taxable Income	Income Taxes	Property Tax	Property Insurance	Revenue Requirement	%	PV of Revenue Requirement
Total		279.64	668.93	1,000.00			1,000.00	(0.00)	917.35	248.42	1,022.91	71.37	3,291.26	329.13%	1,550.33
PV		162.47	388.65	549.02			428.53	32.63	412.50	111.70	398.54	27.81	1,550.33	155.03%	
Levelized payment current $		13.07	31.27	44.18			34.48	2.63	33.19	8.99	32.07	2.24	124.75	12.48%	
Levelized payment constant $		10.41	24.91	35.19			27.47	2.09	26.44	7.16	25.54	1.78	99.37	9.94%	

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Fixed Carrying Charge Rates

Line	Description	Production Plant				Mains				Services				Meters			
		Current Dollars		Constant Dollars		Current Dollars		Constant Dollars		Current Dollars		Constant Dollars		Current Dollars		Constant Dollars	
		Engineer's FCCR		Economist's FCCR		Engineer's FCCR		Economist's FCCR		Engineer's FCCR		Economist's FCCR		Engineer's FCCR		Economist's FCCR	
		Current Levelized Dollars	% of Capital Investment	Constant Levelized Dollars	% of Capital Investment	Current Levelized Dollars	% of Capital Investment	Constant Levelized Dollars	% of Capital Investment	Current Levelized Dollars	% of Capital Investment	Constant Levelized Dollars	% of Capital Investment	Current Levelized Dollars	% of Capital Investment	Constant Levelized Dollars	% of Capital Investment
1	Interest on Debt	$13.40	1.3%	$10.38	1.0%	$14.10	1.4%	$10.18	1.0%	$11.13	1.1%	$8.31	0.8%	$13.07	1.3%	$10.41	1.0%
2	Return on Preferred	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%
3	Return on Common	$32.06	3.2%	$24.83	2.5%	$33.73	3.4%	$24.35	2.4%	$26.62	2.7%	$19.88	2.0%	$31.27	3.1%	$24.91	2.5%
4	Total Return	$45.46	4.5%	$35.21	3.5%	$47.84	4.8%	$34.53	3.5%	$37.75	3.8%	$28.20	2.8%	$44.35	4.4%	$35.32	3.5%
5	Depreciation	$28.57	2.9%	$22.13	2.2%	$19.42	1.9%	$14.02	1.4%	$35.56	3.6%	$26.56	2.7%	$34.48	3.4%	$27.47	2.7%
6	Income tax	$8.31	0.8%	$6.44	0.6%	$7.30	0.7%	$5.27	0.5%	$8.16	0.8%	$6.10	0.6%	$8.99	0.9%	$7.16	0.7%
7	Deferred Taxes	$3.59	0.4%	$2.78	0.3%	$5.23	0.5%	$3.77	0.4%	$1.73	0.2%	$1.29	0.1%	$2.63	0.3%	$2.09	0.2%
8	Revenue Tax	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%	$0.00	0.0%
9	Property Tax	$33.03	3.3%	$25.58	2.6%	$34.45	3.4%	$24.86	2.5%	$28.36	2.8%	$21.19	2.1%	$32.07	3.2%	$25.54	2.6%
10	Total Taxes	$44.93	4.5%	$34.81	3.5%	$46.98	4.7%	$33.91	3.4%	$38.25	3.8%	$28.57	2.9%	$43.68	4.4%	$34.80	3.5%
11	Property Insurance	$2.30	0.2%	$1.78	0.2%	$2.48	0.2%	$1.79	0.2%	$1.98	0.2%	$1.48	0.1%	$2.24	0.2%	$1.78	0.2%
12	Total Revenue Required	$121.27	12.1%	$93.94	9.4%	$116.72	11.7%	$84.24	8.4%	$113.54	11.4%	$84.80	8.5%	$124.75	12.5%	$99.37	9.9%

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Summary of Marginal Capacity-Related Costs

Line	Description	Production in lieu of reinforcement	Mains reinforcement	Mains extension	Total distribution	
1	**Plant Investment**					
2	Long-run unit costs - $/design day dth	$59.52	$1,261.97	$1,090.65	$2,412.14	[1]
3	General plant loading factor	5.49%	5.49%	5.49%	--	[2]
4	Gross-up unit costs	$62.79	$1,331.28	$1,150.55	$2,544.63	[3]
5	Fixed charge rate	9.39%	8.42%	8.42%	--	[4]
6	Plant-related A&G loading factor	0.61%	0.61%	0.61%	--	[5]
7	Grossed up fixed charge rate	10.00%	9.03%	9.03%	--	[6]
8	Annualized cost	$6.28	$120.24	$103.91	$230.43	[7]
9	**Operating Expense**					
10	Production capacity costs	$1.15	--	--	$1.15	[8]
11	Distribution capacity costs	--	--	$46.87	$46.87	[9]
12	Non-plant A&G loading factor	66.16%	66.16%	66.16%	--	[10]
13	Total O&M expense	$1.92	$0.00	$77.88	$79.80	[11]
14	**Working Capital**					
15	M&S and prepayments rate	1.31%	1.31%	1.31%	0.00%	[12]
16	M&S and prepayments cost	$0.83	$17.50	$15.13	$33.45	[13]
17	Working cash allowance lag (days)	26.10	26.10	26.10	--	[14]
18	Working cash allowance lag (rate)	7.15%	7.15%	7.15%	--	[15]
19	Working cash O&M allowance	$0.59	$8.60	$13.00	$22.18	[16]
20	Total working capital	$1.41	$26.10	$28.12	$55.64	[17]
21	Tax affected cost of capital rate	9.43%	9.43%	9.43%	0.00%	[18]
22	Working capital revenue requirement	$0.13	$2.46	$2.65	$5.25	[19]
23	**System Seasonal Capacity Related Cost**					
24	$/design day dth	$8.33	$122.70	$184.45	$315.47	[20]
25	Sales/sendout factor	95.28%	95.28%	95.28%	--	[21]
26	Inflation	2.14%	2.14%	2.14%	--	[22]
27	**Seasonal Capacity Cost**	$8.91	$131.25	$197.30	$337.46	[23]

[1] MCOS-1 and MCOS-2
[2] MCOS-4
[3] (1 + Line 3) x Line 2
[4] MCOS-5
[5] MCOS-4
[6] Line 5 + Line 6
[7] Line 4 x Line 7
[8] MCOS-2
[9] MCOS-2
[10] MCOS-4
[11] (1 + Line 12) x (Line 10 + Line 11)
[12] MCOS-4
[13] Line 15 x Line 4
[14] Company data
[15] Line 17 / 365
[16] (Line 8 + Line 13) x Line 18
[17] Line 19 + Line 16
[18] MCOS-5
[19] Line 21 x Line 20
[20] Line 22 + Line 13 + Line 8
[21] Company data
[23] ((1 + (1 - Line 25)) x Line 24) x (1 + Line 26)

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Summary of Marginal Customer-Related Costs

Line	Description	R-1	R3, R-4	G-41	G-42	G-43	G-51	G-52	G-53	G-54	
1	**Plant Investment**										
2	Meters and regulators	$439.76	$439.76	$1,076.76	$2,750.07	$9,332.68	$3,482.86	$2,750.07	$3,995.06	$11,904.46	[1]
3	General plant loading factor	5.49%	5.49%	5.49%	5.49%	5.49%	5.49%	5.49%	5.49%	5.49%	[2]
4	Grossed up meter costs	$463.92	$463.92	$1,135.90	$2,901.12	$9,845.27	$3,674.15	$2,901.12	$4,214.48	$12,558.30	[3]
5	Fixed charge rate	9.94%	9.94%	9.94%	9.94%	9.94%	9.94%	9.94%	9.94%	9.94%	[4]
6	Meter carrying costs	$46.10	$46.10	$112.88	$288.28	$978.33	$365.10	$288.28	$418.79	$1,247.92	[5]
7	Services	$4,063.04	$4,063.04	$3,796.20	$6,346.48	$10,912.52	$11,893.51	$6,582.61	$39,407.48	$9,647.45	[6]
8	General plant loading factor	5.49%	5.49%	5.49%	5.49%	5.49%	5.49%	5.49%	5.49%	5.49%	[7]
9	Grossed up services costs	$4,286.19	$4,286.19	$4,004.70	$6,695.05	$11,511.88	$12,546.75	$6,944.15	$41,571.89	$10,177.32	[8]
10	Fixed charge rate	8.48%	8.48%	8.48%	8.48%	8.48%	8.48%	8.48%	8.48%	8.48%	[9]
11	Services carrying costs	$363.48	$363.48	$339.61	$567.76	$976.24	$1,064.00	$588.89	$3,525.43	$863.07	[10]
12	Total plant carrying costs	$409.58	$409.58	$452.49	$856.05	$1,954.57	$1,429.10	$877.17	$3,944.22	$2,110.99	[11]
13	Plant -related A&G loading factor	0.61%	0.61%	0.61%	0.61%	0.61%	0.61%	0.61%	0.61%	0.61%	[12]
14	Annualized cost	$412.07	$412.07	$455.23	$861.24	$1,966.44	$1,437.78	$882.50	$3,968.17	$2,123.81	[13]
15	**Operating Expense**										
16	Plant-related O&M/customer	$62.26	$62.26	$67.38	$125.77	$279.92	$212.60	$129.04	$600.10	$297.99	[14]
17	Customer accounting & marketing expense	$65.88	$65.88	$65.88	$65.88	$65.88	$65.88	$65.88	$65.88	$65.88	[15]
18	Non-plant A&G loading factor	66.16%	66.16%	66.16%	66.16%	66.16%	66.16%	66.16%	66.16%	66.16%	[16]
19	Total O&M expense	$212.92	$212.92	$221.42	$318.46	$574.59	$462.73	$323.88	$1,106.61	$604.61	[20]
20	**Working Capital**										
21	M&S and prepayments rate	1.31%	1.31%	1.31%	1.31%	1.31%	1.31%	1.31%	1.31%	1.31%	[21]
22	M&S and prepayments cost	$62.45	$62.45	$67.58	$126.15	$280.76	$213.24	$129.43	$601.91	$298.89	[22]
23	Working cash allowance (days)	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	[23]
24	Working cash lag (rate)	7.15%	7.15%	7.15%	7.15%	7.15%	7.15%	7.15%	7.15%	7.15%	[24]
25	Working cash O&M allowance	$44.69	$44.69	$48.39	$84.36	$181.70	$135.90	$86.26	$362.88	$195.10	[25]
26	Total working capital	$107.14	$107.14	$115.96	$210.51	$462.47	$349.14	$215.69	$964.80	$493.99	[26]
27	Tax affected cost of capital	9.43%	9.43%	9.43%	9.43%	9.43%	9.43%	9.43%	9.43%	9.43%	[27]
28	Working capital revenue requirement	$10.10	$10.10	$10.94	$19.85	$43.62	$32.93	$20.34	$90.99	$46.59	[28]
29	**Customer Related Cost**										
30	Annual cost per customer	$635.09	$635.09	$687.59	$1,199.56	$2,584.64	$1,933.44	$1,226.72	$5,165.77	$2,775.01	[29]
31	Inflation	2.14%	2.14%	2.14%	2.14%	2.14%	2.14%	2.14%	2.14%	2.14%	[30]
32	Annual customer related cost	$648.71	$648.71	$702.34	$1,225.28	$2,640.07	$1,974.90	$1,253.03	$5,276.54	$2,834.51	[31]

[1] Company data
[2] MCOS-4
[3] (1 + Line 3) x Line 2
[4] MCOS-5
[5] Line 5 x Line 4
[6] Company data
[7] MCOS-4
[8] (1 + Line 8) x Line 7
[9] MCOS-5
[10] Line 10 x Line 9
[11] Line 11 + Line 6
[12] MCOS-4
[13] (1 + Line 13) x Line 12
[14] MCOS-3
[15] MCOS-3
[16] MCOS-4
[20] (Line 16 + Line 17) x (1 + Line 18)
[21] MCOS-4
[22] (Line 9 + Line 4) x Line 21
[23] Company data
[24] Line 23 / 365
[25] (Line 19 + Line 14) x Line 24
[26] Line 25 + Line 22
[27] MCOS-5
[28] Line 26 x Line 27
[29] Line 28 + Line 19 + Line 14
[31] Line 30 x (1 + Line 31)

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Marginal Cost Study

Marginal Cost Estimates

Line	Description	R-1	R3, R-4	G-41	G-42	G-43	G-51	G-52	G-53	G-54	
1	**Bad debt factor**	4.38%	3.18%	0.83%	0.15%	0.00%	0.57%	0.05%	0.00%	0.00%	[1]
2	**Monthly Charge**										
3	Monthly customer charge	$54.06	$54.06	$58.53	$102.11	$220.01	$164.58	$104.42	$439.71	$236.21	[2]
4	Adjustment for uncollectible	$2.37	$1.72	$0.48	$0.15	$0.00	$0.94	$0.05	$0.00	$0.00	[3]
5	Grossed up monthly cust charge	$56.43	$55.78	$59.01	$102.26	$220.01	$165.51	$104.47	$439.71	$236.21	[4]
6	**Winter Charge**										
7	Distribution charge - pressure support	$8.91	$8.91	$8.91	$8.91	$8.91	$8.91	$8.91	$8.91	$8.91	[5]
8	Distribution charge - reinforcement	$131.25	$131.25	$131.25	$131.25	$131.25	$131.25	$131.25	$131.25	$131.25	[6]
9	Distribution charge - main extension	$197.30	$197.30	$197.30	$197.30	$197.30	$197.30	$197.30	$197.30	$197.30	[7]
10	Adjustment for uncollectible	$14.78	$10.73	$2.79	$0.51	$0.00	$1.93	$0.17	$0.00	$0.00	[8]
11	Grossed up winter charge	$352.25	$348.19	$340.25	$337.97	$337.46	$339.39	$337.63	$337.46	$337.46	[9]
12	**Summer Charge**										
13	Summer Charge	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	[10]
13	**Billing Determinants**										
14	Customers	3,549	79,448	9,349	1,423	58	1,319	394	34	28	[11]
15	Design day demand	500	73,735	33,053	40,264	11,556	2,400	5,518	5,921	3,412	[12]
16	Winter demand	50,154	5,266,930	2,191,390	2,937,838	878,444	255,488	594,059	629,151	803,047	[13]
17	Summer demand	24,402	1,071,772	306,315	576,528	249,918	157,811	362,434	423,139	1,025,126	[14]
18	**Total Marginal Costs**										
19	Total customer-related cost (annual)	$2,403,044	$53,177,077	$6,620,165	$1,745,916	$153,894	$2,619,671	$493,488	$181,659	$78,791	[15]
20	**Capacity-related, winter**										
21	Pressure support	$4,651	$677,839	$296,925	$359,277	$102,960	$21,504	$49,193	$52,754	$30,401	[16]
22	Reinforcements	$68,509	$9,985,322	$4,374,030	$5,292,554	$1,516,719	$316,772	$724,667	$777,120	$447,844	[17]
23	Main extension	$102,986	$15,010,493	$6,575,286	$7,956,062	$2,280,017	$476,189	$1,089,360	$1,168,211	$673,224	[18]
24	Total winter	$176,146	$25,673,655	$11,246,241	$13,607,893	$3,899,697	$814,464	$1,863,220	$1,998,084	$1,151,469	[19]
25	**Capacity-related, summer**										
26	Capacity related - summer	$0	$0	$0	$0	$0	$0	$0	$0	$0	[20]
27	**Totals**										
28	Total Annual Marginal Cost	$2,579,190	$78,850,731	$17,866,407	$15,353,809	$4,053,591	$3,434,135	$2,356,708	$2,179,744	$1,230,261	[21]
29	Share	2.0%	61.6%	14.0%	12.0%	3.2%	2.7%	1.8%	1.7%	1.0%	[22]
30	**Unit Costs**										
31	$/customer	$56.43	$55.78	$59.01	$102.26	$220.01	$165.51	$104.47	$439.71	$236.21	[23]
32	Winter ($/dth)										
33	Pressure support	$0.09	$0.13	$0.14	$0.12	$0.12	$0.08	$0.08	$0.08	$0.04	[24]
34	Reinforcements	$1.37	$1.90	$2.00	$1.80	$1.73	$1.24	$1.22	$1.24	$0.56	[25]
35	Main extensions	$2.05	$2.85	$3.00	$2.71	$2.60	$1.86	$1.83	$1.86	$0.84	[26]
36	Summer ($/dth)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	[27]
37	Average Annual ($/dth)	$2.36	$4.05	$4.50	$3.87	$3.46	$1.97	$1.95	$1.90	$0.63	[28]

[1] MCOS-4
[2] MCOS-6 Page 2 Line 32 / 12
[3] Line 1 x Line 3
[4] Line 4 + Line 3
[5] MCOS-6 Page 1 Line 27
[6] MCOS-6 Page 1 Line 27
[7] MCOS-6 Page 1 Line 27
[8] (Line 7 + Line 8 + Line 9) x Line 1
[9] Line 7 + Line 8 + Line 9 + Line 10
[10] Company data
[11] Company data
[12] Company data
[13] Company data
[14] Company data
[15] Line 14 x Line 5 x 12
[16] (1 + Line 1) x Line 15 x Line 7
[17] (1 + Line 1) x Line 15 x Line 8
[18] (1 + Line 1) x Line 15 x Line 9
[19] Line 21 + Line 22 + Line 23
[20] Company data
[21] Line 19 + Line 24
[22] Line 28 / Sum of Line 28
[23] Line 5
[24] Line 21 / Line 16
[25] Line 22 / Line 16
[26] Line 23 / Line 16
[27] Line 26 / Line 17
[28] (Line 26 + Line 24) / (Line 16 + Line 17)

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
<u>**Summary of Revenue Proof**</u>

Per Books Data													
Customer Count - Actual Number of Bills	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	12 Month Average
1 R-1	3,665	3,392	3,368	3,397	3,523	3,593	3,463	3,530	3,502	3,368	3,318	3,623	3,479
2 R-3	77,739	71,346	71,242	71,330	74,030	74,738	73,127	74,866	72,418	71,237	70,735	77,452	73,355
3 R-4	5,974	6,118	6,221	6,463	6,612	5,983	5,630	5,700	5,442	5,167	5,067	5,769	5,846
4 R-5	74	61	66	69	68	68	76	69	68	73	71	75	70
5 R-6	219	188	189	202	218	232	247	260	255	265	273	283	236
6 R-7	2	2	7	3	3	3	3	4	4	4	4	6	4
7 Total Residential	87,673	81,106	81,094	81,465	84,453	84,617	82,547	84,428	81,689	80,115	79,468	87,207	82,988
8													
9 G-41	10,049	9,080	9,327	9,615	9,351	9,560	9,437	9,182	8,754	8,872	8,656	9,933	9,318
10 G-42	1,485	1,350	1,376	1,414	1,394	1,424	1,421	1,455	1,393	1,397	1,351	1,494	1,413
11 G-43	61	59	55	58	57	57	58	57	59	57	57	59	58
12 G-44	1	2	2	2	2	2	2	2	3	3	4	4	2
13 G-45	8	4	4	4	4	4	4	4	6	7	7	7	5
14 G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
15 G-51	1,390	1,280	1,271	1,284	1,316	1,336	1,309	1,346	1,330	1,265	1,257	1,394	1,315
16 G-52	404	364	373	389	382	401	399	402	387	391	370	429	391
17 G-53	38	36	34	36	34	36	36	33	31	33	33	35	35
18 G-54	29	27	27	29	28	27	27	26	25	24	25	29	27
19 G-55	3	4	2	3	3	3	3	3	3	3	3	3	3
20 G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
21 G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
22 G-58	1	1	1	1	1	1	1	1	1	1	1	1	1
23 Total C/I	13,468	12,206	12,474	12,835	12,573	12,850	12,696	12,512	11,992	12,053	11,764	13,388	12,567
24													
25 Total	101,141	93,312	93,568	94,300	97,026	97,467	95,244	96,940	93,681	92,167	91,231	100,595	95,556

Per Books Data													
Actual - Therms billed	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26 R-1	88,312	89,781	85,523	75,772	61,312	51,500	39,994	32,680	34,468	38,518	50,194	78,635	726,689
27 R-3	9,524,781	10,512,561	9,418,226	6,541,933	3,756,481	2,077,526	1,185,648	1,009,296	1,043,918	1,535,728	3,547,745	8,051,572	58,205,415
28 R-4	685,665	832,335	791,552	616,505	385,336	169,582	92,841	79,605	79,388	108,054	236,269	558,158	4,635,290
29 R-5	2,459	2,208	2,403	1,506	924	499	454	357	435	696	1,402	2,135	15,478
30 R-6	25,681	25,315	22,848	15,536	9,324	4,598	2,805	2,621	2,751	5,372	15,491	27,991	160,333
31 R-7	182	169	461	158	88	30	26	20	20	52	190	407	1,803
32 Total Residential	10,327,081	11,462,368	10,321,013	7,251,410	4,213,465	2,303,735	1,321,768	1,124,578	1,160,980	1,688,420	3,851,290	8,718,899	63,745,008
33													
34 G-41	4,321,413	4,808,165	4,439,730	3,005,894	1,489,238	701,903	306,229	227,646	250,812	442,272	1,230,906	3,393,209	24,617,416
35 G-42	5,585,268	6,067,067	5,658,958	4,176,998	2,326,679	1,242,218	624,361	557,180	562,741	937,089	2,037,124	4,715,295	34,490,978
36 G-43	1,545,052	1,835,644	1,589,381	1,418,349	888,296	588,694	366,070	349,197	236,954	371,997	654,147	1,254,271	11,098,051
37 G-44	508	896	844	536	285	147	71	64	73	138	731	2,353	6,646
38 G-45	18,414	17,636	15,951	11,831	6,553	5,647	1,015	430	989	3,951	10,997	23,427	116,841
39 G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
40 G-51	457,491	483,241	469,505	380,588	333,668	301,708	249,851	237,833	264,277	259,397	291,596	412,872	4,142,026
41 G-52	1,058,630	1,094,095	1,050,193	906,153	756,556	652,598	579,058	567,763	552,389	629,622	713,520	1,048,628	9,609,204
42 G-53	1,073,624	1,230,849	1,084,725	1,063,450	838,251	776,896	696,615	680,191	697,014	642,704	834,275	943,097	10,561,692
43 G-54	1,341,350	1,310,289	1,231,408	1,204,395	1,373,982	1,643,240	1,676,270	1,797,269	1,703,235	1,790,770	1,737,115	1,558,296	18,367,621
44 G-55	527	1,081	308	546	313	189	66	9	62	54	102	437	3,694
45 G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
46 G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
47 G-58	3,712	3,510	225,768	59,302	63,292	42,032	33,380	35,064	33,476	37,076	41,460	(264,976)	313,096
48 Total C/I	15,405,988	16,852,474	15,766,771	12,228,043	8,077,112	5,955,271	4,532,987	4,452,647	4,302,022	5,115,070	7,551,973	13,086,909	113,327,267
49													
50 Total	25,733,069	28,314,842	26,087,784	19,479,453	12,290,577	8,259,006	5,854,755	5,577,225	5,463,002	6,803,491	11,403,263	21,805,807	177,072,274

II-477

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
Summary of Revenue Proof

Per Books Data

	Actual - Base Revenue (Margin) w/o Normal Weather Adjustment	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1	R-1	$88,102	$84,541	$82,588	$79,357	$75,851	$73,241	$67,186	$66,017	$66,273	$65,767	$69,439	$84,840	$903,202
2	R-3	$6,408,219	$6,855,501	$6,251,924	$4,670,732	$3,178,741	$2,265,520	$1,757,764	$1,699,551	$1,681,833	$1,937,904	$3,050,840	$5,661,065	$45,419,593
3	R-4	$186,824	$219,993	$211,632	$174,548	$124,565	$73,282	$54,466	$52,380	$50,774	$55,454	$83,448	$159,434	$1,446,800
4	R-5	$2,632	$2,268	$2,461	$2,078	$1,774	$1,564	$1,724	$1,531	$1,560	$1,775	$2,100	$2,523	$23,991
5	R-6	$22,656	$21,772	$20,028	$15,064	$10,919	$7,817	$6,881	$7,026	$7,028	$9,130	$16,602	$25,851	$170,773
6	R-7	$70	$63	$187	$70	$49	$31	$33	$37	$36	$48	$86	$165	$876
7	Total Residential	$6,683,144	$7,160,034	$6,546,144	$4,924,638	$3,379,156	$2,412,042	$1,879,417	$1,817,948	$1,798,880	$2,059,126	$3,203,727	$5,905,340	$47,965,235
8														
9	G-41	$2,018,048	$2,104,957	$2,006,531	$1,574,033	$1,049,624	$767,206	$632,128	$596,588	$580,228	$651,006	$911,735	$1,737,079	$14,629,163
10	G-42	$1,992,383	$2,086,784	$1,980,377	$1,582,659	$1,017,020	$645,801	$452,462	$437,843	$432,009	$551,672	$898,653	$1,774,036	$13,851,701
11	G-43	$437,697	$510,222	$445,329	$403,689	$259,578	$110,833	$84,132	$82,816	$74,589	$85,658	$124,068	$365,251	$2,983,863
12	G-44	$294	$530	$531	$380	$290	$211	$176	$190	$259	$272	$582	$1,323	$5,038
13	G-45	$9,367	$8,037	$7,299	$5,791	$3,907	$3,290	$1,363	$1,179	$1,835	$3,290	$6,029	$11,278	$62,666
14	G-46	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	G-51	$168,535	$166,450	$163,492	$148,156	$141,541	$136,746	$125,887	$126,857	$130,843	$126,111	$131,639	$162,439	$1,728,696
16	G-52	$264,983	$260,610	$256,120	$237,092	$198,080	$157,032	$148,361	$149,222	$144,568	$153,404	$171,040	$270,114	$2,410,626
17	G-53	$205,105	$229,603	$204,554	$202,072	$159,103	$88,359	$82,071	$79,246	$78,852	$76,215	$93,445	$182,777	$1,681,402
18	G-54	$106,050	$102,066	$97,869	$97,225	$105,783	$76,071	$77,412	$81,478	$77,453	$79,866	$78,625	$119,101	$1,098,999
19	G-55	$350	$544	$258	$350	$320	$275	$234	$237	$250	$225	$249	$345	$3,637
20	G-56	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
21	G-57	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
22	G-58	$1,263	$1,311	$17,498	$5,784	$6,207	$2,882	$2,413	$2,611	$2,510	$2,575	$2,804	($15,437)	$32,420
23	Total C/I	$5,202,461	$5,469,259	$5,162,103	$4,251,097	$2,934,927	$1,985,551	$1,603,993	$1,555,419	$1,520,635	$1,727,495	$2,415,817	$4,623,397	$38,488,210
24														
25	Total	$11,885,605	$12,629,293	$11,708,247	$9,175,735	$6,314,082	$4,397,592	$3,483,410	$3,373,367	$3,319,516	$3,786,621	$5,619,544	$10,528,737	$86,453,445

Calculated

	Calculated - Base Revenue (Margin) w/o Normal Weather Adjustment	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26	R-1	$88,082	$84,536	$82,587	$79,370	$75,849	$73,240	$67,223	$66,029	$66,274	$65,770	$69,441	$84,843	$903,243
27	R-3	$6,408,266	$6,855,612	$6,251,934	$4,670,728	$3,178,743	$2,265,622	$1,757,160	$1,699,931	$1,682,009	$1,937,937	$3,050,906	$5,661,186	$45,420,035
28	R-4	$186,834	$219,992	$211,632	$174,549	$124,553	$73,282	$54,471	$52,388	$50,775	$55,493	$83,448	$159,434	$1,446,851
29	R-5	$2,632	$2,268	$2,461	$2,078	$1,774	$1,564	$1,718	$1,531	$1,560	$1,775	$2,100	$2,523	$23,984
30	R-6	$22,656	$21,772	$20,028	$15,064	$10,919	$7,817	$6,865	$7,028	$7,028	$9,130	$16,602	$25,851	$170,759
31	R-7	$70	$63	$187	$70	$49	$31	$33	$37	$36	$48	$86	$165	$875
32	Total Residential	$6,683,182	$7,160,140	$6,546,153	$4,924,647	$3,379,144	$2,412,144	$1,878,854	$1,818,349	$1,799,058	$2,059,200	$3,203,795	$5,905,464	$47,965,464
33														
34	G-41	$2,018,047	$2,104,957	$2,006,538	$1,574,035	$1,049,622	$767,205	$632,176	$596,717	$580,226	$651,005	$911,731	$1,737,235	$14,629,495
35	G-42	$1,992,383	$2,086,784	$1,980,377	$1,582,660	$1,016,937	$645,801	$452,447	$437,946	$432,012	$551,676	$898,653	$1,774,036	$13,851,713
36	G-43	$437,697	$510,222	$445,329	$403,689	$259,578	$110,833	$84,355	$82,821	$74,578	$85,658	$124,068	$365,251	$2,984,079
37	G-44	$296	$532	$534	$382	$291	$211	$176	$190	$259	$272	$582	$1,323	$5,048
38	G-45	$9,340	$8,037	$7,299	$5,791	$3,907	$3,290	$1,368	$1,180	$1,835	$3,290	$6,029	$11,278	$62,646
39	G-46	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
40	G-51	$168,535	$166,452	$163,492	$148,156	$141,541	$136,746	$125,891	$126,880	$130,843	$126,111	$131,640	$162,445	$1,728,731
41	G-52	$264,983	$260,610	$256,120	$237,092	$197,504	$157,032	$148,336	$149,246	$144,546	$153,412	$171,040	$270,119	$2,410,039
42	G-53	$205,105	$229,603	$204,554	$202,072	$159,103	$88,359	$82,297	$79,246	$78,852	$76,215	$93,445	$182,777	$1,681,627
43	G-54	$106,050	$102,066	$97,869	$97,225	$105,783	$76,071	$77,681	$81,478	$77,453	$79,884	$78,625	$119,101	$1,099,286
44	G-55	$350	$544	$258	$350	$320	$275	$234	$238	$250	$225	$249	$345	$3,639
45	G-56	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
46	G-57	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	G-58	$1,263	$1,311	$17,466	$5,784	$6,207	$2,882	$2,421	$2,613	$2,510	$2,575	$2,804	($15,607)	$32,229
48	Total C/I	$5,202,436	$5,469,263	$5,162,112	$4,251,102	$2,934,267	$1,985,550	$1,604,728	$1,555,702	$1,520,604	$1,727,524	$2,415,814	$4,623,564	$38,488,533
49														
50	Total	$11,885,618	$12,629,403	$11,708,265	$9,175,749	$6,313,412	$4,397,694	$3,483,581	$3,374,051	$3,319,662	$3,786,723	$5,619,608	$10,529,027	$86,454,281

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
<u>**Summary of Revenue Proof**</u>

							Calculated							
	Calculated to Actual Difference - Base Revenue (Margin)	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1	R-1	$20	($5)	($1)	$12	($2)	($1)	$36	$12	$1	$3	$1	$3	$81
2	R-3	$47	$111	$10	($4)	$2	$103	($604)	$381	$176	$32	$66	$121	$442
3	R-4	$11	($1)	($0)	$1	($12)	($0)	$4	$9	$0	$39	$0	$0	$51
4	R-5	$0	$0	$0	($0)	$0	$0	($7)	$0	$0	$0	$0	$0	($7)
5	R-6	$0	$0	$0	$0	$0	($0)	($16)	$2	$0	$0	$0	$0	($14)
6	R-7	($0)	($0)	($0)	$0	$0	$0	($0)	$0	$0	$0	$0	$0	($0)
7	Total Residential	$77	$105	$9	$9	($11)	$102	($586)	$403	$177	$74	$68	$124	$552
8														
9	G-41	($1)	$0	$6	$3	($2)	($1)	$48	$128	($2)	($1)	($4)	$156	$332
10	G-42	$0	($0)	$0	$0	($83)	$0	($15)	$103	$3	$4	$0	$0	$12
11	G-43	($0)	$0	$0	$0	$0	$0	$223	$5	($11)	$0	$0	$0	$217
12	G-44	$1	$2	$3	$2	$2	$0	$0	$0	$0	$0	$0	$0	$10
13	G-45	($26)	$0	$0	$0	$0	$0	$5	$1	$0	$0	$0	$0	($20)
14	G-46	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	G-51	$0	$2	$0	$0	($0)	$0	$3	$22	$0	($0)	$1	$6	$35
16	G-52	$0	$0	$0	$0	($576)	$0	($25)	$24	($22)	$8	$0	$5	($587)
17	G-53	$0	$0	($0)	$0	$0	$0	$226	$0	$0	$0	$0	$0	$226
18	G-54	$0	($0)	$0	$0	$0	$0	$269	$0	$0	$18	$0	($0)	$287
19	G-55	$0	$0	$0	$0	$0	$0	$1	$0	$0	$0	$0	$0	$1
20	G-56	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
21	G-57	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
22	G-58	$0	$0	($32)	$0	$0	$0	$9	$3	$0	$0	$0	($170)	($191)
23	Total C/I	($26)	$5	($23)	$5	($659)	($0)	$744	$287	($31)	$29	($4)	($4)	$323
24														
25	Total	$52	$110	($14)	$15	($671)	$102	$158	$690	$146	$103	$64	$120	$875

							Calculated							
	Actual to Calculated Pct Diff - Base Revenue (Margin)	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26	R-1	0.0%	(0.0%)	(0.0%)	0.0%	(0.0%)	(0.0%)	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
27	R-3	0.0%	0.0%	0.0%	(0.0%)	0.0%	0.0%	(0.0%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
28	R-4	0.0%	(0.0%)	(0.0%)	0.0%	(0.0%)	(0.0%)	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
29	R-5	0.0%	0.0%	0.0%	(0.0%)	0.0%	0.0%	(0.4%)	0.0%	0.0%	0.0%	0.0%	0.0%	(0.0%)
30	R-6	0.0%	0.0%	0.0%	0.0%	0.0%	(0.0%)	(0.2%)	0.0%	0.0%	0.0%	0.0%	0.0%	(0.0%)
31	R-7	(0.0%)	(0.0%)	(0.1%)	0.0%	0.0%	0.0%	(0.5%)	0.0%	0.0%	0.0%	0.0%	0.0%	(0.0%)
32	Total Residential	0.0%	0.0%	0.0%	0.0%	(0.0%)	0.0%	(0.0%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
33														
34	G-41	(0.0%)	0.0%	0.0%	0.0%	(0.0%)	(0.0%)	0.0%	0.0%	(0.0%)	(0.0%)	(0.0%)	0.0%	0.0%
35	G-42	0.0%	(0.0%)	0.0%	0.0%	(0.0%)	0.0%	(0.0%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
36	G-43	(0.0%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	(0.0%)	0.0%	0.0%	0.0%	0.0%
37	G-44	0.4%	0.4%	0.5%	0.6%	0.6%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%
38	G-45	(0.3%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	(0.0%)
39	G-46	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
40	G-51	0.0%	0.0%	0.0%	0.0%	(0.0%)	0.0%	0.0%	0.0%	0.0%	(0.0%)	0.0%	0.0%	0.0%
41	G-52	0.0%	0.0%	0.0%	0.0%	(0.3%)	0.0%	(0.0%)	0.0%	(0.0%)	0.0%	0.0%	0.0%	(0.0%)
42	G-53	0.0%	0.0%	(0.0%)	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
43	G-54	0.0%	(0.0%)	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	(0.0%)	0.0%
44	G-55	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
45	G-56	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
46	G-57	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
47	G-58	0.0%	0.0%	(0.2%)	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	1.1%	(0.6%)
48	Total C/I	(0.0%)	0.0%	(0.0%)	0.0%	(0.0%)	(0.0%)	0.0%	0.0%	(0.0%)	0.0%	(0.0%)	(0.0%)	0.0%
49														
50	Total	0.0%	0.0%	(0.0%)	0.0%	(0.0%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
Development of Fixed Billing Determinants

Docket No. DG 20-105
Attachment RATES-2
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	Per Books Data												
Customer Count - Actual Number of Bills	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	12 Month Average
1 R-1	3,665	3,392	3,368	3,397	3,523	3,593	3,463	3,530	3,502	3,368	3,318	3,623	3,479
2 R-3	77,739	71,346	71,242	71,330	74,030	74,738	73,127	74,866	72,418	71,237	70,735	77,452	73,355
3 R-4	5,974	6,118	6,221	6,463	6,612	5,983	5,630	5,700	5,442	5,167	5,067	5,769	5,846
4 R-5	74	61	66	69	68	68	76	69	68	73	71	75	70
5 R-6	219	188	189	202	218	232	247	260	255	265	273	283	236
6 R-7	2	2	7	3	3	3	3	4	4	4	4	6	4
7 Total Residential	87,673	81,106	81,094	81,465	84,453	84,617	82,547	84,428	81,689	80,115	79,468	87,207	82,988
8													
9 G-41	10,049	9,080	9,327	9,615	9,351	9,560	9,437	9,182	8,754	8,872	8,656	9,933	9,318
10 G-42	1,485	1,350	1,376	1,414	1,394	1,424	1,421	1,455	1,393	1,397	1,351	1,494	1,413
11 G-43	61	59	55	58	57	57	58	57	59	57	57	59	58
12 G-44	1	2	2	2	2	2	2	2	3	3	4	4	2
13 G-45	8	4	4	4	4	4	4	4	6	7	7	7	5
14 G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
15 G-51	1,390	1,280	1,271	1,284	1,316	1,336	1,309	1,346	1,330	1,265	1,257	1,394	1,315
16 G-52	404	364	373	389	382	401	399	402	387	391	370	429	391
17 G-53	38	36	34	36	34	36	36	33	31	33	33	35	35
18 G-54	29	27	27	29	28	27	27	26	25	24	25	29	27
19 G-55	3	4	2	3	3	3	3	3	3	3	3	3	3
20 G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
21 G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
22 G-58	1	1	1	1	1	1	1	1	1	1	1	1	1
23 Total C/I	13,468	12,206	12,474	12,835	12,573	12,850	12,696	12,512	11,992	12,053	11,764	13,388	12,567
24													
25 Total	101,141	93,312	93,568	94,300	97,026	97,467	95,244	96,940	93,681	92,167	91,231	100,595	95,556

	Calculated												
Calendarization Adjustment - Bills	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	12 Month Average
26 R-1	(109)	(184)	185	38	27	(161)	69	10	(75)	168	111	(76)	0
27 R-3	(3,172)	(3,841)	3,616	1,040	579	(2,689)	1,254	(483)	(183)	3,788	2,237	(1,442)	59
28 R-4	232	(521)	(52)	(588)	(657)	(303)	80	(130)	(133)	495	812	105	(55)
29 R-5	(36)	(18)	(19)	(16)	(13)	(4)	(10)	(8)	(1)	(6)	(1)	(5)	(11)
30 R-6	(133)	(93)	(89)	(78)	(72)	(52)	(56)	(82)	(53)	(54)	(40)	(46)	(71)
31 R-7	(1)	(1)	(6)	(1)	(0)	0	(0)	(1)	(1)	(1)	(1)	(3)	(1)
32 Total Residential	(3,219)	(4,658)	3,635	396	(135)	(3,210)	1,335	(693)	(445)	4,390	3,117	(1,467)	(79)
33													
34 G-41	(328)	(270)	431	(220)	183	(515)	(230)	(36)	111	538	760	(90)	28
35 G-42	(47)	(50)	63	(32)	30	(53)	17	(3)	9	64	76	(17)	5
36 G-43	(1)	(6)	3	(4)	(2)	(5)	(5)	(8)	(11)	(7)	(8)	(6)	(5)
37 G-44	0	(0)	(0)	0	(0)	(0)	0	1	(0)	1	0	(0)	0
38 G-45	(3)	(1)	0	0	0	(0)	0	2	1	1	0	0	0
39 G-46	0	1	2	3	4	5	6	7	8	9	10	11	6
40 G-51	(51)	(71)	66	7	11	(52)	34	8	(27)	85	51	(47)	1
41 G-52	(14)	(11)	19	(8)	15	(16)	2	4	5	18	31	(12)	3
42 G-53	(0)	(2)	1	(1)	2	(1)	(2)	(0)	2	1	0	(1)	(0)
43 G-54	(1)	(1)	1	(2)	0	0	0	0	0	2	0	(2)	(0)
44 G-55	0	(1)	1	0	(0)	0	0	(0)	(0)	0	0	0	0
45 G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
46 G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
47 G-58	0	(0)	0	0	(0)	0	0	(0)	(0)	0	0	(0)	(0)
48 Total C/I	(444)	(412)	589	(256)	242	(636)	(177)	(26)	99	711	921	(165)	37
49													
50 Total	(3,663)	(5,070)	4,223	139	107	(3,846)	1,158	(720)	(347)	5,102	4,039	(1,631)	(42)

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
Development of Fixed Billing Determinants

	Calendar Month - Bills	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	12 Month Average
									Calculated					
1	R-1	3,556	3,208	3,554	3,435	3,550	3,433	3,532	3,541	3,426	3,536	3,429	3,548	3,479
2	R-3	74,568	67,504	74,858	72,371	74,609	72,049	74,381	74,383	72,235	75,025	72,971	76,009	73,414
3	R-4	6,206	5,597	6,169	5,875	5,955	5,680	5,709	5,570	5,309	5,662	5,879	5,874	5,791
4	R-5	37	43	47	53	55	63	66	60	67	67	70	70	58
5	R-6	86	94	100	125	146	180	191	178	202	212	233	237	165
6	R-7	1	1	1	2	3	3	3	3	3	3	3	3	2
7	Total Residential	84,454	76,448	84,729	81,860	84,318	81,407	83,883	83,735	81,244	84,505	82,585	85,741	82,909
8														
9	G-41	9,722	8,810	9,759	9,395	9,534	9,045	9,208	9,146	8,865	9,410	9,417	9,843	9,346
10	G-42	1,438	1,300	1,439	1,383	1,423	1,371	1,437	1,451	1,402	1,461	1,428	1,477	1,418
11	G-43	60	53	58	54	55	52	53	49	48	50	48	53	53
12	G-44	1	2	2	2	2	2	2	3	3	4	4	4	3
13	G-45	4	4	4	4	4	4	4	6	7	7	7	7	5
14	G-46	0	1	2	3	4	5	6	7	8	9	10	11	6
15	G-51	1,339	1,208	1,338	1,291	1,327	1,284	1,342	1,354	1,303	1,350	1,308	1,347	1,316
16	G-52	390	352	392	381	397	385	401	406	392	409	401	417	394
17	G-53	37	34	35	34	36	35	34	33	33	34	33	34	34
18	G-54	28	26	29	27	28	27	27	26	25	26	25	27	27
19	G-55	3	3	3	3	3	3	3	3	3	3	3	3	3
20	G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
21	G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
22	G-58	1	1	1	1	1	1	1	1	1	1	1	1	1
23	Total C/I	13,024	11,794	13,063	12,579	12,815	12,214	12,519	12,485	12,091	12,764	12,685	13,223	12,605
24														
25	Total	97,478	88,242	97,791	94,439	97,133	93,621	96,402	96,220	93,334	97,269	95,270	98,964	95,514

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
Development of Volumetric Billing Determinants

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	Per Books Data												
Actual - Therms billed	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1 R-1	88,312	89,781	85,523	75,772	61,312	51,500	39,994	32,680	34,468	38,518	50,194	78,635	726,689
2 R-3	9,524,781	10,512,561	9,418,226	6,541,933	3,756,481	2,077,526	1,185,648	1,009,296	1,043,918	1,535,728	3,547,745	8,051,572	58,205,415
3 R-4	685,665	832,335	791,552	616,505	385,336	169,582	92,841	79,605	79,388	108,054	236,269	558,158	4,635,290
4 R-5	2,459	2,208	2,403	1,506	924	499	454	357	435	696	1,402	2,135	15,478
5 R-6	25,681	25,315	22,848	15,536	9,324	4,598	2,805	2,621	2,751	5,372	15,491	27,991	160,333
6 R-7	182	169	461	158	88	30	26	20	20	52	190	407	1,803
7 Total Residential	10,327,081	11,462,368	10,321,013	7,251,410	4,213,465	2,303,735	1,321,768	1,124,578	1,160,980	1,688,420	3,851,290	8,718,899	63,745,008
8													
9 G-41	4,321,413	4,808,165	4,439,730	3,005,894	1,489,238	701,903	306,229	227,646	250,812	442,272	1,230,906	3,393,209	24,617,416
10 G-42	5,585,268	6,067,067	5,658,958	4,176,998	2,326,679	1,242,218	624,361	557,180	562,741	937,089	2,037,124	4,715,295	34,490,978
11 G-43	1,545,052	1,835,644	1,589,381	1,418,349	888,296	588,694	366,070	349,197	236,954	371,997	654,147	1,254,271	11,098,051
12 G-44	508	896	844	536	285	147	71	64	73	138	731	2,353	6,646
13 G-45	18,414	17,636	15,951	11,831	6,553	5,647	1,015	430	989	3,951	10,997	23,427	116,841
14 G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
15 G-51	457,491	483,241	469,505	380,588	333,668	301,708	249,851	237,833	264,277	259,397	291,596	412,872	4,142,026
16 G-52	1,058,630	1,094,095	1,050,193	906,153	756,556	652,598	579,058	567,763	552,389	629,622	713,520	1,048,628	9,609,204
17 G-53	1,073,624	1,230,849	1,084,725	1,063,450	838,251	776,896	696,615	680,191	697,014	642,704	834,275	943,097	10,561,692
18 G-54	1,341,350	1,310,289	1,231,408	1,204,395	1,373,982	1,643,240	1,676,270	1,797,269	1,703,235	1,790,770	1,737,115	1,558,296	18,367,621
19 G-55	527	1,081	308	546	313	189	66	9	62	54	102	437	3,694
20 G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
21 G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
22 G-58	3,712	3,510	225,768	59,302	63,292	42,032	33,380	35,064	33,476	37,076	41,460	(264,976)	313,096
23 Total C/I	15,405,988	16,852,474	15,766,771	12,228,043	8,077,112	5,955,271	4,532,987	4,452,647	4,302,022	5,115,070	7,551,973	13,086,909	113,327,267
24													
25 Total	25,733,069	28,314,842	26,087,784	19,479,453	12,290,577	8,259,006	5,854,755	5,577,225	5,463,002	6,803,491	11,403,263	21,805,807	177,072,274

	Calculated												
Calendarization Adjustment - Therms	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26 R-1	9,958	(7,303)	(4,350)	(13,203)	(9,906)	(12,296)	(7,286)	882	1,728	8,794	24,162	12,137	3,318
27 R-3	1,522,834	(1,343,711)	(1,580,319)	(2,186,158)	(1,287,679)	(792,003)	(190,491)	4,082	232,846	1,348,445	3,499,823	1,194,260	421,929
28 R-4	200,247	(104,755)	(163,280)	(267,490)	(189,938)	(64,975)	(13,891)	(1,388)	14,249	104,474	311,375	132,777	(42,595)
29 R-5	(41)	(42)	(426)	(251)	(122)	(22)	(43)	44	102	310	387	179	75
30 R-6	(910)	(2,586)	(2,520)	(3,429)	(2,251)	(1,301)	(187)	76	1,202	5,277	7,853	3,652	4,875
31 R-7	54	50	(256)	(26)	(14)	(1)	(3)	1	11	64	96	(12)	(36)
32 Total Residential	1,732,142	(1,458,348)	(1,751,152)	(2,470,557)	(1,489,910)	(870,598)	(211,901)	3,698	250,139	1,467,364	3,843,697	1,342,993	387,568
33													
34 G-41	850,199	(528,708)	(908,597)	(1,240,113)	(624,354)	(350,140)	(70,888)	13,668	101,600	573,514	1,773,265	760,097	349,541
35 G-42	945,150	(591,295)	(933,440)	(1,504,456)	(844,640)	(548,662)	(122,550)	(22,365)	205,268	821,625	2,234,622	879,929	519,186
36 G-43	360,784	(274,603)	(154,856)	(518,383)	(284,382)	(248,693)	(85,583)	(50,821)	104,052	263,401	654,816	419,835	185,567
37 G-44	327	(125)	(273)	(259)	(132)	(75)	(8)	14	97	984	1,719	1,186	3,455
38 G-45	(1,348)	(2,627)	(4,023)	(5,492)	(1,410)	(4,662)	(592)	840	4,116	9,457	13,520	8,871	16,648
39 G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
40 G-51	55,874	(46,347)	(46,840)	(48,737)	(35,545)	(52,574)	(17,998)	20,643	(10,121)	26,463	99,278	43,345	(12,560)
41 G-52	109,065	(106,065)	(74,944)	(134,474)	(98,798)	(100,264)	(37,293)	13,245	36,868	72,598	244,491	31,297	(44,275)
42 G-53	263,510	(164,958)	(46,518)	(237,172)	(61,818)	(113,387)	(33,526)	17,452	(49,101)	140,101	121,934	124,699	(38,785)
43 G-54	(13,916)	(103,975)	(45,526)	104,700	265,578	25,612	93,758	(30,816)	(77,469)	(125,402)	(192,277)	(264,906)	(364,639)
44 G-55	94	(504)	196	(283)	(142)	(131)	(54)	48	(3)	103	319	188	(169)
45 G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
46 G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
47 G-58	15,303	30,469	(194,173)	(29,922)	(41,826)	(24,849)	(16,412)	(18,082)	(13,403)	(14,515)	(18,009)	291,075	(34,342)
48 Total C/I	2,585,043	(1,788,738)	(2,408,995)	(3,614,593)	(1,727,469)	(1,417,826)	(291,147)	(56,174)	301,904	1,768,328	4,933,677	2,295,616	579,626
49													
50 Total	4,317,184	(3,247,086)	(4,160,147)	(6,085,150)	(3,217,379)	(2,288,424)	(503,048)	(52,476)	552,043	3,235,692	8,777,374	3,638,609	967,194

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
Development of Volumetric Billing Determinants

	Calendar Month - Therms	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
								Calculated						
1	R-1	98,270	82,477	81,173	62,569	51,406	39,204	32,708	33,562	36,196	47,312	74,356	90,773	730,007
2	R-3	11,047,615	9,168,849	7,837,906	4,355,776	2,468,802	1,285,524	995,157	1,013,378	1,276,765	2,884,173	7,047,568	9,245,832	58,627,344
3	R-4	885,912	727,579	628,272	349,015	195,398	104,607	78,949	78,217	93,638	212,528	547,644	690,935	4,592,696
4	R-5	2,418	2,166	1,977	1,255	802	477	411	401	537	1,006	1,789	2,314	15,553
5	R-6	24,771	22,729	20,328	12,107	7,073	3,298	2,618	2,697	3,953	10,649	23,344	31,643	165,208
6	R-7	236	219	205	132	74	29	23	21	31	116	286	395	1,767
7	Total Residential	12,059,223	10,004,020	8,569,861	4,780,853	2,723,555	1,433,138	1,109,867	1,128,276	1,411,120	3,155,784	7,694,988	10,061,892	64,132,575
8														
9	G-41	5,171,612	4,279,458	3,531,133	1,765,781	864,883	351,762	235,341	241,313	352,412	1,015,786	3,004,170	4,153,306	24,966,957
10	G-42	6,530,418	5,475,772	4,725,518	2,672,542	1,482,039	693,556	501,810	534,815	768,009	1,758,714	4,271,746	5,595,225	35,010,164
11	G-43	1,905,835	1,561,041	1,434,525	899,966	603,914	340,002	280,487	298,376	341,006	635,398	1,308,963	1,674,106	11,283,618
12	G-44	835	771	571	277	153	72	63	78	170	1,122	2,450	3,539	10,101
13	G-45	17,066	15,009	11,928	6,338	5,143	985	423	1,270	5,105	13,408	24,517	32,298	133,489
14	G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
15	G-51	513,365	436,895	422,665	331,851	298,122	249,134	231,853	258,476	254,156	285,859	390,874	456,217	4,129,466
16	G-52	1,167,695	988,029	975,249	771,679	657,758	552,333	541,766	581,009	589,257	702,220	958,011	1,079,925	9,564,929
17	G-53	1,337,134	1,065,891	1,038,207	826,277	776,434	663,509	663,090	697,644	647,913	782,805	956,209	1,067,796	10,522,907
18	G-54	1,327,434	1,206,315	1,185,882	1,309,095	1,639,560	1,668,852	1,770,028	1,766,454	1,625,766	1,665,368	1,544,839	1,293,390	18,002,982
19	G-55	621	577	504	263	172	58	12	57	59	157	421	625	3,525
20	G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
21	G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
22	G-58	19,016	33,980	31,595	29,380	21,467	17,183	16,968	16,982	20,073	22,561	23,451	26,099	278,754
23	Total C/I	17,991,031	15,063,736	13,357,776	8,613,449	6,349,644	4,537,445	4,241,840	4,396,473	4,603,926	6,883,398	12,485,650	15,382,524	113,906,893
24														
25	Total	30,050,254	25,067,756	21,927,637	13,394,303	9,073,199	5,970,583	5,351,707	5,524,748	6,015,045	10,039,183	20,180,637	25,444,416	178,039,468

	Headblock Volume Ratio	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19
								Calculated					
26	R-1	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
27	R-3	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
28	R-4	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
29	R-5	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
30	R-6	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
31	R-7	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
32													
33													
34	G-41	17.9209%	18.4060%	23.0291%	32.5220%	22.5306%	21.1314%	23.9874%	24.2645%	21.2121%	20.5934%	24.3859%	21.4869%
35	G-42	22.6230%	23.0003%	29.0478%	42.0030%	38.7080%	44.4681%	49.7484%	50.1757%	42.5889%	34.4643%	31.3654%	26.7830%
36	G-43	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
37	G-44	17.3965%	22.3132%	29.6302%	45.5067%	22.4305%	34.6539%	40.8031%	34.6452%	27.6321%	10.7583%	13.0449%	10.7310%
38	G-45	24.2196%	24.8747%	34.2544%	53.1992%	35.5228%	90.8021%	100.0000%	88.5062%	46.8697%	26.0474%	26.8946%	22.3958%
39	G-46	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
40	G-51	19.3205%	19.3886%	21.7864%	25.8571%	28.3600%	31.4939%	34.1718%	31.7658%	31.1330%	28.7791%	23.3782%	21.0834%
41	G-52	34.0257%	34.1604%	38.1347%	45.5222%	52.1518%	57.6418%	59.9423%	58.6653%	55.3881%	49.5502%	40.5518%	37.6578%
42	G-53	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
43	G-54	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
44	G-55	19.7069%	18.7331%	22.4107%	44.7078%	66.1722%	100.0000%	100.0000%	100.0000%	100.0000%	65.5208%	26.9961%	18.8713%
45	G-56	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
46	G-57	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
47	G-58	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%

Liberty Utilities (EnergyNorth Natural Gas) Corp.
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	Calendar Month Headblock - Therms	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1	R-1	98,270	82,477	81,173	62,569	51,406	39,204	32,708	33,562	36,196	47,312	74,356	90,773	730,007
2	R-3	11,047,615	9,168,849	7,837,906	4,355,776	2,468,802	1,285,524	995,157	1,013,378	1,276,765	2,884,173	7,047,568	9,245,832	58,627,344
3	R-4	885,912	727,579	628,272	349,015	195,398	104,607	78,949	78,217	93,638	212,528	547,644	690,935	4,592,696
4	R-5	2,418	2,166	1,977	1,255	802	477	411	401	537	1,006	1,789	2,314	15,553
5	R-6	24,771	22,729	20,328	12,107	7,073	3,298	2,618	2,697	3,953	10,649	23,344	31,643	165,208
6	R-7	236	219	205	132	74	29	23	21	31	116	286	395	1,767
7	Total Residential	12,059,223	10,004,020	8,569,861	4,780,853	2,723,555	1,433,138	1,109,867	1,128,276	1,411,120	3,155,784	7,694,988	10,061,892	64,132,575
8														
9	G-41	926,798	787,677	813,189	574,268	194,863	74,332	56,452	58,553	74,754	209,185	732,595	892,418	5,395,085
10	G-42	1,477,379	1,259,445	1,372,659	1,122,549	573,668	308,411	249,643	268,347	327,086	606,128	1,339,850	1,498,571	10,403,735
11	G-43	1,905,835	1,561,041	1,434,525	899,966	603,914	340,002	280,487	298,376	341,006	635,398	1,308,963	1,674,106	11,283,618
12	G-44	145	172	169	126	34	25	26	27	47	121	320	380	1,591
13	G-45	4,133	3,733	4,086	3,372	1,827	895	423	1,124	2,393	3,492	6,594	7,233	39,305
14	G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
15	G-51	99,185	84,708	92,083	85,807	84,547	78,462	79,228	82,107	79,126	82,268	91,379	96,186	1,035,087
16	G-52	397,316	337,514	371,909	351,285	343,033	318,375	324,747	340,851	326,378	347,952	388,491	406,675	4,254,525
17	G-53	1,337,134	1,065,891	1,038,207	826,277	776,434	663,509	663,090	697,644	647,913	782,805	956,209	1,067,796	10,522,907
18	G-54	1,327,434	1,206,315	1,185,882	1,309,095	1,639,560	1,668,852	1,770,028	1,766,454	1,625,766	1,665,368	1,544,839	1,293,390	18,002,982
19	G-55	122	108	113	118	113	58	12	57	59	103	114	118	1,095
20	G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
21	G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
22	G-58	19,016	33,980	31,595	29,380	21,467	17,183	16,968	16,982	20,073	22,561	23,451	26,099	278,754
23	Total C/I	7,494,497	6,340,583	6,344,417	5,202,243	4,239,460	3,470,103	3,441,103	3,530,521	3,444,602	4,355,381	6,392,803	6,962,972	61,218,685
24														
25	Total	19,553,720	16,344,603	14,914,278	9,983,096	6,963,015	4,903,240	4,550,970	4,658,797	4,855,722	7,511,165	14,087,791	17,024,864	125,351,260

	Calendar Month Tailblock - Therms	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26	R-1	0	0	0	0	0	0	0	0	0	0	0	0	0
27	R-3	0	0	0	0	0	0	0	0	0	0	0	0	0
28	R-4	0	0	0	0	0	0	0	0	0	0	0	0	0
29	R-5	0	0	0	0	0	0	0	0	0	0	0	0	0
30	R-6	0	0	0	0	0	0	0	0	0	0	0	0	0
31	R-7	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Total Residential	0	0	0	0	0	0	0	0	0	0	0	0	0
33														
34	G-41	4,244,814	3,491,781	2,717,944	1,191,513	670,020	277,430	178,889	182,760	277,658	806,601	2,271,576	3,260,888	19,571,872
35	G-42	5,053,039	4,216,328	3,352,860	1,549,993	908,371	385,145	252,168	266,468	440,923	1,152,586	2,931,895	4,096,654	24,606,429
36	G-43	0	0	0	0	0	0	0	0	0	0	0	0	0
37	G-44	690	599	402	151	119	47	37	51	123	1,001	2,130	3,159	8,509
38	G-45	12,933	11,275	7,842	2,966	3,316	91	0	146	2,712	9,915	17,923	25,064	94,184
39	G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
40	G-51	414,181	352,187	330,581	246,044	213,575	170,672	152,624	176,369	175,029	203,592	299,494	360,031	3,094,379
41	G-52	770,379	650,515	603,340	420,394	314,725	233,958	217,019	240,158	262,879	354,268	569,520	673,249	5,310,405
42	G-53	0	0	0	0	0	0	0	0	0	0	0	0	0
43	G-54	0	0	0	0	0	0	0	0	0	0	0	0	0
44	G-55	499	469	391	145	58	0	0	0	0	54	307	507	2,430
45	G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
46	G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
47	G-58	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Total C/I	10,496,533	8,723,153	7,013,360	3,411,207	2,110,184	1,067,343	800,737	865,952	1,159,324	2,528,018	6,092,847	8,419,552	52,688,208
49														
50	Total	10,496,533	8,723,153	7,013,360	3,411,207	2,110,184	1,067,343	800,737	865,952	1,159,324	2,528,018	6,092,847	8,419,552	52,688,208

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Calculated

Weather Normalization Headblock Adj- Therms

		Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1	R-1	(1,310)	1,287	404	1,606	0	0	0	0	0	0	(7,072)	156	(4,929)
2	R-3	(194,464)	193,820	55,053	169,953	0	0	0	0	0	0	(970,225)	21,387	(724,476)
3	R-4	(15,463)	15,226	4,368	13,433	0	0	0	0	0	0	(74,415)	1,582	(55,270)
4	R-5	0	0	0	0	0	0	0	0	0	0	0	0	0
5	R-6	0	0	0	0	0	0	0	0	0	0	0	0	0
6	R-7	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Total Residential	(211,237)	210,332	59,824	184,992	0	0	0	0	0	0	(1,051,712)	23,124	(784,675)
8														
9	G-41	0	0	0	0	0	0	0	0	0	0	0	0	0
10	G-42	0	0	0	0	0	0	0	0	0	0	0	0	0
11	G-43	(31,229)	30,422	9,198	31,279	0	0	0	0	0	0	(163,763)	3,545	(120,548)
12	G-44	0	0	0	0	0	0	0	0	0	0	0	0	0
13	G-45	0	0	0	0	0	0	0	0	0	0	0	0	0
14	G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
15	G-51	0	0	0	0	0	0	0	0	0	0	0	0	0
16	G-52	0	0	0	0	0	0	0	0	0	0	0	0	0
17	G-53	(13,192)	11,116	3,346	11,001	0	0	0	0	0	0	(59,922)	1,213	(46,438)
18	G-54	0	0	0	0	0	0	0	0	0	0	0	0	0
19	G-55	0	0	0	0	0	0	0	0	0	0	0	0	0
20	G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
21	G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
22	G-58	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Total C/I	(44,421)	41,538	12,544	42,281	0	0	0	0	0	0	(223,685)	4,758	(166,986)
24														
25	Total	(255,657)	251,870	72,368	227,273	0	0	0	0	0	0	(1,275,397)	27,883	(951,661)

Calculated

Weather Normalization Tailblock Adj - Therms

		Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26	R-1	0	0	0	0	0	0	0	0	0	0	0	0	0
27	R-3	0	0	0	0	0	0	0	0	0	0	0	0	0
28	R-4	0	0	0	0	0	0	0	0	0	0	0	0	0
29	R-5	0	0	0	0	0	0	0	0	0	0	0	0	0
30	R-6	0	0	0	0	0	0	0	0	0	0	0	0	0
31	R-7	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Total Residential	0	0	0	0	0	0	0	0	0	0	0	0	0
33														
34	G-41	(95,028)	94,809	26,347	76,233	0	0	0	0	0	0	(440,226)	10,110	(327,756)
35	G-42	(116,437)	117,510	33,900	109,203	0	0	0	0	0	0	(602,500)	13,200	(445,124)
36	G-43	0	0	0	0	0	0	0	0	0	0	0	0	0
37	G-44	0	0	0	0	0	0	0	0	0	0	0	0	0
38	G-45	0	0	0	0	0	0	0	0	0	0	0	0	0
39	G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
40	G-51	(5,339)	5,220	1,493	5,162	0	0	0	0	0	0	(25,364)	565	(18,262)
41	G-52	(11,886)	11,450	3,378	11,608	0	0	0	0	0	0	(62,273)	1,270	(46,454)
42	G-53	0	0	0	0	0	0	0	0	0	0	0	0	0
43	G-54	0	0	0	0	0	0	0	0	0	0	0	0	0
44	G-55	0	0	0	0	0	0	0	0	0	0	0	0	0
45	G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
46	G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
47	G-58	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Total C/I	(228,691)	228,990	65,118	202,205	0	0	0	0	0	0	(1,130,363)	25,144	(837,596)
49														
50	Total	(228,691)	228,990	65,118	202,205	0	0	0	0	0	0	(1,130,363)	25,144	(837,596)

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
<u>**Development of Volumetric Billing Determinants**</u>

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									Calculated				

Calendar Month Weather Normal Headblock - Therms

		Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1	R-1	96,960	83,764	81,577	64,175	51,406	39,204	32,708	33,562	36,196	47,312	67,285	90,929	725,078
2	R-3	10,853,151	9,362,669	7,892,959	4,525,729	2,468,802	1,285,524	995,157	1,013,378	1,276,765	2,884,173	6,077,343	9,267,219	57,902,868
3	R-4	870,449	742,805	632,640	362,448	195,398	104,607	78,949	78,217	93,638	212,528	473,230	692,517	4,537,425
4	R-5	2,418	2,166	1,977	1,255	802	477	411	401	537	1,006	1,789	2,314	15,553
5	R-6	24,771	22,729	20,328	12,107	7,073	3,298	2,618	2,697	3,953	10,649	23,344	31,643	165,208
6	R-7	236	219	205	132	74	29	23	21	31	116	286	395	1,767
7	Total Residential	11,847,986	10,214,353	8,629,685	4,965,845	2,723,555	1,433,138	1,109,867	1,128,276	1,411,120	3,155,784	6,643,276	10,085,016	63,347,900
8														
9	G-41	926,798	787,677	813,189	574,268	194,863	74,332	56,452	58,553	74,754	209,185	732,595	892,418	5,395,085
10	G-42	1,477,379	1,259,445	1,372,659	1,122,549	573,668	308,411	249,643	268,347	327,086	606,128	1,339,850	1,498,571	10,403,735
11	G-43	1,874,607	1,591,462	1,443,723	931,245	603,914	340,002	280,487	298,376	341,006	635,398	1,145,200	1,677,651	11,163,070
12	G-44	145	172	169	126	34	25	26	27	47	121	320	380	1,591
13	G-45	4,133	3,733	4,086	3,372	1,827	895	423	1,124	2,393	3,492	6,594	7,233	39,305
14	G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
15	G-51	99,185	84,708	92,083	85,807	84,547	78,462	79,228	82,107	79,126	82,268	91,379	96,186	1,035,087
16	G-52	397,316	337,514	371,909	351,285	343,033	318,375	324,747	340,851	326,378	347,952	388,491	406,675	4,254,525
17	G-53	1,323,942	1,077,007	1,041,553	837,279	776,434	663,509	663,090	697,644	647,913	782,805	896,286	1,069,009	10,476,470
18	G-54	1,327,434	1,206,315	1,185,882	1,309,095	1,639,560	1,668,852	1,770,028	1,766,454	1,625,766	1,665,368	1,544,839	1,293,390	18,002,982
19	G-55	122	108	113	118	113	58	12	57	59	103	114	118	1,095
20	G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
21	G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
22	G-58	19,016	33,980	31,595	29,380	21,467	17,183	16,968	16,982	20,073	22,561	23,451	26,099	278,754
23	Total C/I	7,450,076	6,382,121	6,356,960	5,244,523	4,239,460	3,470,103	3,441,103	3,530,521	3,444,602	4,355,381	6,169,118	6,967,730	61,051,699
24														
25	Total	19,298,063	16,596,473	14,986,646	10,210,369	6,963,015	4,903,240	4,550,970	4,658,797	4,855,722	7,511,165	12,812,394	17,052,746	124,399,599

Calendar Month Weather Normal Tailblock - Therms

		Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26	R-1	0	0	0	0	0	0	0	0	0	0	0	0	0
27	R-3	0	0	0	0	0	0	0	0	0	0	0	0	0
28	R-4	0	0	0	0	0	0	0	0	0	0	0	0	0
29	R-5	0	0	0	0	0	0	0	0	0	0	0	0	0
30	R-6	0	0	0	0	0	0	0	0	0	0	0	0	0
31	R-7	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Total Residential	0	0	0	0	0	0	0	0	0	0	0	0	0
33														
34	G-41	4,149,785	3,586,590	2,744,290	1,267,746	670,020	277,430	178,889	182,760	277,658	806,601	1,831,350	3,270,998	19,244,116
35	G-42	4,936,602	4,333,838	3,386,760	1,659,195	908,371	385,145	252,168	266,468	440,923	1,152,586	2,329,396	4,109,853	24,161,305
36	G-43	0	0	0	0	0	0	0	0	0	0	0	0	0
37	G-44	690	599	402	151	119	47	37	51	123	1,001	2,130	3,159	8,509
38	G-45	12,933	11,275	7,842	2,966	3,316	91	0	146	2,712	9,915	17,923	25,064	94,184
39	G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
40	G-51	408,842	357,407	332,075	251,206	213,575	170,672	152,624	176,369	175,029	203,592	274,130	360,595	3,076,117
41	G-52	758,492	661,965	606,718	432,002	314,725	233,958	217,019	240,158	262,879	354,268	507,247	674,519	5,263,951
42	G-53	0	0	0	0	0	0	0	0	0	0	0	0	0
43	G-54	0	0	0	0	0	0	0	0	0	0	0	0	0
44	G-55	499	469	391	145	58	0	0	0	0	54	307	507	2,430
45	G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
46	G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
47	G-58	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Total C/I	10,267,843	8,952,143	7,078,478	3,613,412	2,110,184	1,067,343	800,737	865,952	1,159,324	2,528,018	4,962,484	8,444,696	51,850,612
49														
50	Total	10,267,843	8,952,143	7,078,478	3,613,412	2,110,184	1,067,343	800,737	865,952	1,159,324	2,528,018	4,962,484	8,444,696	51,850,612

II-486

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
Development of Volumetric Billing Determinants

	Calendar Month Weather Normal Total - Therms	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1	R-1	96,960	83,764	81,577	64,175	51,406	39,204	32,708	33,562	36,196	47,312	67,285	90,929	725,078
2	R-3	10,853,151	9,362,669	7,892,959	4,525,729	2,468,802	1,285,524	995,157	1,013,378	1,276,765	2,884,173	6,077,343	9,267,219	57,902,868
3	R-4	870,449	742,805	632,640	362,448	195,398	104,607	78,949	78,217	93,638	212,528	473,230	692,517	4,537,425
4	R-5	2,418	2,166	1,977	1,255	802	477	411	401	537	1,006	1,789	2,314	15,553
5	R-6	24,771	22,729	20,328	12,107	7,073	3,298	2,618	2,697	3,953	10,649	23,344	31,643	165,208
6	R-7	236	219	205	132	74	29	23	21	31	116	286	395	1,767
7	Total Residential	11,847,986	10,214,353	8,629,685	4,965,845	2,723,555	1,433,138	1,109,867	1,128,276	1,411,120	3,155,784	6,643,276	10,085,016	63,347,900
8														
9	G-41	5,076,584	4,374,267	3,557,480	1,842,013	864,883	351,762	235,341	241,313	352,412	1,015,786	2,563,944	4,163,416	24,639,201
10	G-42	6,413,980	5,593,283	4,759,419	2,781,744	1,482,039	693,556	501,810	534,815	768,009	1,758,714	3,669,246	5,608,424	34,565,040
11	G-43	1,874,607	1,591,462	1,443,723	931,245	603,914	340,002	280,487	298,376	341,006	635,398	1,145,200	1,677,651	11,163,070
12	G-44	835	771	571	277	153	72	63	78	170	1,122	2,450	3,539	10,101
13	G-45	17,066	15,009	11,928	6,338	5,143	985	423	1,270	5,105	13,408	24,517	32,298	133,489
14	G-46	0	0	0	0	0	0	0	0	0	0	0	0	0
15	G-51	508,027	442,115	424,158	337,013	298,122	249,134	231,853	258,476	254,156	285,859	365,510	456,781	4,111,204
16	G-52	1,155,808	999,479	978,627	783,287	657,758	552,333	541,766	581,009	589,257	702,220	895,738	1,081,194	9,518,475
17	G-53	1,323,942	1,077,007	1,041,553	837,279	776,434	663,509	663,090	697,644	647,913	782,805	896,286	1,069,009	10,476,470
18	G-54	1,327,434	1,206,315	1,185,882	1,309,095	1,639,560	1,668,852	1,770,028	1,766,454	1,625,766	1,665,368	1,544,839	1,293,390	18,002,982
19	G-55	621	577	504	263	172	58	12	57	59	157	421	625	3,525
20	G-56	0	0	0	0	0	0	0	0	0	0	0	0	0
21	G-57	0	0	0	0	0	0	0	0	0	0	0	0	0
22	G-58	19,016	33,980	31,595	29,380	21,467	17,183	16,968	16,982	20,073	22,561	23,451	26,099	278,754
23	Total C/I	17,717,919	15,334,263	13,435,438	8,857,935	6,349,644	4,537,445	4,241,840	4,396,473	4,603,926	6,883,398	11,131,602	15,412,426	112,902,311
24														
25	Total	29,565,905	25,548,616	22,065,123	13,823,781	9,073,199	5,970,583	5,351,707	5,524,748	6,015,045	10,039,183	17,774,877	25,497,443	176,250,211

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
Development of Calendar Month Weather Normalized Base Revenues

Per Books Data

	Actual - Base Revenue (Margin) w/o Normal Weather Adjustment	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1	R-1	$88,102	$84,541	$82,588	$79,357	$75,851	$73,241	$67,186	$66,017	$66,273	$65,767	$69,439	$84,840	$903,202
2	R-3	$6,408,219	$6,855,501	$6,251,924	$4,670,732	$3,178,741	$2,265,520	$1,757,764	$1,699,551	$1,681,833	$1,937,904	$3,050,840	$5,661,065	$45,419,593
3	R-4	$186,824	$219,993	$211,632	$174,548	$124,565	$73,282	$54,466	$52,380	$50,774	$55,454	$83,448	$159,434	$1,446,800
4	R-5	$2,632	$2,268	$2,461	$2,078	$1,774	$1,564	$1,724	$1,531	$1,560	$1,775	$2,100	$2,523	$23,991
5	R-6	$22,656	$21,772	$20,028	$15,064	$10,919	$7,817	$6,881	$7,026	$7,028	$9,130	$16,602	$25,851	$170,773
6	R-7	$70	$63	$187	$70	$49	$31	$33	$37	$36	$48	$86	$165	$876
7	Total Residential	$6,708,502	$7,184,137	$6,568,820	$4,941,851	$3,391,897	$2,421,453	$1,888,055	$1,826,543	$1,807,505	$2,070,078	$3,222,515	$5,933,878	$47,965,235
8														
9	G-41	$2,018,048	$2,104,957	$2,006,531	$1,574,033	$1,049,624	$767,206	$632,128	$596,588	$580,228	$651,006	$911,735	$1,737,079	$14,629,163
10	G-42	$1,992,383	$2,086,784	$1,980,377	$1,582,659	$1,017,020	$645,801	$452,462	$437,843	$432,009	$551,672	$898,653	$1,774,036	$13,851,701
11	G-43	$437,697	$510,222	$445,329	$403,689	$259,578	$110,833	$84,132	$82,816	$74,589	$85,658	$124,068	$365,251	$2,983,863
12	G-44	$294	$530	$531	$380	$290	$211	$176	$190	$259	$272	$582	$1,323	$5,038
13	G-45	$9,367	$8,037	$7,299	$5,791	$3,907	$3,290	$1,363	$1,179	$1,835	$3,290	$6,029	$11,278	$62,666
14	G-46	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	G-51	$168,535	$166,450	$163,492	$148,156	$141,541	$136,746	$125,887	$126,857	$130,843	$126,111	$131,639	$162,439	$1,728,696
16	G-52	$264,983	$260,610	$256,120	$237,092	$198,080	$157,032	$148,361	$149,222	$144,568	$153,404	$171,040	$270,114	$2,410,626
17	G-53	$205,105	$229,603	$204,554	$202,072	$159,103	$88,359	$82,071	$79,246	$78,852	$76,215	$93,445	$182,777	$1,681,402
18	G-54	$106,050	$102,066	$97,869	$97,225	$105,783	$76,071	$77,412	$81,478	$77,453	$79,866	$78,625	$119,101	$1,098,999
19	G-55	$350	$544	$258	$350	$320	$275	$234	$237	$250	$225	$249	$345	$3,637
20	G-56	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
21	G-57	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
22	G-58	$1,263	$1,311	$17,498	$5,784	$6,207	$2,882	$2,413	$2,611	$2,510	$2,575	$2,804	($15,437)	$32,420
23	Total C/I	$5,204,075	$5,471,113	$5,179,859	$4,257,231	$2,941,453	$1,988,708	$1,606,639	$1,558,267	$1,523,394	$1,730,294	$2,418,871	$4,608,305	$38,488,210
24														
25	Total	$11,912,577	$12,655,251	$11,748,679	$9,199,082	$6,333,351	$4,410,161	$3,494,695	$3,384,810	$3,330,899	$3,800,372	$5,641,386	$10,542,184	$86,453,445

Calculated

	Calendar Month Base Revenue Adjustment	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26	R-1	$2,078	($5,495)	$1,159	($4,351)	($3,293)	($7,012)	($1,110)	$518	($478)	$5,907	$10,846	$3,463	$2,231
27	R-3	$789,972	($797,052)	($815,265)	($1,187,209)	($699,752)	($475,999)	($72,796)	($4,405)	$127,340	$808,827	$1,983,200	$643,342	$300,202
28	R-4	$45,417	($26,257)	($36,314)	($62,454)	($45,793)	($16,147)	($2,147)	($1,071)	$2,383	$26,336	$74,313	$30,222	($11,513)
29	R-5	($716)	($358)	($567)	($421)	($310)	($93)	($231)	($157)	$17	$21	$155	($18)	($2,678)
30	R-6	($3,041)	($3,473)	($3,356)	($3,862)	($3,014)	($1,951)	($1,249)	($1,596)	($219)	$2,711	$4,842	$1,679	($12,530)
31	R-7	$7	$8	($120)	($18)	($4)	$1	($2)	($9)	($3)	$9	$22	($27)	($137)
32	Total Residential	$833,716	($832,627)	($854,463)	($1,258,315)	($752,166)	($501,201)	($77,536)	($6,721)	$129,039	$843,811	$2,073,377	$678,660	$275,575
33														
34	G-41	$248,269	($183,851)	($258,282)	($423,279)	($224,274)	($144,526)	($31,597)	$2,635	$40,141	$226,364	$662,673	$242,315	$156,590
35	G-42	$258,934	($180,408)	($242,608)	($456,873)	($289,775)	($182,129)	($33,927)	($5,064)	$65,932	$272,733	$726,645	$252,358	$185,817
36	G-43	$91,641	($73,751)	($37,537)	($135,184)	($149,743)	($33,827)	($12,614)	($12,111)	$837	$25,701	$249,160	$105,270	$17,842
37	G-44	$180	($50)	($118)	($98)	($72)	($33)	$13	$74	$38	$505	$763	$483	$1,686
38	G-45	($1,505)	($1,084)	($1,316)	($2,001)	($831)	($1,906)	($223)	$837	$1,998	$3,816	$5,634	$3,385	$6,803
39	G-46	$0	$932	$1,864	$2,796	$3,728	$4,660	$5,660	$6,604	$7,547	$8,490	$9,434	$10,377	$62,092
40	G-51	$7,409	($12,860)	($4,527)	($8,641)	($6,191)	($13,138)	($540)	$4,263	($3,682)	$9,748	$21,784	$5,444	($931)
41	G-52	$15,335	($19,610)	($7,783)	($24,186)	($42,392)	($15,472)	($2,902)	$2,134	$4,203	$10,929	$80,377	$4,885	$5,518
42	G-53	$43,173	($28,777)	($6,996)	($40,155)	($70,988)	($10,029)	($3,276)	$1,348	($2,294)	$12,003	$91,085	$21,233	$6,328
43	G-54	($1,486)	($6,812)	($1,820)	$5,282	($29,088)	$961	$4,321	($1,039)	($2,506)	($2,926)	$38,553	($16,588)	($13,147)
44	G-55	$36	($192)	$99	($56)	($42)	($37)	($2)	$10	($8)	$52	$84	$44	($12)
45	G-56	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
46	G-57	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	G-58	$1,304	$2,402	($13,888)	($2,389)	($4,260)	($1,158)	($646)	($843)	($635)	($556)	$111	$18,603	($1,956)
48	Total C/I	$663,290	($504,062)	($572,910)	($1,084,783)	($813,929)	($396,633)	($75,733)	($1,153)	$111,569	$566,859	$1,886,302	$647,810	$426,628
49														
50	Total	$1,497,007	($1,336,689)	($1,427,373)	($2,343,098)	($1,566,095)	($897,834)	($153,268)	($7,874)	$240,608	$1,410,670	$3,959,679	$1,326,470	$702,203

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
Development of Calendar Month Weather Normalized Base Revenues

Calculated

	Calendar Month Base Revenues (Margin) w/o NWA	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1	R-1	$90,179	$79,045	$83,747	$75,006	$72,558	$66,229	$66,076	$66,535	$65,795	$71,674	$80,285	$88,303	$905,433
2	R-3	$7,198,190	$6,058,449	$5,436,659	$3,483,523	$2,478,989	$1,789,520	$1,684,968	$1,695,145	$1,809,174	$2,746,731	$5,034,039	$6,304,407	$45,719,796
3	R-4	$232,241	$193,735	$175,318	$112,094	$78,771	$57,135	$52,319	$51,309	$53,157	$81,790	$157,761	$189,656	$1,435,286
4	R-5	$1,917	$1,909	$1,893	$1,658	$1,464	$1,471	$1,494	$1,374	$1,577	$1,796	$2,255	$2,505	$21,313
5	R-6	$19,615	$18,299	$16,672	$11,202	$7,905	$5,865	$5,632	$5,430	$6,809	$11,841	$21,444	$27,529	$158,243
6	R-7	$77	$72	$67	$53	$45	$32	$31	$28	$33	$57	$107	$138	$739
7	Total Residential	$7,542,218	$6,351,510	$5,714,357	$3,683,536	$2,639,731	$1,920,253	$1,810,520	$1,819,822	$1,936,544	$2,913,889	$5,295,892	$6,612,539	$48,240,810
8														
9	G-41	$2,266,317	$1,921,105	$1,748,249	$1,150,754	$825,351	$622,680	$600,531	$599,223	$620,369	$877,370	$1,574,408	$1,979,394	$14,785,753
10	G-42	$2,251,317	$1,906,376	$1,737,770	$1,125,786	$727,244	$463,673	$418,536	$432,779	$497,941	$824,405	$1,625,298	$2,026,394	$14,037,517
11	G-43	$529,337	$436,470	$407,792	$268,506	$109,836	$77,006	$71,518	$70,704	$75,425	$111,359	$373,229	$470,521	$3,001,705
12	G-44	$474	$480	$413	$282	$217	$178	$189	$264	$298	$777	$1,345	$1,806	$6,724
13	G-45	$7,862	$6,953	$5,983	$3,790	$3,076	$1,384	$1,140	$2,015	$3,833	$7,106	$11,663	$14,663	$69,469
14	G-46	$-	$932	$1,864	$2,796	$3,728	$4,660	$5,660	$6,604	$7,547	$8,490	$9,434	$10,377	$62,092
15	G-51	$175,944	$153,590	$158,965	$139,515	$135,350	$123,608	$125,347	$131,120	$127,160	$135,859	$153,423	$167,883	$1,727,765
16	G-52	$280,317	$241,000	$248,337	$212,906	$155,688	$141,560	$145,459	$151,356	$148,770	$164,333	$251,417	$274,999	$2,416,143
17	G-53	$248,279	$200,826	$197,557	$161,917	$88,115	$78,330	$78,795	$80,594	$76,558	$88,218	$184,530	$204,010	$1,687,729
18	G-54	$104,564	$95,254	$96,049	$102,507	$76,694	$77,033	$81,733	$80,439	$74,947	$76,940	$117,178	$102,513	$1,085,852
19	G-55	$386	$352	$357	$294	$278	$238	$231	$248	$241	$277	$333	$389	$3,626
20	G-56	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$0
21	G-57	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$0
22	G-58	$2,568	$3,712	$3,610	$3,395	$1,946	$1,724	$1,767	$1,767	$1,874	$2,018	$2,915	$3,167	$30,464
23	Total C/I	$5,867,365	$4,967,052	$4,606,949	$3,172,448	$2,127,524	$1,592,075	$1,530,907	$1,557,114	$1,634,963	$2,297,153	$4,305,173	$5,256,115	$38,914,838
24														
25	Total	$13,409,583	$11,318,562	$10,321,306	$6,855,984	$4,767,256	$3,512,327	$3,341,426	$3,376,936	$3,571,508	$5,211,042	$9,601,065	$11,868,654	$87,155,648

Calculated

	Calendar Month Weather Normal Base Revenue Adjustment	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26	R-1	($490)	$481	$151	$601	$0	$0	$0	$0	$0	$0	($2,678)	$59	($1,875)
27	R-3	($106,989)	$106,634	$30,288	$93,504	$0	$0	$0	$0	$0	$0	($540,305)	$11,910	($404,957)
28	R-4	($3,403)	$3,351	$961	$2,956	$0	$0	$0	$0	$0	$0	($16,578)	$352	($12,360)
29	R-5	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
30	R-6	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
31	R-7	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
32	Total Residential	($110,882)	$110,466	$31,401	$97,061	$0	$0	$0	$0	$0	$0	($559,560)	$12,321	($419,193)
33														
34	G-41	($29,144)	$29,076	$8,080	$23,379	$0	$0	$0	$0	$0	$0	($136,658)	$3,138	($102,128)
35	G-42	($32,207)	$32,503	$9,377	$30,205	$0	$0	$0	$0	$0	$0	($168,677)	$3,695	($125,102)
36	G-43	($7,970)	$7,764	$2,347	$7,982	$0	$0	$0	$0	$0	$0	($42,300)	$916	($31,261)
37	G-44	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
38	G-45	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
39	G-46	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
40	G-51	($955)	$934	$267	$923	$0	$0	$0	$0	$0	$0	($4,593)	$102	($3,321)
41	G-52	($1,871)	$1,802	$532	$1,827	$0	$0	$0	$0	$0	$0	($9,921)	$202	($7,429)
42	G-53	($2,179)	$1,836	$553	$1,817	$0	$0	$0	$0	$0	$0	($10,019)	$203	($7,790)
43	G-54	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
44	G-55	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	G-56	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
46	G-57	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	G-58	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
48	Total C/I	($74,324)	$73,915	$21,156	$66,134	$0	$0	$0	$0	$0	$0	($372,168)	$8,257	($277,030)
49														
50	Total	($185,206)	$184,382	$52,556	$163,195	$0	$0	$0	$0	$0	$0	($931,728)	$20,578	($696,223)

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
Development of Calendar Month Weather Normalized Base Revenues

							Calculated						
Calendar Month Weather Normal Base Revenues (Margin)	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1 R-1	89,689	79,526	83,898	75,607	72,558	66,229	66,076	66,535	65,795	71,674	77,608	88,362	$903,558
2 R-3	7,091,202	6,165,084	5,466,948	3,577,027	2,478,989	1,789,520	1,684,968	1,695,145	1,809,174	2,746,731	4,493,734	6,316,317	$45,314,839
3 R-4	228,838	197,086	176,279	115,050	78,771	57,135	52,319	51,309	53,157	81,790	141,183	190,009	$1,422,926
4 R-5	1,917	1,909	1,893	1,658	1,464	1,471	1,494	1,374	1,577	1,796	2,255	2,505	$21,313
5 R-6	19,615	18,299	16,672	11,202	7,905	5,865	5,632	5,430	6,809	11,841	21,444	27,529	$158,243
6 R-7	77	72	67	53	45	32	31	28	33	57	107	138	$739
7 Total Residential	$7,431,337	$6,461,977	$5,745,758	$3,780,596	$2,639,731	$1,920,253	$1,810,520	$1,819,822	$1,936,544	$2,913,889	$4,736,331	$6,624,860	$47,821,617
8													
9 G-41	2,237,173	1,950,182	1,756,330	1,174,133	825,351	622,680	600,531	599,223	620,369	877,370	1,437,750	1,982,533	$14,683,625
10 G-42	2,219,110	1,938,879	1,747,146	1,155,992	727,244	463,673	418,536	432,779	497,941	824,405	1,456,621	2,030,089	$13,912,415
11 G-43	521,368	444,234	410,140	276,488	109,836	77,006	71,518	70,704	75,425	111,359	330,929	471,437	$2,970,444
12 G-44	474	480	413	282	217	178	189	264	298	777	1,345	1,806	$6,724
13 G-45	7,862	6,953	5,983	3,790	3,076	1,384	1,140	2,015	3,833	7,106	11,663	14,663	$69,469
14 G-46	-	932	1,864	2,796	3,728	4,660	5,660	6,604	7,547	8,490	9,434	10,377	$62,092
15 G-51	174,989	154,524	159,232	140,439	135,350	123,608	125,347	131,120	127,160	135,859	148,830	167,986	$1,724,444
16 G-52	278,447	242,802	248,869	214,733	155,688	141,560	145,459	151,356	148,770	164,333	241,496	275,201	$2,408,715
17 G-53	246,100	202,662	198,110	163,734	88,115	78,330	78,795	80,594	76,558	88,218	174,510	204,212	$1,679,939
18 G-54	104,564	95,254	96,049	102,507	76,694	77,033	81,733	80,439	74,947	76,940	117,178	102,513	$1,085,852
19 G-55	386	352	357	294	278	238	231	248	241	277	333	389	$3,626
20 G-56	-	-	-	-	-	-	-	-	-	-	-	-	$0
21 G-57	-	-	-	-	-	-	-	-	-	-	-	-	$0
22 G-58	2,568	3,712	3,610	3,395	1,946	1,724	1,767	1,767	1,874	2,018	2,915	3,167	$30,464
23 Total C/I	$5,793,041	$5,040,967	$4,628,105	$3,238,583	$2,127,524	$1,592,075	$1,530,907	$1,557,114	$1,634,963	$2,297,153	$3,933,005	$5,264,372	$38,637,808
24													
25 Total	$13,224,378	$11,502,943	$10,373,862	$7,019,179	$4,767,256	$3,512,327	$3,341,426	$3,376,936	$3,571,508	$5,211,042	$8,669,336	$11,889,232	$86,459,425

							Calculated						
Calendar Month Weather Normal Base Rev Adj at EOY Rates	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26 R-1	$1,084	$961	$1,014	$913	$876	$800	$0	$0	$0	$0	$0	$0	$5,648
27 R-3	$86,381	$75,094	$66,561	$43,504	$30,101	$21,693	$0	$0	$0	$0	$0	$0	$323,333
28 R-4	$2,830	$2,438	$2,184	$1,430	$985	$718	$0	$0	$0	$0	$0	$0	$10,585
29 R-5	$9	$10	$11	$12	$17	$17	$15	$14	$15	$15	$16	$16	$168
30 R-6	$20	$22	$23	$29	$96	$70	$44	$41	$46	$49	$54	$54	$547
31 R-7	$0	$0	$0	$0	$1	$0	$0	$0	$0	$0	$0	$0	$3
32 Total Residential	$90,324	$78,525	$69,792	$45,889	$32,075	$23,298	$60	$55	$62	$64	$70	$71	$340,286
33													
34 G-41	$27,228	$23,733	$21,360	$14,260	$10,008	$7,540	$0	$0	$0	$0	$0	$0	$104,130
35 G-42	$26,958	$23,553	$21,224	$14,042	$8,834	$5,632	$0	$0	$0	$0	$0	$0	$100,243
36 G-43	$6,337	$5,399	$4,985	$3,360	$1,336	$937	$0	$0	$0	$0	$0	$0	$22,355
37 G-44	$1	$2	$2	$2	$3	$2	$0	$0	$0	$0	$0	$0	$11
38 G-45	$11	$10	$11	$11	$37	$17	$0	$0	$0	$0	$0	$0	$96
39 G-46	$0	$11	$23	$34	$45	$57	$0	$0	$0	$0	$0	$0	$170
40 G-51	$2,131	$1,881	$1,938	$1,708	$1,645	$1,502	$0	$0	$0	$0	$0	$0	$10,804
41 G-52	$3,390	$2,956	$3,028	$2,610	$1,884	$1,713	$0	$0	$0	$0	$0	$0	$15,582
42 G-53	$3,054	$2,514	$2,457	$2,030	$1,035	$922	$0	$0	$0	$0	$0	$0	$12,013
43 G-54	$1,281	$1,167	$1,177	$1,256	$896	$899	$0	$0	$0	$0	$0	$0	$6,676
44 G-55	$3	$2	$3	$3	$3	$3	$0	$0	$0	$0	$0	$0	$17
45 G-56	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
46 G-57	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47 G-58	$12	$11	$12	$12	$23	$20	$0	$0	$0	$0	$0	$0	$90
48 Total C/I	$70,406	$61,242	$56,219	$39,327	$25,750	$19,244	$0	$0	$0	$0	$0	$0	$272,187
49													
50 Total	$160,729	$139,767	$126,011	$85,216	$57,825	$42,542	$60	$55	$62	$64	$70	$71	$612,472

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Test Year Ending December 31, 2019
<u>Development of Calendar Month Weather Normalized Base Revenues</u>

							Calculated						
Calendar Month Weather Normal Base Revenues at EOY Rates	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
1 R-1	$ 90,773	$ 80,487	$ 84,912	$ 76,520	$ 73,434	$ 67,029	$ 66,076	$ 66,535	$ 65,795	$ 71,674	$ 77,608	88,362	$909,206
2 R-3	$ 7,177,583	$ 6,240,178	$ 5,533,508	$ 3,620,531	$ 2,509,090	$ 1,811,213	$ 1,684,968	$ 1,695,145	$ 1,809,174	$ 2,746,731	$ 4,493,734	6,316,317	$45,638,172
3 R-4	$ 231,668	$ 199,524	$ 178,463	$ 116,481	$ 79,756	$ 57,853	$ 52,319	$ 51,309	$ 53,157	$ 81,790	$ 141,183	190,009	$1,433,511
4 R-5	$ 1,925	$ 1,919	$ 1,904	$ 1,670	$ 1,481	$ 1,488	$ 1,509	$ 1,388	$ 1,593	$ 1,812	$ 2,272	2,521	$21,481
5 R-6	$ 19,635	$ 18,321	$ 16,695	$ 11,231	$ 8,000	$ 5,936	$ 5,676	$ 5,471	$ 6,855	$ 11,890	$ 21,498	27,584	$158,791
6 R-7	$ 77	$ 72	$ 67	$ 53	$ 45	$ 33	$ 31	$ 28	$ 33	$ 57	$ 107	138	$742
7 Total Residential	$7,521,660	$6,540,502	$5,815,550	$3,826,485	$2,671,807	$1,943,551	$1,810,579	$1,819,877	$1,936,606	$2,913,953	$4,736,401	$6,624,931	$48,161,903
8													
9 G-41	$ 2,264,401	$ 1,973,915	$ 1,777,690	$ 1,188,393	$ 835,359	$ 630,220	$ 600,531	$ 599,223	$ 620,369	$ 877,370	$ 1,437,750	1,982,533	$14,787,756
10 G-42	$ 2,246,068	$ 1,962,433	$ 1,768,370	$ 1,170,033	$ 736,078	$ 469,305	$ 418,536	$ 432,779	$ 497,941	$ 824,405	$ 1,456,621	2,030,089	$14,012,658
11 G-43	$ 527,705	$ 449,633	$ 415,125	$ 279,848	$ 111,172	$ 77,943	$ 71,518	$ 70,704	$ 75,425	$ 111,359	$ 330,929	471,437	$2,992,799
12 G-44	$ 476	$ 482	$ 415	$ 283	$ 220	$ 180	$ 189	$ 264	$ 298	$ 777	$ 1,345	1,806	$6,735
13 G-45	$ 7,873	$ 6,963	$ 5,994	$ 3,801	$ 3,113	$ 1,401	$ 1,140	$ 2,015	$ 3,833	$ 7,106	$ 11,663	14,663	$69,565
14 G-46	$ -	$ 943	$ 1,887	$ 2,830	$ 3,773	$ 4,717	$ 5,660	$ 6,604	$ 7,547	$ 8,490	$ 9,434	10,377	$62,262
15 G-51	$ 177,119	$ 156,405	$ 161,170	$ 142,146	$ 136,995	$ 125,110	$ 125,347	$ 131,120	$ 127,160	$ 135,859	$ 148,830	167,986	$1,735,247
16 G-52	$ 281,837	$ 245,759	$ 251,897	$ 217,343	$ 157,571	$ 143,273	$ 145,459	$ 151,356	$ 148,770	$ 164,333	$ 241,496	275,201	$2,424,297
17 G-53	$ 249,154	$ 205,176	$ 200,567	$ 165,764	$ 89,151	$ 79,252	$ 78,795	$ 80,594	$ 76,558	$ 88,218	$ 174,510	204,212	$1,691,952
18 G-54	$ 105,845	$ 96,421	$ 97,226	$ 103,763	$ 77,590	$ 77,932	$ 81,733	$ 80,439	$ 74,947	$ 76,940	$ 117,178	102,513	$1,092,528
19 G-55	$ 389	$ 355	$ 360	$ 297	$ 282	$ 241	$ 231	$ 248	$ 241	$ 277	$ 333	389	$3,642
20 G-56	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-	$0
21 G-57	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-	$0
22 G-58	$ 2,580	$ 3,723	$ 3,622	$ 3,406	$ 1,969	$ 1,744	$ 1,767	$ 1,767	$ 1,874	$ 2,018	$ 2,915	3,167	$30,553
23 Total C/I	$5,863,447	$5,102,208	$4,684,323	$3,277,909	$2,153,274	$1,611,318	$1,530,907	$1,557,114	$1,634,963	$2,297,153	$3,933,005	$5,264,372	$38,909,995
24													
25 Total	$13,385,107	$11,642,710	$10,499,873	$7,104,395	$4,825,081	$3,554,869	$3,341,486	$3,376,991	$3,571,570	$5,211,107	$8,669,406	$11,889,303	$87,071,898

							Calculated						
Calendar Month Weather Normal Low-Inc Discount at EOY Rates	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
26 R-4 Cust	6,207	5,598	6,170	5,877	5,958	5,683	5,713	5,573	5,312	5,665	5,882	5,877	69,515
27 R-3 Cust Charge	$ 15.20	$ 15.20	$ 15.20	$ 15.20	$ 15.20	$ 15.20	$ 15.20	$ 15.20	$ 15.20	$ 15.20	$ 15.20	15.20	
28 Customer Revenue at R-3 Rate	$94,369	$85,103	$93,802	$89,339	$90,581	$86,391	$86,846	$84,726	$80,763	$86,126	$89,416	$89,350	$1,056,811
29													
30 R-7 Cust	1	1	1	2	3	3	3	3	3	3	3	3	29
31 R-6 Cust Charge	$ 19.76	$ 19.76	$ 19.76	$ 19.76	$ 19.76	$ 19.76	$ 19.76	$ 19.76	$ 19.76	$ 19.76	$ 19.76		
32 Customer Revenue at R-6 Rate	$20	$20	$20	$36	$59	$59	$61	$55	$61	$59	$61	$59	$575
33 Customer Revenue at R-3/6 Rate	$94,390	$85,124	$93,822	$89,375	$90,640	$86,452	$86,907	$84,781	$80,824	$86,185	$89,477	$89,409	$1,057,386
34													
35 R-4 Volume	870,449	742,805	632,640	362,448	195,398	104,607	78,949	78,217	93,638	212,528	473,230	692,517	4,537,425
36 R-3 Rate	$0.5569	$0.5569	$0.5569	$0.5569	$0.5569	$0.5569	$0.5569	$0.5569	$0.5569	$0.5569	$0.5569	$0.5569	
37 Dist Revenue at R-3 Rate	$484,741	$413,658	$352,308	$201,842	$108,814	$58,254	$43,966	$43,558	$52,145	$118,354	$263,535	$385,653	$2,526,829
38													
39 R-7 Volume	236	219	205	132	74	29	23	21	31	116	286	395	1,767
40 R-6 Rate	$0.7240	$0.7240	$0.7240	$0.7240	$0.7240	$0.7240	$0.7240	$0.7240	$0.7240	$0.7240	$0.7240	$0.7240	
41 Dist Revenue at R-6 Rate	$171	$159	$149	$96	$53	$21	$17	$15	$22	$84	$207	$286	$1,280
42 Dist Revenue at R-4/6 Rate	$484,912	$413,817	$352,457	$201,938	$108,868	$58,275	$43,983	$43,573	$52,168	$118,438	$263,742	$385,939	$2,528,108
43													
44 Base Revenue at R-3/6 Rate	$579,302	$498,940	$446,278	$291,313	$199,508	$144,727	$130,890	$128,354	$132,992	$204,623	$353,219	$475,348	$3,585,494
45 Base Revenue at R-4/7 Rate	$ 231,745	$ 199,596	$ 178,531	$ 116,533	$ 79,801	$ 57,886	$ 52,350	$ 51,337	$ 53,190	$ 81,847	$ 141,290	190,147	$1,434,253
46 Low-Inc Base Rate Discount Rev	$347,557	$299,344	$267,748	$174,780	$119,707	$86,841	$78,540	$77,017	$79,801	$122,776	$211,929	$285,201	$2,151,241

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Current Base Distribution Rates

Current Base Distribution Rates

Rate			Cur	Prop	Cur COG & LDAC
R1	Customer Charge		$ 15.50	$ 17.99	
	Winter	Charge for 1st Therms	$ 0.3860	$ 0.4137	
	LDAC Charge		$ 0.0310	$ 0.0329	$ 0.03100
	Energy Charge	Charge for Therms over 1st	$ 0.3860	$ 0.4137	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2679	$ 0.2660	$ 0.26790
	Summer	Charge for 1st Therms	$ 0.3860	$ 0.4137	
	LDAC Charge		$ 0.0310	$ 0.0329	$ 0.03100
	Energy Charge	Charge for Therms over 1st	$ 0.3860	$ 0.4137	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3715	$ 0.3738	$ 0.37150
R3	Customer Charge		$ 15.50	$ 17.99	
	Winter	Charge for 1st Therms	$ 0.5678	$ 0.6520	
	LDAC Charge		$ 0.0310	$ 0.0329	$ 0.03100
	Energy Charge	Charge for Therms over 1st	$ 0.5678	$ 0.6520	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2679	$ 0.2660	$ 0.26790
	Summer	Charge for 1st Therms	$ 0.5678	$ 0.6520	
	LDAC Charge		$ 0.0310	$ 0.0329	$ 0.03100
	Energy Charge	Charge for Therms over 1st	$ 0.5678	$ 0.6520	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3715	$ 0.3738	$ 0.37150
R4	Customer Charge		$ 6.20	$ 7.20	
	Winter	Charge for 1st Therms	$ 0.2272	$ 0.2608	
	LDAC Charge		$ 0.0310	$ 0.0329	$ 0.03100
	Energy Charge	Charge for Therms over 1st	$ 0.2272	$ 0.2608	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2679	$ 0.2660	$ 0.26790
	Summer	Charge for 1st Therms	$ 0.2272	$ 0.2608	
	LDAC Charge		$ 0.0310	$ 0.0329	$ 0.03100
	Energy Charge	Charge for Therms over 1st	$ 0.2272	$ 0.2608	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3715	$ 0.3738	$ 0.37150
41	Customer Charge		$ 57.46	$ 66.71	
	Winter	Charge for 1st Therms	$ 0.4711	$ 0.5433	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.3165	$ 0.3650	
	Block Size	Cutoff for First Block	100	100	
	Cost of Gas	Cost of Gas Rate	$ 0.2666	$ 0.2647	$ 0.26660
	Summer	Charge for 1st Therms	$ 0.4711	$ 0.5433	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.3165	$ 0.3650	
	Block Size	Cutoff for First Block	20	20	
	Cost of Gas	Cost of Gas Rate	$ 0.3669	$ 0.3692	$ 0.36690
42	Customer Charge		$ 172.39	$ 200.14	
	Winter	Charge for 1st Therms	$ 0.4284	$ 0.4999	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.2855	$ 0.3331	
	Block Size	Cutoff for First Block	1,000	1,000	
	Cost of Gas	Cost of Gas Rate	$ 0.2666	$ 0.2647	$ 0.26660
	Summer	Charge for 1st Therms	$ 0.4284	$ 0.4999	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.2855	$ 0.3331	
	Block Size	Cutoff for First Block	400	400	
	Cost of Gas	Cost of Gas Rate	$ 0.3669	$ 0.3692	$ 0.36690

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Current Base Distribution Rates

Current Base Distribution Rates

Rate			Cur	Prop	Cur COG & LDAC
43	Customer Charge		$ 739.83	$ 858.91	
	Winter	Charge for 1st Therms	$ 0.2633	$ 0.3126	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.2633	$ 0.3126	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2666	$ 0.2647	$ 0.26660
	Summer	Charge for 1st Therms	$ 0.1204	$ 0.1429	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.1204	$ 0.1429	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3669	$ 0.3692	$ 0.36690
51	Customer Charge		$ 57.46	$ 66.71	
	Winter	Charge for 1st Therms	$ 0.2839	$ 0.3408	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.1846	$ 0.2216	
	Block Size	Cutoff for First Block	100	100	
	Cost of Gas	Cost of Gas Rate	$ 0.2734	$ 0.2715	$ 0.27340
	Summer	Charge for 1st Therms	$ 0.2839	$ 0.3408	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.1846	$ 0.2216	
	Block Size	Cutoff for First Block	100	100	
	Cost of Gas	Cost of Gas Rate	$ 0.3786	$ 0.3809	$ 0.37860
52	Customer Charge		$ 172.39	$ 200.14	
	Winter	Charge for 1st Therms	$ 0.2439	$ 0.2926	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.1624	$ 0.1948	
	Block Size	Cutoff for First Block	1,000	1,000	
	Cost of Gas	Cost of Gas Rate	$ 0.2734	$ 0.2715	$ 0.27340
	Summer	Charge for 1st Therms	$ 0.1767	$ 0.2120	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.1004	$ 0.1205	
	Block Size	Cutoff for First Block	1,000	1,000	
	Cost of Gas	Cost of Gas Rate	$ 0.3786	$ 0.3809	$ 0.37860
53	Customer Charge		$ 761.39	$ 883.94	
	Winter	Charge for 1st Therms	$ 0.1705	$ 0.2092	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.1705	$ 0.2092	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2734	$ 0.2715	$ 0.27340
	Summer	Charge for 1st Therms	$ 0.0818	$ 0.1003	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.0818	$ 0.1003	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3786	$ 0.3809	$ 0.37860
54	Customer Charge		$ 761.39	$ 883.94	
	Winter	Charge for 1st Therms	$ 0.0650	$ 0.0900	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.0650	$ 0.0900	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2734	$ 0.2715	$ 0.27340
	Summer	Charge for 1st Therms	$ 0.0353	$ 0.0488	
	LDAC Charge		$ 0.0478	$ 0.0497	$ 0.04780
	Energy Charge	Charge for Therms over 1st	$ 0.0353	$ 0.0488	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3786	$ 0.3809	$ 0.37860

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Current Base Distribution Rates

Current Base Distribution Rates

Rate			Cur	Prop	Cur COG & LDAC
R5	Customer Charge		$ 20.15	$ 23.39	
	Winter	Charge for 1st Therms	$ 0.5018	$ 0.5378	
	LDAC Charge		$ 0.0310	$ 0.0329	
	Energy Charge	Charge for Therms over 1st	$ 0.5018	$ 0.5378	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2679	$ 0.2660	
	Summer	Charge for 1st Therms	$ 0.5018	$ 0.5378	
	LDAC Charge		$ 0.0310	$ 0.0329	
	Energy Charge	Charge for Therms over 1st	$ 0.5018	$ 0.5378	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3715	$ 0.3738	
R6	Customer Charge		$ 20.15	$ 23.39	
	Winter	Charge for 1st Therms	$ 0.7381	$ 0.8476	
	LDAC Charge		$ 0.0310	$ 0.0329	
	Energy Charge	Charge for Therms over 1st	$ 0.7381	$ 0.8476	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2679	$ 0.2660	
	Summer	Charge for 1st Therms	$ 0.7381	$ 0.8476	
	LDAC Charge		$ 0.0310	$ 0.0329	
	Energy Charge	Charge for Therms over 1st	$ 0.7381	$ 0.8476	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3715	$ 0.3738	
R7	Customer Charge		$ 8.06	$ 9.36	
	Winter	Charge for 1st Therms	$ 0.2953	$ 0.3390	
	LDAC Charge		$ 0.0310	$ 0.0329	
	Energy Charge	Charge for Therms over 1st	$ 0.2953	$ 0.3390	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2679	$ 0.2660	
	Summer	Charge for 1st Therms	$ 0.2953	$ 0.3390	
	LDAC Charge		$ 0.0310	$ 0.0329	
	Energy Charge	Charge for Therms over 1st	$ 0.2953	$ 0.3390	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3715	$ 0.3738	
44	Customer Charge		$ 74.70	$ 86.72	
	Winter	Charge for 1st Therms	$ 0.6125	$ 0.7063	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.4114	$ 0.4745	
	Block Size	Cutoff for First Block	100	100	
	Cost of Gas	Cost of Gas Rate	$ 0.2666	$ 0.2647	
	Summer	Charge for 1st Therms	$ 0.6125	$ 0.7063	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.4114	$ 0.4745	
	Block Size	Cutoff for First Block	20	20	
	Cost of Gas	Cost of Gas Rate	$ 0.3669	$ 0.3692	
45	Customer Charge		$ 224.11	$ 260.18	
	Winter	Charge for 1st Therms	$ 0.5569	$ 0.6498	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.3711	$ 0.4330	
	Block Size	Cutoff for First Block	1,000	1,000	
	Cost of Gas	Cost of Gas Rate	$ 0.2666	$ 0.2647	
	Summer	Charge for 1st Therms	$ 0.5569	$ 0.6498	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.3711	$ 0.4330	
	Block Size	Cutoff for First Block	400	400	
	Cost of Gas	Cost of Gas Rate	$ 0.3669	$ 0.3692	

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Current Base Distribution Rates

Current Base Distribution Rates

Rate			Cur	Prop	Cur COG & LDAC
46	Customer Charge		$ 961.78	$ 1,116.58	
	Winter	Charge for 1st Therms	$ 0.3423	$ 0.4064	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.3423	$ 0.4064	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2666	$ 0.2647	
	Summer	Charge for 1st Therms	$ 0.1565	$ 0.1858	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.1565	$ 0.1858	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3669	$ 0.3692	
55	Customer Charge		$ 74.69	$ 86.72	
	Winter	Charge for 1st Therms	$ 0.3691	$ 0.4430	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.2400	$ 0.2881	
	Block Size	Cutoff for First Block	100	100	
	Cost of Gas	Cost of Gas Rate	$ 0.2734	$ 0.2715	
	Summer	Charge for 1st Therms	$ 0.3691	$ 0.4430	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.2400	$ 0.2881	
	Block Size	Cutoff for First Block	100	100	
	Cost of Gas	Cost of Gas Rate	$ 0.3786	$ 0.3809	
56	Customer Charge		$ 224.11	$ 260.18	
	Winter	Charge for 1st Therms	$ 0.3170	$ 0.3804	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.2111	$ 0.2533	
	Block Size	Cutoff for First Block	1,000	1,000	
	Cost of Gas	Cost of Gas Rate	$ 0.2734	$ 0.2715	
	Summer	Charge for 1st Therms	$ 0.2297	$ 0.2756	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.1306	$ 0.1566	
	Block Size	Cutoff for First Block	1,000	1,000	
	Cost of Gas	Cost of Gas Rate	$ 0.3786	$ 0.3809	
57	Customer Charge		$ 989.81	$ 1,149.12	
	Winter	Charge for 1st Therms	$ 0.2216	$ 0.2720	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.2216	$ 0.2720	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2734	$ 0.2715	
	Summer	Charge for 1st Therms	$ 0.1063	$ 0.1305	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.1063	$ 0.1305	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3786	$ 0.3809	
58	Customer Charge		$ 989.81	$ 1,149.12	
	Winter	Charge for 1st Therms	$ 0.0846	$ 0.1170	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.0846	$ 0.1170	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.2734	$ 0.2715	
	Summer	Charge for 1st Therms	$ 0.0459	$ 0.0634	
	LDAC Charge		$ 0.0478	$ 0.0497	
	Energy Charge	Charge for Therms over 1st	$ 0.0459	$ 0.0634	
	Block Size	Cutoff for First Block	-	-	
	Cost of Gas	Cost of Gas Rate	$ 0.3786	$ 0.3809	

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Rate Design Analysis and Calculations

	Residential						Commercial and Industrial: Low Load Factor						Commercial and Industrial: High Load Factor									
Line	Non Heat R-1	MEP Non Heat R-5	Heat R-3	MEP Heat R-6	Low Income Heat R-4	MEP Low Income Heat R-7	Low Annual G-41	MEP Low Annual G-44	Medium Annual G-42	MEP Medium Annual G-45	High Annual G-43	MEP High Annual G-46	Low Annual G-51	MEP Low Annual G-55	Medium Annual G-52	MEP Medium Annual G-56	High Annual G-53	MEP High Annual G-57	High Annual G-54	MEP High Annual G-58	Company Total	Explanation

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Rate Design Analysis and Calculations

Line	(A)	Residential						Commercial and Industrial: Low Load Factor						Commercial and Industrial: High Load Factor								Company Total	Explanation
		Non Heat R-1	MEP Non Heat R-5	Heat R-3	MEP Heat R-6	Low Income Heat R-4	MEP Low Income Heat R-7	Low Annual G-41	MEP Low Annual G-44	Medium Annual G-42	MEP Medium Annual G-45	High Annual G-43	MEP High Annual G-46	Low Annual G-51	MEP Low Annual G-55	Medium Annual G-52	MEP Medium Annual G-56	High Annual G-53	MEP High Annual G-57	High Annual G-54	MEP High Annual G-58	(V)	(W)
		(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	(U)		
134	**Winter Volumetric Rates**																						
135	Headblock	$0.4137	$0.5378	$0.6520	$0.8476	$0.2608	$0.3390	$0.5433	$0.7063	$0.4999	$0.6498	$0.3126	$0.4064	$0.3408	$0.4430	$0.2926	$0.3804	$0.2092	$0.2720	$0.0900	$0.1170		Goal seek
136	Tailblock	$0.4137	$0.5378	$0.6520	$0.8476	$0.2608	$0.3390	$0.3650	$0.4745	$0.3331	$0.4330	$0.3126	$0.4064	$0.2216	$0.2881	$0.1948	$0.2533	$0.2092	$0.2720	$0.0900	$0.1170		Line 127 * Line 135
137	**Summer Volumetric Rates**																						
138	Headblock	$0.4137	$0.5378	$0.6520	$0.8476	$0.2608	$0.3390	$0.4999	$0.6498	$0.3331	$0.4330	$0.1429	$0.1858	$0.3408	$0.4430	$0.2120	$0.2756	$0.1003	$0.1305	$0.0488	$0.0634		Line 131 * Line 135
139	Tailblock	$0.4137	$0.5378	$0.6520	$0.8476	$0.2608	$0.3390	$0.3650	$0.4745	$0.3331	$0.4330	$0.1429	$0.1858	$0.2216	$0.2881	$0.1205	$0.1566	$0.1003	$0.1305	$0.0488	$0.0634		Line 132 * Line 136
140																							
141	Class volumetric revenue	$297,656	$8,364	$38,071,771	$140,028	$1,173,733	$599	$10,037,370	$5,161	$13,380,782	$66,325	$3,115,408	$0	$1,030,692	$1,185	$2,019,196	$0	$1,724,680	$0	$1,202,318	$26,434		Line 138 + Line 46 * Line 139
142	Total Revenue (Base plus MEP)	$306,020		$39,386,131				$10,042,532		$13,447,107		$3,115,408		$1,031,877		$2,019,196		$1,724,680		$1,228,753			Σ volumetric revenues for related classes
143	Over/(under)/recovery	$0		$0				$0		$0		$0		$0		$0		$0		$0		$0	Line 142 - Line 121
144	**E. LOW INCOME DISCOUNT AND RLIAP CALCULATION**																						
145	Base Revenues before RLIAP Discount																						
146	Customer Revenue					$1,241,369	$524																Line 26 * Line 100
147	Winter Period Variable Rates																						
148	Head Block					$2,438,916	$961																Line 36 * Line 135
149	Tail Block					$0	$0																Line 37 * Line 136
150	Summer Period Variable Rates																						
151	Head Block					$495,418	$191																Line 45 * Line 138
152	Tail Block					$0	$0																Line 46 * Line 139
153	Total Base Revenue before Low Income Discount					$4,175,703	$1,676															$4,177,379	Σ Line 146 to Line 152
154																							
155	Low Income Discount % of Distribution Rates					60.00%	60.00%																Master Inputs
156	Total discount (revenue shortfall)					$2,505,422	$1,005															$2,506,427	Line 153 * Line 155
157	Low Income RLIAP rate ($/therm)																					$0.0141	Line 47 * Line 156 / Line 47
158	RLIAP Revenues	$10,159	$220	$824,453	$2,333	$63,544	$25	$350,762	$143	$492,827	$1,885	$180,409	$0	$57,839	$50	$138,448	$0	$147,198	$0	$254,182	$3,936	$2,506,427	Line 47 * Line 157 Col (V)
159	Increase in RLIAP Rate																					$0.0019	Line 157 - Line 12
160																							
161	**F. CHECK**																						
162	Revenue Target	$1,068,307		$55,918,773				$17,611,699		$16,912,068		$3,747,195		$2,083,871		$2,979,549		$2,087,714		$1,526,832		**$103,936,009**	
163	Customer Revenue	$762,287		$16,532,643				$7,569,167		$3,464,961		$631,787		$1,051,994		$960,353		$363,034		$298,079		**$31,634,305**	
164	Volumetric Revenue	$306,020		$39,386,131				$10,042,532		$13,447,107		$3,115,408		$1,031,877		$2,019,196		$1,724,680		$1,228,753		**$72,301,703**	
165	Check	$0		$0				$0		$0		$0		($0)		$0		$0		$0		**$0**	
166																							
167	**G. COMPONENT RATE CHANGES**																						
168		R-1	R-5	R-3	R-6	R-4	R-7	G-41	G-44	G-42	G-45	G-43	G-46	G-51	G-55	G-52	G-56	G-53	G-57	G-54	G-58		
169	Customer charge																						
170	Current tariff	$15.50	$20.15	$15.50	$20.15	$6.20	$8.06	$57.46	$74.70	$172.39	$224.11	$739.83	$961.78	$57.46	$74.69	$172.39	$224.11	$761.39	$989.81	$761.39	$989.81		
171	Proposed	$17.99	$23.39	$17.99	$23.39	$7.20	$9.36	$66.71	$86.72	$200.14	$260.18	$858.91	$1,116.58	$66.71	$86.72	$200.14	$260.18	$883.94	$1,149.12	$883.94	$1,149.12		
172	% increase	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%		
173																							
174	Winter Headblock																						
175	Current tariff	$0.3860	$0.50	$0.5678	$0.74	$0.2272	$0.30	$0.4711	$0.61	$0.4284	$0.56	$0.2633	$0.34	$0.2839	$0.37	$0.2439	$0.32	$0.1705	$0.22	$0.0850	$0.08		
176	Proposed	$0.4137	$0.5378	$0.6520	$0.8476	$0.2608	$0.3390	$0.5433	$0.7063	$0.4999	$0.6498	$0.3126	$0.4064	$0.3408	$0.4430	$0.2926	$0.3804	$0.2092	$0.2720	$0.0900	$0.1170		
177	% increase	7.2%	7.2%	14.8%	14.8%	14.8%	14.8%	15.3%	15.3%	16.7%	16.7%	18.7%	18.7%	20.0%	20.0%	20.0%	20.0%	22.7%	22.7%	38.3%	38.3%		
178																							
179	Winter Tailblock																						
180	Current tariff							$0.3165	$0.41	$0.2855	$0.37			$0.1846	$0.24	$0.1624	$0.21						
181	Proposed							$0.3650	$0.4745	$0.3331	$0.4330			$0.2216	$0.2881	$0.1948	$0.2533						
182	% increase							15.3%	15.3%	16.7%	16.7%			20.0%	20.0%	20.0%	20.0%						
183																							
184	Summer Headblock																						
185	Current tariff	$0.3860	$0.50	$0.5678	$0.74	$0.2272	$0.30	$0.4284	$0.56	$0.3331	$0.56	$0.1204	$0.16	$0.2839	$0.37	$0.1767	$0.23	$0.0818	$0.11	$0.0353	$0.05		
186	Proposed	$0.4137	$0.5378	$0.6520	$0.8476	$0.2608	$0.3390	$0.5433	$0.7063	$0.4999	$0.6498	$0.1429	$0.1858	$0.3408	$0.4430	$0.2120	$0.2756	$0.1003	$0.1305	$0.0488	$0.0634		
187	% increase	7.2%	7.2%	14.8%	14.8%	14.8%	14.8%	15.3%	15.3%	16.7%	16.7%	18.7%	18.7%	20.0%	20.0%	20.0%	20.0%	22.7%	22.7%	38.3%	38.3%		
188																							
189	Summer Tailblock																						
190	Current tariff							$0.3165	$0.41	$0.2855	$0.37			$0.1846	$0.24	$0.1004	$0.13						
191	Proposed							$0.3650	$0.4745	$0.3331	$0.4330			$0.2216	$0.2881	$0.1205	$0.1566						
192	% increase							15.3%	15.3%	16.7%	16.7%			20.0%	20.0%	20.0%	20.0%						

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Indirect Gas Costs Analysis

Docket No. DG 20-105
Attachment RATES-6
Page 1 of 1

Line	Description	Residential — Non Heat R-1 (A)	Heat R-3 (B)	Low Income Heat R-4 (C)	C&I Low Load Factor — Low Annual G-41 (D)	Medium Annual G-42 (E)	High Annual G-43 (F)	C&I High Load Factor — Low Annual G-51 (G)	Medium Annual G-52 (H)	High Annual G-53 (I)	High Annual G-54 (J)	Company Total (K)	Explanation (L)
1	LP and LNG Costs											$ 1,708,977	FCOS
2	Winter Sales Volumes	496,608	48,113,991	3,775,563	3,696,529	3,820,500	2,390,624	402,620	799,290	585,444	71,792	64,152,960	Company Records
3	Unit Cost in COGC											$ 0.02660	Line 1 / Line 2
4	Class Revenues	$ 13,210	$ 1,279,832	$ 100,430	$ 98,328	$ 101,625	$ 63,591	$ 10,710	$ 21,261	$ 15,573	$ 1,910	$ 1,706,469	Line 2 x Line 3
5													
6	Bad Debt Costs											$ 5,083	FCOS
7	Annual Sales Volumes	735,069	58,558,712	4,502,373	19,431,444	16,527,518	3,134,919	3,001,166	3,428,240	977,333	163,438	110,460,211	Company Records
8	Unit Cost in COGC											$ 0.00005	Line 6 / Line 7
9	Class Revenues	$ 34	$ 2,694	$ 207	$ 894	$ 760	$ 144	$ 138	$ 158	$ 45	$ 8	$ 5,081	Line 7 x Line 8
10													
11	Gas Working Capital											$ -	FCOS
12	Annual Sales Volumes	735,069	58,558,712	4,502,373	19,431,444	16,527,518	3,134,919	3,001,166	3,428,240	977,333	163,438	110,460,211	Company Records
13	Unit Cost in COGC											$ -	Line 11 / Line 12
14	Class Revenues	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Line 12 x Line 13
15													
16	Other A&G and Misc.											$ 295,177	FCOS
17	Annual Sales Volumes	735,069	58,558,712	4,502,373	19,431,444	16,527,518	3,134,919	3,001,166	3,428,240	977,333	163,438	110,460,211	Company Records
18	Unit Cost in COGC											$ 0.00267	Line 16 / Line 17
19	Class Revenues	$ 1,964	$ 156,469	$ 12,030	$ 51,921	$ 44,162	$ 8,377	$ 8,019	$ 9,160	$ 2,611	$ 437	$ 295,150	Line 17 x Line 18
20													
21	Total Indirect Costs	$ 15,208	$ 1,438,995	$ 112,667	$ 151,142	$ 146,547	$ 72,111	$ 18,867	$ 30,579	$ 18,229	$ 2,354	$ 2,006,700	Σ Cols A-J
22													
23	Total from FCOS											$ 2,009,237	Σ Lines 1, 6, 11, 16
24	Variance												
25	$s											$ (2,537)	Line 21 - Line 23
26	%											-0.13%	Line 25 / Line 23
27													
28													

Line		Currently effective — 2020 Summer COG Filing	2019-2020 Winter COG Filing		Rate case — Summer	Winter			COG Adder for Rate Case — Summer	Winter
29										
30										
31	LP and LNG Costs	$ -	$ 1,980,428			$ 1,708,977				
32	Bad Debt Costs	12,571	17,415	29,986	2,131	2,952	$ 5,083			
33	Gas Working Capital									
34	Other A&G and Misc.	5,521	7,649	13,170	123,744	171,432	$ 295,177			
35	Total Indirect Costs	$ 18,092	$ 2,005,492		$ 125,875	$ 1,883,362				
36										
37	Volumes	46,307,251	64,152,960	110,460,211	46,307,251	64,152,960	110,460,211			
38	Indirect Gas Rate	$ 0.0004	$ 0.0313		$ 0.0027	$ 0.0294			$ 0.0023	$ (0.0019)

Line		Currently effective — 2020 Summer COG Filing	2019-2020 Winter COG Filing	
39	LP and LNG Costs	$ -	$ 1,980,428	
40	Bad Debt Costs	$ 353,092	$ 1,012,101	per company
41	Gas Working Capital	$ 22,172	$ 142,623	per company
42	Other A&G and Misc.	$ 2,521	$ 10,649	
43	Total	$ 377,785	$ 3,145,801	

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Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE R-1 : RESIDENTIAL NON-HEATING

Line				
1	**Present Rates**		Winter	Summer
2	Cost of Gas		$0.4737	$0.3715
3	LDAC		$0.0310	$0.0310
4				
5	Customer charge		$15.50	
6	Sales rate			
7	First Block Size			
8	Block 1		$0.3860	$0.3860
9	Block 2		$0.3860	$0.3860

Line				
1	**Proposed Rates**		Winter	Summer
2	Cost of Gas		$0.4718	$0.3738
3	LDAC		$0.0329	$0.0329
4				
5	Customer charge		$17.99	
6	Sales rate			
7	First Block Size			
8	Block 1		$0.4137	$0.4137
9	Block 2		$0.4137	$0.4137

Line	Use per Month (therms)	Monthly Bills at Present Rates						Monthly Bills at Proposed Rates						Change in Monthly Bill				Unit Costs			
		Winter			Summer			Winter			Summer			Winter		Summer		Current		Proposed	
13/14		Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
16	0	$15.50	$0.00	$15.50	$15.50	$0.00	$15.50	$17.99	$0.00	$17.99	$17.99	$0.00	$17.99	$2.49	16.1%	$2.49	16.1%	$0.0000	$0.0000	$0.0000	$0.0000
17	2	$16.27	$1.01	$17.28	$16.27	$0.81	$17.07	$18.82	$1.01	$19.83	$18.82	$0.81	$19.63	$2.55	14.8%	$2.56	15.0%	$8.6391	$8.5369	$9.9139	$9.8159
18	4	$17.04	$2.02	$19.06	$17.04	$1.61	$18.65	$19.65	$2.02	$21.66	$19.65	$1.63	$21.27	$2.60	13.7%	$2.62	14.1%	$4.7649	$4.6627	$5.4161	$5.3181
19	6	$17.81	$3.03	$20.84	$17.81	$2.42	$20.23	$20.47	$3.03	$23.50	$20.47	$2.44	$22.91	$2.66	12.8%	$2.69	13.3%	$3.4735	$3.3713	$3.9169	$3.8189
20	8	$18.58	$4.04	$22.62	$18.58	$3.22	$21.80	$21.30	$4.04	$25.34	$21.30	$3.25	$24.55	$2.72	12.0%	$2.75	12.6%	$2.8278	$2.7256	$3.1672	$3.0692
21	10	$19.36	$5.05	$24.40	$19.36	$4.03	$23.38	$22.13	$5.05	$27.17	$22.13	$4.07	$26.19	$2.77	11.4%	$2.81	12.0%	$2.4404	$2.3382	$2.7175	$2.6195
22	15	$21.29	$7.57	$28.86	$21.29	$6.04	$27.32	$24.20	$7.57	$31.77	$24.20	$6.10	$30.30	$2.91	10.1%	$2.97	10.9%	$1.9238	$1.8216	$2.1178	$2.0198
23	20	$23.22	$10.09	$33.31	$23.22	$8.05	$31.27	$26.26	$10.09	$36.36	$26.26	$8.13	$34.40	$3.05	9.1%	$3.13	10.0%	$1.6655	$1.5633	$1.8179	$1.7199
24	25	$25.15	$12.62	$37.76	$25.15	$10.06	$35.21	$28.33	$12.62	$40.95	$28.33	$10.17	$38.50	$3.19	8.4%	$3.29	9.3%	$1.5106	$1.4084	$1.6380	$1.5400
25	30	$27.08	$15.14	$42.22	$27.08	$12.08	$39.15	$30.40	$15.14	$45.54	$30.40	$12.20	$42.60	$3.32	7.9%	$3.45	8.8%	$1.4073	$1.3051	$1.5181	$1.4201
26	35	$29.01	$17.66	$46.67	$29.01	$14.09	$43.09	$32.47	$17.66	$50.13	$32.47	$14.23	$46.70	$3.46	7.4%	$3.61	8.4%	$1.3335	$1.2313	$1.4324	$1.3344
27	40	$30.94	$20.19	$51.12	$30.94	$16.10	$47.04	$34.54	$20.19	$54.73	$34.54	$16.27	$50.81	$3.60	7.0%	$3.77	8.0%	$1.2781	$1.1759	$1.3681	$1.2701
28	45	$32.87	$22.71	$55.58	$32.87	$18.11	$50.98	$36.61	$22.71	$59.32	$36.61	$18.30	$54.91	$3.74	6.7%	$3.93	7.7%	$1.2351	$1.1329	$1.3182	$1.2202
29	50	$34.80	$25.24	$60.03	$34.80	$20.13	$54.92	$38.68	$25.23	$63.91	$38.68	$20.33	$59.01	$3.88	6.5%	$4.09	7.4%	$1.2006	$1.0984	$1.2782	$1.1802
30	60	$38.66	$30.28	$68.94	$38.66	$24.15	$62.81	$42.81	$30.28	$73.09	$42.81	$24.40	$67.21	$4.15	6.0%	$4.41	7.0%	$1.1490	$1.0468	$1.2182	$1.1202
31	70	$42.52	$35.33	$77.85	$42.52	$28.18	$70.69	$46.95	$35.33	$82.28	$46.95	$28.47	$75.42	$4.43	5.7%	$4.72	6.7%	$1.1121	$1.0099	$1.1754	$1.0774
32	80	$46.38	$40.38	$86.75	$46.38	$32.20	$78.58	$51.09	$40.37	$91.46	$51.09	$32.53	$83.62	$4.71	5.4%	$5.04	6.4%	$1.0844	$0.9822	$1.1432	$1.0452
33	90	$50.24	$45.42	$95.66	$50.24	$36.23	$86.46	$55.22	$45.42	$100.64	$55.22	$36.60	$91.82	$4.98	5.2%	$5.36	6.2%	$1.0629	$0.9607	$1.1183	$1.0203
34	100	$54.10	$50.47	$104.57	$54.10	$40.25	$94.35	$59.36	$50.47	$109.83	$59.36	$40.67	$100.03	$5.26	5.0%	$5.68	6.0%	$1.0457	$0.9435	$1.0983	$1.0003
35	200	$92.70	$100.94	$193.64	$92.70	$80.50	$173.20	$100.73	$100.93	$201.66	$100.73	$81.33	$182.06	$8.03	4.1%	$8.87	5.1%	$0.9682	$0.8660	$1.0083	$0.9103

Line		Use per Month (therms)	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
37	**Estimated Bill Percentiles**																					
38	Winter - 25%	8	$18.58	$4.04	$22.62				$21.30	$4.04	$25.34				$2.72	12.0%			$2.8278		$3.1672	
39	Winter - 50%	20	$23.22	$10.09	$33.31				$26.26	$10.09	$36.36				$3.05	9.1%			$1.6655		$1.8179	
40	Winter - 75%	30	$27.08	$15.14	$42.22				$30.40	$15.14	$45.54				$3.32	7.9%			$1.4073		$1.5181	
41	Summer - 25%	5				$17.43	$2.01	$19.44				$20.06	$2.03	$22.09			$2.65	13.7%		$3.8879		$4.4186
42	Summer - 50%	11				$19.74	$4.43	$24.17				$22.54	$4.47	$27.01			$2.84	11.8%		$2.1973		$2.4559
43	Summer - 75%	20				$23.22	$8.05	$31.27				$26.26	$8.13	$34.40			$3.13	10.0%		$1.5633		$1.7199

Estimated Bill Percentiles per 2010 MCS

Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE R-3 : RESIDENTIAL HEATING

	Present Rates	Winter	Summer		Proposed Rates	Winter	Summer
1	**Present Rates**	Winter	Summer		**Proposed Rates**	Winter	Summer
2	Cost of Gas	$0.4737	$0.3715		Cost of Gas	$0.4718	$0.3738
3	LDAC	$0.0310	$0.0310		LDAC	$0.0329	$0.0329
4							
5	Customer charge	$15.50			Customer charge	$17.99	
6	Sales rate				Sales rate		
7	First Block Size				First Block Size		
8	Block 1	$0.5678	$0.5678		Block 1	$0.6520	$0.6520
9	Block 2	$0.5678	$0.5678		Block 2	$0.6520	$0.6520

Line	Use per Month (therms)	Monthly Bills at Present Rates						Monthly Bills at Proposed Rates						Change in Monthly Bill				Unit Costs			
		Winter			Summer			Winter			Summer			Winter		Summer		Current		Proposed	
		Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
16	0	$15.50	$0.00	$15.50	$15.50	$0.00	$15.50	$17.99	$0.00	$17.99	$17.99	$0.00	$17.99	$2.49	16.1%	$2.49	16.1%	$0.0000	$0.0000	$0.0000	$0.0000
17	10	$21.17	$5.05	$26.22	$21.17	$4.03	$25.20	$24.51	$5.05	$29.56	$24.51	$4.07	$28.58	$3.34	12.7%	$3.38	13.4%	$2.6222	$2.5200	$2.9558	$2.8578
18	25	$29.69	$12.62	$42.31	$29.69	$10.06	$39.75	$34.29	$12.62	$46.91	$34.29	$10.17	$44.46	$4.60	10.9%	$4.70	11.8%	$1.6923	$1.5901	$1.8763	$1.7783
19	50	$43.89	$25.24	$69.12	$43.89	$20.13	$64.01	$50.59	$25.23	$75.82	$50.59	$20.33	$70.92	$6.70	9.7%	$6.91	10.8%	$1.3824	$1.2802	$1.5165	$1.4185
20	75	$58.08	$37.85	$95.93	$58.08	$30.19	$88.27	$66.89	$37.85	$104.74	$66.89	$30.50	$97.39	$8.81	9.2%	$9.12	10.3%	$1.2791	$1.1769	$1.3965	$1.2985
21	100	$72.27	$50.47	$122.74	$72.27	$40.25	$112.52	$83.19	$50.47	$133.66	$83.19	$40.67	$123.86	$10.91	8.9%	$11.33	10.1%	$1.2274	$1.1252	$1.3366	$1.2386
22	125	$86.47	$63.09	$149.56	$86.47	$50.31	$136.78	$99.49	$63.08	$162.57	$99.49	$50.83	$150.32	$13.02	8.7%	$13.54	9.9%	$1.1965	$1.0943	$1.3006	$1.2026
23	150	$100.66	$75.71	$176.37	$100.66	$60.38	$161.04	$115.79	$75.70	$191.49	$115.79	$61.00	$176.79	$15.12	8.6%	$15.75	9.8%	$1.1758	$1.0736	$1.2766	$1.1786
24	175	$114.86	$88.32	$203.18	$114.86	$70.44	$185.30	$132.09	$88.32	$220.40	$132.09	$71.17	$203.25	$17.22	8.5%	$17.96	9.7%	$1.1610	$1.0588	$1.2595	$1.1615
25	200	$129.05	$100.94	$229.99	$129.05	$80.50	$209.55	$148.39	$100.93	$249.32	$148.39	$81.33	$229.72	$19.33	8.4%	$20.17	9.6%	$1.1500	$1.0478	$1.2466	$1.1486
26	225	$143.25	$113.56	$256.80	$143.25	$90.56	$233.81	$164.69	$113.55	$278.24	$164.69	$91.50	$256.19	$21.43	8.3%	$22.38	9.6%	$1.1414	$1.0392	$1.2366	$1.1386
27	250	$157.44	$126.18	$283.62	$157.44	$100.63	$258.07	$180.99	$126.17	$307.15	$180.99	$101.67	$282.65	$23.54	8.3%	$24.59	9.5%	$1.1345	$1.0323	$1.2286	$1.1306
28	275	$171.64	$138.79	$310.43	$171.64	$110.69	$282.32	$197.29	$138.78	$336.07	$197.29	$111.83	$309.12	$25.64	8.3%	$26.80	9.5%	$1.1288	$1.0266	$1.2221	$1.1241
29	300	$185.83	$151.41	$337.24	$185.83	$120.75	$306.58	$213.59	$151.40	$364.99	$213.59	$122.00	$335.59	$27.75	8.2%	$29.01	9.5%	$1.1241	$1.0219	$1.2166	$1.1186
30	350	$214.22	$176.65	$390.86	$214.22	$140.88	$355.09	$246.19	$176.63	$422.82	$246.19	$142.33	$388.52	$31.95	8.2%	$33.42	9.4%	$1.1168	$1.0146	$1.2081	$1.1101
31	400	$242.61	$201.88	$444.49	$242.61	$161.00	$403.61	$278.79	$201.86	$480.65	$278.79	$162.66	$441.45	$36.16	8.1%	$37.84	9.4%	$1.1112	$1.0090	$1.2016	$1.1036
32	450	$271.00	$227.12	$498.11	$271.00	$181.13	$452.12	$311.38	$227.10	$538.48	$311.38	$183.00	$494.38	$40.37	8.1%	$42.26	9.3%	$1.1069	$1.0047	$1.1966	$1.0986
33	500	$299.38	$252.35	$551.73	$299.38	$201.25	$500.63	$343.98	$252.33	$596.32	$343.98	$203.33	$547.32	$44.58	8.1%	$46.68	9.3%	$1.1035	$1.0013	$1.1926	$1.0946
34	750	$441.33	$378.53	$819.85	$441.33	$301.88	$743.20	$506.98	$378.50	$885.48	$506.98	$305.00	$811.98	$65.62	8.0%	$68.77	9.3%	$1.0931	$0.9909	$1.1806	$1.0826
35	1,000	$583.27	$504.70	$1,087.97	$583.27	$402.50	$985.77	$669.98	$504.66	$1,174.64	$669.98	$406.66	$1,076.64	$86.67	8.0%	$90.87	9.2%	$1.0880	$0.9858	$1.1746	$1.0766

Estimated Bill Percentiles

Line		Use per Month (therms)	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Current Winter	Current Summer	Proposed Winter	Proposed Summer
38	Winter - 25%	60	$49.56	$30.28	$79.85				$57.11	$30.28	$87.39				$7.54	9.4%			$1.3308		$1.4565	
39	Winter - 50%	100	$72.27	$50.47	$122.74				$83.19	$50.47	$133.66				$10.91	8.9%			$1.2274		$1.3366	
40	Winter - 75%	175	$114.86	$88.32	$203.18				$132.09	$88.32	$220.40				$17.22	8.5%			$1.1610		$1.2595	
41	Summer - 25%	12				$22.31	$4.83	$27.14				$25.81	$4.88	$30.69			$3.55	13.1%		$2.2617		$2.5579
42	Summer - 50%	20				$26.85	$8.05	$34.90				$31.03	$8.13	$39.16			$4.26	12.2%		$1.7451		$1.9582
43	Summer - 75%	30				$32.53	$12.08	$44.61				$37.55	$12.20	$49.75			$5.15	11.5%		$1.4868		$1.6584

Estimated Bill Percentiles per 2010 MCS

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Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE R-4 : LOW INCOME RESIDENTIAL HEATING

Line			
1	**Present Rates**	Winter	Summer
2	Cost of Gas	$0.4737	$0.3715
3	LDAC	$0.0310	$0.0310
4			
5	Customer charge	$6.20	
6	Sales rate		
7	First Block Size		
8	Block 1	$0.2272	$0.2272
9	Block 2	$0.2272	$0.2272

Proposed Rates	Winter	Summer
Cost of Gas	$0.4718	$0.3738
LDAC	$0.0329	$0.0329
Customer charge	$7.20	
Sales rate		
First Block Size		
Block 1	$0.2608	$0.2608
Block 2	$0.2608	$0.2608

Line	Use per Month (therms)	Monthly Bills at Present Rates						Monthly Bills at Proposed Rates						Change in Monthly Bill				Unit Costs			
		Winter			Summer			Winter			Summer			Winter		Summer		Current		Proposed	
		Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
16	0	$6.20	$0.00	$6.20	$6.20	$0.00	$6.20	$7.20	$0.00	$7.20	$7.20	$0.00	$7.20	$1.00	16.1%	$1.00	16.1%	$0.0000	$0.0000	$0.0000	$0.0000
17	10	$8.47	$5.05	$13.52	$8.47	$4.03	$12.50	$9.80	$5.05	$14.85	$9.80	$4.07	$13.87	$1.33	9.9%	$1.38	11.0%	$1.3517	$1.2495	$1.4851	$1.3871
18	25	$11.88	$12.62	$24.50	$11.88	$10.06	$21.94	$13.72	$12.62	$26.33	$13.72	$10.17	$23.88	$1.84	7.5%	$1.94	8.9%	$0.9798	$0.8776	$1.0533	$0.9553
19	50	$17.56	$25.24	$42.79	$17.56	$20.13	$37.68	$20.24	$25.23	$45.47	$20.24	$20.33	$40.57	$2.68	6.3%	$2.89	7.7%	$0.8558	$0.7536	$0.9094	$0.8114
20	75	$23.24	$37.85	$61.09	$23.24	$30.19	$53.42	$26.76	$37.85	$64.61	$26.76	$30.50	$57.26	$3.52	5.8%	$3.83	7.2%	$0.8145	$0.7123	$0.8614	$0.7634
21	100	$28.91	$50.47	$79.38	$28.91	$40.25	$69.16	$33.28	$50.47	$83.74	$33.28	$40.67	$73.94	$4.36	5.5%	$4.78	6.9%	$0.7938	$0.6916	$0.8374	$0.7394
22	125	$34.59	$63.09	$97.68	$34.59	$50.31	$84.91	$39.80	$63.08	$102.88	$39.80	$50.83	$90.63	$5.20	5.3%	$5.72	6.7%	$0.7814	$0.6792	$0.8230	$0.7250
23	150	$40.27	$75.71	$115.98	$40.27	$60.38	$100.65	$46.32	$75.70	$122.01	$46.32	$61.00	$107.31	$6.04	5.2%	$6.67	6.6%	$0.7732	$0.6710	$0.8134	$0.7154
24	175	$45.95	$88.32	$134.27	$45.95	$70.44	$116.39	$52.84	$88.32	$141.15	$52.84	$71.17	$124.00	$6.88	5.1%	$7.61	6.5%	$0.7673	$0.6651	$0.8066	$0.7086
25	200	$51.63	$100.94	$152.57	$51.63	$80.50	$132.13	$59.36	$100.93	$160.29	$59.36	$81.33	$140.69	$7.72	5.1%	$8.56	6.5%	$0.7628	$0.6606	$0.8014	$0.7034
26	225	$57.31	$113.56	$170.87	$57.31	$90.56	$147.87	$65.88	$113.55	$179.42	$65.88	$91.50	$157.37	$8.56	5.0%	$9.50	6.4%	$0.7594	$0.6572	$0.7974	$0.6994
27	250	$62.99	$126.18	$189.16	$62.99	$100.63	$163.61	$72.40	$126.17	$198.56	$72.40	$101.67	$174.06	$9.40	5.0%	$10.45	6.4%	$0.7566	$0.6544	$0.7942	$0.6962
28	275	$68.67	$138.79	$207.46	$68.67	$110.69	$179.35	$78.91	$138.78	$217.70	$78.91	$111.83	$190.75	$10.24	4.9%	$11.39	6.4%	$0.7544	$0.6522	$0.7916	$0.6936
29	300	$74.34	$151.41	$225.75	$74.34	$120.75	$195.09	$85.43	$151.40	$236.83	$85.43	$122.00	$207.43	$11.08	4.9%	$12.34	6.3%	$0.7525	$0.6503	$0.7894	$0.6914
30	350	$85.70	$176.65	$262.35	$85.70	$140.88	$226.58	$98.47	$176.63	$275.11	$98.47	$142.33	$240.81	$12.76	4.9%	$14.23	6.3%	$0.7496	$0.6474	$0.7860	$0.6880
31	400	$97.06	$201.88	$298.94	$97.06	$161.00	$258.06	$111.51	$201.86	$313.38	$111.51	$162.66	$274.18	$14.44	4.8%	$16.12	6.2%	$0.7473	$0.6451	$0.7834	$0.6854
32	450	$108.42	$227.12	$335.53	$108.42	$181.13	$289.54	$124.55	$227.10	$351.65	$124.55	$183.00	$307.55	$16.12	4.8%	$18.01	6.2%	$0.7456	$0.6434	$0.7814	$0.6834
33	500	$119.77	$252.35	$372.12	$119.77	$201.25	$321.02	$137.59	$252.33	$389.92	$137.59	$203.33	$340.92	$17.80	4.8%	$19.90	6.2%	$0.7442	$0.6420	$0.7798	$0.6818
34	750	$176.56	$378.53	$555.09	$176.56	$301.88	$478.44	$202.79	$378.50	$581.29	$202.79	$305.00	$507.79	$26.20	4.7%	$29.35	6.1%	$0.7401	$0.6379	$0.7751	$0.6771
35	1,000	$233.35	$504.70	$738.05	$233.35	$402.50	$635.85	$267.99	$504.66	$772.65	$267.99	$406.66	$674.65	$34.60	4.7%	$38.80	6.1%	$0.7380	$0.6358	$0.7727	$0.6747

Line	Use per Month (therms)	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Current Winter	Current Summer	Proposed Winter	Proposed Summer
37	**Estimated Bill Percentiles**																				
38	Winter - 25%	70	$22.10	$35.33	$57.43				$25.45	$35.33	$60.78				$3.35	5.8%			$0.8204		$0.8683	
39	Winter - 50%	100	$28.91	$50.47	$79.38				$33.28	$50.47	$83.74				$4.36	5.5%			$0.7938		$0.8374	
40	Winter - 75%	150	$40.27	$75.71	$115.98				$46.32	$75.70	$122.01				$6.04	5.2%			$0.7732		$0.8134	
41	Summer - 25%	14				$9.38	$5.64	$15.01				$10.85	$5.69	$16.54			$1.53	10.2%		$1.0724		$1.1815
42	Summer - 50%	25				$11.88	$10.06	$21.94				$13.72	$10.17	$23.88			$1.94	8.9%		$0.8776		$0.9553
43	Summer - 75%	40				$15.28	$16.10	$31.38				$17.63	$16.27	$33.89			$2.51	8.0%		$0.7846		$0.8474

Estimated Bill Percentiles per 2010 MCS

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Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE G-41 : COMMERCIAL/INDUSTRIAL - LOW ANNUAL USE, HIGH WINTER USE

Present Rates	Winter	Summer		Proposed Rates	Winter	Summer
Cost of Gas	$0.4724	$0.3669		Cost of Gas	$0.4705	$0.3692
LDAC	$0.0478	$0.0478		LDAC	$0.0497	$0.0497
Customer charge	$57.46			Customer charge	$66.71	
Sales rate				Sales rate		
First Block Size	100	20		First Block Size	100	20
Block 1	$0.4711	$0.4711		Block 1	$0.5433	$0.5433
Block 2	$0.3165	$0.3165		Block 2	$0.3650	$0.3650

Line	Use per Month (therms)	Monthly Bills at Present Rates						Monthly Bills at Proposed Rates						Change in Monthly Bill				Unit Costs			
		Winter			Summer			Winter			Summer			Winter		Summer		Current		Proposed	
		Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
16	0	$57	$0	$57	$57	$0	$57	$67	$0	$67	$67	$0	$67	$9.25	16.1%	$9.25	16.1%	$0.0000	$0.0000	$0.0000	$0.0000
17	10	$62	$5	$67	$62	$4	$66	$72	$5	$77	$72	$4	$76	$9.97	14.8%	$10.01	15.1%	$6.7374	$6.6319	$7.7344	$7.6331
18	25	$69	$13	$82	$68	$10	$79	$80	$13	$93	$79	$10	$90	$11.05	13.4%	$11.04	14.0%	$3.2898	$3.1533	$3.7319	$3.5949
19	50	$81	$26	$107	$76	$21	$97	$94	$26	$120	$89	$21	$109	$12.86	12.0%	$12.36	12.7%	$2.1405	$1.9422	$2.3977	$2.1894
20	75	$93	$39	$132	$84	$31	$115	$107	$39	$146	$98	$31	$129	$14.66	11.1%	$13.67	11.8%	$1.7575	$1.5385	$1.9529	$1.7208
21	100	$105	$52	$157	$92	$41	$134	$121	$52	$173	$107	$42	$149	$16.47	10.5%	$14.99	11.2%	$1.5659	$1.3367	$1.7306	$1.4866
22	150	$120	$78	$198	$108	$62	$170	$139	$78	$217	$125	$63	$188	$18.89	9.5%	$17.62	10.4%	$1.3228	$1.1349	$1.4488	$1.2523
23	200	$136	$104	$240	$124	$83	$207	$158	$104	$262	$143	$84	$227	$21.31	8.9%	$20.26	9.8%	$1.2013	$1.0339	$1.3079	$1.1352
24	250	$152	$130	$282	$140	$104	$243	$176	$130	$306	$162	$105	$266	$23.73	8.4%	$22.89	9.4%	$1.1284	$0.9734	$1.2233	$1.0649
25	300	$168	$156	$324	$155	$124	$280	$194	$156	$350	$180	$126	$305	$26.16	8.1%	$25.52	9.1%	$1.0798	$0.9330	$1.1669	$1.0181
26	350	$184	$182	$366	$171	$145	$316	$212	$182	$394	$198	$147	$345	$28.58	7.8%	$28.15	8.9%	$1.0450	$0.9042	$1.1267	$0.9846
27	400	$200	$208	$408	$187	$166	$353	$231	$208	$439	$216	$168	$384	$31.00	7.6%	$30.79	8.7%	$1.0190	$0.8825	$1.0965	$0.9595
28	500	$231	$260	$491	$219	$207	$426	$267	$260	$527	$253	$209	$462	$35.85	7.3%	$36.05	8.5%	$0.9825	$0.8523	$1.0542	$0.9244
29	600	$263	$312	$575	$250	$249	$499	$304	$312	$616	$289	$251	$541	$40.70	7.1%	$41.32	8.3%	$0.9582	$0.8321	$1.0260	$0.9010
30	700	$294	$364	$659	$282	$290	$572	$340	$364	$704	$326	$293	$619	$45.54	6.9%	$46.59	8.1%	$0.9408	$0.8177	$1.0059	$0.8842
31	800	$326	$416	$742	$314	$332	$645	$377	$416	$793	$362	$335	$697	$50.39	6.8%	$51.85	8.0%	$0.9278	$0.8069	$0.9908	$0.8717
32	900	$358	$468	$826	$345	$373	$719	$413	$468	$881	$399	$377	$776	$55.24	6.7%	$57.12	7.9%	$0.9177	$0.7984	$0.9791	$0.8619
33	1,000	$389	$520	$910	$377	$415	$792	$450	$520	$970	$435	$419	$854	$60.08	6.6%	$62.39	7.9%	$0.9096	$0.7917	$0.9697	$0.8541
34	1,250	$469	$650	$1,119	$456	$518	$975	$541	$650	$1,191	$526	$524	$1,050	$72.20	6.5%	$75.55	7.8%	$0.8950	$0.7796	$0.9528	$0.8400
35	1,500	$548	$780	$1,328	$535	$622	$1,157	$632	$780	$1,412	$618	$628	$1,246	$84.31	6.3%	$88.72	7.7%	$0.8853	$0.7715	$0.9415	$0.8307

Estimated Bill Percentiles

Line		Use per Month (therms)	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
38	Winter - 25%	70	$90	$36	$127				$105	$36	$141				$14.30	11.3%			$1.8122		$2.0165	
39	Winter - 50%	200	$136	$104	$240				$158	$104	$262				$21.31	8.9%			$1.2013		$1.3079	
40	Winter - 75%	500	$231	$260	$491				$267	$260	$527				$35.85	7.3%			$0.9825		$1.0542	
41	Summer - 25%	0				$57	$0	$57				$67	$0	$67			$9.25	16.1%		$0.0000		$0.0000
42	Summer - 50%	8				$61	$3	$65				$71	$3	$74			$9.86	15.3%		$8.0684		$9.3008
43	Summer - 75%	45				$75	$19	$93				$87	$19	$106			$12.09	12.9%		$2.0768		$2.3455

Estimated Bill Percentiles per 2010 MCS

Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE G-42 : COMMERCIAL/INDUSTRIAL - MEDIUM ANNUAL USE, HIGH WINTER USE

Present Rates	Winter	Summer		Proposed Rates	Winter	Summer
Cost of Gas	$0.4724	$0.3669		Cost of Gas	$0.4705	$0.3692
LDAC	$0.0478	$0.0478		LDAC	$0.0497	$0.0497
Customer charge	$172.39			Customer charge	$200.14	
Sales rate				Sales rate		
First Block Size	1000	400		First Block Size	1000	400
Block 1	$0.4284	$0.4284		Block 1	$0.4999	$0.4999
Block 2	$0.2855	$0.2855		Block 2	$0.3331	$0.3331

	Use per Month (therms)	Monthly Bills at Present Rates						Monthly Bills at Proposed Rates						Change in Monthly Bill				Unit Costs			
		Winter			Summer			Winter			Summer			Winter		Summer		Current		Proposed	
		Base Rates	COG/LDAC	TOTAL	Base Rates	COG/LDAC	TOTAL	Base Rates	COG/LDAC	TOTAL	Base Rates	COG/LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
16	0	$172	$0	$172	$172	$0	$172	$200	$0	$200	$200	$0	$200	$27.75	16.1%	$27.75	16.1%	$0.0000	$0.0000	$0.0000	$0.0000
17	10	$177	$5	$182	$177	$4	$181	$205	$5	$210	$205	$4	$209	$28.46	15.6%	$28.50	15.8%	$18.1878	$18.0823	$21.0339	$20.9326
18	25	$183	$13	$196	$183	$10	$193	$213	$13	$226	$213	$10	$223	$29.53	15.1%	$29.64	15.3%	$7.8443	$7.7388	$9.0256	$8.9243
19	50	$194	$26	$220	$194	$21	$215	$225	$26	$251	$225	$21	$246	$31.32	14.2%	$31.53	14.7%	$4.3964	$4.2909	$5.0228	$4.9215
20	75	$205	$39	$244	$205	$31	$236	$238	$39	$277	$238	$31	$269	$33.10	13.6%	$33.42	14.2%	$3.2472	$3.1417	$3.6886	$3.5873
21	100	$215	$52	$267	$215	$41	$257	$250	$52	$302	$250	$42	$292	$34.89	13.1%	$35.31	13.8%	$2.6725	$2.5670	$3.0214	$2.9201
22	150	$237	$78	$315	$237	$62	$299	$275	$78	$353	$275	$63	$338	$38.46	12.2%	$39.09	13.1%	$2.0979	$1.9924	$2.3543	$2.2530
23	200	$258	$104	$362	$258	$83	$341	$300	$104	$404	$300	$84	$384	$42.03	11.6%	$42.87	12.6%	$1.8106	$1.7051	$2.0207	$1.9194
24	250	$279	$130	$410	$279	$104	$383	$325	$130	$455	$325	$105	$430	$45.60	11.1%	$46.65	12.2%	$1.6382	$1.5327	$1.8206	$1.7193
25	300	$301	$156	$457	$301	$124	$425	$350	$156	$506	$350	$126	$476	$49.17	10.8%	$50.43	11.9%	$1.5232	$1.4177	$1.6872	$1.5859
26	350	$322	$182	$504	$322	$145	$467	$375	$182	$557	$375	$147	$522	$52.75	10.5%	$54.22	11.6%	$1.4412	$1.3357	$1.5919	$1.4906
27	400	$344	$208	$552	$344	$166	$510	$400	$208	$608	$400	$168	$568	$56.32	10.2%	$58.00	11.4%	$1.3796	$1.2741	$1.5204	$1.4191
28	500	$387	$260	$647	$372	$207	$580	$450	$260	$710	$433	$209	$643	$63.46	9.8%	$63.18	10.9%	$1.2934	$1.1593	$1.4203	$1.2857
29	750	$494	$390	$884	$444	$311	$755	$575	$390	$965	$517	$314	$831	$81.32	9.2%	$76.12	10.1%	$1.1785	$1.0063	$1.2869	$1.1078
30	1,000	$601	$520	$1,121	$515	$415	$930	$700	$520	$1,220	$600	$419	$1,019	$99.17	8.8%	$89.07	9.6%	$1.1210	$0.9297	$1.2202	$1.0188
31	1,500	$744	$780	$1,524	$658	$622	$1,280	$867	$780	$1,647	$766	$628	$1,395	$122.96	8.1%	$114.96	9.0%	$1.0159	$0.8532	$1.0979	$0.9299
32	2,000	$886	$1,040	$1,927	$801	$829	$1,630	$1,033	$1,040	$2,073	$933	$838	$1,771	$140.85	7.6%	$140.85	8.6%	$0.9633	$0.8150	$1.0367	$0.8854
33	3,000	$1,172	$1,561	$2,732	$1,086	$1,244	$2,330	$1,366	$1,560	$2,927	$1,266	$1,257	$2,523	$194.34	7.1%	$192.63	8.3%	$0.9108	$0.7767	$0.9756	$0.8409
34	4,000	$1,457	$2,081	$3,538	$1,371	$1,659	$3,030	$1,699	$2,081	$3,780	$1,599	$1,675	$3,275	$241.92	6.8%	$244.41	8.1%	$0.8845	$0.7576	$0.9450	$0.8187
35	5,000	$1,743	$2,601	$4,344	$1,657	$2,074	$3,730	$2,032	$2,601	$4,633	$1,932	$2,094	$4,027	$289.50	6.7%	$296.19	7.9%	$0.8687	$0.7461	$0.9266	$0.8053

Estimated Bill Percentiles

	Use per Month (therms)	Base Rates	COG/LDAC	TOTAL	Base Rates	COG/LDAC	TOTAL	Base Rates	COG/LDAC	TOTAL	Base Rates	COG/LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
38 Winter - 25%	1,300	$686	$676	$1,363				$800	$676	$1,476				$113.45	8.3%			$1.0482		$1.1355	
39 Winter - 50%	2,000	$886	$1,040	$1,927				$1,033	$1,040	$2,073				$146.75	7.6%			$0.9633		$1.0367	
40 Winter - 75%	3,500	$1,314	$1,821	$3,135				$1,533	$1,821	$3,353				$218.13	7.0%			$0.8958		$0.9581	
41 Summer - 25%	45				$192	$19	$210				$223	$19	$241			$31.15	14.8%		$4.6740		$5.3663
42 Summer - 50%	350				$322	$145	$467				$375	$147	$522			$54.22	11.6%		$1.3357		$1.4906
43 Summer - 75%	750				$444	$311	$755				$517	$314	$831			$76.12	10.1%		$1.0063		$1.1078

Estimated Bill Percentiles per 2010 MCS

Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE G-43 : COMMERCIAL/INDUSTRIAL - HIGH ANNUAL USE, HIGH WINTER USE

Present Rates	Winter	Summer		Proposed Rates	Winter	Summer
Cost of Gas	$0.4724	$0.3669		Cost of Gas	$0.4705	$0.3692
LDAC	$0.0478	$0.0478		LDAC	$0.0497	$0.0497
Customer charge	$739.83			Customer charge	$858.91	
Sales rate				Sales rate		
First Block Size				First Block Size		
Block 1	$0.2633	$0.1204		Block 1	$0.3126	$0.1429
Block 2	$0.2633	$0.1204		Block 2	$0.3126	$0.1429

Line		Monthly Bills at Present Rates						Monthly Bills at Proposed Rates						Change in Monthly Bill				Unit Costs			
	Use per	Winter			Summer			Winter			Summer			Winter		Summer		Current		Proposed	
	Month	Base	COG /		Base	COG /		Base	COG /		Base	COG /									
	(therms)	Rates	LDAC	TOTAL	Rates	LDAC	TOTAL	Rates	LDAC	TOTAL	Rates	LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
16	200	$793	$104	$897	$764	$83	$847	$921	$104	$1,025	$888	$84	$971	$128.93	14.4%	$124.42	14.7%	$4.4827	$4.2343	$5.1274	$4.8564
17	500	$872	$260	$1,132	$800	$207	$1,007	$1,015	$260	$1,275	$930	$209	$1,140	$143.71	12.7%	$132.43	13.1%	$2.2632	$2.0148	$2.5506	$2.2796
18	1,000	$1,003	$520	$1,523	$860	$415	$1,275	$1,172	$520	$1,692	$1,002	$419	$1,421	$168.34	11.1%	$145.78	11.4%	$1.5234	$1.2749	$1.6917	$1.4207
19	1,250	$1,069	$650	$1,719	$890	$518	$1,409	$1,250	$650	$1,900	$1,038	$524	$1,561	$180.66	10.5%	$152.46	10.8%	$1.3754	$1.1270	$1.5199	$1.2489
20	1,500	$1,135	$780	$1,915	$920	$622	$1,542	$1,328	$780	$2,108	$1,073	$628	$1,702	$192.97	10.1%	$159.13	10.3%	$1.2768	$1.0283	$1.4054	$1.1344
21	1,750	$1,201	$910	$2,111	$951	$726	$1,676	$1,406	$910	$2,316	$1,109	$733	$1,842	$205.29	9.7%	$165.81	9.9%	$1.2063	$0.9579	$1.3236	$1.0526
22	2,000	$1,267	$1,040	$2,307	$981	$829	$1,810	$1,484	$1,040	$2,525	$1,145	$838	$1,983	$217.60	9.4%	$172.48	9.5%	$1.1535	$0.9050	$1.2623	$0.9913
23	2,500	$1,398	$1,301	$2,699	$1,041	$1,037	$2,078	$1,641	$1,300	$2,941	$1,216	$1,047	$2,263	$242.24	9.0%	$185.84	8.9%	$1.0795	$0.8310	$1.1764	$0.9054
24	3,000	$1,530	$1,561	$3,090	$1,101	$1,244	$2,345	$1,797	$1,560	$3,357	$1,288	$1,257	$2,544	$266.87	8.6%	$199.19	8.5%	$1.0302	$0.7817	$1.1191	$0.8481
25	3,500	$1,662	$1,821	$3,482	$1,161	$1,451	$2,613	$1,953	$1,821	$3,774	$1,359	$1,466	$2,825	$291.50	8.4%	$212.54	8.1%	$0.9949	$0.7465	$1.0782	$0.8072
26	4,000	$1,793	$2,081	$3,874	$1,221	$1,659	$2,880	$2,109	$2,081	$4,190	$1,431	$1,675	$3,106	$316.13	8.2%	$225.89	7.8%	$0.9685	$0.7201	$1.0475	$0.7765
27	4,500	$1,925	$2,341	$4,266	$1,282	$1,866	$3,148	$2,266	$2,341	$4,607	$1,502	$1,885	$3,387	$340.76	8.0%	$239.24	7.6%	$0.9480	$0.6995	$1.0237	$0.7527
28	5,000	$2,057	$2,601	$4,658	$1,342	$2,074	$3,415	$2,422	$2,601	$5,023	$1,574	$2,094	$3,668	$365.39	7.8%	$252.59	7.4%	$0.9315	$0.6831	$1.0046	$0.7336
29	6,000	$2,320	$3,121	$5,441	$1,462	$2,488	$3,950	$2,735	$3,121	$5,856	$1,717	$2,513	$4,230	$414.66	7.6%	$279.30	7.1%	$0.9068	$0.6584	$0.9760	$0.7050
30	7,000	$2,583	$3,641	$6,225	$1,583	$2,903	$4,486	$3,047	$3,641	$6,689	$1,860	$2,932	$4,792	$463.92	7.5%	$306.00	6.8%	$0.8892	$0.6408	$0.9555	$0.6845
31	8,000	$2,847	$4,162	$7,008	$1,703	$3,318	$5,021	$3,360	$4,161	$7,521	$2,002	$3,351	$5,353	$513.18	7.3%	$332.71	6.6%	$0.8760	$0.6276	$0.9402	$0.6692
32	9,000	$3,110	$4,682	$7,792	$1,823	$3,732	$5,556	$3,673	$4,681	$8,354	$2,145	$3,770	$5,915	$562.45	7.2%	$359.41	6.5%	$0.8657	$0.6173	$0.9282	$0.6572
33	10,000	$3,373	$5,202	$8,575	$1,944	$4,147	$6,091	$3,985	$5,202	$9,187	$2,288	$4,189	$6,477	$611.71	7.1%	$386.11	6.3%	$0.8575	$0.6091	$0.9187	$0.6477
34	15,000	$4,690	$7,803	$12,493	$2,546	$6,221	$8,766	$5,549	$7,802	$13,351	$3,003	$6,283	$9,286	$858.03	6.9%	$519.63	5.9%	$0.8329	$0.5844	$0.8901	$0.6191
35	20,000	$6,007	$10,404	$16,411	$3,148	$8,294	$11,442	$7,112	$10,403	$17,515	$3,718	$8,377	$12,095	$1,104.34	6.7%	$653.15	5.7%	$0.8205	$0.5721	$0.8758	$0.6048

Estimated Bill Percentiles

Line		Base Rates	COG/LDAC	TOTAL	Base Rates	COG/LDAC	TOTAL	Base Rates	COG/LDAC	TOTAL	Base Rates	COG/LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
38 Winter - 25%	9,000	$3,110	$4,682	$7,792				$3,673	$4,681	$8,354				$562.45	7.2%			$0.8657		$0.9282	
39 Winter - 50%	15,000	$4,690	$7,803	$12,493				$5,549	$7,802	$13,351				$858.03	6.9%			$0.8329		$0.8901	
40 Winter - 75%	25,000	$7,323	$13,005	$20,328				$8,675	$13,004	$21,679				$1,350.66	6.6%			$0.8131		$0.8672	
41 Summer - 25%	450				$794	$187	$981				$923	$188	$1,112			$131.09	13.4%		$2.1792		$2.4705
42 Summer - 50%	3,500				$1,161	$1,451	$2,613				$1,359	$1,466	$2,825			$212.54	8.1%		$0.7465		$0.8072
43 Summer - 75%	10,000				$1,944	$4,147	$6,091				$2,288	$4,189	$6,477			$386.11	6.3%		$0.6091		$0.6477

Estimated Bill Percentiles per 2010 MCS

Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE G-51 : COMMERCIAL/INDUSTRIAL - LOW ANNUAL USE, LOW WINTER USE

Present Rates	Winter	Summer		Proposed Rates	Winter	Summer
Cost of Gas	$0.4792	$0.3786		Cost of Gas	$0.4773	$0.3809
LDAC	$0.0478	$0.0478		LDAC	$0.0497	$0.0497
Customer charge	$57.46			Customer charge	$66.71	
Sales rate				Sales rate		
First Block Size	100	100		First Block Size	100	100
Block 1	$0.2839	$0.2839		Block 1	$0.3408	$0.3408
Block 2	$0.1846	$0.1846		Block 2	$0.2216	$0.2216

		Monthly Bills at Present Rates						Monthly Bills at Proposed Rates						Change in Monthly Bill				Unit Costs			
Use per		Winter			Summer			Winter			Summer			Winter		Summer		Current		Proposed	
Month	Base	COG /		Base	COG /		Base	COG /		Base	COG /										
(therms)	Rates	LDAC	TOTAL	Rates	LDAC	TOTAL	Rates	LDAC	TOTAL	Rates	LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
0	$57	$0	$57	$57	$0	$57	$67	$0	$67	$67	$0	$67	$9.25	16.1%	$9.25	16.1%	$0.0000	$0.0000	$0.0000	$0.0000
10	$60	$5	$66	$60	$4	$65	$70	$5	$75	$70	$4	$74	$9.82	15.0%	$9.86	15.3%	$6.5567	$6.4561	$7.5382	$7.4418
25	$65	$13	$78	$65	$11	$75	$75	$13	$88	$75	$11	$86	$10.67	13.7%	$10.77	14.3%	$3.1092	$3.0086	$3.5359	$3.4395
50	$72	$26	$98	$72	$21	$93	$84	$26	$110	$84	$22	$105	$12.09	12.3%	$12.30	13.2%	$1.9601	$1.8595	$2.2018	$2.1054
75	$79	$40	$118	$79	$32	$111	$92	$40	$132	$92	$32	$125	$13.51	11.4%	$13.82	12.5%	$1.5770	$1.4764	$1.7571	$1.6607
100	$86	$53	$139	$86	$43	$128	$101	$53	$153	$101	$43	$144	$14.93	10.8%	$15.35	11.9%	$1.3855	$1.2849	$1.5348	$1.4384
150	$95	$79	$174	$95	$64	$159	$112	$79	$191	$112	$65	$176	$16.77	9.6%	$17.40	10.9%	$1.1609	$1.0603	$1.2727	$1.1763
200	$104	$105	$210	$104	$85	$190	$123	$105	$228	$123	$86	$209	$18.62	8.9%	$19.46	10.3%	$1.0486	$0.9480	$1.1417	$1.0453
250	$114	$132	$245	$114	$107	$220	$134	$132	$266	$134	$108	$242	$20.47	8.3%	$21.52	9.8%	$0.9812	$0.8806	$1.0631	$0.9667
300	$123	$158	$281	$123	$128	$251	$145	$158	$303	$145	$129	$274	$22.31	7.9%	$23.57	9.4%	$0.9363	$0.8357	$1.0106	$0.9142
350	$132	$184	$316	$132	$149	$281	$156	$184	$341	$156	$151	$307	$24.16	7.6%	$25.63	9.1%	$0.9042	$0.8036	$0.9732	$0.8768
400	$141	$211	$352	$141	$171	$312	$167	$211	$378	$167	$172	$339	$26.01	7.4%	$27.69	8.9%	$0.8801	$0.7795	$0.9451	$0.8487
500	$160	$264	$423	$160	$213	$373	$189	$263	$453	$189	$215	$405	$29.70	7.0%	$31.80	8.5%	$0.8464	$0.7458	$0.9058	$0.8094
600	$178	$316	$494	$178	$256	$434	$212	$316	$528	$212	$258	$470	$33.39	6.8%	$35.91	8.3%	$0.8239	$0.7233	$0.8796	$0.7832
700	$197	$369	$566	$197	$298	$495	$234	$369	$603	$234	$301	$535	$37.08	6.6%	$40.02	8.1%	$0.8079	$0.7073	$0.8609	$0.7645
800	$215	$422	$637	$215	$341	$556	$256	$422	$677	$256	$344	$600	$40.77	6.4%	$44.13	7.9%	$0.7959	$0.6953	$0.8468	$0.7504
900	$234	$474	$708	$234	$384	$617	$278	$474	$752	$278	$388	$666	$44.47	6.3%	$48.25	7.8%	$0.7865	$0.6859	$0.8359	$0.7395
1,000	$252	$527	$779	$252	$426	$678	$300	$527	$827	$300	$431	$731	$48.16	6.2%	$52.36	7.7%	$0.7790	$0.6784	$0.8272	$0.7308
1,250	$298	$659	$957	$298	$533	$831	$356	$659	$1,014	$356	$538	$894	$57.39	6.0%	$62.64	7.5%	$0.7655	$0.6649	$0.8115	$0.7151
1,500	$344	$791	$1,135	$344	$640	$984	$411	$790	$1,201	$411	$646	$1,057	$66.62	5.9%	$72.92	7.4%	$0.7566	$0.6560	$0.8010	$0.7046

Estimated Bill Percentiles

	Use per Month (therms)	Base Rates (W)	COG/LDAC (W)	TOTAL (W)	Base Rates (Su)	COG/LDAC (Su)	TOTAL (Su)	Base Rates (W prop)	COG/LDAC (W prop)	TOTAL (W prop)	Base Rates (Su prop)	COG/LDAC (Su prop)	TOTAL (Su prop)	$ (W)	% (W)	$ (Su)	% (Su)	Current W	Current Su	Proposed W	Proposed Su
Winter - 25%	45	$70	$24	$94				$82	$24	$106				$11.80	12.6%			$2.0878		$2.3501	
Winter - 50%	175	$100	$92	$192				$117	$92	$210				$17.70	9.2%			$1.0967		$1.1978	
Winter - 75%	450	$150	$237	$388				$178	$237	$415				$27.85	7.2%			$0.8614		$0.9233	
Summer - 25%	6				$59	$3	$62				$69	$3	$71			$9.61	15.6%		$10.2865		$11.8888
Summer - 50%	60				$74	$26	$100				$87	$26	$113			$12.91	12.9%		$1.6680		$1.8831
Summer - 75%	250				$114	$107	$220				$134	$108	$242			$21.52	9.8%		$0.8806		$0.9667

Estimated Bill Percentiles per 2010 MCS

Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE G-52 : COMMERCIAL/INDUSTRIAL - MEDIUM ANNUAL USE, LOW WINTER USE

Line			
1	**Present Rates**	Winter	Summer
2	Cost of Gas	$0.4792	$0.3786
3	LDAC	$0.0478	$0.0478
4			
5	Customer charge	$172.39	
6	Sales rate		
7	First Block Size	1000	1000
8	Block 1	$0.2439	$0.1767
9	Block 2	$0.1624	$0.1004

Line			
1	**Proposed Rates**	Winter	Summer
2	Cost of Gas	$0.4773	$0.3809
3	LDAC	$0.0497	$0.0497
5	Customer charge	$200.14	
6	Sales rate		
7	First Block Size	1000	1000
8	Block 1	$0.2926	$0.2120
9	Block 2	$0.1948	$0.1205

	Use per Month (therms)	Monthly Bills at Present Rates						Monthly Bills at Proposed Rates						Change in Monthly Bill				Unit Costs			
		Winter			Summer			Winter			Summer			Winter		Summer		Current		Proposed	
Line		Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
16	200	$221	$105	$327	$208	$85	$293	$259	$105	$364	$243	$86	$329	$37.48	11.5%	$35.64	12.2%	$1.6328	$1.4650	$1.8202	$1.6432
17	300	$246	$158	$404	$225	$128	$353	$288	$158	$446	$264	$129	$393	$42.35	10.5%	$39.58	11.2%	$1.3455	$1.1777	$1.4867	$1.3097
18	400	$270	$211	$481	$243	$171	$414	$317	$211	$528	$285	$172	$457	$47.22	9.8%	$43.53	10.5%	$1.2019	$1.0341	$1.3199	$1.1429
19	500	$294	$264	$558	$261	$213	$474	$346	$263	$610	$306	$215	$521	$52.08	9.3%	$47.47	10.0%	$1.1157	$0.9479	$1.2198	$1.0428
20	600	$319	$316	$635	$278	$256	$534	$376	$316	$692	$327	$258	$586	$56.95	9.0%	$51.42	9.6%	$1.0582	$0.8904	$1.1531	$0.9761
21	700	$343	$369	$712	$296	$298	$595	$405	$369	$774	$349	$301	$650	$61.82	8.7%	$55.36	9.3%	$1.0171	$0.8494	$1.1055	$0.9284
22	800	$367	$422	$789	$314	$341	$655	$434	$422	$856	$370	$344	$714	$66.68	8.5%	$59.31	9.1%	$0.9864	$0.8186	$1.0697	$0.8927
23	900	$392	$474	$866	$331	$384	$715	$463	$474	$938	$391	$388	$778	$71.55	8.3%	$63.25	8.8%	$0.9624	$0.7946	$1.0419	$0.8649
24	1,000	$416	$527	$943	$349	$426	$775	$493	$527	$1,020	$412	$431	$843	$76.42	8.1%	$67.20	8.7%	$0.9433	$0.7755	$1.0197	$0.8427
25	1,100	$433	$580	$1,012	$359	$469	$828	$512	$580	$1,092	$424	$474	$898	$79.66	7.9%	$69.62	8.4%	$0.9202	$0.7529	$0.9926	$0.8162
26	1,200	$449	$632	$1,081	$369	$512	$881	$532	$632	$1,164	$436	$517	$953	$82.90	7.7%	$72.04	8.2%	$0.9010	$0.7340	$0.9700	$0.7941
27	1,300	$465	$685	$1,150	$379	$554	$934	$551	$685	$1,236	$448	$560	$1,008	$86.14	7.5%	$74.46	8.0%	$0.8847	$0.7181	$0.9509	$0.7754
28	1,400	$481	$738	$1,219	$389	$597	$986	$571	$738	$1,308	$460	$603	$1,063	$89.38	7.3%	$76.89	7.8%	$0.8707	$0.7044	$0.9346	$0.7594
29	1,500	$497	$791	$1,288	$399	$640	$1,039	$590	$790	$1,381	$472	$646	$1,118	$92.62	7.2%	$79.31	7.6%	$0.8586	$0.6926	$0.9204	$0.7455
30	1,750	$538	$922	$1,460	$424	$746	$1,171	$639	$922	$1,561	$502	$753	$1,256	$100.72	6.9%	$85.36	7.3%	$0.8345	$0.6689	$0.8920	$0.7177
31	2,000	$579	$1,054	$1,633	$450	$853	$1,302	$688	$1,054	$1,741	$533	$861	$1,394	$108.82	6.7%	$91.42	7.0%	$0.8163	$0.6512	$0.8707	$0.6969
32	2,500	$660	$1,318	$1,977	$500	$1,066	$1,566	$785	$1,317	$2,102	$593	$1,076	$1,669	$125.02	6.3%	$103.53	6.6%	$0.7910	$0.6263	$0.8410	$0.6677
33	3,000	$741	$1,581	$2,322	$550	$1,279	$1,829	$882	$1,581	$2,463	$653	$1,292	$1,945	$141.22	6.1%	$115.64	6.3%	$0.7740	$0.6097	$0.8211	$0.6483
34	4,000	$903	$2,108	$3,011	$650	$1,706	$2,356	$1,077	$2,108	$3,185	$774	$1,722	$2,496	$173.62	5.8%	$139.86	5.9%	$0.7529	$0.5890	$0.7963	$0.6240
35	5,000	$1,066	$2,635	$3,701	$751	$2,132	$2,883	$1,272	$2,635	$3,907	$894	$2,153	$3,047	$206.02	5.6%	$164.08	5.7%	$0.7402	$0.5766	$0.7814	$0.6094

Estimated Bill Percentiles

Line		Use per Month (therms)	Pres. W Base	Pres. W COG/LDAC	Pres. W TOTAL	Pres. S Base	Pres. S COG/LDAC	Pres. S TOTAL	Prop. W Base	Prop. W COG/LDAC	Prop. W TOTAL	Prop. S Base	Prop. S COG/LDAC	Prop. S TOTAL	Chg W $	Chg W %	Chg S $	Chg S %	Cur. Winter	Cur. Summer	Prop. Winter	Prop. Summer
38	Winter - 25%	1,040	$423	$548	$971				$501	$548	$1,049				$77.71	8.0%			$0.9335		$1.0082	
39	Winter - 50%	2,000	$579	$1,054	$1,633				$688	$1,054	$1,741				$108.82	6.7%			$0.8163		$0.8707	
40	Winter - 75%	3,500	$822	$1,845	$2,667				$980	$1,844	$2,824				$157.42	5.9%			$0.7619		$0.8069	
41	Summer - 25%	700				$296	$298	$595				$349	$301	$650			$55.36	9.3%		$0.8494		$0.9284
42	Summer - 50%	1,040				$353	$443	$797				$417	$448	$865			$68.17	8.6%		$0.7659		$0.8315
43	Summer - 75%	2,000				$450	$853	$1,302				$533	$861	$1,394			$91.42	7.0%		$0.6512		$0.6969

Estimated Bill Percentiles per 2010 MCS

905-II

Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE G-53 : COMMERCIAL/INDUSTRIAL - HIGH ANNUAL USE, LOAD FACTOR LESS THAN 90%

Present Rates	Winter	Summer
Cost of Gas	$0.4792	$0.3786
LDAC	$0.0478	$0.0478
Customer charge	$761.39	
Sales rate		
First Block Size		
Block 1	$0.1705	$0.0818
Block 2	$0.1705	$0.0818

Proposed Rates	Winter	Summer
Cost of Gas	$0.4773	$0.3809
LDAC	$0.0497	$0.0497
Customer charge	$883.94	
Sales rate		
First Block Size		
Block 1	$0.2092	$0.1003
Block 2	$0.2092	$0.1003

Use per Month (therms)	Present Winter Base Rates	Present Winter COG/LDAC	Present Winter TOTAL	Present Summer Base Rates	Present Summer COG/LDAC	Present Summer TOTAL	Proposed Winter Base Rates	Proposed Winter COG/LDAC	Proposed Winter TOTAL	Proposed Summer Base Rates	Proposed Summer COG/LDAC	Proposed Summer TOTAL	Change Winter $	Change Winter %	Change Summer $	Change Summer %	Current Winter Unit Cost	Current Summer Unit Cost	Proposed Winter Unit Cost	Proposed Summer Unit Cost
1,000	$932	$527	$1,459	$843	$426	$1,270	$1,093	$527	$1,620	$984	$431	$1,415	$161.25	11.1%	$145.29	####	$1.4589	$1.2696	$1.6201	$1.4149
2,500	$1,188	$1,318	$2,505	$966	$1,066	$2,032	$1,407	$1,317	$2,724	$1,135	$1,076	$2,211	$219.29	8.8%	$179.40	8.8%	$1.0020	$0.8127	$1.0897	$0.8845
5,000	$1,614	$2,635	$4,249	$1,170	$2,132	$3,302	$1,930	$2,635	$4,565	$1,386	$2,153	$3,538	$316.04	7.4%	$236.26	7.2%	$0.8497	$0.6604	$0.9130	$0.7077
7,500	$2,040	$3,953	$5,992	$1,375	$3,198	$4,573	$2,453	$3,952	$6,405	$1,637	$3,229	$4,866	$412.79	6.9%	$293.12	6.4%	$0.7990	$0.6097	$0.8540	$0.6488
10,000	$2,466	$5,270	$7,736	$1,579	$4,264	$5,843	$2,976	$5,270	$8,246	$1,887	$4,306	$6,193	$509.53	6.6%	$349.97	6.0%	$0.7736	$0.5843	$0.8246	$0.6193
12,500	$2,892	$6,588	$9,480	$1,783	$5,330	$7,113	$3,499	$6,587	$10,086	$2,138	$5,382	$7,520	$606.28	6.4%	$406.83	5.7%	$0.7584	$0.5691	$0.8069	$0.6016
15,000	$3,318	$7,905	$11,223	$1,988	$6,396	$8,384	$4,022	$7,904	$11,926	$2,389	$6,458	$8,848	$703.02	6.3%	$463.68	5.5%	$0.7482	$0.5589	$0.7951	$0.5898
20,000	$4,171	$10,540	$14,711	$2,397	$8,528	$10,925	$5,068	$10,539	$15,607	$2,891	$8,611	$11,502	$896.52	6.1%	$577.40	5.3%	$0.7355	$0.5462	$0.7804	$0.5751
25,000	$5,023	$13,175	$18,198	$2,806	$10,660	$13,466	$6,114	$13,174	$19,288	$3,393	$10,764	$14,157	$1,090.01	6.0%	$691.11	5.1%	$0.7279	$0.5386	$0.7715	$0.5663
30,000	$5,875	$15,810	$21,685	$3,214	$12,792	$16,006	$7,160	$15,809	$22,969	$3,894	$12,917	$16,811	$1,283.50	5.9%	$804.82	5.0%	$0.7228	$0.5335	$0.7656	$0.5604
35,000	$6,728	$18,445	$25,173	$3,623	$14,924	$18,547	$8,206	$18,444	$26,650	$4,396	$15,070	$19,466	$1,476.99	5.9%	$918.53	5.0%	$0.7192	$0.5299	$0.7614	$0.5562
40,000	$7,580	$21,080	$28,660	$4,032	$17,056	$21,088	$9,252	$21,078	$30,330	$4,898	$17,222	$22,120	$1,670.49	5.8%	$1,032.25	4.9%	$0.7165	$0.5272	$0.7583	$0.5530
45,000	$8,432	$23,715	$32,147	$4,441	$19,188	$23,629	$10,298	$23,713	$34,011	$5,400	$19,375	$24,775	$1,863.98	5.8%	$1,145.96	4.8%	$0.7144	$0.5251	$0.7558	$0.5506
50,000	$9,285	$26,350	$35,635	$4,850	$21,320	$26,170	$11,344	$26,348	$37,692	$5,901	$21,528	$27,429	$2,057.47	5.8%	$1,259.67	4.8%	$0.7127	$0.5234	$0.7538	$0.5486
55,000	$10,137	$28,985	$39,122	$5,259	$23,452	$28,711	$12,390	$28,983	$41,373	$6,403	$23,681	$30,084	$2,250.96	5.8%	$1,373.38	4.8%	$0.7113	$0.5220	$0.7522	$0.5470
60,000	$10,989	$31,620	$42,609	$5,667	$25,584	$31,251	$13,436	$31,618	$45,054	$6,905	$25,834	$32,738	$2,444.45	5.7%	$1,487.10	4.8%	$0.7102	$0.5209	$0.7509	$0.5456
75,000	$13,546	$39,525	$53,071	$6,894	$31,980	$38,874	$16,574	$39,522	$56,096	$8,410	$32,292	$40,702	$3,024.93	5.7%	$1,828.23	4.7%	$0.7076	$0.5183	$0.7479	$0.5427
100,000	$17,808	$52,700	$70,508	$8,938	$42,640	$51,578	$21,804	$52,696	$74,500	$10,919	$43,056	$53,975	$3,992.39	5.7%	$2,396.79	4.6%	$0.7051	$0.5158	$0.7450	$0.5397
150,000	$26,331	$79,050	$105,381	$13,026	$63,960	$76,986	$32,264	$79,044	$111,308	$15,936	$64,584	$80,520	$5,927.31	5.6%	$3,533.92	4.6%	$0.7025	$0.5132	$0.7421	$0.5368
200,000	$34,854	$105,400	$140,254	$17,115	$85,280	$102,395	$42,724	$105,392	$148,117	$20,953	$86,112	$107,066	$7,862.23	5.6%	$4,671.04	4.6%	$0.7013	$0.5120	$0.7406	$0.5353

Estimated Bill Percentiles

	Use per Month (therms)	Present Winter Base	Present Winter COG/LDAC	Present Winter TOTAL	Present Summer Base	Present Summer COG/LDAC	Present Summer TOTAL	Proposed Winter Base	Proposed Winter COG/LDAC	Proposed Winter TOTAL	Proposed Summer Base	Proposed Summer COG/LDAC	Proposed Summer TOTAL	Change Winter $	%	Change Summer $	%	Current Winter	Current Summer	Proposed Winter	Proposed Summer
Winter - 25%	10,000	$2,466	$5,270	$7,736				$2,976	$5,270	$8,246				$509.53	6.6%			$0.7736		$0.8246	
Winter - 50%	15,000	$3,318	$7,905	$11,223				$4,022	$7,904	$11,926				$703.02	6.3%			$0.7482		$0.7951	
Winter - 75%	30,000	$5,875	$15,810	$21,685				$7,160	$15,809	$22,969				$1,283.50	5.9%			$0.7228		$0.7656	
Summer - 25%	5,000				$1,170	$2,132	$3,302				$1,386	$2,153	$3,538			$236.26	7.2%		$0.6604		$0.7077
Summer - 50%	15,000				$1,988	$6,396	$8,384				$2,389	$6,458	$8,848			$463.68	5.5%		$0.5589		$0.5898
Summer - 75%	20,000				$2,397	$8,528	$10,925				$2,891	$8,611	$11,502			$577.40	5.3%		$0.5462		$0.5751

Estimated Bill Percentiles per 2010 MCS

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Liberty Utilities (EnergyNorth Natural Gas) Corp.

COMPARATIVE MONTHLY BILLING UNDER PRESENT AND PROPOSED RATES
RATE G-54 : COMMERCIAL/INDUSTRIAL - HIGH ANNUAL USE, LOAD FACTOR GREATER THAN 90%

Line			
1	**Present Rates**	Winter	Summer
2	Cost of Gas	$0.4792	$0.3786
3	LDAC	$0.0478	$0.0478
4			
5	Customer charge	$761.39	
6	Sales rate		
7	First Block Size		
8	Block 1	$0.0650	$0.0353
9	Block 2	$0.0650	$0.0353

Proposed Rates	Winter	Summer
Cost of Gas	$0.4773	$0.3809
LDAC	$0.0497	$0.0497
Customer charge	$883.94	
Sales rate		
First Block Size		
Block 1	$0.0900	$0.0488
Block 2	$0.0900	$0.0488

Line	Use per Month (therms)	Monthly Bills at Present Rates						Monthly Bills at Proposed Rates						Change in Monthly Bill				Unit Costs			
		Winter			Summer			Winter			Summer			Winter		Summer		Current		Proposed	
		Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
16	1,000	$826	$527	$1,353	$797	$426	$1,223	$974	$527	$1,501	$933	$431	$1,363	$147.43	#####	$140.23	####	$1.3534	$1.2231	$1.5009	$1.3633
17	2,500	$924	$1,318	$2,242	$850	$1,066	$1,916	$1,109	$1,317	$2,426	$1,006	$1,076	$2,082	$184.76	8.2%	$166.74	8.7%	$0.8966	$0.7662	$0.9705	$0.8329
18	5,000	$1,087	$2,635	$3,722	$938	$2,132	$3,070	$1,334	$2,635	$3,969	$1,128	$2,153	$3,281	$246.96	6.6%	$210.93	6.9%	$0.7443	$0.6140	$0.7937	$0.6561
19	7,500	$1,249	$3,953	$5,202	$1,026	$3,198	$4,224	$1,559	$3,952	$5,511	$1,250	$3,229	$4,479	$309.17	5.9%	$255.13	6.0%	$0.6936	$0.5632	$0.7348	$0.5972
20	10,000	$1,412	$5,270	$6,682	$1,114	$4,264	$5,378	$1,784	$5,270	$7,053	$1,372	$4,306	$5,677	$371.38	5.6%	$299.32	5.6%	$0.6682	$0.5378	$0.7053	$0.5677
21	12,500	$1,574	$6,588	$8,162	$1,202	$5,330	$6,532	$2,009	$6,587	$8,596	$1,494	$5,382	$6,876	$433.59	5.3%	$343.51	5.3%	$0.6530	$0.5226	$0.6876	$0.5501
22	15,000	$1,737	$7,905	$9,642	$1,291	$6,396	$7,687	$2,233	$7,904	$10,138	$1,616	$6,458	$8,074	$495.80	5.1%	$387.71	5.0%	$0.6428	$0.5124	$0.6759	$0.5383
23	20,000	$2,062	$10,540	$12,602	$1,467	$8,528	$9,995	$2,683	$10,539	$13,223	$1,860	$8,611	$10,471	$620.22	4.9%	$476.09	4.8%	$0.6301	$0.4997	$0.6611	$0.5236
24	25,000	$2,388	$13,175	$15,563	$1,643	$10,660	$12,303	$3,133	$13,174	$16,307	$2,104	$10,764	$12,868	$744.63	4.8%	$564.48	4.6%	$0.6225	$0.4921	$0.6523	$0.5147
25	30,000	$2,713	$15,810	$18,523	$1,820	$12,792	$14,612	$3,583	$15,809	$19,392	$2,348	$12,917	$15,265	$869.05	4.7%	$652.87	4.5%	$0.6174	$0.4871	$0.6464	$0.5088
26	35,000	$3,038	$18,445	$21,483	$1,996	$14,924	$16,920	$4,033	$18,444	$22,476	$2,592	$15,070	$17,661	$993.47	4.6%	$741.26	4.4%	$0.6138	$0.4834	$0.6422	$0.5046
27	40,000	$3,363	$21,080	$24,443	$2,172	$17,056	$19,228	$4,483	$21,078	$25,561	$2,836	$17,222	$20,058	$1,117.89	4.6%	$829.64	4.3%	$0.6111	$0.4807	$0.6390	$0.5015
28	45,000	$3,688	$23,715	$27,403	$2,349	$19,188	$21,537	$4,932	$23,713	$28,646	$3,080	$19,375	$22,455	$1,242.30	4.5%	$918.03	4.3%	$0.6090	$0.4786	$0.6366	$0.4990
29	50,000	$4,014	$26,350	$30,364	$2,525	$21,320	$23,845	$5,382	$26,348	$31,730	$3,323	$21,528	$24,852	$1,366.72	4.5%	$1,006.42	4.2%	$0.6073	$0.4769	$0.6346	$0.4970
30	55,000	$4,339	$28,985	$33,324	$2,702	$23,452	$26,154	$5,832	$28,983	$34,815	$3,567	$23,681	$27,248	$1,491.14	4.5%	$1,094.80	4.2%	$0.6059	$0.4755	$0.6330	$0.4954
31	60,000	$4,664	$31,620	$36,284	$2,878	$25,584	$28,462	$6,282	$31,618	$37,900	$3,811	$25,834	$29,645	$1,615.56	4.5%	$1,183.19	4.2%	$0.6047	$0.4744	$0.6317	$0.4941
32	75,000	$5,640	$39,525	$45,165	$3,407	$31,980	$35,387	$7,632	$39,522	$47,154	$4,543	$32,292	$36,835	$1,988.81	4.4%	$1,448.35	4.1%	$0.6022	$0.4718	$0.6287	$0.4911
33	100,000	$7,266	$52,700	$59,966	$4,289	$42,640	$46,929	$9,881	$52,696	$62,577	$5,763	$43,056	$48,819	$2,610.89	4.4%	$1,890.28	4.0%	$0.5997	$0.4693	$0.6258	$0.4882
34	150,000	$10,518	$79,050	$89,568	$6,053	$63,960	$70,013	$14,379	$79,044	$93,423	$8,203	$64,584	$72,787	$3,855.07	4.3%	$2,774.15	4.0%	$0.5971	$0.4668	$0.6228	$0.4852
35	200,000	$13,771	$105,400	$119,171	$7,817	$85,280	$93,097	$18,877	$105,392	$124,270	$10,642	$86,112	$96,755	$5,099.24	4.3%	$3,658.02	3.9%	$0.5959	$0.4655	$0.6213	$0.4838

Estimated Bill Percentiles

Line		Use per Month	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	Base Rates	COG / LDAC	TOTAL	$	%	$	%	Winter	Summer	Winter	Summer
38	Winter - 25%	4,000	$1,022	$2,108	$3,130				$1,244	$2,108	$3,352				$222.08	7.1%			$0.7824		$0.8379	
39	Winter - 50%	30,000	$2,713	$15,810	$18,523				$3,583	$15,809	$19,392				$869.05	4.7%			$0.6174		$0.6464	
40	Winter - 75%	100,000	$7,266	$52,700	$59,966				$9,881	$52,696	$62,577				$2,610.89	4.4%			$0.5997		$0.6258	
41	Summer - 25%	15,000				$1,291	$6,396	$7,687				$1,616	$6,458	$8,074			$387.71	5.0%		$0.5124		$0.5383
42	Summer - 50%	50,000				$2,525	$21,320	$23,845				$3,323	$21,528	$24,852			$1,006.42	4.2%		$0.4769		$0.4970
43	Summer - 75%	80,000				$3,583	$34,112	$37,695				$4,787	$34,445	$39,232			$1,536.74	4.1%		$0.4712		$0.4904

Estimated Bill Percentiles per 2010 MCS

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

Line No		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
1	**Winter Season (Jan. - Apr., Nov. - Dec.)**								**Summer Season (May - Oct.)**								
2	**Residential Non-Heating (R1)**																
3	PROPOSED																
5	average Usage (Therms)	20	26	27	26	23	19	140		14	11	9	9	11	13	69	209
6																	
7	Winter:																
8	Cust. Chg	$17.99	$17.99	$17.99	$17.99	$17.99	$17.99	$107.95									
9	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00									
10	Tailblock	$8.12	$10.60	$11.27	$10.79	$9.49	$7.74	$58.01									
11	HB Threshold																
12																	
13	Summer:																
14	Cust. Chg									$17.99	$17.99	$17.99	$17.99	$17.99	$17.99	$107.95	$215.89
15	Headblock									$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
16	Tailblock									$5.99	$4.72	$3.83	$3.92	$4.37	$5.53	$28.37	$86.38
17	HB Threshold																
18																	
19	Total Base Rate Amount	$26.11	$28.59	$29.26	$28.78	$27.48	$25.73	$165.95		$23.98	$22.72	$21.82	$21.91	$22.36	$23.53	$136.32	$302.27
20																	
21	COG Rate - (Winter)	$0.4718	$0.4718	$0.4718	$0.4718	$0.4718	$0.4718	$0.4718									
22	COG amount - Winter	$9.26	$12.09	$12.85	$12.30	$10.82	$8.82	$66.15									
23																	
24	COG Rate - (Summer)									$0.3738	$0.3738	$0.3738	$0.3738	$0.3738	$0.3738	$0.3738	$0.4396
25	COG amount - Summer									$5.41	$4.27	$3.46	$3.54	$3.95	$5.00	$25.64	$91.79
26																	
27	LDAC	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329		$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329
28	LDAC amount	$0.65	$0.84	$0.90	$0.86	$0.75	$0.61	$4.61		$0.48	$0.38	$0.30	$0.31	$0.35	$0.44	$2.25	$6.86
29																	
30	Total Bill	$36.02	$41.53	$43.01	$41.94	$39.06	$35.16	$236.71		$29.86	$27.36	$25.59	$25.77	$26.66	$28.97	$164.21	$400.92
31	**Winter Season (Jan. - Apr., Nov. - Dec.)**								**Summer Season (May - Oct.)**								
32	**Residential Non-Heating (R1)**																
33	CURRENT																
35	average Usage (Therms)	20	26	27	26	23	19	140		14	11	9	9	11	13	69	209
36																	
37	Winter:																
38	Cust. Chg	$15.50	$15.50	$15.50	$15.50	$15.50	$15.50	$92.98									
39	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00									
40	Tailblock	$7.58	$9.89	$10.51	$10.07	$8.86	$7.22	$54.12									
41	HB Threshold																
42																	
43	Summer:																
44	Cust. Chg									$15.50	$15.50	$15.50	$15.50	$15.50	$15.50	$92.98	$185.96
45	Headblock									$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
46	Tailblock									$5.59	$4.41	$3.58	$3.66	$4.08	$5.16	$26.47	$80.60
47	HB Threshold																
48																	
49	Total Base Rate Amount	$23.07	$25.39	$26.01	$25.56	$24.35	$22.71	$147.10		$21.08	$19.91	$19.07	$19.16	$19.58	$20.66	$119.45	$266.56
50																	
51	COG Rate - (Winter)	$0.4737	$0.4737	$0.4737	$0.4737	$0.4737	$0.4737	$0.4737									
52	COG amount - Winter	$9.30	$12.14	$12.90	$12.35	$10.87	$8.86	$66.42									
53																	
54	COG Rate - (Summer)									$0.3715	$0.3715	$0.3715	$0.3715	$0.3715	$0.3715	$0.3715	$0.4401
55	COG amount - Summer									$5.38	$4.24	$3.44	$3.52	$3.93	$4.97	$25.48	$91.90
56																	
57	LDAC	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310		$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310
58	LDAC amount	$0.61	$0.79	$0.84	$0.81	$0.71	$0.58	$4.35		$0.45	$0.35	$0.29	$0.29	$0.33	$0.41	$2.13	$6.47
59																	
60	Total Bill	$32.98	$38.32	$39.76	$38.72	$35.93	$32.15	$217.87		$26.91	$24.50	$22.80	$22.97	$23.83	$26.04	$147.06	$364.93
61																	
62	DIFFERENCE:																
63	Total Bill	$3.04	$3.20	$3.25	$3.22	$3.13	$3.01	$18.84		$2.96	$2.86	$2.79	$2.80	$2.83	$2.92	$17.15	$35.99
64	% Change	9.21%	8.36%	8.17%	8.30%	8.71%	9.37%	8.65%		10.98%	11.66%	12.23%	12.17%	11.88%	11.21%	11.66%	9.86%
65																	
66	Base Rate	$3.04	$3.20	$3.25	$3.22	$3.13	$3.01	$18.85		$2.90	$2.81	$2.75	$2.76	$2.79	$2.86	$16.86	$35.71
67	% Change	13.17%	12.62%	12.49%	12.58%	12.85%	13.26%	12.81%		13.73%	14.12%	14.42%	14.39%	14.24%	13.87%	14.12%	13.40%
68																	
69	COG & LDAC	($0.00)	($0.00)	($0.00)	($0.00)	($0.00)	($0.00)	($0.01)		$0.06	$0.05	$0.04	$0.04	$0.04	$0.06	$0.29	$0.28
70	% Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%		1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	0.28%

II-609

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

Line No

Winter Season (Jan. - Apr., Nov. - Dec.) | **Summer Season (May - Oct.)**

Residential Heating (R3)

PROPOSED

Line		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
75	average Usage (Therms)	83	122	145	139	105	62	657	33	18	13	14	18	38	134	791
77	**Winter:**															
78	Cust. Chg	$17.99	$17.99	$17.99	$17.99	$17.99	$17.99	$107.95								
79	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00								
80	Tailblock	$54.29	$79.49	$94.79	$90.32	$68.73	$40.72	$428.33								
81	HB Threshold															
83	**Summer:**															
84	Cust. Chg								$17.99	$17.99	$17.99	$17.99	$17.99	$17.99	$107.95	$215.89
85	Headblock								$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
86	Tailblock								$21.57	$11.64	$8.73	$8.88	$11.53	$25.06	$87.42	$515.75
87	HB Threshold															
89	Total Base Rate Amount	$72.28	$97.48	$112.78	$108.31	$86.72	$58.71	$536.28	$39.57	$29.63	$26.72	$26.88	$29.52	$43.05	$195.36	$731.64
91	COG Rate - (Winter)	$0.4718	$0.4718	$0.4718	$0.4718	$0.4718	$0.4718	$0.4718								
92	COG amount - Winter	$39.29	$57.52	$68.59	$65.36	$49.73	$29.46	$309.96								
94	COG Rate - (Summer)								$0.3738	$0.3738	$0.3738	$0.3738	$0.3738	$0.3738	$0.3738	$0.4552
95	COG amount - Summer								$12.37	$6.67	$5.00	$5.09	$6.61	$14.37	$50.12	$360.08
97	LDAC	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329
98	LDAC amount	$2.74	$4.01	$4.78	$4.55	$3.46	$2.05	$21.59	$1.09	$0.59	$0.44	$0.45	$0.58	$1.26	$4.41	$26.00
100	Total Bill	$114.31	$159.01	$186.15	$178.21	$139.92	$90.23	$867.83	$53.02	$36.89	$32.16	$32.42	$36.71	$58.69	$249.89	$1,117.71

Winter Season (Jan. - Apr., Nov. - Dec.) | **Summer Season (May - Oct.)**

Residential Heating (R3)

CURRENT

Line		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
105	average Usage (Therms)	83	122	145	139	105	62	657	33	18	13	14	18	38	134	791
107	**Winter:**															
108	Cust. Chg	$15.50	$15.50	$15.50	$15.50	$15.50	$15.50	$92.98								
109	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00								
110	Tailblock	$47.28	$69.22	$82.55	$78.65	$59.85	$35.46	$373.01								
111	HB Threshold															
113	**Summer:**															
114	Cust. Chg								$15.50	$15.50	$15.50	$15.50	$15.50	$15.50	$92.98	$185.96
115	Headblock								$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
116	Tailblock								$18.79	$10.14	$7.60	$7.74	$10.04	$21.83	$76.13	$449.14
117	HB Threshold															
119	Total Base Rate Amount	$62.78	$84.72	$98.04	$94.15	$75.35	$50.96	$465.99	$34.28	$25.64	$23.10	$23.23	$25.54	$37.32	$169.11	$635.10
121	COG Rate - (Winter)	$0.4737	$0.4737	$0.4737	$0.4737	$0.4737	$0.4737	$0.4737								
122	COG amount - Winter	$39.45	$57.75	$68.87	$65.62	$49.93	$29.58	$311.21								
124	COG Rate - (Summer)								$0.3715	$0.3715	$0.3715	$0.3715	$0.3715	$0.3715	$0.3715	$0.4564
125	COG amount - Summer								$12.29	$6.63	$4.97	$5.06	$6.57	$14.28	$49.81	$361.02
127	LDAC	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310
128	LDAC amount	$2.58	$3.78	$4.51	$4.29	$3.27	$1.94	$20.37	$1.03	$0.55	$0.41	$0.42	$0.55	$1.19	$4.16	$24.52
130	Total Bill	$104.80	$146.25	$171.42	$164.06	$128.55	$82.47	$797.56	$47.60	$32.82	$28.48	$28.72	$32.65	$52.79	$223.07	$1,020.64
132	**DIFFERENCE:**															
133	Total Bill	$9.50	$12.76	$14.73	$14.15	$11.37	$7.75	$70.26	$5.42	$4.07	$3.68	$3.70	$4.06	$5.89	$26.81	$97.08
134	% Change	9.07%	8.72%	8.59%	8.63%	8.84%	9.40%	8.81%	11.38%	12.41%	12.91%	12.88%	12.42%	11.16%	12.02%	9.51%
136	Base Rate	$9.51	$12.76	$14.74	$14.16	$11.37	$7.75	$70.29	$5.28	$4.00	$3.62	$3.64	$3.98	$5.73	$26.26	$96.55
137	% Change	15.14%	15.06%	15.03%	15.04%	15.09%	15.22%	15.08%	15.40%	15.60%	15.68%	15.67%	15.60%	15.36%	15.53%	15.20%
139	COG & LDAC	($0.00)	($0.00)	($0.01)	($0.01)	($0.00)	($0.00)	($0.03)	$0.14	$0.07	$0.06	$0.06	$0.07	$0.16	$0.56	$0.53
140	% Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	0.14%

II-510

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

Winter Season (Jan. - Apr., Nov. - Dec.)

Low Income Residential Heating (R4)

Line No	PROPOSED	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
145	average Usage (Therms)	81	118	140	133	103	62	636
146								
147	Winter:							
148	Cust. Chg	$7.20	$7.20	$7.20	$7.20	$7.20	$7.20	$43.18
149	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
150	Tailblock	$21.00	$30.75	$36.63	$34.68	$26.75	$16.09	$165.90
151	HB Threshold							
152								
153	Summer:							
154	Cust. Chg							
155	Headblock							
156	Tailblock							
157	HB Threshold							
158								
159	Total Base Rate Amount	$28.19	$37.95	$43.83	$41.87	$33.94	$23.29	$209.08
160								
161	COG Rate - (Winter)	$0.4718	$0.4718	$0.4718	$0.4718	$0.4718	$0.4718	$0.4718
162	COG amount - Winter	$37.99	$55.64	$66.27	$62.74	$48.39	$29.11	$300.13
163								
164	COG Rate - (Summer)							
165	COG amount - Summer							
166								
167	LDAC	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329
168	LDAC amount	$2.65	$3.88	$4.62	$4.37	$3.37	$2.03	$20.90
169								
170	Total Bill	$68.83	$97.46	$114.71	$108.98	$85.70	$54.42	$530.11

Summer Season (May - Oct.)

Line No		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
145		33	18	14	14	18	38	134	770
154		$7.20	$7.20	$7.20	$7.20	$7.20	$7.20	$43.18	$86.36
155		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
156		$8.56	$4.80	$3.61	$3.66	$4.60	$9.79	$35.02	$200.91
159		$15.76	$12.00	$10.80	$10.86	$11.80	$16.99	$78.19	$287.27
164		$0.3738	$0.3738	$0.3738	$0.3738	$0.3738	$0.3738	$0.3738	$0.4547
165		$12.27	$6.88	$5.17	$5.25	$6.59	$14.03	$50.19	$350.31
167		$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329	$0.0329
168		$1.08	$0.60	$0.45	$0.46	$0.58	$1.23	$4.41	$25.32
170		$29.10	$19.48	$16.42	$16.57	$18.97	$32.25	$132.79	$662.90

Winter Season (Jan. - Apr., Nov. - Dec.)

Low Income Residential Heating (R4)

Line No	CURRENT	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
175	average Usage (Therms)	81	118	140	133	103	62	636
176								
177	Winter:							
178	Cust. Chg	$6.20	$6.20	$6.20	$6.20	$6.20	$6.20	$37.19
179	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
180	Tailblock	$18.29	$26.79	$31.90	$30.20	$23.30	$14.01	$144.50
181	HB Threshold							
182								
183	Summer:							
184	Cust. Chg							
185	Headblock							
186	Tailblock							
187	HB Threshold							
188								
189	Total Base Rate Amount	$24.49	$32.99	$38.10	$36.40	$29.50	$20.21	$181.69
190								
191	COG Rate - (Winter)	$0.4737	$0.4737	$0.4737	$0.4737	$0.4737	$0.4737	$0.4737
192	COG amount - Winter	$38.14	$55.86	$66.53	$62.99	$48.58	$29.23	$301.33
193								
194	COG Rate - (Summer)							
195	COG amount - Summer							
196								
197	LDAC	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	0.0310
198	LDAC amount	$2.50	$3.66	$4.35	$4.12	$3.18	$1.91	$19.72
199								
200	Total Bill	$65.12	$92.50	$108.99	$103.51	$81.26	$51.35	$502.74

Summer Season (May - Oct.)

Line No		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
175		33	18	14	14	18	38	134	770
184		$6.20	$6.20	$6.20	$6.20	$6.20	$6.20	$37.19	$74.38
185		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
186		$7.46	$4.18	$3.14	$3.19	$4.01	$8.53	$30.50	$175.00
189		$13.65	$10.38	$9.34	$9.39	$10.20	$14.72	$67.69	$249.38
194		$0.3715	$0.3715	$0.3715	$0.3715	$0.3715	$0.3715	$0.3715	$0.4559
195		$12.19	$6.84	$5.14	$5.22	$6.55	$13.94	$49.88	$351.21
197		$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310	$0.0310
198		$1.02	$0.57	$0.43	$0.44	$0.55	$1.16	$4.16	$23.88
200		$26.87	$17.79	$14.90	$15.04	$17.30	$29.83	$121.73	$624.48

DIFFERENCE:

Line No		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
203	Total Bill	$3.70	$4.96	$5.72	$5.47	$4.44	$3.07	$27.36
204	% Change	5.69%	5.36%	5.25%	5.28%	5.47%	5.98%	5.44%
205								
206	Base Rate	$3.71	$4.97	$5.72	$5.47	$4.45	$3.07	$27.39
207	% Change	15.14%	15.05%	15.02%	15.03%	15.08%	15.20%	15.07%
208								
209	COG & LDAC	($0.00)	($0.00)	($0.01)	($0.01)	($0.00)	($0.00)	($0.02)
210	% Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%

Line No		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
203		$2.24	$1.69	$1.52	$1.53	$1.66	$2.42	$11.06	$38.43
204		8.33%	9.52%	10.20%	10.16%	9.62%	8.10%	9.09%	6.15%
206		$2.10	$1.62	$1.46	$1.47	$1.59	$2.26	$10.50	$37.89
207		15.39%	15.58%	15.66%	15.66%	15.59%	15.35%	15.52%	15.19%
209		$0.14	$0.08	$0.06	$0.06	$0.07	$0.16	$0.56	$0.53
210		1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	1.03%	0.14%

II-511

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

Line No

211 Winter Season (Jan. - Apr., Nov. - Dec.)
212 Commercial/Industrial - Low Annual Use, High Winter Use (G-41)

213 PROPOSED	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
215 average Usage (Therms)	272	423	521	496	364	196	2,273
216							
217 Winter:							
218 Cust. Chg	$66.71	$66.71	$66.71	$66.71	$66.71	$66.71	$400.25
219 Headblock	$54.33	$54.33	$54.33	$54.33	$54.33	$54.33	$326.00
220 Tailblock	$62.84	$117.86	$153.80	$144.50	$96.49	$35.00	$610.49
221 HB Threshold							
222							
223 Summer:							
224 Cust. Chg							
225 Headblock							
226 Tailblock							
227 HB Threshold							
228							
229 Total Base Rate Amount	$183.88	$238.90	$274.84	$265.54	$217.54	$156.04	$1,336.74
230							
231 COG Rate - (Winter)	$0.4705	$0.4705	$0.4705	$0.4705	$0.4705	$0.4705	$0.4705
232 COG amount - Winter	$128.06	$198.99	$245.33	$233.33	$171.45	$92.17	$1,069.32
233							
234 COG Rate - (Summer)							
235 COG amount - Summer							
236							
237 LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
238 LDAC amount	$13.52	$21.00	$25.89	$24.63	$18.10	$9.73	$112.87
239							
240 Total Bill	$325.46	$458.89	$546.06	$523.50	$407.08	$257.94	$2,518.93

Summer Season (May - Oct.)

213 PROPOSED	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
215 average Usage (Therms)	91	39	26	26	40	108	330	2,603
216								
217 Winter:								
218 Cust. Chg								
219 Headblock								
220 Tailblock								
221 HB Threshold								
222								
223 Summer:								
224 Cust. Chg	$66.71	$66.71	$66.71	$66.71	$66.71	$66.71	$400.25	$800.51
225 Headblock	$10.87	$10.87	$10.87	$10.87	$10.87	$10.87	$65.20	$391.20
226 Tailblock	$25.82	$6.95	$2.07	$2.36	$7.25	$32.09	$76.56	$687.04
227 HB Threshold								
228								
229 Total Base Rate Amount	$103.40	$84.53	$79.65	$79.94	$84.83	$109.66	$542.01	$1,878.75
230								
231 COG Rate - (Winter)								
232 COG amount - Winter								
233								
234 COG Rate - (Summer)	$0.3692	$0.3692	$0.3692	$0.3692	$0.3692	$0.3692	$0.3692	$0.4577
235 COG amount - Summer	$33.51	$14.42	$9.48	$9.78	$14.72	$39.85	$121.75	$1,191.07
236								
237 LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
238 LDAC amount	$4.51	$1.94	$1.28	$1.31	$1.98	$5.36	$16.38	$129.25
239								
240 Total Bill	$141.42	$100.89	$90.41	$91.03	$101.53	$154.87	$680.14	$3,199.07

241 Winter Season (Jan. - Apr., Nov. - Dec.)
242 Commercial/Industrial - Low Annual Use, High Winter Use (G-41)

243 CURRENT	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
245 average Usage (Therms)	272	423	521	496	364	196	2,273
246							
247 Winter:							
248 Cust. Chg	$57.46	$57.46	$57.46	$57.46	$57.46	$57.46	$344.76
249 Headblock	$47.11	$47.11	$47.11	$47.11	$47.11	$47.11	$282.67
250 Tailblock	$54.49	$102.20	$133.36	$125.29	$83.67	$30.35	$529.36
251 HB Threshold							
252							
253 Summer:							
254 Cust. Chg							
255 Headblock							
256 Tailblock							
257 HB Threshold							
258							
259 Total Base Rate Amount	$159.06	$206.77	$237.94	$229.87	$188.24	$134.92	$1,156.80
260							
261 COG Rate - (Winter)	$0.4724	$0.4724	$0.4724	$0.4724	$0.4724	$0.4724	$0.4724
262 COG amount - Winter	$128.58	$199.79	$246.32	$234.27	$172.14	$92.54	$1,073.64
263							
264 COG Rate - (Summer)							
265 COG amount - Summer							
266							
267 LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
268 LDAC amount	$13.01	$20.22	$24.92	$23.71	$17.42	$9.36	$108.64
269							
270 Total Bill	$300.65	$426.78	$509.18	$487.85	$377.80	$236.82	$2,339.08
271							
272 DIFFERENCE:							
273 Total Bill	$24.81	$32.12	$36.89	$35.65	$29.28	$21.11	$179.86
274 % Change	8.25%	7.53%	7.24%	7.31%	7.75%	8.91%	7.69%
275							
276 Base Rate	$24.82	$32.13	$36.91	$35.67	$29.29	$21.12	$179.94
277 % Change	15.60%	15.54%	15.51%	15.52%	15.56%	15.65%	15.56%
278							
279 COG & LDAC	($0.01)	($0.02)	($0.02)	($0.02)	($0.01)	($0.01)	($0.09)
280 % Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%

Summer Season (May - Oct.)

243 CURRENT	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
245 average Usage (Therms)	91	39	26	26	40	108	330	2,603
246								
247 Winter:								
248 Cust. Chg								
249 Headblock								
250 Tailblock								
251 HB Threshold								
252								
253 Summer:								
254 Cust. Chg	$57.46	$57.46	$57.46	$57.46	$57.46	$57.46	$344.76	$689.53
255 Headblock	$9.42	$9.42	$9.42	$9.42	$9.42	$9.42	$56.53	$339.21
256 Tailblock	$22.39	$6.03	$1.80	$2.05	$6.29	$27.82	$66.38	$595.74
257 HB Threshold								
258								
259 Total Base Rate Amount	$89.28	$72.91	$68.68	$68.93	$73.17	$94.71	$467.68	$1,624.48
260								
261 COG Rate - (Winter)								
262 COG amount - Winter								
263								
264 COG Rate - (Summer)	$0.3669	$0.3669	$0.3669	$0.3669	$0.3669	$0.3669	$0.3669	$0.4590
265 COG amount - Summer	$33.30	$14.33	$9.42	$9.72	$14.63	$39.60	$120.99	$1,194.63
266								
267 LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
268 LDAC amount	$4.34	$1.87	$1.23	$1.27	$1.91	$5.16	$15.76	$124.40
269								
270 Total Bill	$126.91	$89.11	$79.33	$79.91	$89.70	$139.46	$604.44	$2,943.51
271								
272 DIFFERENCE:								
273 Total Bill	$14.50	$11.78	$11.07	$11.12	$11.82	$15.41	$75.70	$255.56
274 % Change	11.43%	13.22%	13.96%	13.91%	13.18%	11.05%	12.52%	8.68%
275								
276 Base Rate	$14.12	$11.62	$10.97	$11.01	$11.66	$14.96	$74.33	$254.27
277 % Change	15.82%	15.93%	15.97%	15.97%	15.93%	15.79%	15.89%	15.65%
278								
279 COG & LDAC	$0.38	$0.16	$0.11	$0.11	$0.17	$0.45	$1.37	$1.29
280 % Change	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	0.10%

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

II-513

Winter Season (Jan. - Apr., Nov. - Dec.) / **Summer Season (May - Oct.)**

Commercial/Industrial - Medium Annual Use, High Winter Use (G-42)

PROPOSED

Line No		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
285	average Usage (Therms)	2,568	3,796	4,442	4,284	3,296	2,004	20,390	1,039	507	350	368	548	1,203	4,014	24,404
287	Winter:															
288	Cust. Chg	$200.14	$200.14	$200.14	$200.14	$200.14	$200.14	$1,200.83								
289	Headblock	$499.87	$499.87	$499.87	$499.87	$499.87	$499.87	$2,999.22								
290	Tailblock	$522.19	$931.43	$1,146.64	$1,093.74	$764.63	$334.59	$4,793.22								
291	HB Threshold															
293	Summer:															
294	Cust. Chg								$200.14	$200.14	$200.14	$200.14	$200.14	$200.14	$1,200.83	$2,401.67
295	Headblock								$199.95	$199.95	$174.72	$184.06	$199.95	$199.95	$1,158.58	$4,157.80
296	Tailblock								$212.86	$35.52	$0.00	$0.00	$49.14	$267.46	$564.98	$5,358.20
297	HB Threshold															
299	Total Base Rate Amount	$1,222.20	$1,631.44	$1,846.65	$1,793.75	$1,464.63	$1,034.60	$8,993.27	$612.95	$435.61	$374.86	$384.20	$449.23	$667.54	$2,924.39	$11,917.66
301	COG Rate - (Winter)	$0.4705	$0.4705	$0.4705	$0.4705	$0.4705	$0.4705	$0.4705								
302	COG amount - Winter	$1,208.12	$1,786.19	$2,090.18	$2,015.45	$1,550.56	$943.12	$9,593.61								
304	COG Rate - (Summer)								$0.3692	$0.3692	$0.3692	$0.3692	$0.3692	$0.3692	$0.3692	$0.4538
305	COG amount - Summer								$383.62	$187.05	$129.05	$135.95	$202.15	$444.13	$1,481.95	$11,075.56
307	LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
308	LDAC amount	$127.52	$188.53	$220.62	$212.73	$163.66	$99.55	$1,012.62	$51.60	$25.16	$17.36	$18.29	$27.19	$59.74	$199.34	$1,211.96
310	Total Bill	$2,557.83	$3,606.16	$4,157.45	$4,021.94	$3,178.86	$2,077.26	$19,599.50	$1,048.17	$647.82	$521.27	$538.44	$678.56	$1,171.42	$4,605.69	$24,205.19

CURRENT

Line No		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
315	average Usage (Therms)	2,568	3,796	4,442	4,284	3,296	2,004	20,390	1,039	507	350	368	548	1,203	4,014	24,404
317	Winter:															
318	Cust. Chg	$172.39	$172.39	$172.39	$172.39	$172.39	$172.39	$1,034.35								
319	Headblock	$428.41	$428.41	$428.41	$428.41	$428.41	$428.41	$2,570.44								
320	Tailblock	$447.54	$798.27	$982.71	$937.37	$655.31	$286.75	$4,107.96								
321	HB Threshold															
323	Summer:															
324	Cust. Chg								$172.39	$172.39	$172.39	$172.39	$172.39	$172.39	$1,034.35	$2,068.71
325	Headblock								$171.36	$171.36	$149.74	$157.75	$171.36	$171.36	$992.94	$3,563.38
326	Tailblock								$182.43	$30.44	$0.00	$0.00	$42.11	$229.22	$484.21	$4,592.17
327	HB Threshold															
329	Total Base Rate Amount	$1,048.33	$1,399.07	$1,583.51	$1,538.17	$1,256.11	$887.55	$7,712.75	$526.19	$374.20	$322.13	$330.14	$385.87	$572.97	$2,511.50	$10,224.25
331	COG Rate - (Winter)	$0.4724	$0.4724	$0.4724	$0.4724	$0.4724	$0.4724	$0.4724								
332	COG amount - Winter	$1,212.99	$1,793.40	$2,098.62	$2,023.59	$1,556.83	$946.93	$9,632.35								
334	COG Rate - (Summer)								$0.3669	$0.3669	$0.3669	$0.3669	$0.3669	$0.3669	$0.3669	$0.4550
335	COG amount - Summer								$381.23	$185.89	$128.24	$135.10	$200.89	$441.37	$1,472.72	$11,105.07
337	LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
338	LDAC amount	$122.74	$181.47	$212.35	$204.76	$157.53	$95.82	$974.65	$49.67	$24.22	$16.71	$17.60	$26.17	$57.50	$191.87	$1,166.52
340	Total Bill	$2,384.07	$3,373.93	$3,894.47	$3,766.52	$2,970.46	$1,930.29	$18,319.75	$957.09	$584.30	$467.09	$482.85	$612.93	$1,071.84	$4,176.09	$22,495.84

DIFFERENCE:

Line No		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
343	Total Bill	$173.77	$232.23	$262.97	$255.41	$208.40	$146.97	$1,279.75	$91.09	$63.52	$54.18	$55.59	$65.64	$99.58	$429.60	$1,709.34
344	% Change	7.29%	6.88%	6.75%	6.78%	7.02%	7.61%	6.99%	9.52%	10.87%	11.60%	11.51%	10.71%	9.29%	10.29%	7.60%
346	Base Rate	$173.87	$232.37	$263.14	$255.58	$208.53	$147.04	$1,280.53	$86.76	$61.41	$52.73	$54.06	$63.36	$94.57	$412.89	$1,693.42
347	% Change	16.58%	16.61%	16.62%	16.62%	16.60%	16.57%	16.60%	16.49%	16.41%	16.37%	16.38%	16.42%	16.50%	16.44%	16.56%
349	COG & LDAC	($0.10)	($0.14)	($0.17)	($0.16)	($0.13)	($0.08)	($0.78)	$4.32	$2.11	$1.45	$1.53	$2.28	$5.01	$16.71	$15.93
350	% Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	0.13%

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

Winter Season (Jan. - Apr., Nov. - Dec.)

351 **Winter Season (Jan. - Apr., Nov. - Dec.)**
352 Commercial/Industrial - High Annual Use, High Winter Use (G-43)

Line No	PROPOSED	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
355	average Usage (Therms)	23,661	31,955	31,276	29,903	24,765	17,078	158,638
357	Winter:							
358	Cust. Chg	$858.91	$858.91	$858.91	$858.91	$858.91	$858.91	$5,153.47
359	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
360	Tailblock	$7,397.55	$9,990.65	$9,778.26	$9,348.91	$7,742.67	$5,339.37	$49,597.40
361	HB Threshold							
363	Summer:							
364	Cust. Chg							
365	Headblock							
366	Tailblock							
367	HB Threshold							
369	Total Base Rate Amount	$8,256.46	$10,849.56	$10,637.17	$10,207.82	$8,601.58	$6,198.28	$54,750.87
371	COG Rate - (Winter)	$0.4705	$0.4705	$0.4705	$0.4705	$0.4705	$0.4705	$0.4705
372	COG amount - Winter	$11,132.57	$15,034.91	$14,715.29	$14,069.17	$11,651.94	$8,035.21	$74,639.08
374	COG Rate - (Summer)							
375	COG amount - Summer							
377	LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
378	LDAC amount	$1,175.06	$1,586.96	$1,553.22	$1,485.02	$1,229.88	$848.13	$7,878.26
380	Total Bill	$20,564.08	$27,471.43	$26,905.68	$25,762.01	$21,483.40	$15,081.61	$137,268.21

Summer Season (May - Oct.)

Line No	PROPOSED	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
355	average Usage (Therms)	11,030	6,524	5,278	6,059	7,044	12,595	48,531	207,169
357	Winter:								
358	Cust. Chg								
359	Headblock								
360	Tailblock								
361	HB Threshold								
363	Summer:								
364	Cust. Chg	$858.91	$858.91	$858.91	$858.91	$858.91	$858.91	$5,153.47	$10,306.94
365	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
366	Tailblock	$1,576.67	$932.64	$754.49	$866.15	$1,006.99	$1,800.44	$6,937.38	$56,534.78
367	HB Threshold								
369	Total Base Rate Amount	$2,435.58	$1,791.55	$1,613.40	$1,725.06	$1,865.90	$2,659.35	$12,090.85	$66,841.72
371	COG Rate - (Winter)								
372	COG amount - Winter								
374	COG Rate - (Summer)	$0.3692	$0.3692	$0.3692	$0.3692	$0.3692	$0.3692	$0.3692	$0.4468
375	COG amount - Summer	$4,072.15	$2,408.79	$1,948.67	$2,237.06	$2,600.82	$4,650.11	$17,917.59	$92,556.67
377	LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
378	LDAC amount	$547.75	$324.01	$262.12	$300.91	$349.84	$625.50	$2,410.13	$10,288.39
380	Total Bill	$7,055.48	$4,524.35	$3,824.19	$4,263.03	$4,816.56	$7,934.96	$32,418.58	$169,686.78

381 **Winter Season (Jan. - Apr., Nov. - Dec.)**
382 Commercial/Industrial - High Annual Use, High Winter Use (G-43)

Line No	CURRENT	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
385	average Usage (Therms)	23,661	31,955	31,276	29,903	24,765	17,078	158,638
387	Winter:							
388	Cust. Chg	$739.83	$739.83	$739.83	$739.83	$739.83	$739.83	$4,439.00
389	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
390	Tailblock	$6,231.03	$8,415.22	$8,236.32	$7,874.68	$6,521.73	$4,497.40	$41,776.36
391	HB Threshold							
393	Summer:							
394	Cust. Chg							
395	Headblock							
396	Tailblock							
397	HB Threshold							
399	Total Base Rate Amount	$6,970.86	$9,155.05	$8,976.15	$8,614.51	$7,261.56	$5,237.23	$46,215.36
401	COG Rate - (Winter)	$0.4724	$0.4724	$0.4724	$0.4724	$0.4724	$0.4724	$0.4724
402	COG amount - Winter	$11,177.52	$15,095.63	$14,774.71	$14,125.98	$11,698.99	$8,067.65	$74,940.49
404	COG Rate - (Summer)							
405	COG amount - Summer							
407	LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
408	LDAC amount	$1,131.00	$1,527.46	$1,494.99	$1,429.34	$1,183.77	$816.33	$7,582.89
410	Total Bill	$19,279.38	$25,778.13	$25,245.85	$24,169.84	$20,144.32	$14,121.21	$128,738.74

Summer Season (May - Oct.)

Line No	CURRENT	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
385	average Usage (Therms)	11,030	6,524	5,278	6,059	7,044	12,595	48,531	207,169
387	Winter:								
388	Cust. Chg								
389	Headblock								
390	Tailblock								
391	HB Threshold								
393	Summer:								
394	Cust. Chg	$739.83	$739.83	$739.83	$739.83	$739.83	$739.83	$4,439.00	$8,878.01
395	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
396	Tailblock	$1,328.04	$785.57	$635.51	$729.57	$848.20	$1,516.53	$5,843.42	$47,619.78
397	HB Threshold								
399	Total Base Rate Amount	$2,067.87	$1,525.41	$1,375.35	$1,469.40	$1,588.03	$2,256.36	$10,282.43	$56,497.79
401	COG Rate - (Winter)								
402	COG amount - Winter								
404	COG Rate - (Summer)	$0.3669	$0.3669	$0.3669	$0.3669	$0.3669	$0.3669	$0.3669	$0.4477
405	COG amount - Summer	$4,046.78	$2,393.78	$1,936.53	$2,223.12	$2,584.62	$4,621.14	$17,805.97	$92,746.46
407	LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
408	LDAC amount	$527.22	$311.86	$252.29	$289.63	$336.73	$602.05	$2,319.77	$9,902.66
410	Total Bill	$6,641.87	$4,231.05	$3,564.17	$3,982.15	$4,509.37	$7,479.55	$30,408.17	$159,146.91

DIFFERENCE: (Winter)

Line No		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
413	Total Bill	$1,284.70	$1,693.29	$1,659.83	$1,592.17	$1,339.08	$960.39	$8,529.47
414	% Change	6.66%	6.57%	6.57%	6.59%	6.65%	6.80%	6.63%
416	Base Rate	$1,285.60	$1,694.51	$1,661.02	$1,593.31	$1,340.02	$961.05	$8,535.51
417	% Change	18.44%	18.51%	18.50%	18.50%	18.45%	18.35%	18.47%
419	COG & LDAC	($0.90)	($1.22)	($1.19)	($1.14)	($0.94)	($0.65)	($6.04)
420	% Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%

DIFFERENCE: (Summer)

Line No		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
413	Total Bill	$413.61	$293.30	$260.02	$280.88	$307.19	$455.41	$2,010.41	$10,539.87
414	% Change	6.23%	6.93%	7.30%	7.05%	6.81%	6.09%	6.61%	6.62%
416	Base Rate	$367.70	$266.15	$238.05	$255.66	$277.87	$402.99	$1,808.42	$10,343.93
417	% Change	17.78%	17.45%	17.31%	17.40%	17.50%	17.86%	17.59%	18.31%
419	COG & LDAC	$45.90	$27.15	$21.97	$25.22	$29.32	$52.42	$201.98	$195.94
420	% Change	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	0.19%

II-514

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

Line No																

421 **Winter Season (Jan. - Apr., Nov. - Dec.)** — **Summer Season (May - Oct.)**

422 **Commercial/Industrial - Low Annual Use, Low Winter Use (G-51)**

423 PROPOSED	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
425 average Usage (Therms)	279	339	379	366	317	261	1,942	225	194	173	191	195	212	1,190	3,133
427 **Winter:**															
428 Cust. Chg	$66.71	$66.71	$66.71	$66.71	$66.71	$66.71	$400.23								
429 Headblock	$34.08	$34.08	$34.08	$34.08	$34.08	$34.08	$204.47								
430 Tailblock	$39.74	$53.00	$61.92	$58.94	$48.11	$35.74	$297.44								
431 HB Threshold															
433 **Summer:**															
434 Cust. Chg								$66.71	$66.71	$66.71	$66.71	$66.71	$66.71	$400.23	$800.46
435 Headblock								$34.08	$34.08	$34.08	$34.08	$34.08	$34.08	$204.47	$408.94
436 Tailblock								$27.68	$20.92	$16.17	$20.20	$21.10	$24.76	$130.83	$428.28
437 HB Threshold															
439 Total Base Rate Amount	$140.52	$153.78	$162.70	$159.72	$148.90	$136.52	$902.14	$128.46	$121.70	$116.96	$120.99	$121.88	$125.55	$735.53	$1,637.67
441 COG Rate - (Winter)	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773								
442 COG amount - Winter	$133.33	$161.88	$181.10	$174.67	$151.36	$124.70	$927.04								
444 COG Rate - (Summer)								$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.4407
445 COG amount - Summer								$85.66	$74.04	$65.89	$72.82	$74.35	$80.66	$453.42	$1,380.46
447 LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
448 LDAC amount	$13.87	$16.84	$18.84	$18.17	$15.75	$12.97	$96.46	$11.17	$9.65	$8.59	$9.49	$9.69	$10.52	$59.12	$155.57
450 Total Bill	$287.73	$332.50	$362.65	$352.56	$316.01	$274.19	$1,925.64	$225.29	$205.40	$191.44	$203.29	$205.93	$216.72	$1,248.07	$3,173.71

451 **Winter Season (Jan. - Apr., Nov. - Dec.)** — **Summer Season (May - Oct.)**

452 **Commercial/Industrial - Low Annual Use, Low Winter Use (G-51)**

453 CURRENT	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
455 average Usage (Therms)	279	339	379	366	317	261	1,942	225	194	173	191	195	212	1,190	3,133
457 **Winter:**															
458 Cust. Chg	$57.46	$57.46	$57.46	$57.46	$57.46	$57.46	$344.74								
459 Headblock	$28.39	$28.39	$28.39	$28.39	$28.39	$28.39	$170.36								
460 Tailblock	$33.11	$44.16	$51.59	$49.11	$40.09	$29.77	$247.83								
461 HB Threshold															
463 **Summer:**															
464 Cust. Chg								$57.46	$57.46	$57.46	$57.46	$57.46	$57.46	$344.74	$689.49
465 Headblock								$28.39	$28.39	$28.39	$28.39	$28.39	$28.39	$170.36	$340.73
466 Tailblock								$23.06	$17.43	$13.48	$16.83	$17.58	$20.63	$109.01	$356.84
467 HB Threshold															
469 Total Base Rate Amount	$118.96	$130.01	$137.44	$134.96	$125.94	$115.63	$762.94	$108.91	$103.28	$99.33	$102.68	$103.43	$106.48	$624.12	$1,387.05
471 COG Rate - (Winter)	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792								
472 COG amount - Winter	$133.86	$162.52	$181.82	$175.37	$151.96	$125.20	$930.73								
474 COG Rate - (Summer)								$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.4410
475 COG amount - Summer								$85.14	$73.60	$65.49	$72.38	$73.90	$80.17	$450.68	$1,381.42
477 LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
478 LDAC amount	$13.35	$16.21	$18.14	$17.49	$15.16	$12.49	$92.84	$10.75	$9.29	$8.27	$9.14	$9.33	$10.12	$56.90	$149.74
480 Total Bill	$266.18	$308.74	$337.41	$327.82	$293.06	$253.31	$1,786.51	$204.80	$186.17	$173.09	$184.20	$186.66	$196.78	$1,131.70	$2,918.21
482 **DIFFERENCE:**															
483 Total Bill	$21.55	$23.76	$25.25	$24.75	$22.95	$20.88	$139.13	$20.48	$19.23	$18.35	$19.10	$19.26	$19.94	$116.37	$255.50
484 % Change	8.10%	7.70%	7.48%	7.55%	7.83%	8.24%	7.79%	10.00%	10.33%	10.60%	10.37%	10.32%	10.14%	10.28%	8.76%
486 Base Rate	$21.56	$23.77	$25.26	$24.76	$22.96	$20.89	$139.20	$19.55	$18.42	$17.63	$18.30	$18.45	$19.06	$111.41	$250.62
487 % Change	18.12%	18.28%	18.38%	18.35%	18.23%	18.07%	18.25%	17.95%	17.84%	17.75%	17.82%	17.84%	17.90%	17.85%	18.07%
489 COG & LDAC	($0.01)	($0.01)	($0.01)	($0.01)	($0.01)	($0.01)	($0.07)	$0.94	$0.81	$0.72	$0.80	$0.81	$0.88	$4.95	$4.88
490 % Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.32%

II-515

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

Line No

Winter Season (Jan. - Apr., Nov. - Dec.)
Commercial/Industrial - Medium Annual Use, Low Winter Use (G-52)
PROPOSED

Line		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
491	Winter Season (Jan. - Apr., Nov. - Dec.)							
492	Commercial/Industrial - Medium Annual Use, Low Winter Use (G-52)							
493	PROPOSED							
494								
495	average Usage (Therms)	2,236	2,594	2,953	2,830	2,492	2,049	15,155
496								
497	Winter:							
498	Cust. Chg	$200.14	$200.14	$200.14	$200.14	$200.14	$200.14	$1,200.83
499	Headblock	$292.58	$292.58	$292.58	$292.58	$292.58	$292.58	$1,755.48
500	Tailblock	$240.82	$310.61	$380.56	$356.65	$290.77	$204.35	$1,783.76
501	HB Threshold							
502								
503	Summer:							
504	Cust. Chg							
505	Headblock							
506	Tailblock							
507	HB Threshold							
508								
509	Total Base Rate Amount	$733.54	$803.33	$873.28	$849.37	$783.49	$697.07	$4,740.08
510								
511	COG Rate - (Winter)	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773
512	COG amount - Winter	$1,067.20	$1,238.16	$1,409.51	$1,350.95	$1,189.55	$977.88	$7,233.27
513								
514	COG Rate - (Summer)							
515	COG amount - Summer							
516								
517	LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
518	LDAC amount	$111.04	$128.83	$146.66	$140.56	$123.77	$101.75	$752.60
519								
520	Total Bill	$1,911.78	$2,170.32	$2,429.45	$2,340.89	$2,096.81	$1,776.70	$12,725.95

Summer Season (May - Oct.)

Line		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
495	average Usage (Therms)	1,655	1,433	1,349	1,430	1,501	1,720	9,088	24,242
504	Cust. Chg	$200.14	$200.14	$200.14	$200.14	$200.14	$200.14	$1,200.83	$2,401.67
505	Headblock	$211.97	$211.97	$211.97	$211.97	$211.97	$211.97	$1,271.84	$3,027.33
506	Tailblock	$78.97	$52.15	$42.09	$51.81	$60.32	$86.69	$372.03	$2,155.79
509	Total Base Rate Amount	$491.08	$464.27	$454.20	$463.92	$472.43	$498.81	$2,844.70	$7,584.78
514	COG Rate - (Summer)	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.4412
515	COG amount - Summer	$630.55	$545.78	$513.96	$544.68	$571.60	$654.98	$3,461.55	$10,694.82
517	LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
518	LDAC amount	$82.21	$71.16	$67.01	$71.02	$74.53	$85.40	$451.32	$1,203.92
520	Total Bill	$1,203.84	$1,081.20	$1,035.17	$1,079.62	$1,118.56	$1,239.18	$6,757.57	$19,483.52

Winter Season (Jan. - Apr., Nov. - Dec.)
Commercial/Industrial - Medium Annual Use, Low Winter Use (G-52)
CURRENT

Line		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
521	Winter Season (Jan. - Apr., Nov. - Dec.)							
522	Commercial/Industrial - Medium Annual Use, Low Winter Use (G-52)							
523	CURRENT							
524								
525	average Usage (Therms)	2,236	2,594	2,953	2,830	2,492	2,049	15,155
526								
527	Winter:							
528	Cust. Chg	$172.39	$172.39	$172.39	$172.39	$172.39	$172.39	$1,034.35
529	Headblock	$243.87	$243.87	$243.87	$243.87	$243.87	$243.87	$1,463.23
530	Tailblock	$200.73	$258.90	$317.20	$297.28	$242.36	$170.33	$1,486.80
531	HB Threshold							
532								
533	Summer:							
534	Cust. Chg							
535	Headblock							
536	Tailblock							
537	HB Threshold							
538								
539	Total Base Rate Amount	$616.99	$675.16	$733.47	$713.54	$658.62	$586.60	$3,984.38
540								
541	COG Rate - (Winter)	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792
542	COG amount - Winter	$1,071.45	$1,243.09	$1,415.12	$1,356.33	$1,194.29	$981.78	$7,262.06
543								
544	COG Rate - (Summer)							
545	COG amount - Summer							
546								
547	LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
548	LDAC amount	$106.88	$124.00	$141.16	$135.29	$119.13	$97.93	$724.39
549								
550	Total Bill	$1,795.32	$2,042.25	$2,289.75	$2,205.17	$1,972.04	$1,666.30	$11,970.83
551								
552	DIFFERENCE:							
553	Total Bill	$116.46	$128.07	$139.70	$135.72	$124.77	$110.40	$755.12
554	% Change	6.49%	6.27%	6.10%	6.15%	6.33%	6.63%	6.31%
555								
556	Base Rate	$116.55	$128.17	$139.81	$135.83	$124.86	$110.48	$755.70
557	% Change	18.89%	18.98%	19.06%	19.04%	18.96%	18.83%	18.97%
558								
559	COG & LDAC	($0.09)	($0.10)	($0.11)	($0.11)	($0.09)	($0.08)	($0.58)
560	% Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%

Summer Season (May - Oct.)

Line		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
525	average Usage (Therms)	1,655	1,433	1,349	1,430	1,501	1,720	9,088	24,242
534	Cust. Chg	$172.39	$172.39	$172.39	$172.39	$172.39	$172.39	$1,034.35	$2,068.71
535	Headblock	$176.68	$176.68	$176.68	$176.68	$176.68	$176.68	$1,060.11	$2,523.33
536	Tailblock	$65.82	$43.47	$35.08	$43.18	$50.28	$72.26	$310.09	$1,796.89
539	Total Base Rate Amount	$414.90	$392.55	$384.16	$392.26	$399.35	$421.34	$2,404.55	$6,388.93
544	COG Rate - (Summer)	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.4415
545	COG amount - Summer	$626.74	$542.48	$510.86	$541.40	$568.15	$651.02	$3,440.65	$10,702.71
547	LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
548	LDAC amount	$79.13	$68.49	$64.50	$68.35	$71.73	$82.19	$434.40	$1,158.79
550	Total Bill	$1,120.77	$1,003.52	$959.51	$1,002.01	$1,039.23	$1,154.56	$6,279.59	$18,250.42
553	Total Bill	$83.07	$77.68	$75.66	$77.61	$79.32	$84.63	$477.98	$1,233.10
554	% Change	7.41%	7.74%	7.89%	7.75%	7.63%	7.33%	7.61%	6.76%
556	Base Rate	$76.18	$71.72	$70.04	$71.66	$73.08	$77.47	$440.16	$1,195.86
557	% Change	18.36%	18.27%	18.23%	18.27%	18.30%	18.39%	18.31%	18.72%
559	COG & LDAC	$6.89	$5.96	$5.62	$5.95	$6.25	$7.16	$37.82	$37.25
560	% Change	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.31%

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

561 Winter Season (Jan. - Apr., Nov. - Dec.)   **Summer Season (May - Oct.)**
562 Commercial/Industrial - High Annual Use, Load Factor Less Than 90% (G-53)

Line No	563 PROPOSED	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
565	average Usage (Therms)	27,160	31,349	35,590	32,054	29,450	24,278	179,882	21,519	19,047	19,313	21,119	19,654	22,956	123,608	303,490
567	**Winter:**															
568	Cust. Chg	$883.94	$883.94	$883.94	$883.94	$883.94	$883.94	$5,303.65								
569	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00								
570	Tailblock	$5,681.96	$6,558.33	$7,445.50	$6,705.72	$6,161.05	$5,079.01	$37,631.57								
571	HB Threshold															
573	**Summer:**															
574	Cust. Chg								$883.94	$883.94	$883.94	$883.94	$883.94	$883.94	$5,303.65	$10,607.30
575	Headblock								$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
576	Tailblock								$2,159.31	$1,911.32	$1,938.03	$2,119.27	$1,972.17	$2,303.59	$12,403.69	$50,035.25
577	HB Threshold															
579	Total Base Rate Amount	$6,565.90	$7,442.28	$8,329.44	$7,589.66	$7,044.99	$5,962.95	$42,935.22	$3,043.25	$2,795.26	$2,821.97	$3,003.21	$2,856.11	$3,187.53	$17,707.34	$60,642.56
581	COG Rate - (Winter)	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773								
582	COG amount - Winter	$12,963.57	$14,963.03	$16,987.12	$15,299.29	$14,056.61	$11,587.92	$85,857.54								
584	COG Rate - (Summer)								$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.4380
585	COG amount - Summer								$8,196.40	$7,255.05	$7,356.45	$8,044.40	$7,486.04	$8,744.03	$47,082.38	$132,939.91
587	LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
588	LDAC amount	$1,348.83	$1,556.87	$1,767.47	$1,591.85	$1,462.56	$1,205.69	$8,933.27	$1,068.65	$945.92	$959.14	$1,048.83	$976.03	$1,140.05	$6,138.62	$15,071.89
590	**Total Bill**	**$20,878.30**	**$23,962.18**	**$27,084.03**	**$24,480.80**	**$22,564.15**	**$18,756.57**	**$137,726.03**	**$12,308.30**	**$10,996.23**	**$11,137.56**	**$12,096.44**	**$11,318.19**	**$13,071.61**	**$70,928.34**	**$208,654.36**

591 Winter Season (Jan. - Apr., Nov. - Dec.)   **Summer Season (May - Oct.)**
592 Commercial/Industrial - High Annual Use, Load Factor Less Than 90% (G-53)

Line No	593 CURRENT	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
595	average Usage (Therms)	27,160	31,349	35,590	32,054	29,450	24,278	179,882	21,519	19,047	19,313	21,119	19,654	22,956	123,608	303,490
597	**Winter:**															
598	Cust. Chg	$761.39	$761.39	$761.39	$761.39	$761.39	$761.39	$4,568.37								
599	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00								
600	Tailblock	$4,629.87	$5,343.97	$6,066.86	$5,464.06	$5,020.25	$4,138.57	$30,663.58								
601	HB Threshold															
603	**Summer:**															
604	Cust. Chg								$761.39	$761.39	$761.39	$761.39	$761.39	$761.39	$4,568.37	$9,136.73
605	Headblock								$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
606	Tailblock								$1,759.49	$1,557.41	$1,579.18	$1,726.86	$1,607.00	$1,877.05	$10,106.98	$40,770.55
607	HB Threshold															
609	Total Base Rate Amount	$5,391.26	$6,105.36	$6,828.26	$6,225.46	$5,781.64	$4,899.96	$35,231.94	$2,520.88	$2,318.81	$2,340.57	$2,488.25	$2,368.39	$2,638.44	$14,675.34	$49,907.28
611	COG Rate - (Winter)	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792								
612	COG amount - Winter	$13,015.17	$15,022.60	$17,054.74	$15,360.19	$14,112.57	$11,634.05	$86,199.31								
614	COG Rate - (Summer)								$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.4382
615	COG amount - Summer								$8,146.91	$7,211.24	$7,312.03	$7,995.82	$7,440.84	$8,691.23	$46,798.08	$132,997.39
617	LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
618	LDAC amount	$1,298.26	$1,498.50	$1,701.20	$1,532.17	$1,407.72	$1,160.49	$8,598.35	$1,028.58	$910.45	$923.18	$1,009.51	$939.44	$1,097.31	$5,908.47	$14,506.82
620	**Total Bill**	**$19,704.69**	**$22,626.46**	**$25,584.20**	**$23,117.82**	**$21,301.93**	**$17,694.50**	**$130,029.60**	**$11,696.37**	**$10,440.50**	**$10,575.78**	**$11,493.58**	**$10,748.67**	**$12,426.98**	**$67,381.89**	**$197,411.49**
622	**DIFFERENCE:**															
623	**Total Bill**	**$1,173.61**	**$1,335.72**	**$1,499.83**	**$1,362.98**	**$1,262.23**	**$1,062.07**	**$7,696.43**	**$611.93**	**$555.73**	**$561.78**	**$602.86**	**$569.52**	**$644.63**	**$3,546.44**	**$11,242.87**
624	% Change	5.96%	5.90%	5.86%	5.90%	5.93%	6.00%	5.92%	5.23%	5.32%	5.31%	5.25%	5.30%	5.19%	5.26%	5.70%
626	**Base Rate**	$1,174.64	$1,336.91	$1,501.18	$1,364.20	$1,263.35	$1,063.00	$7,703.28	$522.37	$476.45	$481.40	$514.96	$487.72	$549.09	$3,032.00	$10,735.28
627	% Change	21.79%	21.90%	21.98%	21.91%	21.85%	21.69%	21.86%	20.72%	20.55%	20.57%	20.70%	20.59%	20.81%	20.66%	21.51%
629	**COG & LDAC**	($1.03)	($1.19)	($1.36)	($1.22)	($1.12)	($0.92)	($6.85)	$89.56	$79.27	$80.38	$87.90	$81.80	$95.54	$514.45	$507.59
630	% Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.34%

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Bill Impact Analysis - Cost of Gas Filing Methodology

Winter Season (Jan. - Apr., Nov. - Dec.)
Commercial/Industrial - High Annual Use, Load Factor Greater Than 90% (G-54)

Line No	PROPOSED	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
633	PROPOSED							
635	average Usage (Therms)	61,794	48,201	46,759	46,199	40,987	48,188	292,128
637	Winter:							
638	Cust. Chg	$883.94	$883.94	$883.94	$883.94	$883.94	$883.94	$5,303.65
639	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
640	Tailblock	$5,559.41	$4,336.53	$4,206.81	$4,156.44	$3,687.49	$4,335.34	$26,282.01
641	HB Threshold							
643	Summer:							
644	Cust. Chg							
645	Headblock							
646	Tailblock							
647	HB Threshold							
649	Total Base Rate Amount	$6,443.35	$5,220.47	$5,090.75	$5,040.38	$4,571.43	$5,219.28	$31,585.66
651	COG Rate - (Winter)	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773	$0.4773
652	COG amount - Winter	$29,494.06	$23,006.38	$22,318.15	$22,050.94	$19,563.06	$23,000.04	$139,432.64
654	COG Rate - (Summer)							
655	COG amount - Summer							
657	LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
658	LDAC amount	$3,068.79	$2,393.76	$2,322.15	$2,294.35	$2,035.49	$2,393.10	$14,507.63
660	Total Bill	$39,006.20	$30,620.61	$29,731.05	$29,385.66	$26,169.99	$30,612.42	$185,525.93

Summer Season (May - Oct.)

Line No		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
635	average Usage (Therms)	58,766	61,809	64,600	68,379	65,031	64,466	383,051	675,179
644	Cust. Chg	$883.94	$883.94	$883.94	$883.94	$883.94	$883.94	$5,303.65	$10,607.30
645	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
646	Tailblock	$2,867.24	$3,015.75	$3,151.90	$3,336.30	$3,172.92	$3,145.38	$18,689.48	$44,971.50
649	Total Base Rate Amount	$3,751.18	$3,899.69	$4,035.84	$4,220.24	$4,056.86	$4,029.32	$23,993.14	$55,578.80
654	COG Rate - (Summer)	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.3809	$0.4226
655	COG amount - Summer	$22,383.82	$23,543.16	$24,606.08	$26,045.63	$24,770.18	$24,555.16	$145,904.03	$285,336.67
657	LDAC	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497	$0.0497
658	LDAC amount	$2,918.41	$3,069.57	$3,208.15	$3,395.84	$3,229.55	$3,201.51	$19,023.03	$33,530.66
660	Total Bill	$29,053.41	$30,512.42	$31,850.08	$33,661.71	$32,056.59	$31,785.99	$188,920.20	$374,446.13

Winter Season (Jan. - Apr., Nov. - Dec.)
Commercial/Industrial - High Annual Use, Load Factor Greater Than 90% (G-54)

Line No	CURRENT	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
663	CURRENT							
665	average Usage (Therms)	61,794	48,201	46,759	46,199	40,987	48,188	292,128
667	Winter:							
668	Cust. Chg	$761.39	$761.39	$761.39	$761.39	$761.39	$761.39	$4,568.37
669	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
670	Tailblock	$4,019.42	$3,135.29	$3,041.49	$3,005.08	$2,666.03	$3,134.42	$19,001.73
671	HB Threshold							
673	Summer:							
674	Cust. Chg							
675	Headblock							
676	Tailblock							
677	HB Threshold							
679	Total Base Rate Amount	$4,780.81	$3,896.68	$3,802.89	$3,766.47	$3,427.43	$3,895.82	$23,570.10
681	COG Rate - (Winter)	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792	$0.4792
682	COG amount - Winter	$29,611.47	$23,097.96	$22,407.00	$22,138.72	$19,640.94	$23,091.60	$139,987.68
684	COG Rate - (Summer)							
685	COG amount - Summer							
687	LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
688	LDAC amount	$2,953.73	$2,304.01	$2,235.09	$2,208.33	$1,959.18	$2,303.38	$13,963.71
690	Total Bill	$37,346.02	$29,298.66	$28,444.97	$28,113.52	$25,027.54	$29,290.79	$177,521.50

Summer Season (May - Oct.)

Line No		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
665	average Usage (Therms)	58,766	61,809	64,600	68,379	65,031	64,466	383,051	675,179
674	Cust. Chg	$761.39	$761.39	$761.39	$761.39	$761.39	$761.39	$4,568.37	$9,136.73
675	Headblock	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
676	Tailblock	$2,073.00	$2,180.37	$2,278.80	$2,412.12	$2,294.00	$2,274.09	$13,512.38	$32,514.12
679	Total Base Rate Amount	$2,834.39	$2,941.76	$3,040.20	$3,173.52	$3,055.40	$3,035.48	$18,080.75	$41,650.85
684	COG Rate - (Summer)	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.3786	$0.4221
685	COG amount - Summer	$22,248.66	$23,401.00	$24,457.50	$25,888.36	$24,620.61	$24,406.89	$145,023.01	$285,010.70
687	LDAC	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478	$0.0478
688	LDAC amount	$2,809.00	$2,954.48	$3,087.87	$3,268.52	$3,108.47	$3,081.48	$18,309.83	$32,273.54
690	Total Bill	$27,892.04	$29,297.25	$30,585.57	$32,330.40	$30,784.47	$30,523.85	$181,413.59	$358,935.08

DIFFERENCE:

Line No		Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Winter
693	Total Bill	$1,660.18	$1,321.96	$1,286.08	$1,272.15	$1,142.44	$1,321.63	$8,004.44
694	% Change	4.45%	4.51%	4.52%	4.53%	4.56%	4.51%	4.51%
696	Base Rate	$1,662.54	$1,323.79	$1,287.86	$1,273.91	$1,144.01	$1,323.46	$8,015.56
697	% Change	34.78%	33.97%	33.87%	33.82%	33.38%	33.97%	34.01%
699	COG & LDAC	($2.35)	($1.84)	($1.78)	($1.76)	($1.56)	($1.84)	($11.13)
700	% Change	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%

Line No		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Summer	2020/21 Total
693	Total Bill	$1,161.37	$1,215.17	$1,264.50	$1,331.31	$1,272.12	$1,262.14	$7,506.61	$15,511.05
694	% Change	4.16%	4.15%	4.13%	4.12%	4.13%	4.13%	4.14%	4.32%
696	Base Rate	$916.79	$957.93	$995.64	$1,046.72	$1,001.47	$993.84	$5,912.39	$13,927.95
697	% Change	32.35%	32.56%	32.75%	32.98%	32.78%	32.74%	32.70%	33.44%
699	COG & LDAC	$244.58	$257.24	$268.86	$284.59	$270.65	$268.30	$1,594.22	$1,583.10
700	% Change	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.98%	0.50%

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