STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. DE 23-039

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty
Distribution Service Rate Case
Rate Design

DIRECT TESTIMONY

OF

GREGG H. THERRIEN

Vice President
Concentric Energy Advisors

May 5, 2023

Liberty™

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I. INTRODUCTION AND BACKGROUND

Q. Mr. Therrien, please state your full name, business address, and position.

A. My name is Gregg H. Therrien. I am a Vice President with Concentric Energy Advisors, 293 Boston Post Road West, Suite 500, Marlborough, MA. My professional qualifications and experience are provided in Attachment GHT-1.

Q. Mr. Therrien, have you previously testified before the New Hampshire Public Utilities Commission (the "Commission")?

A. Yes. I have testified in Docket No. DG 17-048 on behalf of Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty on the subject matter of revenue decoupling and rate design. I have also testified in Docket No. DE 19-064 Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty ("Liberty" or the "Company") on the subject matter of revenue decoupling. Most recently, I testified in Docket No. DE 22-052 on behalf of Liberty in support of their annual decoupling compliance filing.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to (a) explain the development of test year billing determinants and base revenues for rate design, (b) present and support the calculations and analysis related to Liberty's proposed permanent rates, including typical bill impact analyses, and (c) present the Company's proposed miscellaneous service revenues used in the proposed revenue requirement.

II. TEST YEAR NORMAL REVENUES

Q. Please explain the purpose of calculating test year normal distribution revenues.

A. The purpose of the test year distribution revenue calculation is to provide a normalized and annualized baseline distribution revenue amount at current rates. In this Application, normal distribution revenues have been calculated using the most recently approved base distribution rates effective March 1, 2023. These rates are then multiplied times actual calendar 2022 (test year) billing determinants. Attachment GHT-2 summarizes these test year revenues and billing determinants.

III. RATE DESIGN

A. Introduction

Q. Are there general rate design principles acknowledged in the utility industry?

A. Yes. For many decades utility rate analysts have followed the general rate design principles developed by James C. Bonbright (and others). In his book, Principles of Public Utility Rates, he describes the principles of efficiency, simplicity, continuity of rates, fairness between rate classes, and corporate earnings stability.[1]

Q. Please explain your understanding of these principles.

A. An efficient rate structure promotes economically justified use of a company's sales and distribution services and discourages wasteful use. Rate design simplicity is achieved if the customers understand what they are being charged – the level of rates and the rate

[1] "Principles of Public Utility Rates", Public Utility reports, Inc. by James C. Bonbright, Albert L. Danielsen and David R. Kamerschen. Second edition March 1988, pages 383–384.

structure. Rate continuity requires that changes to the rate structure should not be abrupt and unexpected; gradual changes to the rate structure should allow customers to modify their usage patterns. A rate design is fair if no customer class pays more than the costs to serve that class. A rate design provides for earnings stability if the company has a reasonable opportunity to earn its allowed rate of return during the time that the rates are in effect.

Q. Were these principles followed in the proposed revenue allocation and rate design?

A. Yes. It is important to understand that these principles often conflict with one another. Together, they offer a check and balance as to the reasonableness of the designed rates. Under some circumstances one or more of these principles may necessarily be violated; however, the proposed revenue allocations and rate design presented here do not materially stray from any of the principles. As explained in the following section of this testimony, the results of the Marginal Cost Study ("MCS") (Attachment MFB-10 included with the testimony of Melissa F. Bartos) were used to develop proposed class revenue allocations and elements of the proposed rate design.

B. Revenue Allocation

Q. What is the base delivery revenue requirement that was used to design the Company's proposed permanent base rates?

A. Base rates were designed to recover $61,377,409 of delivery-related revenue requirements. This amount is the sum of the $45,890,407 test year normalized revenues calculated in Attachment GHT-2 plus the revenue deficiency of $15,487,002 discussed in the testimony of the Revenue Requirements panel.

Q. How did you assign the total Base Revenue Requirement to each of the Company's rate classes?

A. Class revenue targets were based on the results of the MCS adjusting using the Equi-Proportional Method ("EPM") to recover the allowed revenue requirements. As shown in Attachment MFB-10, the total delivery service marginal cost is $53,766,243. Because the total delivery service marginal cost does not equal the Company's revenue requirement, the delivery service marginal cost for each rate class was adjusted on a pro-rata basis using the EPM. Because the EPM method adjusts all marginal costs by a uniform percentage, the marginal cost-based price signals are preserved. In this context, the marginal cost price signals include both the overall level of the revenue target for each rate class, and the specific customer charges and variable (per kWh and per kW) rates charged to the customers in each rate class. As explained in the following section, the equi-proportionally-adjusted delivery service marginal costs, by rate class, were further adjusted to reflect rate design considerations of continuity of rates and fairness between rate classes.

Q. Have you prepared a schedule that shows how you determined the base revenue target and the proposed rates for each class?

A. Yes. Attachment GHT-3 shows how the class base revenue targets were determined, and the process that was used to determine the final proposed rates. Attachment GHT-3 consists of the following sections that were included to assist in the rate design process:

- Section A shows proforma test year normalized revenue detail;
- Section B shows billing determinant detail;
- Section C shows the development of class revenue targets; and
- Section D shows the development of proposed rates.

Columns A through I show the data and analysis by rate class and total Company.

Q. Please explain how you determined class revenue targets.

A. The following process was used to determine class revenue targets:

a. "Current" total class revenues were calculated;
b. "Proposed" total class marginal costs were calculated;
c. Class impacts were assessed by comparing Current revenues to Proposed revenues, and a rate continuity cap was established to limit the amount of the increase assigned to any one class;
d. Revenue shortfalls that resulted from the class impact cap were assigned to all other classes; and
e. The final base revenue targets were determined by class, including equi-proportionally-adjusted class marginal costs, class impact caps, and assignments of revenue shortfalls.

Q. Please explain the steps in determining the class base revenue target process.

A. Attachment GHT-3, Section C, shows that total class targets were calculated by applying an Equi-proportional Adjustment Factor (Attachment GHT-3, Line 43) to the Total Class

Delivery Service Marginal Costs to derive total class delivery revenue targets (Line 53).

Q. Please explain the method used to determine final class base target revenues, inclusive of rate continuity considerations.

A. First, we calculated the difference by class between the proforma base revenues and the proposed revenues. This difference is the "Total Unadjusted Increase in Base Revenues" that is shown in Line 61 of Attachment GHT-3. We then calculated the percent change, shown on Line 62, that the Total Unadjusted Increase represents, relative to the current total class revenues. As Line 62 of Attachment GHT-3 indicates, a system-wide delivery increase of 33.75% is required to attain the overall system delivery revenue requirement. Using unadjusted increase percentages from Line 62 would result in some classes receiving a significant increase above the system average (e.g., Rate G-1 at 43.14%, Rate G-2 at 55.25%) and other classes indicate a rate decrease is warranted (e.g., Rate D-11 at -22.24% and Rate M at -23.52%). To maintain rate continuity, the percent increase in base revenues was limited to 40.50 percent, which is 120 percent of the total Company increase. Based on past practice with Company rate proposals[2], I determined that 120 percent was a reasonable cap that would promote efficiency by ensuring that the final rates to most classes would represent the cost to serve that class, and that the limited level cost subsidization created by the cap would not unduly distort rate efficiencies.

[2] *See* Docket No. DE-19-064, direct testimony of David Heintz, Attachment DAH-3.

Q. Please explain the iterative process used to determine final class base revenue targets.

A. First, any class that would have otherwise received a rate decrease was adjusted to a zero decrease. In applying fairness considerations, it appears inappropriate to me to decrease certain rate classes when the overall system requires a significant rate increase. Next, the 120% constraint was applied. As a result, the sum of the class revenue targets after this first iterative step was less than the delivery service revenue requirement by $826,033 (Attachment GHT-3, Line 73). This revenue shortfall was allocated to all classes that were below the cap by apportioning the shortfall to each of these classes in proportion to their relative contribution to total company test year revenues (Lines 74 and 75). This result, therefore, required a second revenue reallocation. The second step 120% constraint was applied to these adjusted revenues to derive the next proposed class revenue increase. The resulting final revenue increases are shown on Lines 90 and 91, and the final class revenue targets are shown in Attachment GHT-3 Line 93.

C. <u>Rate Design</u>

1. Calculation of Proposed Unit Delivery Rates

Q. Please explain how you designed the Company's proposed unit delivery rates.

A. The following process was used to design the Company's proposed unit delivery rates:

a. The appropriate level of customer charges and demand charges (for Rates G-1 and G-2) were determined based on standard rate design considerations; and

b. The various energy charges (per kWh) for all rate classes were determined based on rate continuity, rate equity, and marginal cost considerations. Special consideration was given to time-of-use ("TOU") based rates.

Q. Please explain the first step in the rate design process, determining the appropriate level of customer charges.

A. To determine the appropriate level of customer charges for each class, we considered: (1) the marginal customer costs resulting from the marginal cost study; (2) rate continuity; (3) rate simplicity, and (4) customer impacts. Based on these considerations, we increased the customer charges for Rate D, D-10, and T to $17.89 per month, an increase of $3.13 (21.37%). I note that the current monthly charge of $14.74 applies to each of these three rate classes, and for purposes of rate continuity, I propose keeping their monthly charge identical. Rate D (Domestic Usage) is Liberty's largest rate class and represents the vast majority of residential customer bills. Increases in monthly fixed charges are often met with resistance from residential customers, who generally prefer volumetric pricing. The Company also has a revenue decoupling mechanism designed to sever the Company's revenues from sales to further conservation of energy, among other reasons.[3]

Attachment GHT-3, Line 37, demonstrates that the proposed customer charges for these three classes are still significantly less than the unit marginal customer costs.

[3] *See* Direct testimony of Gregg Therrien in Docket No. DE 19-064, which describes the reasons for decoupling mechanisms and represents initial adoption of a decoupling mechanism for GSE.

Accordingly, the proposed customer charge for Rate D is set at 50% of the MCS unit costs (Line 40). Although Attachment GHT-3, Line 40, also indicates that the proposed Rate G-1 and G-2 class customer charges exceed the marginal unit customer costs, the customer charges for these rate classes were increased by the class proposed increase, based on rate continuity considerations. Specifically, if we had not increased the customer charge for these classes, large customers in these classes would experience disproportionately large increases, relative to smaller customers. The monthly customer charge for remaining rates G-3, T, and V are proposed to be increased at the class overall increase percentage.

Q. Please explain how you determined the appropriate level of demand charges.

A. The rate structures for Rates G-1 and G-2 include the following demand-related charges: (a) Demand charges for the maximum peak period kW demand, measured in accordance with tariff terms and provisions; (b) High Voltage Delivery credit per kW where service is metered at the Company's supply line voltage; (c) Optional Demand Surcharge, which is calculated as 20% of monthly demand and energy charges; and (d) High Voltage Metering Adjustment, which is a discount of 1% on monthly charges. The Rates G-1 and G-2 demand charges and the High Voltage Delivery Credits were increased by the proposed class average increase, as shown on Line 112 of Attachment GHT-3, based on rate continuity considerations.

Q. Please explain how you determined the energy-related charges (per kWh) for all rate classes.

A. First, we determined the revenues to be recovered from the energy-related rates by subtracting the customer charge revenues and the demand-related revenues at proposed rates from each class's revenue target. These remaining revenues are shown in Attachment GHT-3, Line 119.

Q. Please continue your discussion of how you determined energy-related charges.

A. The percentage increase in energy-related rates, by class, is calculated on Line 120, and the proposed energy-related rates are calculated by applying the percent change to each of the current energy-related rates. The proposed rates are shown on Lines 122 through 130, representing the quotient of these residual revenue requirements divided by the appropriate annual kWh.

Q. What is the proposed rate design for outdoor lighting fixtures and energy?

A. The proposal in the instant case is to retain the current rate design and increase both fixture and energy charges on an equal percentage basis with the Rate M class overall percentage. Supporting fixture-level detail is provided in Attachment GHT-4.

2. Calculation of TOU Unit Delivery Rates

Q. Are there any other rate design changes proposed?

A. Yes, Domestic TOU Rate D-10 is proposed to re-align the Peak and Off Peak pricing differential to be more in line with Company and State of New Hampshire guidance.[4] At current rates, Off Peak Rate D-10 per kWh charges are a mere 1.30 percent of the total volumetric revenue requirement, or an On Peak to Off Peak rate ratio of 75:1. Previous Commission guidance has indicated an On Peak to Off Peak ratio of 3:1 is preferable. I note that the current rate ratio for Commercial TOU Rate G-1 is very close to a 3:1 ratio. To this end, I propose an On Peak to Off Peak ratio of 3:1 for the proposed Rate D-10 energy-related delivery charges.

3. Revenue Proof for Proposed Permanent Rates

Q. Has the Company prepared proof of the revenues that the proposed rates produce?

A. Yes, we have calculated the revenues that the proposed rates would produce on Test Year proforma Billing Determinants. The calculations, which are presented in Attachment GHT-3, Lines 160 to 181, show that the proposed base rates produce revenues of \$61,373,983, which is within \$(3,426)[5] of the revenue requirement of \$61,377,409.

Q. Please identify where the final proposed rates are shown.

A. The proposed customer charges are provided in Attachment GHT-3, Line 96. The proposed demand charges are shown in Attachment GHT-3, Lines 112–115. The

[4] Docket IR 20-004, Order No. 26,394 issued August 18, 2020.

[5] The slight variance is due to rounding.

proposed energy-related charges are shown in Attachment GHT-3, Lines 151–159. The proposed Rate M charges per luminaire and pole are provided in Attachment GHT-3.

4. Bill Impact Analysis for Proposed Permanent Rates

Q. Have you prepared Bill Impact analyses?

A. Yes, we have prepared Attachment GHT-5 to show annual bill impact analyses by class for an appropriate range of annual usage levels. These analyses demonstrate the combined impact of the changes that are being proposed in this proceeding.

Q. Please explain the bill impact calculations in more detail.

A. For each rate class, we calculated monthly bills at current rates and proposed rates at various usage strata and at average class usage per equivalent bill. To calculate the monthly billed revenue at current rates, we used: (a) the current effective base rates on March 1, 2023; (b) the current energy service rate; and (c) the current cost tracking mechanism rates, also as of March 1, 2023.[6] To calculate monthly bills at proposed rates, we used (a) the proposed base rates, (b) the current energy service rate, and (c) the current cost tracking mechanism rates.

[6] These cost tracking mechanisms include the following: Transmission Charge, Stranded Cost Charge, System Benefits Charge, and the Electricity Consumption Tax. The Revenue Decoupling Adjustment cost mechanism was also applied to current rates and assumed to be zero at proposed rates.

Q. Did you provide a typical residential monthly bill calculation?

A. Yes. Attachment GHT-5 includes a typical Residential monthly bill at 650 kWh. Based on proposed permanent rates, this represents a $13.76 per month increase, or 6.18% of their total bundled bill (including energy-related charges).

IV. <u>CONCLUSION</u>

Q. Does this conclude your testimony?

A. Yes.

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