

**BEFORE THE NOVA SCOTIA UTILITY AND REVIEW BOARD**

In the Matter of The Public Utilities Act, R.S.N.S. 1989, c.380, as amended, and  
an application by Berwick Electric Commission for Approval of Certain Revisions to its  
Rates, Charges, and Regulations

**(NSUARB M11199)**

**EVIDENCE OF  
BEN HAVUMAKI**

**ON BEHALF OF  
COUNSEL TO NOVA SCOTIA UTILITY AND REVIEW BOARD**

**AUGUST 28, 2023**

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## **LIST OF EXHIBITS**

Appendix -1:           Resume of Ben Havumaki

1 **1. INTRODUCTION AND PURPOSE OF TESTIMONY**

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

3 A My name is Ben Havumaki. I am a Senior Associate at Synapse Energy  
4 Economics (“Synapse”), located at 485 Massachusetts Avenue, Cambridge, MA  
5 02139.

6 **Q Please describe Synapse Energy Economics.**

7 A Synapse is a research and consulting firm specializing in energy and  
8 environmental issues, including electric generation, transmission and distribution  
9 system reliability, ratemaking and rate design, electric industry restructuring and  
10 market power, electricity market prices, stranded costs, efficiency, renewable  
11 energy, environmental quality, and nuclear power. Synapse’s clients include state  
12 consumer advocates, public utilities commission staff, attorneys general,  
13 environmental organizations, federal government agencies, and utilities.

14 **Q Please summarize your work experience and educational background.**

15 A Since arriving at Synapse in 2018, I have focused on electric and gas utility  
16 regulatory issues, usually in the context of litigated proceedings. I provide  
17 technical analysis, consulting, and expert witness support in general rate cases,  
18 where I focus on rate design and cost allocation. I also have expertise in  
19 performance-based regulation and grid modernization, and I focus on helping  
20 stakeholders navigate the many interactions between these emerging paradigms  
21 on the one hand, and enduring utility regulatory principles and priorities on the  
22 other. I have provided testimony in Georgia, Illinois, Minnesota, Rhode Island,  
23 New Hampshire, New Brunswick, Pennsylvania, and West Virginia. I have also  
24 drafted comments and contributed to formal reports in numerous other

1 jurisdictions in the United States and Canada. Prior to my work at Synapse, I was  
2 part of consulting team that developed a benefit-cost analysis primer for the  
3 World Bank entitled “World Bank Water Management, Sanitation, and  
4 Conservation Projects in Developing Countries: A Guide to Cost-Benefit  
5 Analysis.” I hold a Bachelor of Arts degree in History from McGill University  
6 and a Master of Arts degree in Applied Economics from the University of  
7 Massachusetts. My resume is attached as Appendix 1.

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

9 A I am providing evidence on behalf of Counsel to the Nova Scotia Utility and  
10 Review Board (“Board”).

11 **Q Have you testified previously before the Board?**

12 A No.

13 **Q What is the purpose of your evidence in this proceeding?**

14 A The purpose of this evidence is to (1) summarize my review of Berwick Electric  
15 Commission’s (BEC) Rate Study Evidence (2) describe and present my concerns  
16 with this filing, and (3) provide recommendations to the Board.

17 **2. OVERVIEW OF BEC’S APPLICATION AND SCOPE OF THIS EVIDENCE**

18 **Q Why has BEC filed this application?**

19 A BEC explains that it has filed this application principally to address an anticipated

1 operating loss that is mainly the result of an increase in the cost of purchased  
2 power.<sup>1</sup>

3 **Q What requests does BEC make in its application?**

4 A BEC seeks approval from the Board for a number of requests, which are listed at a  
5 high level on page five of the application. The first three requests concern BEC's  
6 cost-of-service methodology and resulting revenue requirement. BEC then  
7 requests that the Board approve its revised Schedule of Rates and Charges to  
8 recover its revenue requirement. Finally, BEC seeks authorization to increase the  
9 charge assessed to third parties for use of its utility poles.

10 **Q Which portions of the application does your evidence address?**

11 A This evidence focuses on the fourth request from BEC: approval of its Schedule  
12 of Rates and Charges. To evaluate and respond to this request, I reviewed BEC's  
13 approach to cost allocation and its proposed rate designs, which together underlie  
14 the Schedule of Rates and Charges put forward by BEC.

15 **Q How is your evidence structured?**

16 A In Section 3, I summarize my overall findings and recommendations. In Section  
17 4, I address BEC's approach to cost allocation. In Section 5, I evaluate BEC's  
18 Domestic service charge and other rate design issues. Finally, in Section 6 I  
19 respond to BEC's proposals concerning rectification of class revenue-to-cost  
20 variances.

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<sup>1</sup> BEC Application, p. 4.

1 **3. SUMMARY OF FINDINGS AND RECOMMENDATIONS**

2 **Q Please summarize your findings.**

3 **A** My primary findings are:

- 4 1. BEC's overall approach to cost allocation is reasonable and is  
5 generally consistent with the practices of other peer utilities and  
6 established Board precedent.
- 7 2. There are limited issues with the cost allocation study that BEC  
8 should address in the future:
- 9 i. BEC's method for classifying certain portions of its  
10 distribution system on a mixed demand and energy basis is  
11 not supported.
- 12 ii. BEC has estimated the demand allocators in a reasonable  
13 fashion, but its approach is not fully supported and could be  
14 improved.
- 15 iii. BEC has allocated the costs of purchased power based on  
16 annual energy consumption though both the costs of  
17 purchased power energy and class energy consumption  
18 likely vary seasonally.
- 19 3. The Domestic customer service charge is not cost-based and is  
20 higher than BEC's cost-of-service analysis indicates is reasonable.
- 21 i. At its current level, the Domestic customer service charge  
22 results in lower energy users subsidizing the consumption  
23 of higher energy users in the Domestic class.
- 24 ii. The cost-based value for the Domestic customer service  
25 charge that is consistent with past Board decisions is \$7.73  
26 per month.
- 27 4. BEC's existing declining block rate for the small General Service  
28 class is not consistent with rate design best practices.

1 **Q Please summarize your recommendations.**

2 **A** Based on my findings, I offer the following recommendations:

3 1. The Board should direct BEC to prepare a new set of cost  
4 allocation and rate design exhibits with the following  
5 modifications:

6 a. With the exception of meters and services, all distribution  
7 facilities should be classified as 100 percent demand-  
8 related.

9 b. The Domestic customer service charge should be reduced  
10 to \$13.00 per month and Domestic class energy rates  
11 should be recalculated so that the overall change is revenue  
12 neutral relative to BEC's proposal in this matter.

13 c. The declining block rate structure should be replaced with a  
14 new rate structure featuring a single energy charge, to be  
15 calculated on a revenue neutral basis.

16 2. The Board should direct BEC to address the other cost allocation  
17 concerns that I raise, related to the estimation of demand allocators  
18 and the allocation of purchased power costs, in its next general rate  
19 application.

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1 **4. APPROACH TO COST ALLOCATION**

2 **Q Please outline the approach to cost allocation utilized by BEC.**

3 A BEC's follows a three-step process to allocate test-year revenue requirements  
4 across rate classes. First, it *functionalizes* costs, separating costs into groupings  
5 according to the associated system function. Second, BEC *classifies*  
6 functionalized costs by cost driver. Third, it *allocates* the resulting categories of  
7 functionalized, classified costs to the rate classes using allocation factors.<sup>2</sup>

8 **Q What is your overall evaluation of BEC's approach to cost allocation?**

9 A BEC's cost allocation methods are sound overall. The cost allocation study  
10 approach is thorough and well documented, and methodological decisions appear  
11 to be reasonably supported. I do have a few concerns, however, which, while not  
12 compromising the overall reliability of BEC's cost allocation results, do warrant  
13 future attention. Specifically, I have concerns about BEC's approach to  
14 classifying some portions of its distribution system upstream of the customer  
15 service drop on a mixed demand and ene  basis. I am also concerned about how  
16 BEC has formulated its estimates for demand allocation factors. Finally, I have  
17 some reservations about the approach to allocating purchased power on the basis  
18 of annual energy usage, which does not account for seasonal variability in the  
19 overall costs of purchased power.

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<sup>2</sup> Application, p. 10.



1 **Q Please elaborate on your concerns about how BEC has classified its**  
2 **distribution plant.**

3 A BEC classifies portions of the distribution system upstream of the customer  
4 service drop, including conductors, poles, and fixtures, on a mixed demand and  
5 customer basis, with 70 percent classified as demand-related and 30 percent  
6 classified as customer-related.<sup>3</sup> I find this approach to classification to be flawed  
7 because it treats a portion of its upstream distribution facilities as customer-  
8 related. BEC offers no specific analytical justification for its mixed classification  
9 scheme but rather notes that this approach is consistent with the methods utilized  
10 in previous BEC studies and also with those used in cost allocation studies  
11 conducted by other municipal utilities and accepted by the Board.<sup>4</sup>

12 **Q What is the problem with treating upstream distribution facilities as**  
13 **customer-related?**

14 A Treating distribution plant upstream of the service drop as customer-related is  
15 theoretically flawed since the relationship between costs incurred for these  
16 upstream assets and the number of customers on the system is tenuous. As Board  
17 witness Melissa Whited noted in the Riverport and Town of Mahone Bay cases,  
18 this approach to classification may emerge from a “minimum system” view.<sup>5,6</sup>  
19 That perspective and approach determines the customer-related share of costs  
20 with reference to a hypothetical minimum system that does not exist in the real  
21 world and would never actually be constructed.

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<sup>3</sup> BEC response to Board IR-37.

<sup>4</sup> Application, p. 11.

<sup>5</sup> Matter M10810. Evidence of Melissa Whited, p. 6.

<sup>6</sup> Matter M10832. Evidence of Melissa Whited, p. 8.

1    **Q     Do you agree with BEC about the importance of methodological consistency?**

2    A     Yes. And I acknowledge that BEC’s mixed approach to distribution system  
3           classification appears to be consistent with the Board’s decisions in the Riverport  
4           and Town of Mahone Bay matters last year.<sup>7,8</sup> However, I observe that the Board  
5           in those decisions did not offer any permanent endorsement for this mixed  
6           classification approach. I therefore encourage the Board to establish a consistent  
7           standard requiring that all distribution system infrastructure except for meters and  
8           services be classified as 100 percent demand-related.

9    **Q     What concerns do you have with BEC’s allocation factors?**

10   A     I am specifically concerned with BEC’s approach to estimating the coincident and  
11           noncoincident peak factors for the General Service class.

12   **Q     Please describe BEC’s approach to estimating coincident and noncoincident**  
13           **peak factors.**

14   A     The application details how BEC estimated coincident peak and noncoincident  
15           peak factors for the rate classes in the absence of detailed customer load data.  
16           BEC has used interval meter data for Nova Scotia Power’s (NSPI) Domestic and  
17           Small General Service rate classes as proxies to estimate the share of coincident  
18           peak belonging to BEC’s Domestic and Small General Service classes.<sup>9</sup>  
19           Noncoincident peak factors for Domestic and Small General Service classes are  
20           also estimated based upon NSPI data.<sup>10</sup> Load data for BEC’s Industrial class is  
21           directly metered, and the consumption of the Lighting class, though unmetered,

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<sup>7</sup> Matter M10810. Decision, p. 30.

<sup>8</sup> Matter M10832. Decision, pp. 34-35.

<sup>9</sup> BEC Application, pp. 12-13.

<sup>10</sup> BEC response to Synapse IR-3.

1 can be reliably estimated using known light fixture parameters.<sup>11</sup> BEC makes the  
2 largest quantitative assumptions in estimating the coincident and noncoincident  
3 peak values for the General Service class. The coincident peak is estimated based  
4 upon the residual between the total BEC system peak load, which is provided  
5 through OATT meter, and the sum of the determined coincident peaks for the  
6 other rate classes. The noncoincident peak factor for the General Service class is  
7 then derived from this approximated peak value through application of an  
8 estimated diversity adjustment.<sup>12</sup>

9 **Q Why do BEC's methods for estimating peak factors for the General Service**  
10 **class raise concerns?**

11 A While the approach to estimating the coincident peak factor appears reasonable on  
12 face, the fact that the coincident peak for the General Service class is calculated as  
13 a function of the coincident peaks for *all other* rate classes means that the value  
14 estimated for the General Service coincident peak may be particularly uncertain,  
15 since the uncertainty associated with the estimate of the General Service  
16 coincident peak reflects the sum of the uncertainties associated with all other class  
17 coincident peak estimates. This inherent uncertainty carries over into BEC's  
18 estimation of the noncoincident peak for the General Service class. While BEC  
19 concluded that the load data for NSPI's General Service would not provide a  
20 suitable proxy in the fashion of the data for NSPI's other classes, BEC should  
21 have presented this data for context and as a sensitivity to evaluate the  
22 reasonableness of its residual approach to determining the coincident peak for the

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<sup>11</sup> BEC Application, pp. 12-13.

<sup>12</sup> BEC Application, pp. 12-13.

1 General Service class and the reliability of its estimated General Service class  
2 noncoincident peak value.<sup>13</sup>

3 **Q What are your concerns with BEC's approach to classifying purchased**  
4 **power?**

5 A BEC classifies purchased power costs on a mixed demand and energy basis.<sup>14</sup>  
6 BEC allocated the energy-classified portion of these costs to the various customer  
7 classes based upon their projected test year annual energy consumption.<sup>15</sup>  
8 However, there are two interacting factors that render this approach potentially  
9 imprecise. [REDACTED]

10 [REDACTED]  
11 [REDACTED]  
12 [REDACTED]  
13 [REDACTED] Second, BEC's customer classes, and especially  
14 its Domestic class, exhibit seasonal variation in energy use.<sup>17</sup> [REDACTED]  
15 [REDACTED]  
16 [REDACTED]

17 **Q Have you analyzed the differences in purchased power cost for each of BEC's**  
18 **rate classes?**

19 A Yes. Through my review of the available data, I determined that the Domestic  
20 class exhibits the greatest seasonal variance in its energy consumption. I further  
21 determined that the Domestic class consumes the most energy during the winter

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<sup>13</sup> BEC Application, pp. 12-13.  
<sup>14</sup> Id., Exhibit 4-4.  
<sup>15</sup> BEC response to Board IR-8.  
[REDACTED]  
<sup>17</sup> BEC response to Synapse IR-1.

[REDACTED]

5 [REDACTED]

7 [REDACTED]

[REDACTED]

8 [REDACTED]

16 [REDACTED]

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18 [REDACTED]

19 [REDACTED]

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<sup>20</sup> Ibid.

<sup>21</sup> Based on 2019 annual consumption, from BEC response to Board IR-1.

1 In its next general rate application, I recommend that BEC evaluate the  
2 implications of a shift to monthly purchased power cost allocation using monthly  
3 energy allocators, rather than allocating these costs on an overall annual basis.

4 **5. DOMESTIC CUSTOMER SERVICE CHARGE**

5 **Q Please summarize the rate design proposals included in this filing.**

6 A BEC has not proposed any significant changes to its rate design, with the  
7 exception of its proposal to phase out the declining block rate structure for the  
8 Small General Service class. For all classes but the Domestic class, BEC proposes  
9 to apply rate increases uniformly to all rate elements. For the Domestic class,  
10 BEC proposes to maintain the customer service charge at its present level and  
11 apply the rate increase solely to the energy rate.<sup>22</sup>

12 **Q Why has BEC proposed to phase out its declining block rates?**

13 A BEC states that “most jurisdictions no longer consider declining block structures  
14 to be consistent with rate design objectives,” and also offers that it would like to  
15 simplify the rate design.<sup>23</sup>

16 **Q Do you support the proposed phase-out of the declining block rate structure?**

17 A Yes. In the absence of specific evidence that higher-use customers on the Small  
18 General Service rate are proportionately less costly to service –i.e., that the  
19 marginal cost of service *decreases* with consumption– I see no reason to conclude  
20 that the declining block rate is cost-based. Furthermore, the declining block rate  
21 structure may disincentivize conservation or at least conflict with extant

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<sup>22</sup> BEC Application. Exhibit 7.

<sup>23</sup> BEC Application, p. 16.

1 incentives to conserve energy. I recommend that the Board direct BEC to phase  
2 out the declining block rate structure for the Small General Service class.

3 **Q Do you support BEC’s proposal to maintain the Domestic customer service**  
4 **charge at its current level?**

5 A No. At its current value of \$20.19 per month, the Domestic customer service  
6 charge is not cost-based. At this inflated level, this charge produces inequitable  
7 cross-subsidization—with larger consumers of energy consumers being  
8 subsidized by customers who consume less energy. The excessively high  
9 customer service charge also produces a distorted price signal that promotes  
10 inefficient system utilization.

11 **Q Why do you conclude the Domestic customer service charge is not cost-**  
12 **based?**

13 A It is a generally established ratemaking practice that customer service charges  
14 should be limited to recovering those costs that are classified as customer-  
15 related—in other words, costs that vary with the number of customers on the  
16 system rather than with energy consumption or peak demand. While reasonable  
17 parties may disagree over just which costs should be classified as customer-  
18 related, it would appear that even a maximalist view of customer-related cost  
19 classification for BEC does not support such a high charge. Though BEC was not  
20 able to definitively indicate the basis for the current charge at \$20.19 per month, it  
21 would appear that this is the relic of a uniform rate increase applied to all rate  
22 elements in 2015.<sup>24</sup> Meanwhile, in its last rate case in 2020, BEC provided an  
23 exhibit demonstrating that a maximalist approach to deriving the customer service

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<sup>24</sup> BEC response to Board IR-21.



1 charge, with 50 percent of demand-classified distribution costs to be recovered  
2 through this charge, would produce a charge of \$16.01 per month.<sup>25</sup>

3 **Q Are the Board decisions in the Riverport and Town of Mahone Bay cases**  
4 **relevant to the issue of BEC’s Domestic customer service charge?**

5 A I believe so. In its decisions in these cases, which were issued last year, the Board  
6 directed both the Riverport Electric Light Commission and the Town of Mahone  
7 Bay Electric Utility to “base [the] customer service charge for Domestic Service  
8 on costs classified as customer-related in the cost-of-service study.”<sup>26,27</sup>

9 **Q Has BEC calculated the Domestic customer service charge that is consistent**  
10 **with these Board decisions?**

11 A Yes. BEC provides this value in response to Board IR-49 as \$7.73 per month.<sup>28</sup>

12 **Q Why do you indicate that at its current level, the Domestic customer service**  
13 **charge results in unfair subsidization?**

14 A Because the customer service charge is plainly covering more than the customer-  
15 related share of costs from each customer, this charge must incorporate non-  
16 customer-related costs. This artificially reduces the variable energy rates, making  
17 marginal energy consumption appear cheaper than it truly is. For customers that  
18 consume more than the average amount of energy, the effect of the excessive  
19 customer service charge is to *reduce* their total bills below what they should pay  
20 based on cost-of-service principles. Meanwhile, smaller energy consumers, who

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<sup>25</sup> Ibid.

<sup>26</sup> Matter M10810. Decision, p. 57.

<sup>27</sup> Matter M10832. Decision, p. 60.

<sup>28</sup> BEC response to Board IR-49.

1 use less than the average amount of energy, are made to bear the costs of this  
2 subsidization and pay more than what adherence to cost-of-service principles  
3 would dictate.

4 **Q Why do you suggest that the current level for the Domestic customer service**  
5 **charge may produce inefficient outcomes?**

6 A Since consumers are not faced with the true costs of incremental consumption,  
7 they will tend to consume more than the socially optimal amount of energy.  
8 Fundamental economic theory dictates that the efficiency-maximizing condition is  
9 met when consumers face prices that reflect the actual costs of their consumption.

10 **Q Why does BEC support maintaining the residential customer service charge**  
11 **at its current level?**

12 A BEC explains that it has opted to maintain the customer service charge at its  
13 current level rather than reduce it in order to mitigate an even larger increase in  
14 the variable energy rate.<sup>29</sup> BEC also raises concerns about impacts on bills during  
15 winter.<sup>30</sup> BEC concedes that its proposal to maintain the customer service charge  
16 is not strictly consistent with the Board's past directives but has nonetheless  
17 determined that this is the best course.<sup>31</sup>

18 **Q Do agree with BEC about maintaining the residential customer service**  
19 **charge at its current level?**

20 A No. While it is true that reducing the customer service charge will necessarily  
21 result in an increase in the variable rates, this is in the direction of making the

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<sup>29</sup> BEC response to Synapse IR-22.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

1 Domestic class rate design more cost reflective. As a matter of fairness, smaller  
2 consumers should not subsidize larger ones. Moreover, even smaller customers  
3 must contend with high energy prices, and they should not be penalized on a  
4 proportionate basis by investing in energy efficiency or conservation efforts. It is  
5 also important to recognize that, for the average Domestic customer, the impacts  
6 of reducing the fixed monthly customer service charge and increasing variable  
7 energy rates will offset each other. Reducing the customer service charge affects  
8 the distribution of rate increases sought by BEC, but not the overall rate increase.  
9 Finally, the impacts of an increase in the variable charge can be mitigated through  
10 reduced consumption, unlike high fixed charges that cannot be avoided.

11 **Q Are there other reasons BEC may be supportive of a higher fixed charge?**

12 A Yes. Utilities often argue in favor of higher fixed charges in support of revenue  
13 stability, especially where the utility anticipates significant capital outlays. BEC  
14 has not made that argument in this case. I note that most of BEC's revenue  
15 requirement is variable and can be avoided through customer behavioral change  
16 that could be expected in response to a more efficient, cost-reflective rate design.

17 **Q What do you recommend concerning the Domestic customer service charge?**

18 A I recommend that the Board direct BEC to reduce its customer service charge. I  
19 suggest that the customer service charge be reduced to \$13.00 per month, which is  
20 in line with the charges approved in the Riverport and Town of Mahone Bay cases  
21 and also represents a compromise between the true cost-based level that comports  
22 with recent Board decisions on cost allocation, and the imperative to maintain  
23 gradualism and restrain changes in the rate design.

1 **6. REVENUE-TO-COST RATIOS**

2 **Q How does BEC propose to address revenue-to-cost inequities?**

3 A BEC proposes to apply differential rate increases to its customer classes to reduce  
4 revenue-to-cost variances between the classes, consistent with the Board’s past  
5 direction on revenue-to-cost ratios. BEC has also limited the overall increase that  
6 it proposes to apply to each class to maintain gradualism and bill stability.<sup>32</sup>

7 **Q Is BEC’s approach to remedying revenue-to-cost issues reasonable?**

8 A Overall, yes. BEC’s approach to addressing revenue-to-cost inequities appears to  
9 be sound. It is clear that BEC has aimed to adhere to Board precedent from the  
10 recent Riverport and Town of Mahone Bay cases.<sup>33</sup> My only recommendation is a  
11 limited one. I suggest that the Board carefully consider setting aside the normal  
12 concern about gradualism as relates to timely bringing the Lighting class into the  
13 Board’s acceptable revenue-to-cost ratio range in light of two factors. First, the  
14 Lighting class is not analogous to other rate classes. Unlike other classes, Lighting  
15 is not composed of normal customers who might be rate shocked or otherwise  
16 adversely affected by rate increases. To this end, reconciling Lighting revenues to  
17 costs through rate adjustments may ultimately result in an increased cost burden  
18 passed on to town residents, but it would not “rate shock” the town in the same  
19 vein that doubling Domestic or General Service rates would their respective  
20 customers. Second, given the escalating costs of energy, for the reasons cited  
21 previously, it is critical to provide efficient price signals so that customers  
22 appropriately calibrate their energy usage according to its true costs. In the case of  
23 Lighting, increasing class revenues would very modestly decrease the revenue

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<sup>32</sup> BEC Application, p. 15.

<sup>33</sup> Ibid.

1 responsibility for the other classes. For Domestic customers in particular,  
2 rectifying the Lighting class revenue-to-cost ratio could slightly reduce the  
3 upward pressure on volumetric rates that would result from the recommended  
4 decrease in the Domestic customer service charge.

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

6 **A Yes.**

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