

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF MARYLAND**

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**IN THE MATTER OF THE APPLICATION  
OF BALTIMORE GAS AND ELECTRIC  
COMPANY FOR AN ELECTRIC AND GAS  
MULTI-YEAR PLAN**

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Case No. 9645

**Surrebuttal Testimony of  
Courtney Lane**

**On Behalf of  
Office of People's Counsel**

**October 7, 2020**

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1     **I. INTRODUCTION AND QUALIFICATIONS**

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

3     A. My name is Courtney Lane. I am a Senior Associate at Synapse Energy Economics,  
4       located at 485 Massachusetts Avenue, Cambridge, MA 02139.

5     **Q. Have you previously submitted testimony in this proceeding?**

6     A. Yes. I submitted direct testimony in this proceeding on August 14, 2020, on behalf of the  
7       Office of People’s Counsel (OPC).

8     **Q. What is the purpose of your surrebuttal testimony?**

9     A. The purpose of my surrebuttal testimony is to respond to Mark Warner’s rebuttal  
10       testimony submitted on behalf of Baltimore Gas and Electric Company (BGE or the  
11       Company). My surrebuttal testimony rebuts several key aspects of Mr. Warner’s  
12       testimony but does not attempt to address every instance of disagreement. Thus, silence  
13       on any particular issue should not be interpreted as agreement.

14    **Q. What materials did you rely on to develop your testimony?**

15    A. In addition to Mr. Warner’s testimony, the sources for my testimony are public  
16       documents, as well as my professional knowledge and experience.

17    **Q. Did you prepare or direct the preparation of this testimony?**

18    A. Yes.

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

2 **Q. Please summarize your primary conclusions regarding Witness Warner’s rebuttal**  
3 **testimony.**

4 A. Witness Warner does not sufficiently address the concerns I raise related to his flawed  
5 methodology in assessing the cost-effectiveness of BGE’s electric vehicle (EV) program  
6 offerings.

7 The Commission clearly requests a detailed cost-benefit assessment in Order No. 88997  
8 regarding the Petition for Implementation of a Statewide Electric Vehicle Portfolio,  
9 indicating it “expects the Utilities to include a detailed cost-benefit assessment - through  
10 a traditional test or a combination of tests - to substantiate, empirically, all cost  
11 expenditures related to EV charging for purposes of cost recovery in any future rate  
12 case.”<sup>1</sup>

13 However, Witness Warner’s benefit-cost assessment (BCA) does not provide a  
14 comprehensive view of all costs and benefits directly related to BGE’s EV programs.  
15 Instead his offer-specific merit tests provide a narrowly focused view by excluding key  
16 costs and benefits attributable to those programs. While Witness Warner does use the  
17 broader societal cost test (SCT), he applies it to a market-wide case that includes costs  
18 and benefits not directly attributable to BGE’s programs, instead of only accounting for  
19 societal costs and benefits created directly from these programs.

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<sup>1</sup> Case No. 9478, Order No. 88997 at 44, footnote 170.

1 Witness Warner's offer-specific merit tests also conflate cost-effectiveness with an  
2 assessment of ratepayer impacts by including the impact of changes to utility revenues.  
3 Contrary to Witness Warner's rebuttal testimony, his offer-specific merit tests are not the  
4 equivalent of a ratepayer impact assessment and do not provide the Commission with any  
5 indication as to the extent by which rates will increase or decrease, the timing of the rate  
6 change, the allocation of changes in rates across customer classes, the number of  
7 participants in programs that will experience bill increases or decreases resulting from  
8 changes in rates, or any cross-subsidization between rate classes.

9 Further, while the Commission allows for the use of multiple cost-effectiveness tests,<sup>2</sup>  
10 Witness Warner's approach does not provide for a meaningful comparison. Instead of  
11 examining the same case (i.e., each program offering) using multiple tests, he applies  
12 different cost-effectiveness tests to different cases. This is contrary to the way multiple  
13 cost-effectiveness tests are applied to EV BCAs in other jurisdictions like New York and  
14 California, and to the EmPOWER programs in Maryland.<sup>3</sup>

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<sup>2</sup> Case No. 9478, Order No. 88997, at 43.

<sup>3</sup> New York State Energy Research and Development Authority (NYSERDA). 2019. Benefit-Cost Analysis of Electric Vehicle Deployment in New York State. NYSERDA Report Number 19-07. Prepared by E3, ICF, and MJ Bradley, at S-2 and S-3.

Energy and Environmental Economics, Inc. 2014. California Transportation Electrification Assessment, Phase 2: Grid Impacts, at 48.

Baltimore Gas and Electric Company 2018-2020 EmPOWER MD Program Filing (Case No. 9154).

1 **Q. Please summarize your recommendations.**

2 A. My recommendations remain unchanged from my direct testimony. Witness Warner's  
3 BCA methodology is flawed and should not set precedent for future BCAs of EV  
4 programs in Maryland.

5 In sum, I recommend that the Commission:

- 6 1. Require any future BCA of a utility EV program to reflect the full benefits and  
7 costs applicable to that program and adhere to the principles of the National  
8 Standards Practice Manual (NSPM).
- 9 2. Not permit any future BCA of utility EV offerings to include the impact of  
10 changes to utility revenues.
- 11 3. Require BGE to provide a justification of the costs related to Company-owned EV  
12 chargers as part of its consolidated reconciliation and final reconciliation as  
13 proposed in its Multi-Year Plan (MYP) filing.
- 14 4. Require BGE to conduct a BCA for each program offering at the end of the five-  
15 year pilot period that corrects for the deficiencies identified in my direct  
16 testimony.
- 17 5. Require BGE to conduct a rate and bill impacts analysis for each customer rate  
18 class at the end of the five-year pilot period to assess the overall ratepayer impacts  
19 from its portfolio of EV offerings.

1     **III. RESPONSE TO BGE WITNESS WARNER**

2             **Guidance on Benefit Cost Assessments of EVs**

3     **Q. Is Witness Warner correct that you assume the National Standards Practice Manual**  
4       **has exclusive authority for guiding the methodology for utility EV program BCAs?**

5     A. No. As stated on page 8 of my direct testimony I use the NSPM as a guidepost because it  
6       provides an “objective, policy- and technology-neutral, and economically sound  
7       guidance” for developing and modifying cost-effectiveness tests for distributed energy  
8       resources (DERs). I use the NSPM to review Witness Warner’s BCA for several reasons.  
9       First, the NSPM has been vetted by a cross-cutting advisory group consisting of  
10      regulators, state agencies, utilities, expert consultants, and representatives from the DER  
11      industry. Second, as Witness Warner indicates, there are multiple sources and examples  
12      of frameworks for evaluating the costs and benefits of EVs.<sup>4</sup> The NSPM seeks to address  
13      this variety in cost-effectiveness tests across jurisdictions by providing a standard set of  
14      principles and guidance on BCA best practices that regulators can use in assessing all  
15      types of DERs in a manner that aligns with their jurisdictions policy goals and objectives.  
16      Further, the NSPM principles and concepts stand on their own. Witness Warner has not  
17      identified anything in the NSPM for DERs that is incorrect or inappropriate to use in this  
18      context.

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<sup>4</sup> Rebuttal Testimony of Mark Warner, at 13.

1 **Q. On page 13 of his rebuttal testimony, Witness Warner cites several sources he**  
2 **claims offer very different approaches to your recommended BCA approach. Have**  
3 **you reviewed these sources?**

4 A. Yes.

5 **Q. What do you conclude from your review of these sources?**

6 A. I disagree with Witness Warner’s conclusion that these sources take a “very different  
7 approach to EV assessment” than the NSPM for DERs and my recommendations. As  
8 summarized below, I find that these sources align with portions of the NSPM for DERs  
9 and the recommendations put forth in my direct testimony. These sources also differ with  
10 several aspects of Witness Warner’s BCA methodology.

11 1. New York State Energy Research and Development Authority (NYSERDA): This EV  
12 BCA prepared for NYSERDA (NYSERDA BCA), aligns with the NSPM for DERs and  
13 my recommendation that increased utility revenues should not be included in a SCT. The  
14 impact of utility revenues is only included in the ratepayer impact measure (RIM) test.  
15 This is counter to Witness Warner’s BCA, which includes the impact of changes in utility  
16 revenues in his market-wide SCT. Further, the NYSERDA BCA aligns with my  
17 recommendation that multiple cost-effectiveness tests should be applied to the same  
18 case.<sup>5</sup> The NYSERDA BCA applies three cost-effectiveness tests to each EV adoption  
19 and charging case: 1) the SCT, 2) the participant cost test (PCT), and 3) the RIM test.<sup>6</sup>  
20 This is contrary to Mr. Warner’s methodology that applies different cost-effectiveness

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<sup>5</sup> Direct Testimony of Courtney Lane, at 24-25.

<sup>6</sup> NYSERDA Report Number 19-07, at S-2 and S-3.



1 tests to different use cases. Mr. Warner used the SCT for the market-wide case and a  
2 ratepayer perspective test for individual program offerings.

3 2. California Transportation Electrification Assessment: Like the NYSERDA BCA, the  
4 California assessment does not count increased utility revenues in the SCT. The impact of  
5 utility revenues is only included in the RIM test.<sup>7</sup> Further, this assessment also applies the  
6 same method of using multiple cost-effectiveness tests to the same case. This aligns with  
7 my recommendations.

8 3. Synapse Report: Witness Warner claims this recent Synapse report outlines a  
9 framework for the assessment of EV programs that is very different than the NSPM.  
10 However, the Synapse report is not a guidance document on conducting a benefit-cost  
11 analysis. It provides an overview of a variety of analyses that can be conducted to  
12 examine the potential impacts that EVs can have on electricity rates and bills, the total  
13 cost of ownership for electric vehicles, and changes in emissions and related health  
14 impacts. The Synapse report supports my direct testimony and the NSPM by stating that  
15 a separate rate and bill impacts assessment should be conducted to determine the impact  
16 that EV adoption could have on electric rates and customer bills.<sup>8</sup>

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<sup>7</sup> Energy and Environmental Economics, Inc. 2014. *California Transportation Electrification Assessment, Phase 2: Grid Impacts*, at 54.

<sup>8</sup> Knight, et al. 2019. *Making Electric Vehicles Work for Utility Customers: A Policy Handbook for Consumer Advocates*. Synapse Energy Economics, at 16-17.

1           **Ratepayer Impacts and Benefit Cost Assessments**

2   **Q.   Witness Warner indicates your critique of his methodology is irrelevant since he did**  
3   **not use a RIM Test, do you agree?**

4   A.   No, this is purely semantics. A test that assesses the benefits and costs of a utility  
5       investment from the perspective of all ratepayers and includes utility revenue impacts due  
6       to changes in sales, is for all intents and purposes a RIM test. Witness Warner states that  
7       he uses the term “merit tests” for his BGE offer-specific tests to avoid conflation with  
8       other tests.<sup>9</sup> However, regardless of what name is used to define these offer-specific merit  
9       tests, he is conducting a cost-effectiveness test to develop a BCR for each of BGE’s  
10      program offerings using the key costs and benefits as defined in the RIM test. Table 1  
11      below shows a comparison between the components of the RIM test as described in the  
12      NYSERDA BCA EV framework to those Witness Warner applies to the offer-specific  
13      merit tests where applicable.<sup>10</sup> With the exception of ancillary services costs and  
14      environment benefits there is no difference between the two.

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<sup>9</sup> Rebuttal Testimony of Mark Warner, at 16.

<sup>10</sup> NYSERDA Report Number 19-07, at 43.

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**Table 1. Comparison of NYSERDA RIM Test to Witness Warner Offer-Specific Merit Tests**

<b>Impact Category</b>	<b>RIM Test</b>	<b>Warner Merit Tests</b>
Energy Supply	Cost	Cost
Generation Capacity	Cost	Cost
T&D Capacity	Cost	Cost
Losses	Cost	Cost
Ancillary	Cost	
Retail Bills for EV Charging (increased revenue)	Benefit	Benefit
Environmental		Benefit
Utility Program Costs (charger, installation, rate)	Cost	Cost

Source: NYSERDA Report Number 19-07, at 43.

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3 **Q. Please explain your concern with a BCA that focuses solely on ratepayer impacts?**

4 A. As indicated in my direct testimony, a BCA narrowly focused on the ratepayer  
 5 perspective does not provide a comprehensive assessment of cost-effectiveness. Witness  
 6 Warner leaves out key categories of costs and benefits, which leaves the Commission and  
 7 stakeholders with a limited understanding of BGE’s program offerings. For example,  
 8 Witness Warner’s offer-specific merit tests do not include impacts such as 1) increased  
 9 compliance costs with Maryland’s Renewable Energy Portfolio Standard (RPS), 2) costs  
 10 associated with changes in PJM wholesale market clearing prices, 3) emissions and  
 11 health benefits from peak shifting, and 4) participant costs and benefits.

12 In addition to not providing a holistic view of cost-effectiveness, the offer-specific merit  
 13 tests conflate rate impacts with cost-effectiveness. These offer-specific merit tests  
 14 therefore do not provide meaningful information for either customer rate impacts or  
 15 overall cost-effectiveness.

1    **Q.    Please explain why these merit tests do not provide meaningful information**  
2    **regarding customer rate impacts.**

3    A.    Contrary to Witness Warner’s opinion on page 18 of his rebuttal testimony, the offer-  
4    specific merit tests are not the equivalent of a “ratepayer impact” assessment. The offer-  
5    specific merit tests are a cost-effectiveness test from the narrow perspective of the  
6    ratepayer. The merit tests seek to answer the question of whether BGE’s EV program  
7    offerings are expected to have benefits that exceed costs. On the other hand, a rate impact  
8    analysis is intended to determine how much BGE’s investments in its EV programs will  
9    impact rates for one group of customers compared to another.

10    The offer-specific merit tests provide no indication as to the extent by which rates will  
11    increase or decrease, the timing of the rate change, the allocation of changes in rates  
12    across customer classes, or the number of participants in programs that will experience  
13    bill increases or decreases resulting from changes in rates. A valid rate impact assessment  
14    will seek to identify how program expenses and benefits are allocated across rate classes  
15    to answer two key questions: 1) which customers will experience changes in rates, and 2)  
16    by how much? The net-benefits and BCR results presented by Witness Warner for these  
17    merit tests do not provide this information. These results are overly narrow and are not an  
18    accurate indicator of the presence and size of the rate impact by customer segment.

19    Further, if Witness Warner seeks to provide the Commission with information on rate  
20    impacts from these merit tests, he will need to remove environmental benefits. While  
21    these benefits are a result of EV programs, they are not currently monetized in customer  
22    rates. Customers will not see a change in rates due to these environmental benefits. This

1 is an important distinction if Witness Warner finds his offer-specific merit tests should be  
2 considered an indication of ratepayer impacts as it would change his results. For example,  
3 if the environmental benefits are removed from BGE Offering 3: Multi-Family Charging,  
4 the resulting BCR is lowered from 1.71 down to 0.48, indicating that ratepayers are  
5 worse off from this program.

6 **Q. Witness Warner states that the BCA he developed for the BGE program does what**  
7 **you recommend which is “a benefit-cost assessment and ratepayer impact should be**  
8 **considered separately”. Do you agree with this statement?**

9 A. No. As indicated above, Witness Warner’s offer-specific merit tests are not the equivalent  
10 of a ratepayer impact assessment. Instead, Witness Warner provides the Commission  
11 with two types of cost-effectiveness tests, both of which have concerning flaws. As  
12 indicated in my direct testimony and within this rebuttal testimony, the offer-specific  
13 merit tests conflate cost-effectiveness with rate impacts, and the market-wide SCT  
14 includes the impact of changes to utility revenues, as well as cost and benefits unrelated  
15 to BGE’s programs.

16 **Q. Witness Warner indicates your recommendation to examine rate and bill impacts**  
17 **separately from cost-effectiveness would leave BGE and the Commission without**  
18 **insight on the impact the utility EV programs have on non-participating customers**  
19 **at this time. Do you agree with his conclusion?**

20 A. No, I do not. First it is important to note that the Commission states in Order No. 88997  
21 regarding the Petition for Implementation of a Statewide Electric Vehicle Portfolio, it  
22 “expects the Utilities to include a detailed cost-benefit assessment.”<sup>11</sup> The Commission is

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<sup>11</sup> Case No. 9478, Order No. 88997, at 44, footnote 170.

1 specifically requesting a benefit-cost assessment. My recommendation for a jurisdiction-  
2 specific cost-effectiveness test, the Maryland Cost-Effectiveness Test (MD Test), would  
3 provide a more comprehensive view of all the costs and benefits resulting directly from  
4 BGE's EV programs than Witness Warner's narrowly focused offer-specific merit tests.  
5 The MD Test would include all utility system impacts, participant impacts,  
6 environmental impacts related to changes in carbon emissions, and impacts to RPS  
7 compliance costs.

8 Further, the proposed MD Test provides the Commission with information on the impact  
9 to non-participating customers. All customers, regardless of whether they participate in  
10 BGE's EV programs, pay for utility system costs. The proposed MD Test accounts for all  
11 utility system impacts that will be borne by participants and non-participants. These  
12 impacts include changes to transmission and distribution costs, wholesale market price  
13 effects, generation costs, RPS compliance costs, and BGE program costs. Similarly,  
14 participants and non-participants will benefit from the environmental impacts of BGE's  
15 EV programs.

16 If other cost-effectiveness perspectives are warranted, a RIM test could be used as a  
17 secondary test. However, to accurately assess cost-effectiveness from the ratepayer  
18 perspective, non-monetized environmental benefits should be removed as noted above.

1           **Application of Multiple Cost-Effectiveness Tests**

2   **Q. Did you object to Witness Warner using multiple cost-effectiveness tests?**

3   A. No. Contrary to what Witness Warner indicates on page 18 of his rebuttal testimony, I  
4       did not object to the use of multiple tests. As indicated on page 24 of my direct  
5       testimony, “I do not take issue with the fact that multiple perspectives can be appropriate  
6       to enhance one’s overall understanding of EV program impacts”. However, I did object  
7       the methodology Witness Warner applies in his use of multiple tests.

8   **Q. Please explain why you find Witness Warner’s approach to multiple cost-**  
9       **effectiveness tests to be flawed?**

10 A. As indicated in my direct testimony, Witness Warner does not examine the same case  
11 (i.e., market-wide case or offer-specific case) using various cost-effectiveness tests.  
12 Instead, he applies a different cost-effectiveness test, with differing types of benefits and  
13 costs, to different cases. Specifically, Witness Warner applies the SCT to the market-  
14 wide case and then applies a ratepayer focused test to each offer-specific case. This does  
15 little to enhance the understanding of BGE’s EV program impacts because it does not  
16 allow for a comparison across the different tests.

17 It is far more common to see several types of cost-effectiveness tests conducted for the  
18 same case or cases. In fact, as noted earlier in my testimony, the two frameworks Witness  
19 Warner cites, the NYSERDA EV BCA and the California Transportation Electrification  
20 Assessment, take this approach. The NYSERDA BCA applies three cost-effectiveness  
21 tests: SCT, PCT, and RIM test, to each EV adoption and charging case.<sup>12</sup> Likewise, the

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<sup>12</sup> NYSERDA Report Number 19-07, at S-2 and S-3.

1 California assessment test applies the total resource cost (TRC), SCT, and RIM test to  
2 each specific EV case.<sup>13</sup> Further, this approach was used by BGE in its 2018-2020  
3 EmPOWER MD Program Filing, where programs were assessed using the TRC test as  
4 the primary test, but results were also shown using the UCT, PCT, RIM, and SCT.<sup>14</sup>  
5 These examples are all contrary to Mr. Warner's methodology that applies different cost-  
6 effectiveness tests to different use cases.

7 **Q. Do you agree with Witness Warner's statement that his market-wide SCT**  
8 **represents a primary test aligned with the SCT, while the offer-specific tests are a**  
9 **"secondary test" associated with ratepayer impact?**

10 A. No, I do not. There are several flaws in this reasoning. The primary and secondary test  
11 should examine the same use case. As indicated above Witness Warner does not apply  
12 multiple tests in this manner. If Witness Warner sought to use the SCT as the primary test  
13 and a ratepayer impact test as a secondary test, he should have chosen to apply both tests  
14 to either the market-wide case or each of BGE's EV programs.

15 Within this proceeding, BGE is seeking to recover the costs associated with its portfolio  
16 of EV programs. It would therefore seem reasonable that the Commission would want to  
17 assess the specific benefits and costs directly tied to the implementation of BGE's EV  
18 programs. In using the market-wide cost-effectiveness test as the primary test, Witness  
19 Warner considers factors unrelated to BGE's EV programs and does not provide the  
20 information needed by the Commission. For example, Witness Warner includes impacts

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<sup>13</sup> Energy and Environmental Economics, Inc. 2014. *California Transportation Electrification Assessment, Phase 2: Grid Impacts*, at 48.

<sup>14</sup> Baltimore Gas and Electric Company 2018-2020 EmPOWER MD Program Filing (Case No. 9154).



1 related to investments made by other EV market participants, including private capital, in  
2 public charging infrastructure.<sup>15</sup> These are investments that are likely to occur regardless  
3 of BGE's programs.

4 As indicated in my direct testimony, I recommend that the MD Test be used as the  
5 primary cost-effectiveness test to assess BGE's EV programs. Then if further tests are  
6 warranted to provide additional viewpoints, those tests should also be applied to at the  
7 program level consistent to what is done for the EmPOWER programs.

8 **Societal Cost Test**

9 **Q. Does the removal of the dilution benefits from SCT address the concerns you raised**  
10 **with that methodology?**

11 A. No. While the inclusion of dilution (i.e., increased utility revenues from EV charging)  
12 was one concern I had with the SCT, removing it does not address all my concerns. A  
13 key issue with Witness Warner's SCT is that it is applied "market-wide" and includes  
14 costs and benefits that are not directly related to BGE's EV programs. As described  
15 above, Mr. Warner accounts for costs and benefits that are likely to occur regardless of  
16 BGE's programs. While a market-wide BCA can be beneficial in determining whether a  
17 jurisdiction should implement policies and initiatives that support investment in EVs by  
18 assessing if the state would be better off with or without them, such a test should not be  
19 used to justify cost-recovery of a specific existing utility program.

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<sup>15</sup> Direct Testimony of Mark Warner, at 22.

1 **Q. How should an SCT be applied in the context of assessing the impacts directly**  
2 **attributable to BGE's program?**

3 A. The SCT could be applied to each of BGE's EV programs. The use of the SCT does not  
4 require the inclusion of impacts beyond those related to BGE's program portfolio. As is  
5 done in other jurisdictions, the SCT can be applied to just those impacts associated with a  
6 specific utility program. The purpose of the SCT is to account for societal benefits (e.g.,  
7 health benefits, emissions reductions) that are directly attributable to BGE's programs.

8 Additionally, Witness Warner appears to conflate the choice of cost-effectiveness test  
9 with the choice of case being assessed. For example, Witness Warner indicates on page  
10 19 of his rebuttal testimony that the only way to capture EV owner fueling and  
11 maintenance savings is through his market-wide SCT. This is not the case. If a BGE  
12 program results in a customer purchasing an EV that would not have otherwise occurred,  
13 it would be appropriate to account for the resulting fueling and maintenance savings  
14 accruing to that customer. In this context, these benefits would be considered participant  
15 non-electric benefits. These are non-electric benefits that accrue to the program  
16 participant. It is common to apply non-electric benefits in both the TRC and SCT.  
17 However, if BGE's programs are not directly influencing the customer's purchase of an  
18 EV then it would not be appropriate to account for this benefit in the BCA.

19 The issue at hand is not the use of the SCT. It is the fact that the SCT is being applied to  
20 outcomes not directly tied to the implementation of BGE's programs. As such, the  
21 market-wide SCT should not be used to determine the appropriateness of cost recovery in  
22 this proceeding.

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

2 **A. Yes, it does.**