BEFORE THE
MARYLAND PUBLIC SERVICE COMMISSION

IN THE MATTER OF BALTIMORE GAS AND ELECTRIC COMPANY'S APPLICATION FOR AN ELECTRIC AND GAS MULTI-YEAR PLAN	* * * *	Case No. 9692

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PUBLIC DIRECT TESTIMONY

OF

COURTNEY LANE

ON BEHALF OF THE OFFICE OF PEOPLE'S COUNSEL

June 20, 2023

TABLE OF CONTENTS

INTRODUCTION 1

I. Summary and Recommendations 4

A. PIM 4

B. EV Program Budget 9

C. EV BCA 10

II. Performance Incentive Mechanism 13

A. The Role of PIMs in Utility Regulation 13

B. Regulatory Context 15

C. BGE's Proposal 17

D. Benefit-Cost Analysis 32

E. Critique of BGE's Proposal 36

F. Recommendations for Future PIMs 61

III. Electric Vehicle Program Budgets 67

A. Summary of BGE's EV Program Budget Proposal 67

B. Proposed EV Program Budgets Should be Removed from MYP 2. 71

C. EV Phase II Budget Proposal Circumvents the Pilot Evaluation Process and EV Work Group 75

D. If EV Program Costs are Approved in the MYP 2, BGE's Request for Regulatory Asset Treatment Should be Denied 81

IV. Electric Vehicle BCA 87

A. Overview of MD EV-BCA Framework 87

B. Flaws in BGE's EV Program BCA 92

C. Charger Rebate Costs Should Not Be Ignored 97

V. Conclusion 104

APPENDIX A - Resume of Courtney Lane

ATTACHMENT A - Data Requests and Responses Referenced in Testimony

DIRECT TESTIMONY OF
COURTNEY LANE

INTRODUCTION

Q. Please state your name and business address.

A. My name is Courtney Lane. I am a principal associate at Synapse Energy Economics, Inc. (Synapse) located at 485 Massachusetts Avenue, Suite 3, Cambridge, MA 02139.

Q. Please describe Synapse Energy Economics.

A. Synapse is a research and consulting firm specializing in electricity and gas industry regulation, planning, and analysis. Our work covers a range of issues, including economic and technical assessments of demand-side and supply-side energy resources; energy efficiency policies and programs; integrated resource planning; electricity market modeling and assessment; renewable resource technologies and policies; and climate change strategies. Synapse works for a wide range of clients, including attorneys general, offices of consumer advocates, public utility commissions, environmental advocates, the U.S. Environmental Protection Agency, the U.S. Department of Energy, the U.S. Department of Justice, the Federal Trade Commission, and the National Association of Regulatory Utility Commissioners. Synapse has over 40 professional staff with extensive experience in the energy industry.

Q. Please describe your professional and educational experience.

A. I have 19 years of experience in energy policy and regulation. At Synapse, I work on issues related to utility regulatory models, grid modernization, benefit-cost assessment frameworks, and performance incentive mechanisms. I also contributed to the development of the *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources* (NSPM for DERs).[1] Prior to working at Synapse, I was employed by National Grid as the growth management lead for New England where I oversaw the development of customer products, services, and business models for Massachusetts and Rhode Island. Part of this role included the development of performance incentive mechanisms. In previous roles at National Grid, I worked on the deployment of non-wires alternatives and grid modernization efforts and led the development of annual and three-year energy efficiency plans. Prior to joining National Grid, I worked on regulatory and state policy issues pertaining to energy conservation, retail competition, net metering, and the Alternative Energy Portfolio Standard for Citizens for Pennsylvania's Future. Before that, I worked for Northeast Energy Efficiency Partnerships, Inc. where I promoted energy efficiency throughout the Northeast.

[1] National Energy Screening Project, *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources* (NSPM for DERs), (Aug. 2020), https://www.nationalenergyscreeningproject.org/wp-content/uploads/2020/08/NSPM-DERs_08-04-2020_Final.pdf.

I hold a Master of Arts in Environmental Policy and Planning from Tufts University and a Bachelor of Arts in Environmental Geography from Colgate University. My resume is attached as Appendix A.

Q. Have you previously appeared before the Maryland Public Service Commission?

A. Yes. I previously testified on behalf of the Office of People's Counsel on matters related to the benefit-cost analysis (BCA) of utility electric vehicle (EV) programs in Case No. 9645, Baltimore Gas and Electric Company's application for an electric and gas multi-year plan; Case No. 9655, Potomac Electric Power Company's application for an electric multi-year plan; and Case No. 9681, Delmarva Power & Light Company's application for an electric multi-year plan.

Q. Have you previously submitted testimony in proceedings before other state commissions or agencies?

A. Yes. I have testified and participated in regulatory proceedings before the Rhode Island Public Utilities Commission, the Pennsylvania Public Utility Commission, the Public Service Commission of the District of Columbia, the New Hampshire Public Utilities Commission, and the New Mexico Public Regulation Commission.

Q. On whose behalf are you appearing in this proceeding?

A. I am presenting testimony on behalf of the Office of People's Counsel.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to discuss three aspects of Baltimore Gas and Electric Company's (BGE or the Company) Application for an Electric and Gas Multi-Year Plan (MYP 2). These include (1) the proposed performance incentive mechanism (PIM) and performance metrics presented by Witnesses Case, Apte, Singh, and White; (2) the proposed EV program budgets presented by witnesses Case and witness Frain; and (3) the BCA of BGE's existing EV program portfolio prepared by witness Warner.

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

A. The sources for my testimony are BGE's Application and responses to discovery requests, public documents, and my personal knowledge and experience.

Q. Was this testimony prepared by you or under your direction?

A. Yes. My testimony was prepared by me or under my direct supervision and control.

I. Summary and Recommendations

A. PIM

Q. Please summarize your primary conclusions regarding BGE's proposed PIM and performance metrics.

A. I find that BGE's proposed PIM and performance metrics do not meet all the criteria set forth by the Commission in Order No. 89638. This includes the fact that BGE's proposed Fleet Electrification and Tree Planting programs contained within the Company's proposed Greenhouse Gas (GHG)

Emissions Reduction performance metric as well as the Removal of Oil-Based Equipment (ROBE) performance metric are not cost-effective. This is especially problematic because the BCAs do not yet account for the cost of the performance reward that BGE would earn, which will be paid for by ratepayers. The Company also failed to consider the cost of saved GHG emissions in its design of its proposed performance metrics.

In addition, I conclude that the Company has an existing incentive to achieve many of its proposed performance metrics due to its ability to earn a return on the capital investments needed to achieve the metric. This includes BGE's proposed Fleet Electrification and Rooftop Solar programs contained within the GHG Emissions Reduction performance metric, the proposed ROBE performance metric, and the Customers Experiencing Four or More Sustained Outages each Year for Three Consecutive Years (CEMI4-3P) performance metric. Adopting financial incentives for the achievement of these performance metrics only increases the Company's existing incentive to expand its rate base.

Lastly, I do not support the use of ratepayer dollars to incentivize the usage of Zero-Emission Vacuum (ZEVAC) machines already owned by BGE, due to the Company's prior knowledge of potential risks associated with these machines prior to their purchase.

Q. Please summarize your recommendations for BGE's proposed PIMs.

A. I understand that OPC witnesses Paul J. Alvarez and Dennis Stephens recommend termination of the MYP pilot. Should the Commission decide to approve the MYP 2 notwithstanding that request, I recommend the following:

- **GHG Emissions Reduction Performance Metric and GHG Programs**
  - The Commission should reject the proposed GHG Emissions Reduction performance metric. As detailed below, the Company already has an incentive to meet the three GHG programs that it proposes to achieve the GHG performance targets.
    - GHG Program 1 – Tree Planting: The Commission should reject the proposed Tree Planting program because it is not cost-effective and is not a reliable means for offsetting GHG emissions.
    - GHG Program 2 – Fleet Electrification: The Commission should reject the Fleet Electrification program as a component of the GHG performance metric because it is not cost-effective, and the Company has an existing financial incentive to electrify its fleet.

The Commission should review the merits of BGE's proposal along with other proposed capital and operations and maintenance (O&M) projects in this proceeding.

- GHG Program 3 – Rooftop Solar: The Commission should reject the Rooftop Solar program as part of a PIM because the Company is already eligible to earn a rate of return on these investments. However, the Commission should approve the associated capital budget for this program outside of the PIM because it is cost-effective.

- **ROBE Performance Metric**
  - The Commission should reject the proposed ROBE performance metric because it is not cost-effective and BGE already has an incentive to avoid penalties and fines associated with oil leaks.
  - The Commission should reject the Company's accelerated replacement of aging oil-based circuit breakers (OCB) with newer vacuum-based circuit breakers (VCB) because the Company has not shown that the benefits of accelerated replacement of OCBs outweigh the costs to ratepayers. In

addition, the baseline performance of the Company's OCBs does not indicate that accelerated deployment of VCBs is warranted.

- **ZEVAC Performance Metric**
  - The Commission should reject the proposed ZEVAC performance metric because the Company should not receive a financial reward for utilizing equipment it has purchased voluntarily.
  - The Commission should require BGE to utilize the ZEVAC machine as the Company has proposed for the ZEVAC performance metric without a financial reward or penalty. The Commission should also require the Company to track the avoided GHG reductions associated with purging operations and ZEVAC operations.
- In light of the recommendations above, I further recommend that the Commission reconsider its decision in Order No. 89638 that only the utility filing a rate case may propose a PIM.[2] This case shows that allowing only the utilities to propose PIMs leads to performance metrics that reward the utility for activities it already has incentives to achieve. Allowing PIM proposals from intervening parties would

[2] Order No. 89638, pg. 12.

counter such profit-driven performance metrics and yield better results.

B. EV Program Budget

Q. Please summarize your primary conclusions regarding BGE's proposal to include budgets for future EV programs in the MYP 2.

A. I find that BGE's proposed EV program budget should be removed from the MYP 2. The Company is seeking approval of base rates in this proceeding that include a budget for a suite of new EV programs without providing details on the actual programs.

After filing the MYP 2 application, the Company made subsequent filings for a Phase II of its EVsmart® programs in Case 9478 and an electric school bus pilot program in Case No. 9692, yet does not provide sufficient justification for why the associated program costs should be included in the MYP 2. The Company has already made updates to its projected EV program budgets in these two cases and there will likely be more as these program proposals are vetted by parties and considered by the Commission through these proceedings. The consideration of EV program budgets, program design, and associated cost-recovery mechanisms should occur in the same proceeding. In addition, the Company's proposal for cost-recovery of future Phase II EV programs circumvents the EV Work Group and the current EV pilot evaluation process.

I also conclude that the Company's proposal to treat non-capital EV investments as a regulatory asset will increase the costs of the EV program to customers, while allowing the Company to earn a return on program costs that are not capital investments.

Q. Please summarize your recommendations for BGE's proposed EV program budget.

A. My primary recommendations include the following:

- I recommend the Commission reject BGE's proposed EV program budget in the MYP 2. Issues related to EV program design, budgets, and cost-recovery should be considered in the same proceeding, namely, Case No. 9478, the Commission's EV pilot docket.
- Should the Commission decide to approve the proposed EV program costs in the MYP 2, I recommend the Commission reject BGE's proposal to classify non-capital EV program expenses as a regulatory asset. This approach will needlessly cost ratepayers more over the long term, while allowing the Company to earn a return on program costs that are not capital investments. Should the Commission approve regulatory asset treatment of EV program costs, BGE should not be allowed to earn a return on that asset.

C. EV BCA

Q. Please summarize your primary conclusions regarding BGE witness Mark Warner's BCA.

A. I find that Mr. Warner does not accurately apply the EV-BCA Framework to the BCA that BGE performed for the Charger Rebate and Home Charging Incentive (Charger Rebate & HCI) or to the BCA that BGE performed for the Charger Rebate, EV-Time-of-Use, and Home Charging Incentive (Charger Rebate & TOU & HCI). This is because he excludes the costs associated with the Level 2 smart chargers that are rebated through the Charger Rebate program, thereby inflating the cost-effectiveness of this program.

While it is appropriate to conduct a BCA for customers that participated in both the Charger Rebate program and EV-TOU rate to understand how these offerings work together, it is not correct to ignore the costs associated with the rebated chargers as part of this analysis. BGE designed its Charger Rebate program as a $300 incentive to offset a portion of the cost to purchase and install a Level 2 smart charger. The $300 rebate only covers a portion of the costs to the participant to purchase and install the charger. The EV-BCA Framework clearly includes "EV Charger Costs" as a Participant Cost under the Maryland EV Jurisdiction--Specific Test (MD EV-JST).[3] These costs should be included for any program where the utility is

[3] In the Matter of the Petition of the Electric Vehicle Work Group for Implementation of a Statewide Electric Vehicle Portfolio, *Electric Vehicle Benefit/Cost Analysis Methodology by the Maryland Joint-Utilities, prepared by Mark Warner, Gabel Associates Inc., in support of the EV-BCA Work Group* (*EV-BCA Whitepaper*), ML No. 238013 (CN 9478, Dec. 1, 2021) (approved by the Commission via letter order, ML No. 238539 (Jan. 13, 2022)). Pg. 17.

incentivizing the customer to purchase a charger. When these costs are excluded, it leads to inflated cost effectiveness results, making the program seem more beneficial to ratepayers than it is.

I also find that Mr. Warner fails to conduct a BCA for the Charger Rebate program on its own. The Charger Rebate program was a stand-alone offering where customers could receive a charger rebate even if they chose not to enroll in the EV-TOU rate. When a customer receives a rebate for a charger but does not participate in the EV-TOU rate or the HCI program, a cost is created that has no associated benefits. It is important to conduct a BCA of the Charger Rebate program on its own to bring this issue to light and inform improvements to the design of this program and future proposed programs.

The MD-JST cost-effectiveness test was intended to provide regulators and stakeholders with more transparency on the costs and benefits resulting from utility EV programs. It also provides the needed information to determine if a utility investment will provide net benefits to customers and provides valuable insight into the design of BGE's proposed future EV programs. It is therefore important that these tests include all relevant costs and benefits, are based on reasonable assumptions, and account for the unique design of program implementation to ensure the results are accurate. The inflated cost-

effectiveness results of the Charger Rebate program do not provide the accurate information needed to evaluate this program.

Q. Please summarize your recommendations regarding BGE witness Mark Warner's BCA.

A. My primary recommendations include the following:

- The Commission should require BGE to revise and resubmit its BCAs as follows:
  - The BCA for the Charger Rebate combined with the HCI program should include the participant share of the Level 2 charger costs, net of the utility rebate.
  - The BCA for the Charger Rebate program combined with both the HCI program and EV-TOU rate should include the participant share of the Level 2 charger costs, net of the utility rebate.

II. Performance Incentive Mechanism

A. The Role of PIMs in Utility Regulation

Q. Please describe a PIM and its role in utility regulation.

A. PIMs are a compensation mechanism whereby a utility receives a financial reward or penalty for the achievement or failure to meet a performance target. Historically, PIMs have been used to address traditional utility performance areas such as reliability, service quality, and safety. However, as more states move forward with decarbonization policies, PIMs are being used to positively influence utility behavior towards the advancement of

energy policy goals that are not directly aligned with a distribution company's public service obligations or existing financial incentives.

For example, under standard cost-of-service regulation, utilities have a financial disincentive to invest in energy efficiency and distributed energy resources (DER). These resources create energy and peak-demand savings that negatively impact the traditional way utilities earn profits, by reducing sales and lessening the need for load growth and reliability-related capital investments. PIMs that provide a financial reward to the utility for promoting efficiency and DERs can help address this financial disincentive to better align the utility's business model with a desired policy outcome. PIMs can also be used to drive utilities to respond to technological changes such as the utilization of grid modernization components or delivery of customer services it would not otherwise pursue, or to compensate the utility for its perceived risk related to the implementation of new forms of distribution planning such as non-wires alternatives or non-pipes alternatives.

Q. What characteristics define a well-designed PIM?

A. A well-designed PIM should focus on performance areas where a utility lacks an incentive or has a disincentive to achieve a desired outcome. Existing incentives can take many forms. For example, a utility may have an incentive to invest in new capital to grow its rate base, avoid a penalty, meet

an existing regulatory standard, or achieve internal corporate and shareholder goals. To protect ratepayers from unnecessary incentive payments, it is critical that a PIM does not reward the utility for an outcome it already has an incentive to achieve.

A second key characteristic is that a PIM should be based on historical baseline data that demonstrates the utility is underperforming relative to the desired outcome. Baseline data is important to avoid rewarding a utility for achieving increased performance where there is no demonstrated need. In addition, if a utility is already performing well in an area, it may not be in the best interest of ratepayers to incentivize the utility to achieve even higher performance levels. For example, at a certain level, investments to achieve incremental improvements to reliability may have diminishing returns and therefore would not warrant the increased cost to ratepayers. The optimal level of performance should correlate to where the marginal benefits from improved performance are equal to the marginal costs of providing that increased level of performance.[4]

B. Regulatory Context

Q. Are the Maryland utilities permitted to propose PIMs within an MYP?

[4] Whited, M., Woolf, T., Napoleon, A. 2015. *Utility Performance Incentive Mechanisms: A Handbook for Regulators*. Prepared by Synapse Energy Economics, Inc. for the Western Interstate Energy Board. Pages 34-35.

A. Yes. In Order No. 89638, the Commission ruled that utilities may include proposals for PIMs as part of a rate case. In accordance with this Order, utilities are permitted to propose a PIM in a base rate case or an MYP that "that supports any recognized Maryland policy goal (including but not exclusively ratepayer benefits) beyond historical baseline standards.[5]

Q. May other parties to a rate case propose a PIM?

A. No. Within the same Order, the Commission ruled that only the utility filing a rate case may propose a PIM. However, parties to the rate case may propose modifications to a utility's proposed PIM.[6]

Q. Did the Commission provide a set of criteria for evaluating a proposed PIM?

A. Yes. In Order No. 89638, the Commission provided requirements for any utility proposing a PIM. Specifically, a PIM proposal must:

- Be tethered to a recognized State policy;
- Accelerate the policy goal beyond the utility's current capabilities;
- Show measurable benefits to ratepayers; and,
- Contain metrics which show baseline data over a specific timeframe.[7]

The Commission also found that any proposed award/penalty structure for a PIM should incentivize utilities to stretch beyond their current capabilities to

[5] Order No. 89638, pgs. 12-13.
[6] *Id.*, pg. 12.
[7] *Id*., pg. 16.

achieve measurable results.[8] Finally, the Commission stated that any proposed metrics should be clear and well-defined, unique for each utility, designed so they are not easily met, and benefit ratepayers."[9]

C. BGE's Proposal

Q. Does BGE propose PIMs as part of its MYP 2?

A. Yes. The Company proposes a PIM that contains four performance metrics. The four metrics include GHG Emissions Reductions, ROBE, ZEVAC Use, and CEMI4-3P.[10]

Q. What is BGE's rationale for including PIMs in the MYP 2?

A. The Company states it is proposing PIMs in accordance with Commission Order No. 89638 to advance State policy goals, accelerate BGE's current capabilities to meet the four metrics, show measurable benefits to customers, and contain trackable data over the MYP 2 period.[11]

Q. Please describe BGE's proposed PIM structure.

A. The Company proposes a symmetrical PIM for each of the four metrics. The Company will receive a financial award if it exceeds its proposed annual performance target for a metric or will be assessed a penalty should its performance fall below a satisfactory level, which BGE defines as the low

[8] *Id.*, para, 31, pg. 15.
[9] *Id*., para, 30, pg. 14.
[10] Direct Testimony of Mark D. Case, pg. 16, lines 4-14.
[11] Case Direct Testimony at 16, lines 5-8.

end of its proposed satisfactory performance range.[12] For each metric, the Company also includes a deadband, or a satisfactory performance range, where no reward or penalty occurs.[13]

The Company states that any resulting reward or penalty will be reflected as basis points that will either be added to, or subtracted from, the Company's return on equity (ROE) as approved by the Commission in this proceeding.[14] Table 1 below, details the proposed basis points (bps) for each performance metric as included in the Direct Testimony of witness Case.

Table 1. BGE Proposed PIM Rewards/Penalties for MYP 2

	2024		2025		2026	
	Electric	Gas	Electric	Gas	Electric	Gas
GHG Emissions Reductions	+/- 10 bps	+/- 10 bps	+/- 10 bps	+/- 10 bps	+/- 10 bps	+/- 10 bps
CEMI4-3P	-	-	+/- 10 bps	-	+/- 10 bps	-
Removal of Oil Based Equipment (ROBE)	+/- 10 bps	-	+/- 10 bps	-	+/- 10 bps	-
Zero Emissions Vacuum (ZEVAC)	-	+/- 5 bps	-	+/- 5 bps	-	+/- 5 bps
Subtotal in ROE bps	+/- 20 bps	+/- 15 bps	+/- 30 bps	+/- 15 bps	+/- 30 bps	+/- 15 bps
Capped Total in ROE bps	+/- 20 bps	+/- 15 bps	+/- 20 bps	+/- 15 bps	+/- 20 bps	+/- 15 bps
Total Revenue Requirement Impact*	+/- $4.9M	+/- $2.6M	+/- $5.2M	+/- $2.9M	+/- $5.6M	+/- $3.2M
Total Revenue Requirement Impact, Combined*	+/- $7.5M		+/- $8.1M		+/- $8.8M	

* - Revenue Requirement Impact calculated using BGE's proposed rate base and capital structure.

Source: Case Direct Testimony, Table 2.

[12] Case Direct Testimony, pg. 17, lines 18-23 and pg. 18, line 1.
[13] *Id.*, pg. 18, lines 1-3.
[14] Direct Testimony of John C. Frain, pg. 64, lines 12-14.

As shown in Table 1, the rewards and penalties across the four metrics will be added together to calculate the overall Performance Adjustment for the associated year in the MYP 2. The Company also proposes a cap of 20 basis points upwards or downwards for the electric business and 15 basis points upwards or downwards for the gas business.[15] The Company indicates that 20 basis points would be worth approximately $5 million in revenue requirement for the electric distribution company and 15 basis points equals approximately $3 million in revenue requirement for the gas distribution company.[16] Using these values, I calculated the estimated values for each performance metric, which are shown in Table 2 below.

Table 2. BGE Proposed PIM Rewards/Penalties ($ Millions)

	2024		2025		2026	
	Electric	Gas	Electric	Gas	Electric	Gas
GHG	+/- $2.45M	+/- $1.7M	+/- $2.6M	+/- $1.9M	+/- $2.8M	+/- $2.1M
CEMI4-3P			+/- $2.6M		+/- $2.8M	
ROBE	+/- $2.45M		+/- $2.6M		+/- $2.8M	
ZEVAC		+/- $0.87M		+/- $1.0M		+/-$ 1.1M
Total	**+/- $4.9M**	**+/- $2.6M**	**+/- $7.8M**	**+/- $2.9M**	**+/- $8.4M**	**+/- $3.2M**
Cap	**+/- $4.9M**	**+/- $2.6M**	**+/- $5.2M**	**+/- $2.9M**	**+/- $5.6M**	**+/- $3.2M**

Source: Calculated from Case Direct Testimony, pg. 19, lines 13–14, and pg. 20, line 1.

[15] Frain Direct Testimony, pg. 64, lines 12-21.

[16] Case Direct Testimony, pg. 19, lines 13-14 and pg. 20, line 1.

The Company indicates that the revenue impacts resulting from PIM adjustments to the ROE will be reconciled with customers through the electric and gas MYP Adjustment Rider proposed in this proceeding.[17]

Q. How will the Company's Annual PIM performance be evaluated?

A. The Company indicates it will file its annual PIM results as part of its MYP Annual Informational Filing. This will include a calculation of the PIM revenue requirement based on the overall performance of the four performance metrics. The Company indicates it will submit the Annual Informational Filing to the Commission within 90 days following the end of each year of the MYP 2 and that the filing will be subject to a 60-day discovery period.[18]

Q. Does the Company provide an example of what information it will include in the Annual Informational Filing related to PIM performance?

A. Yes. Witness Frain provides an example of the PIM revenue requirement adjustment that BGE plans to attach to the Annual Informational filing as Company Exhibit JCF-11. He describes two attachments that demonstrate the total PIM reward or penalty for a given MYP year and calculate the revenue requirements based on PIM performance for each line of business to adjust the ROE in a given MYP year.

[17] Frain Direct Testimony, pg. 68, lines 20-22.
[18] Frain Direct Testimony, pg. 68, lines 8-17.

Q. Please summarize BGE's proposed GHG Emissions Reduction performance metric.

A. The Company proposes a GHG Emissions Reduction performance metric (GHG performance metric) to support Maryland's policy to achieve net-zero GHG emissions by 2045.[19] This performance metric is made up of three programs: Tree Planting, Fleet Electrification, and Rooftop Solar on Company facilities. The Company's proposed performance levels for the GHG performance metric, shown in Table 3 below, represent the sum of the avoided GHG emissions, in terms of tons of carbon dioxide equivalent (CO_2e), resulting from of each of these programs.

Table 3. BGE Proposed GHG Performance Levels

	2024	**2025**	**2026**
	(metric tons of CO_2e)		
Reward	467 or more	1,806 or more	1,860 or more
Satisfactory	351 - 466	1,356 - 1,805	1,396 - 1,859
Penalty	350 or less	1,355 or less	1,395 or less

Source: Case Direct Testimony at pg. 41, Table 10.

As noted earlier in my testimony, BGE proposes plus or minus 10 basis points for the reward and penalty for this performance metric.

Q. Did you calculate the contribution of each GHG program to BGE's proposed annual performance levels?

A. Yes. To understand how each program contributes to the Company's overall GHG performance metric, I divided the planned metric tons of CO_2e for

[19] Case Direct Testimony at pg. 22, lines 8-12.

each program by the amount of CO_2e reduction required for BGE to receive the reward as shown in Table 3 above.

The results, shown in Table 4, indicate that Tree Planting accounts for the largest amount of GHG emissions reductions in 2024. After that first year, the Rooftop Solar program contributes most towards the performance metric.

Table 4. Contribution by Program to GHG Reward Performance Level

	2024	2025	2026
Tree Planting	87%	15%	14%
Fleet Electrification	13%	14%	21%
Rooftop Solar	0%	71%	65%

Source: Case Direct Testimony at Tables 5, 7, 9, and 10.

Q. Please summarize BGE's proposed Tree Planting Program.

A. The Company proposes the Tree Planting program to provide an offset to BGE's GHG emissions, by increasing tree planting across its service territory. The Company indicates that the primary benefit of the tree planting program is the reduction in GHG emissions.[20]

The Company will measure the performance of the Tree Planting program by multiplying the number of trees planted in a given MYP year by an annual carbon dioxide absorption rate of 48 pounds CO_2e per tree planted in

[20] Company Exhibit MDC-2, at 20.

that same year.[21] Table 5 provides a summary of the planned budget, cost per tree, trees planted per year, and the conversion to tons of CO_2e.

Table 5. BGE Tree Planting Plan and GHG Emissions Reductions

	2024	2025	2026
Annual Budget	$500,000	$500,000	$500,000
Cost per Tree	$29.56	$43.96	$45.06
# of Trees Planted	16,916	11,374	11,096
x: Absorption Rate (CO_2e pounds per tree)	48	48	48
x: Conversion factor (pounds to tons)	0.0005	0.0005	0.0005
Target (Metric tons of CO_2e)	406	273	266

Source: Case Direct Testimony at Tables 4 and 5.

The planned number of trees planted represents the maximum number of trees possible within BGE's proposed annual $500,000 budget. The number of trees planned for 2024 is based on the cost per tree associated with BGE's existing partnership with the Maryland Department of Natural Resources (DNR), slated to run through the end of 2024. While BGE indicates it plans to pursue an extension of this partnership, the cost estimates and resulting trees planted in years 2025 and 2026 are based on implementation by a third-party vendor.[22]

Q. Please summarize BGE's proposed Fleet Electrification Program.

A. The Company proposes to accelerate its planned replacement of existing light-duty internal combustion engine (ICE) vehicles in its commercial fleet with a mix of all battery electric vehicles (BEV) and plug-in hybrid electric

[21] Case Direct Testimony, at pg. 24, lines 7-10.
[22] *Id.*, pg. 24, lines 16-21 and pg. 25, lines 1-6.

vehicles (PHEV), and to deploy the required charging infrastructure to support those vehicles.[23] The Company is proposing this program to support the State's net-zero GHG emissions goal and Zero Emission Vehicles (ZEV) program that aims to bring 300,000 registered EVs on the road by 2025 and 600,000 registered EVs by 2030.[24]

The accelerated procurement of EVs proposed for this program represents an increase in the number of ICE vehicles replaced in each year of the MYP 2 over the Company's existing workplan. Table 6 provides a summary of the replacement schedule for ICE vehicles under the existing schedule (baseline) and for the proposed fleet Electrification Program (accelerated).

Table 6. Number of ICE Vehicles Replaced with EVs

	2024	**2025**	**2026**
Baseline	2	2	2
Accelerated	13	54	79

Source: Company Exhibit MDC-2, pg. 18.

The Company will measure the performance of the Fleet Electrification program by multiplying the number of EVs procured during a given MYP year by a fixed CO_2e reduction value per EV type (BEV or PHEV). The Company calculated the fixed CO_2e reduction value per vehicle by

[23] *Id*., pg. 28, lines 11-18.
[24] *Ibid*.

comparing the GHG emissions of an EV to an ICE vehicle, considering the type of vehicle being replaced.[25]

Table 7 provides a summary of the planned number of EVs and chargers, the budget, and resulting CO_2e reduction.

Table 7. BGE Fleet Electrification Plan and GHG Emissions Reductions

	2024	2025	2026
Number of EVs Procured			
Total EVs	13	54	81
Annual Budget ($ millions)			
EVs	$1.1	$2.9	$4.5
EV Chargers	$0.6	$1.2	$1.6
Total Annual Budget	$1.7	$4.1	$6.1
Metric Tons CO_2e Reduced			
Total Target	61	256	388

Source: Case Direct Testimony at Tables 6, 7, and 8.

The Company defines the EV costs as the incremental costs of an EV compared to a similar type of ICE vehicle. The charger costs represent the full cost of the charger.[26]

Q. Please summarize BGE's proposed Rooftop Solar Program.

A. The Company proposes to increase the installation of solar photovoltaic (PV) panels at BGE-owned facilities. This will include rooftop installations and some pad-mounted and ground-mounted installations. The Company is proposing this program to "reduce GHG emissions, increase utility energy

[25] *Id.*, pg. 29, lines 9-15.
[26] *Id.*, pg. 30, lines 13-17 and pg. 31, lines 1-2.

independence, create resiliency to support BGE's EV fleet, and avoid energy costs."[27]

The Company will measure the performance of the Rooftop Solar program by multiplying the MW of solar PV installed during a given MYP year by a fixed CO_2e reduction value.[28] Table 8 provides a summary of the program budget, installed MW of solar PV, and resulting CO_2e reduction.

Table 8. BGE Rooftop Solar Plan and GHG Emissions Reductions

	2023	2024	2025	2026
Annual Budget ($ millions)				
Design Phase	$1.13	$1.13	$1.13	$1.13
Build Phase		$6.38	$6.38	$6.38
Total Annual Budget	$1.13	$7.50	$7.50	$7.50
Installed MWs per year	-	-	2.03	1.91
Targets (Metric tons of CO_2e)	-	-	1,277	1,205

Sources: Case Direct Testimony, Table 9, and Company Exhibit MDC-4.

The Company plans to spend $7.5 million per year to be allocated across a design phase and build phase. The estimated cost per MW for each year was based on a solar PV construction vendor's preliminary cost analysis, including a contingency factor, and adjusted for inflation for each year of the plan.[29] As shown in Table 8, the Company plans to begin design work in 2023 to allow for the buildout of projects to occur in year 2024, and installation in 2025 and 2026.

[27] *Id.*, pg. 35, lines 18-21.
[28] *Id.*, pg. 37, lines 5-8.
[29] *Id.*, pg. 38, lines 3-7.

Q. Please summarize BGE's proposed ROBE performance metric.

A. The primary purpose of the ROBE performance metric is to accelerate the replacement of aging oil-based circuit breakers (OCB) with newer vacuum-based circuit breakers (VCB) to reduce the amount of oil equipment on the distribution system.[30] The Company indicates that this performance metric will "reduce the risk of oil spills due to age[-]related failure, improve reliability for our customers, and reduce O&M expenditures."[31]

Table 9 provides an overview of BGE's proposed performance levels for this metric. The Company will measure the performance of this metric by tracking the number of OCBs replaced in a given MYP year and the associated volume of oil from those units. The reward level is associated with BGE achieving its accelerated OCB replacement plan, which is to replace 5 additional OCBs in 2024, 10 in 2025, and 15 in 2026.[32] As noted earlier in my testimony, BGE proposes plus or minus 10 basis points for the reward and penalty for this performance metric.

[30] Company Exhibit MDC-2, pg. vi.
[31] Direct Testimony of Ajit Apte, pg. 54, lines 2-4.
[32] *Id.*, pg. 55, line 10.

Table 9. BGE Proposed ROBE Performance Levels

	2024	2025	2026
	(Gallons of Oil Removed)		
Reward	3,970 or more	4,650 or more	5,330 or more
Satisfactory	3,351– 3,969	3,721 – 4,649	4,341 – 5,329
Penalty	3,350 or less	3,720 or less	4,340 or less

Source: Apte Direct Testimony, pg. 57, Table 7.

The incremental cost of the accelerated replacement of OCBs compared to BGE's existing schedule is $0.7 million in 2024, $1.4 million in 2025, and $2.0 million in 2026.[33]

Q. Please summarize BGE's proposed ZEVAC performance metric.

A. The purpose of the ZEVAC performance metric is to incentivize the Company to increase its usage of two ZEVAC machines already owned by BGE on gas main abandonment jobs. A ZEVAC machine captures natural gas that would otherwise be purged into the atmosphere during main abandonment jobs and allows it to be re-injected into BGE's pipelines.[34]

The Company previously purchased two ZEVAC units as part of its "Path to Clean Initiative," which aims to reduce BGE's operational GHG emissions by 50 percent by 2030 and net-zero by 2050.[35,36] However, BGE has not made ZEVAC a routine part of main abandonment jobs due to the increased

[33] *Id*., pg. 56, line 10.

[34] Company Exhibit MDC-2, pg. 15.

[35] *Id*., pg. 34.

[36] Exelon defines Path to Clean "Operational Emissions" as emissions that can be directly impacted by BGE daily operations, processes and procedures. This includes buildings, SF6, vehicle fleet, and gas system. Source: Exelon Sustainability Report 2021, pg. 76.

cost associated with the transport and operation of the machines as well as increased scheduling complexity.[37] The proposed performance metric seeks to increase use of ZEVAC by setting targets related to increasing utilization gradually over the course of the MYP 2.

The Company will measure performance with this metric by tracking the percentage of applicable jobs in which the ZEVAC was used instead of purging natural gas.[38] Table 10 provides an overview of BGE's proposed performance levels for this metric. The percentage increase in usage is based on the Company's 100 percent goal of 12 applicable jobs per year.[39] As noted earlier in my testimony, BGE proposes plus or minus five basis points for the reward and penalty for this performance metric.

Table 10. BGE Proposed ZEVAC Performance Levels

	2024	**2025**	**2026**
	(% of applicable jobs)		
Reward	25%	50%	100%
Satisfactory	11 – 24%	26 – 49%	76 – 99%
Penalty	10%	25%	75%

Source: White Direct Testimony, pg. 552, Table 14.

The Company estimates the average incremental cost of a job using ZEVAC to be approximately $2,000.[40] This amount includes the incremental labor and the cost of transporting ZEVAC machine to a jobsite. Table 11 shows

[37] Company Exhibit MDC-2, pg. 34.
[38] Direct Testimony of Dawn C. White, pg. 49, lines 9-10.
[39] BGE Response to Staff 10-17, Attachment 1.
[40] Company Exhibit MDC-2, pg. 35.

the Company's proposed budget associated with meeting the reward performance level.

Table 11. BGE Proposed ZEVAC Costs per Year (Nominal $)

	2024	2025	2026
Direct cost of job per job	$2,101	$2,154	$2,208
# of jobs (Reward Level)	3	6	12
Total Cost	**$6,304**	**$12,923**	**$26,492**

Source: Brattle Workpapers, ZEVAC Program BCA_Final, Program Costs tab.

Q. Please summarize BGE's proposed CEMI4-3P performance metric.

A. The Company proposes a CEMI4-3P performance metric to focus attention on customers experiencing below-average reliability. The CEMI4-3P performance metric is defined as "the number of customers who have experienced four (4) or more sustained outages per year for three consecutive years."[41] The Company indicates this metric will support the State's history of supporting measures that improve electric reliability, including various Code of Maryland Regulations (COMAR) standards[42] and the Maryland Electricity Service Quality and Reliability Act.[43]

The Company's existing average CEMI4-3P performance is approximately 2,084 customers. Through this performance metric, BGE proposed to reduce

[41] Direct Testimony of Steven A. Singh, pg. 39, lines 4-5.
[42] COMAR 20.50.12.02 (System-Wide Reliability Standards), COMAR 20.50.12.03 (Poorest Performing Feeder Standard) and 20.50.12.04 (Multiple Device Activation Standard).
[43] Singh Direct Testimony, pg. 40, lines 1-2.

the number of CEMI4-39 customers to 1,500 in years 2025 and 2026, which is an improvement of approximately 25 percent.[44]

The Company will measure performance with this metric by tracking the number of customers that had four unplanned sustained interruptions (regardless of weather) within a calendar year and who have also experienced four or more interruptions in each of the previous two years. This data will be collected through BGE's Outage Communications System.[45] Table 12 provides an overview of BGE's proposed performance levels for this metric.

Table 12. BGE Proposed CEMI4-3P Performance Levels

	2024	**2025**	**2026**
	(Number of Customers)		
Reward	-	1,500 or less	1,500 or less
Satisfactory		1,501 – 2,349	1,501 – 2,349
Penalty	-	2,350 or more	2,350 or more

Source: Singh Direct Testimony, pgs. 42–43.

To meet the reward performance target, the Company estimates it will need a budget of approximately $1.44 million per year. This will fund projects such as undergrounding circuits, reconductoring circuits, and installing additional sectionalizing equipment.[46]

[44] *Id*., pg. 42, lines 6-8.
[45] *Id*., pg. 41.
[46] *Id*., pgs. 45-46.

D. Benefit-Cost Analysis

Q. Did the Company present a BCA for its proposed PIM and performance metrics?

A. Yes. The Company retained The Brattle Group, Inc. (Brattle) to conduct a BCA for the Tree Planting, Fleet Electrification, Rooftop Solar, ROBE, and ZEVAC programs. In addition, Company witness Singh conducted a BCA for the CEMI4-3P Performance Metric.

Q. Please summarize the results of the BCAs.

A. I provide a summary of the BCA results in Table 13 below. This provides the costs, benefits, net-benefits (i.e., benefits after costs) and the resulting benefit-cost ratio (BCR). A BCR of above 1.0 indicates cost-effectiveness.

Table 13. BCA Results for BGE's Proposed Performance Incentive Metrics

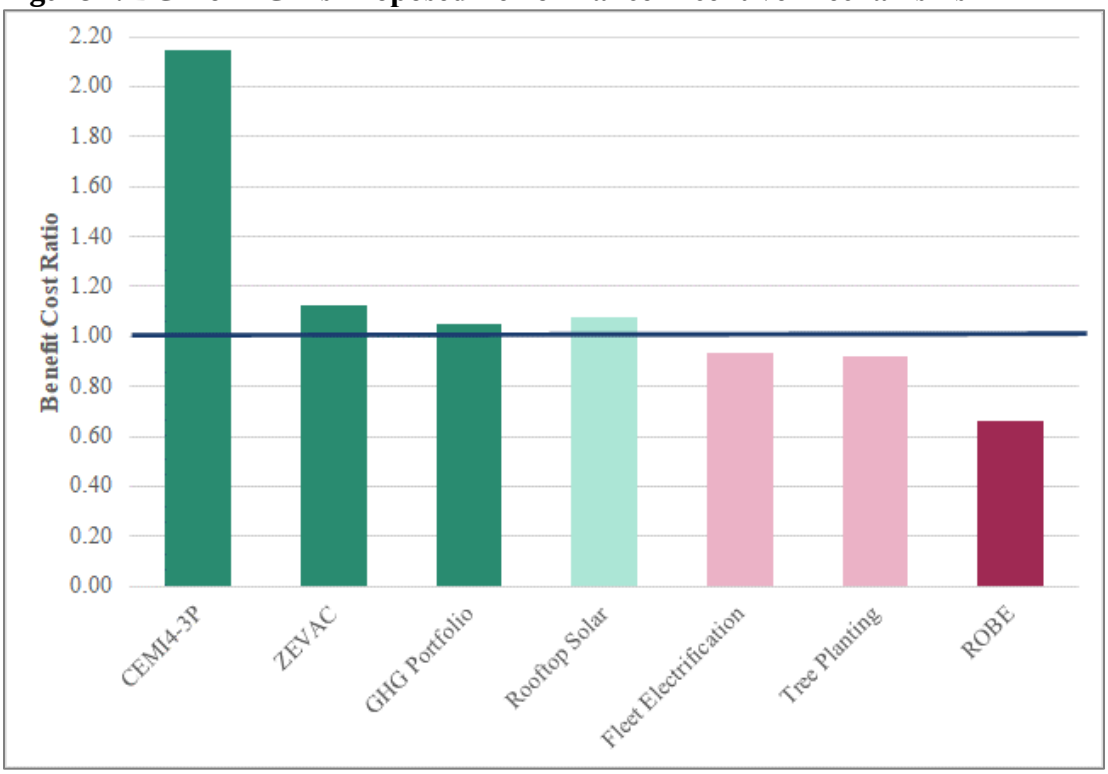
PIM	Costs	Benefits	Net-Benefits	BCR
CEMI4-3P	-$2,885,098	$6,190,788	$3,305,690	2.15
ZEVAC	-$41,033	$46,181	$5,148	1.13
GHG Portfolio	-$25,538,531	$26,788,863	$1,250,333	1.05
Rooftop Solar	-$20,597,808	$22,195,386	$1,597,578	1.08
Fleet Electrification	-$3,567,536	$3,331,445	-$236,091	0.93
Tree Planting	-$1,373,187	$1,262,032	-$111,155	0.92
ROBE	-$1,700,910	$1,125,972	-$574,938	0.66

Sources: Company Exhibit MDC-2 and Company Exhibit SS-2.

The BCA indicates that the CEMI4-3P, ZEVAC, and GHG performance metrics are cost-effective. Two of the programs included in the GHG performance metric, Fleet Electrification and Tree Planting, are not cost-effective. The ROBE performance metric is also not cost-effective. Figure 1

presents this information graphically to show the relative level of cost-effectiveness compared to the 1.0 threshold.

Figure 1. BCR of BGE's Proposed Performance Incentive Mechanisms



Sources: Company Exhibit MDC-2 and Company Exhibit SS-2.

Q. Do you have any concerns with the BCA methodology?

A. Yes. I find that the BCAs do not adhere to the *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources* (NSPM for DERs) due to their exclusion of utility performance incentive costs. As shown in Table 2, the Company can earn an average of $5 million in electric performance incentives and $3 million in gas incentives each year. These are real costs that will be paid for by customers and should be included in the BCAs.

Q. What is the Company's rationale for excluding these costs?

A. The Company states it did not include annual financial reward because it would be inappropriate to do so as it is uncertain and dependent on the outcome of the program. The Company also states that a reward would be a transfer payment between BGE and customers and does not belong in the scope of a societal cost test as used for the BCAs.[47]

Q. Do you agree with this rationale?

A. No, I do not. The NSPM for DERs describes the term "transfer payment" as a transaction in which a cost to one party is exactly offset by a corresponding benefit to another party and refers to this situation as the creation of an "offsetting impact."[48] In its assessment of whether to treat performance incentives as an offset (or transfer) in a BCA, the NSPM for DERs concludes that a performance incentive is not an offsetting impact and should be included as a cost in a societal cost test. This is because the costs of performance incentives are experienced by all customers, while the benefits of the performance incentive are only experienced by the utility.[49]

Furthermore, there is precedent for dealing with the uncertainty around the level of performance incentives in other jurisdictions. Several jurisdictions

[47] BGE Response to OPC 13-40.
[48] NSPM for DERs, pg. F-1.
[49] *Id.*, F-4

require that utilities include the estimated costs associated with meeting 100 percent of performance targets with a BCA. For example, Minnesota recently adopted a jurisdiction-specific cost-effectiveness test, the MN Test, for energy efficiency programs. The decision in the Minnesota case requires that BCAs using the MN Test, Utility Cost Test, Societal Cost Test, and Ratepayer Impact Measure Test include the performance incentive cost associated with the utility achieving 100 percent of its planned energy savings goals.[50] This practice is also followed for energy efficiency BCAs in Massachusetts[51] and Rhode Island.[52]

Q. Why is it important that the BCAs adhere to the NSPM for DERs?

A. The Commission previously acknowledged the importance of the NSPM for DERs in Order No. 90212, where it established a work group to develop a unified BCA framework.[53] Specifically, the Commission noted that the work group should consider the principles and steps included in the NSPM and consider the existing work of the EV BCA Work Group. The primary cost-effectiveness test developed by the EV BCA Work Group acknowledges that the NSPM represents a valuable framework for structuring BCA

[50] Minnesota Department of Commerce, Decision in the Matter of the 2024-2026 CIP Cost-Effectiveness Methodologies for Electric and Gas Investor-Owned Utilities, Docket No. E,G999/CIP-23-46 (March 31, 2023) at. 261.

[51] Massachusetts Joint State wide Electric and Gas Three-Year Energy Efficiency Plan 2022-2024, D.P.U. 21-120 – D.P.U. 21-129, (November 1, 2021), Exhibit 1, Appendix A, pg. 15.

[52] The Narragansett Electric Company's d/b/a Rhode Island Energy's Annual Energy Efficiency Plan for 2023, Docket No. 22-33-EE (September 30, 2022), Attachment 4, pages 23-24.

[53] Case No. 9674, Order No. 90212 (May 12, 2022).

methodologies for a variety of DERs and incorporates the NSPM principles.[54]

Q. How will the inclusion of performance incentive costs affect the BCR?

A. As I detail in the section below, the addition of performance incentive costs to the BCAs will reduce the cost-effectiveness of BGE's proposed performance metrics.

E. Critique of BGE's Proposal

Q. What is your overall assessment of BGE's proposed performance metrics, targets, and incentives?

A. I will discuss each performance metric in more detail within this section, but at a high level I find that BGE's proposed PIM and performance metrics do not meet all the criteria set forth by the Commission in Order No. 89638.

The Company already has an incentive to achieve many of the proposed performance metrics (including Fleet Electrification, Rooftop Solar, ROBE, and CEMI4-3P) through its ability to earn a return on the capital investments needed to achieve the metric. I find that these metrics exacerbate the Company's existing incentive to expand its rate base. I also do not support the use of ratepayer dollars to incentivize the usage of existing ZEVAC

[54] *EV-BCA Whitepaper* at pgs. 3-4.

machines, due to the Company's prior knowledge of potential risks associated with these machines prior to their purchase.

Q. Do you have any other general concerns with BGE's proposal?

A. Yes. I am concerned that the proposed PIM and performance metrics do not provide any incentive for utility cost control. Within the MYP 2, the Company proposes budgets for the capital investments and operational expenses needed to meet the PIM performance targets. When asked how potential overspend would be treated in the MYP 2 for Tree Planting and Fleet Electrification, the Company's response was that, to the extent it exceeds its program budget, "the Commission ultimately has the decision-making authority to consider the prudence of going over budget in an effort to reduce GHG emissions."[55] The lack of cost cap or penalty for overspending to achieve performance metrics is exacerbated by the design of BGE's MYP, which allows for annual reconciliation of costs. Under conventional MYP design, the regulatory lag that occurs during the pre-set period between rate cases provides a utility with an incentive to manage costs during that time. However, under BGE's proposed MYP, the annual reconciliation eliminates this incentive. Outside of a finding of imprudence, BGE has no incentive from the MYP to keep costs low, and with the lack of

[55] BGE Responses to OPC 09-21(F) (Tree Planting) and to OPC 09-36(F) and (G) (Fleet Electrification).

a cost cap for this program, BGE has no incentive to reduce costs. In fact, it has a financial incentive to increase costs, to the detriment of its customers.

Q. How often are utility investments found to be imprudent?

A. It is not common. I understand from counsel that the Commission has not made a finding of imprudence since the 1990s.

Q. Are there PIM designs that better support cost control?

A. Yes. A PIM designed as a shared savings mechanism would help to align the utility's incentives with those of ratepayers. Using an example of a PIM associated for the promotion of DERs, under the shared savings approach the utility would receive a certain percentage of the monetized net benefits from each installed DERs as a financial incentive, with ratepayers retaining the rest of the benefits. Compared to a PIM that only rewards performance regardless of cost, the shared savings approach creates an incentive for the utility to maximize net benefits of the program.

i. GHG Performance Metric

Q. Do you support approval of BGE's proposed GHG Performance Metric?

A. No. I do not support this metric as designed. While I support a performance metric to incentivize reductions in GHG emissions, I do not support BGE receiving a financial reward for implementing its proposed GHG programs.

Q. Please explain why you do not support financial rewards for BGE's proposed GHG programs.

A. As I will explain in more detail for each program, I find that BGE already has an incentive to implement the GHG programs as proposed. While the programs result in GHG emission reductions, they award outcomes that are more aligned with BGE's investment goals and shareholder interests than ratepayer interests.

The Company already has a financial incentive to increase its investments in Fleet Electrification and Rooftop Solar through the ability to earn a return on the associated capital investments. In addition, investments in Tree Planting, Fleet Electrification, and Rooftop Solar are already occurring without a PIM; these investments help meet the operational GHG reductions goals of BGE and its parent-company Exelon, as set forth in its Path to Clean Initiative. This indicates a PIM is not needed to overcome a disincentive or risk associated with implementation. The Company's primary barrier to increasing deployment of trees, fleet electrification, and solar is gaining Commission approval of additional spending for these existing initiatives. That type of approval can be provided without providing overly generous financial rewards to the Company.

Q. Are BGE's GHG programs similar to those identified in the Case No. 9618 Phase II Working Group Report on Performance-Based Regulation?

A. No. The Company states it considered the Phase II Working Group Report;[56] however, it does not propose any of the recommended GHG PIMs from the report. While working group participants did not reach consensus on any of the proposals, they recommended tracking metrics for overall GHG and sulfur hexafluoride (SF_6) emissions, as well as PIMs associated with lost and unaccounted for gas/fugitive emissions (LAUF), electric distribution system loss factors, electric line losses, and fuel-switching.[57]

Q. Did BGE conduct any analysis to identify and select its GHG emission reduction projects to meet the performance metric?

A. No, it did not. The Company did not analyze the cost per ton of CO_2e reductions of the proposed programs to determine which programs to select for this metric.[58] The Company indicates that instead it "targeted the activities that were thought to be most relevant to BGE and Maryland's goals around planting trees, vehicle electrification, clean energy generation and GHG reduction goals."[59] Furthermore, BGE also confirmed it did not establish any quantitative GHG thresholds for this effort.[60]

Q. Are you concerned by the Company's GHG program selection process?

[56] Case No. 9618. PC51 Phase II Report Performance Based Regulation (6/17/20).
[57] *Id.*, pgs. 41-46.
[58] BGE Response to OPC 13-41.
[59] BGE Response to OPC 17-01.
[60] *Id.*

A. Yes. It is concerning that BGE selected GHG programs without consideration of the cost of GHG emissions reductions. When identifying investments to reduce GHG emissions, it is common to consider a marginal abatement cost (MAC) curve to compare the cost and emissions impact of different technologies. The most common example is the McKinsey cost curve, which compares the cost of GHG abatement across a variety of technologies.[61] Without a comparison of the cost of different available GHG reduction approaches, it is not possible to assess whether an alternative program could have provided more GHG emissions reductions at a lower cost. Without this research and analysis, BGE is not able to confirm that these projects are the most cost-effective or the most efficient way to reduce GHG emissions. This information is particularly important considering BGE is seeking incentives for exceeding project-specific targets.

Q. Did you review the supporting data for BGE's proposed performance metrics?

A. Yes. Using the testimony and exhibits of witnesses Case and White, along with the Brattle workpapers, I obtained the needed information to conduct a simplified analysis to calculate the project cost per metric ton of CO_2e ($MTCO_2e$) reduced in the MYP 2 period. While the ZEVAC program is not

[61] McKinsey Website: https://www.mckinsey.com/capabilities/sustainability/our-insights/a-cost-curve-for-greenhouse-gas-reduction. Last accessed on 6/9/23.

part of the Company's proposed GHG performance metric, I include it here as its purpose is to avoid the purging of GHG emissions into the atmosphere.

Q. What conclusions do you draw from this analysis?

A. I find that the cost per unit of GHG emissions reduced differs significantly across BGE's proposed projects, as summarized in Table 14. Notably, fleet electrification is the most expensive GHG reduction program at a cost of almost $17,000/ $MTCO_2e$, while ZEVAC is the least expensive. I caution that these are illustrative figures based on information provided by BGE witnesses in their testimony.

Table 14. Cost per $MTCO_2e$ Reduced

	Total MYP 2 Program Cost	GHG Emission Reduction ($/$MTCO_2e$)
Tree Planting	$1.5M	$1,587
Fleet Electrification	$11.9M	$16,879
Rooftop Solar	$22.5M	$9,065
ZEVAC	$40,000	$151

Sources: Case Direct Testimony Tables 5, 7, and 9. Brattle Workpapers ZEVAC Program BCA_Final.xlsx

Q. What are the GHG emission reduction impacts for these projects?

A. Over the course of the MYP 2, the three projects under the GHG performance metric and the ZEVAC project are projected to contribute approximately 4,400 $MTCO_2e$. As shown in Table 15 below, the emission reductions from these projects range from just 0.24 percent to 0.94 percent

of BGE's total electric and gas system operations for 2021 at 213,643 $MTCO_2e$.[62]

Table 15. Performance Metric GHG Emissions Reduction as a Percent of 2021 BGE Electric and Gas Operational Emissions

	2024	2025	2026
Tree Planting	0.19%	0.13%	0.12%
Fleet Electrification	0.03%	0.12%	0.18%
Rooftop Solar	0.00%	0.60%	0.56%
ZEVAC	0.02%	0.04%	0.07%
Total	**0.24%**	**0.88%**	**0.94%**

Sources: BGE Responses to OPC 3-13 Attachment 4 and OPC 13-39(A). Case Direct Testimony Tables 5, 7, and 9. Brattle Workpapers ZEVAC Program BCA_Final.xlsx

Q. What is your main conclusion from this analysis?

A. I find that BGE did not consider the cost of saved GHG emissions in its design of its proposed performance metrics. I also conclude that the proposed programs to reduce GHG emissions have a minimal impact on BGE's overall operational emissions.

a. GHG Program 1: Tree Planting

Q. Do you support a performance incentive for the Tree Planting program?

A. No, I do not. The Tree Planting program does not meet the criteria set forth in Commission Order No. 89638. As explained in detail below, this program fails to create benefits to ratepayers and is not based on sufficient baseline data, which in turn does not provide sufficient information as to whether the Company can easily meet the target. I also find that since the Company has

[62] BGE Responses to OPC 3-13 Attachment 4 and OPC 13-39(A).

been planting trees over time and developing new initiatives to plant trees, a performance award is not needed to overcome a disincentive.

Q. Does BGE currently plant trees in its service territory?

A. Yes. The Company has several existing tree planting programs.

- Arbor Day Energy Savings Tree Program: Provided a total of 4,621 trees to customers from 2018–2022 and has 1,000 more trees available for 2023.
- Volunteer and Community Based Tree Planting: BGE works with local environmental non-profit organizations to assist in tree planting efforts but does not maintain tree planting records.
- Mitigation Tree Plantings: Trees are planted on a project-by-project basis to make up for trees that need to be removed as part of specific projects. BGE does not maintain the tree planting records for these activities.
- Path to Clean: BGE planted 5,700 trees in 2023 that were funded by shareholders to help meet its "Path to Clean" goals.[63]

Q. Did the Company receive any performance incentive to encourage these tree planting efforts?

A. No, it did not.

Q. Did the Company provide historical tree planting data to inform the baseline and performance targets?

[63] BGE Response to OPC 09-21(D).

A. No, it did not. As indicated above, the Company has existing tree planting initiatives but does not track the number of trees planted for all these programs. Without information on BGE's historical tree planting it is not possible to determine whether BGE's proposed performance target is reasonable.

Q. Does the Tree Planting program benefit ratepayers?

A. No, it does not. The BCA for the Tree Planting program has a BCR of 0.92, which indicates the costs exceed the benefits.[64] This BCA also does not account for the cost associated with the financial reward associated with the GHG performance metric. As noted earlier in my testimony, the NSPM for DERs is clear that, even under a societal cost test, performance incentives to the utility should be included as a utility system cost.[65] Including this cost would make this program even less cost-effective.

It is also worth noting that 100 percent of the benefits included in this BCA pertain to GHG emissions reductions. While reducing GHG emissions is an important societal goal, it does not create any other types of benefits for ratepayers. If BGE could demonstrate that this program represents a relatively low-cost way to reduce GHG emissions, then it could claim that

[64] Case Direct Testimony, pg. 27, lines 11-12.
[65] NSPM for DERs, pg. 5-14.

the program provides benefits to ratepayers. But the evidence suggests otherwise: this is an expensive way to reduce GHG emissions.

Q. Do you have concerns with the use of tree planting as a GHG emission offset?

A. Yes, I do. A carbon offset should be permanent, additional, verifiable, enforceable, and real. This set of criteria is known as the widely accepted "PAVER" criteria for carbon offsets.[66] For example, the California Environmental Protection Agency Air Resources Board Compliance Offset Protocol for the U.S. Forest Projects requires tree planting projects to monitor, report, and verify carbon stocks for at least 100 years.[67] However, the Company's proposal is to only provide three years of tree care and maintenance.[68] While BGE states it will periodically inspect the plantings and provide reporting and verification, there is no detail provided and the program costs only include the initial three years of tree care and maintenance.[69] Therefore, the Company's proposed tree planting program does not provide assurance that the GHG emissions reductions will be permanent.

[66] OPC Comments in response to Columbia Gas Authorization to Modify Tariff to Establish Green Path Rider program (1/17/23) ML#242360, pgs. 4-5.

[67] California Air Resources Board, Compliance Offset Program, 10/27/21. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-10/nc-forest_offset_faq_20211027.pdf.

[68] BGE Response to OPC 9-22(D).

[69] BGE Response to OPC 09-23(A) and (B).

I also have a more general concern in the validity of carbon offsets. As noted in previous comments by the OPC, a recent study of the United Nations Clean Development Mechanism found that 85 percent of the certified emissions reduction projects analyzed were unlikely to be additional, meaning they did not result in offsetting emissions. Further, a recent analysis released in December 2022 detected no real climate benefit over 10 years for forest carbon offsets administered by the American Carbon Registry and the Climate Action Reserve.[70]

Q. Is it common for utilities to receive financial rewards for planting trees?

A. No, it is not. The Company indicates it is unaware of any examples of utilities in other jurisdictions that have a performance incentive related to tree planting.[71] I am also not aware of any utilities that have this type of incentive.

Q. Is there an economic or market argument for utility engagement in tree planting?

A. Generally, no. Tree planting is not a monopoly service and can be provided by any number of governmental or non-governmental institutions and businesses. It is therefore appropriate to question whether ratepayers should fund any costs associated with tree planting, particularly in the absence of

[70] OPC Comments in response to Columbia Gas Authorization to Modify Tariff to Establish Green Path Rider program (1/17/23) ML#242360, pgs. 5-6.

[71] BGE Response to OPC 09-21(A).

any evidence that the tree planting is focused on areas where the trees will have a cooling effect that could reduce demand.

Q. Should the Commission approve BGE's proposed Tree Planting program budget if it rejects the GHG Performance Metric?

A. No. Planting trees is not a reliable means of offsetting GHG emissions, especially under the proposed program design, and is therefore not an appropriate use of ratepayer funds. Ratepayers should not be required to pay for a program for which GHG emission reductions are uncertain. While it is possible that tree planting could offer utility system benefits if planted in urban areas to provide shade for buildings, this is not how BGE's program is designed.

b. GHG Program 2: Fleet Electrification

Q. Do you support a performance incentive for the Fleet Electrification program?

A. No, I do not. The Company already has a financial incentive to electrify its fleet and should not receive an additional ratepayer-funded financial incentive to accelerate electrification. In addition, the acceleration of BGE's existing plan to electrify its fleet does not provide net-benefits to ratepayers.

Q. Please explain the existing financial incentive.

A. The Company includes the costs related to the procurement of electric vehicles and charging stations that are not otherwise accounted for as O&M

expenses in its rate base and can earn a return on those investments.[72] The conversion from ICE vehicles to EVs will also reduce the Company's O&M costs.[73]

Q. Does the Company have non-financial reasons to move forward with fleet electrification?

A. Yes, it does. The Company has an internal corporate goal of reaching 30 percent electrification by the end of 2025 and 50 percent by the end of 2030. The Company intends to move forward with fleet electrification to meet its Path to Clean initiative.[74]

Q. Does the Company have any disincentives to electrify its fleet?

A. No, it does not. The Company acknowledges it has no financial disincentive to replace ICE vehicles with EVs and indicates that the cost recovery construct for the procurement of both vehicle types is similar.[75]

Q. If the Commission does not approve the GHG performance metric, will the Company move forward with its Fleet Electrification program as proposed?

A. The Company refuses to answer this question.[76] This non-answer indicates that a performance incentive is not required for the Company to implement its Fleet Electrification program. In general, utilities should justify why a

[72] BGE Response to OPC 09-35.

[73] BGE Response to OPC 09-36(B).

[74] See Path to Clean website: https://www.bge.com/SafetyCommunity/Environment/Pages/Company-Operations.aspx. Last Accessed on 6/8/23.

[75] BGE Response to OPC 09-36(A).

[76] BGE Response to OPC 09-29.

performance incentive is warranted. If there were a clear risk or disincentive to the Company, it should clearly state it would not move forward without a performance incentive, and why.

Q. Does the Fleet Electrification program benefit ratepayers?

A. No, it does not. The BCA for the Fleet Electrification program has a BCR of 0.93, which indicates the costs exceed the benefits.[77] As is the case with the Tree Planting program, this BCA does not account for the cost associated with the financial reward associated with the GHG performance metric. Including this cost would make this program even less cost-effective.

Q. Does the Fleet Electrification program have a meaningful impact on BGE's fleet GHG emissions?

A. No, it does not. The Company reports emissions of 17,673 $MTCO_2e$ from its commercial fleet in 2022.[78] The proposed performance targets for the Fleet Electrification program represent just 0.3 percent of commercial fleet emissions in 2023, 1.4 percent in 2024, and 2.2 percent in 2025. At the same time, this program has a high cost per ton of GHG emissions reduced. As shown in Table 14 above, the Fleet Electrification program has the highest cost per $MTCO_2e$ out of all the GHG-related performance metrics and programs, with a price of $16,879/ $MTCO_2e$.

[77] Case Direct Testimony, pg. 33, line 20.
[78] BGE Response to OPC 13-39(C).

Q. Should the Commission approve BGE's proposed Fleet Electrification program budget should the associated GHG performance metric be rejected?

A. Due to the fact the Fleet Electrification program is not cost-effective, I do not support its approval. The Commission should review the merits of BGE's proposed Fleet Electrification program along with the Company's other proposed capital and O&M projects identified in the MYP 2 application.

c. GHG Program 3: Rooftop Solar

Q. Do you support the Rooftop Solar program as part of BGE's proposed GHG performance metric?

A. No, I do not. The Company already has a financial incentive to install solar at its facilities and should not receive an additional ratepayer-funded financial incentive to accelerate the installation of solar PV systems.

Q. Please explain the Company's existing incentives to implement this program.

A. The Company can earn a return on the $7.5 million per year budget associated with the Rooftop Solar program, which will be classified as a capital asset.[79] In addition, the Company is already planning to retrofit its facilities with increased solar generation as part of its Path to Clean

[79] BGE Response to OPC 09-42.

initiative.[80] The Company previously included costs associated with its Path to Clean solar investments in its former MYP filed in Case No. 9645.[81]

Q. If the Commission does not approve the GHG performance metric, will the Company move forward with its Rooftop Solar program as proposed?

A. The Company does not directly answer this question. BGE indicates its final plan is dependent on the Commission's directives as part of any order(s) in this proceeding. The Company states that, absent the performance metric, it would have submitted a budget of $2.5 million per year and not the $7.5 million budget associated with accelerated solar PV deployment.[82] However, the Company does not indicate it would amend its budget to remove the costs associated with the accelerated deployment should the performance metric not be approved. This answer indicates that a performance incentive is not required for the Company to implement its Rooftop Solar program. In general, utilities should justify why a performance incentive is warranted. If there was a clear risk or disincentive to the Company, it should clearly state it would not move forward without a performance incentive, and why.

Q. Should the Commission approve BGE's proposed Rooftop Solar program budget even if it rejects the GHG performance metric?

[80] See Path to Clean website: https://www.bge.com/SafetyCommunity/Environment/Pages/Company-Operations.aspx. Last Accessed on 6/8/23.

[81] BGE Response to OPC 09-43.

[82] BGE Response to OPC 09-41.

A. While I oppose the Rooftop Solar program as part of a PIM, I recommend the Commission approve the program budget. . The Rooftop Solar program is cost-effective with a BCR of 1.08.[83] It is therefore reasonable for the Commission to approve this program as part of BGE's overall revenue requirement.

ii. ROBE Performance Metric

Q. Do you support the ROBE performance metric?

A. No, I do not. The ROBE performance metric does not meet the criteria set forth in Commission Order No. 89638. As explained in detail below, this metric fails to create benefits to ratepayers. The Company is already subject to fines and penalties and has an existing incentive to avoid non-compliance with such mandates. Lastly, historical OCB performance does not suggest an accelerated replacement plan is warranted.

Q. Does the ROBE performance metric benefit ratepayers?

A. No, it does not. The BCA for the ROBE performance metric has a base BCR of 0.64, which indicates the costs exceed the benefits.[84] This BCA also excludes this metrics performance incentive, which ranges from $2.5 to $2.8 million in each of the three MYP 2 years. As noted earlier in my testimony, the NSPM for DERs is clear that, even under a societal cost test,

[83] Case Direct Testimony, pg. 39, line 19.
[84] Apte Direct Testimony, pg. 56, lines 18-19.

performance incentives to the utility should be included as a utility system cost.[85] Including this cost would make this program even less cost-effective.

Q. Does BGE have an existing incentive to accelerate the replacement of OCBs with VCBs?

Yes. First, the Company has a financial incentive to replace OCBs with VCBs. The Company includes the cost of the VCBs in rate base as a capital expenditure and can earn a return on those assets.[86]

Second, the Company is subject to penalties for oil leaks under the Maryland Department of the Environment (MDE) Oil Control Program and compliance with the federal Clean Water Act.[87] The Company therefore has an incentive to reduce oil leaks from OCBs to comply with these existing mandates.

Q. Does the Company have a financial disincentive to replace OCBs with VCBs?

A. No, it does not. The Company states it does not have a disincentive to replace OCBs with VCBs and that its baseline replacement schedule has been driven by funding prioritization and availability.[88]

Q. Does the Company's baseline performance warrant an incentive for accelerating the replacement of OCBs?

[85] NSPM for DERs, pg. 5-14.
[86] BGE Response to OPC 09-57.
[87] BGE Response to OPC 09-51(B) and (C).
[88] BGE Response to OPC 09-55(C).

A. No, it does not. The Company indicates that this performance metric will accelerate the removal of OCBs from the system to "reduce the risk of oil spills due to age[-]related failure, improve reliability for our customers, and reduce O&M expenditures."[89] However, the Company has not received any financial penalties or fines under the MDE Oil Control Program in the last 10 years, has not received any fines or regulatory costs resulting from oil spills from circuit breakers in the last five years, and indicates that OCB failures have not caused non-compliance with the federal Clean Water Act in the last 10 years.[90] Furthermore, there have only been three reportable OCB spills in the previous 10 years.[91]

Q. Do you have any additional concerns with the proposed ROBE performance metric?

A. Yes, I do. The Company's performance in meeting the ROBE performance metric may contribute to the Company's ability to meet the CEMI4-3P performance metric.[92] This leads to double-counting of benefits across multiple BGE activities. In addition, if the replacement of OCBs impacts the CEMI4-3P performance metric, the cost of those replacements should have been accounted for in the CMEI4-3P BCA.

[89] Direct Testimony of Ajit Apte, pg. 54, lines 2-4.
[90] BGE Response to OPC 09-51(A), (B), (C), and (E).
[91] BGE Response to OPC 09-59.
[92] BGE Response to OPC 09-50.

Q. Should the Commission approve the Company's accelerated OCB replacement schedule if it rejects the ROBE performance metric?

A. No, it should not. The Company has not justified that the benefits of accelerated replacement of OCBs outweigh the costs to ratepayers. In addition, the Company's historical performance does not indicate that accelerated deployment of OCBs is warranted. The majority of the benefits associated with replacement of OCBs accrue to the Company in terms of the ability to earn a higher rate of return on new VCBs and to avoid paying penalties for noncompliance with MDE requirements.

iii. ZEVAC Performance Metric

Q. Does BGE have a disincentive to utilize its existing ZEVAC machines?

A. The Company indicates that the use of a ZEVAC machine on a main abandonment job results in a more complex work procedure with a longer purging operation, additional safety set-up considerations, increased transportation, and more coordination between personnel working the job.[93] The Company also explains that the transport and operation of the ZEVAC machines generally increase the cost of carrying out a main abandonment job.[94] The Company further states it has no current financial incentive to maximize the use of the ZEVAC machines.[95]

[93] BGE Response to OPC 13-26(D).
[94] Company Exhibit MDC-2, pg. 34.
[95] BGE Response to OPC 13-26.

Q. Was the Company aware of these costs and complexities when it made the decision to purchase the ZEVAC machines?

A. Yes, it was. The Company states it was aware of the potential for increased costs with respect to utilizing ZEVAC units in purging operations resulting from longer purge time, increased complexity in operations, increased coordination requirements, and safety set-up requirements.[96]

Q. Does the Company's baseline ZEVAC usage justify its proposed performance targets?

A. No, it does not. In 2022, BGE used ZEVAC on eight jobs, representing 80 percent of applicable jobs. However, BGE's reward target metric in the years 2024 and 2025 represents using ZEVAC on just 25 percent and 50 percent of applicable jobs, respectively. This does not comport with the requirements of Commission Order No. 89638, that any proposed award/penalty structure for a PIM should incentivize utilities to stretch beyond their current capabilities to achieve measurable results.[97]

Q. Do you support the ZEVAC performance metric?

A. No, I do not. The Company chose to purchase two ZEVAC machines as part of its internal GHG emission reduction goals.[98] It purchased these machines with the full knowledge that the utilization of these machines had the

[96] BGE Response to OPC 13-29.
[97] Order 89638, paragraph 31, pg.
[98] BGE Response to OPC 17-13(A).

potential to increase the costs and complexity of purging operations.[99] Now it requests ratepayers bear the responsibility of helping the Company overcome these barriers through a performance incentive.

Q. Should the Commission approve the Company's plan to fully utilize ZEVAC if it rejects the associated performance metric?

A. Yes. The Commission should require BGE to utilize the ZEVAC machine as proposed without a financial reward or penalty. The Company indicates that utilization of the ZEVAC machine is expected to be cost-effective with a BCR of 1.01 (excluding the cost of the performance incentive).[100] Due to the fact the Company already owns the ZEVAC machines, it should be required to utilize them to the extent possible.

In addition, the Commission should require the Company to track the avoided GHG reductions associated with purging operations and ZEVAC operations. The Company explains that it does not track GHG emissions from purging operations and does not forecast the number of metric tons of CO_2e GHG emissions expected to be released by jobs with a purging operation.[101] Increasing visibility around the GHG emissions created from purging and avoided by ZEVAC could help to inform future GHG emission reduction PIMs associated with BGE's gas operations.

[99] BGE Response to OPC 13-29.
[100] Company Exhibit MDC-2, pg. 16.
[101] BGE Response to OPC 13-24.

iv. CEMI4-3P Performance Metric

Q. What are your concerns with the CEMI4-3P performance metric?

A. The Company should not receive a financial incentive for actions associated with its core public service obligations. As noted by the Company, it has a core responsibility under Public Utilities Article §5-303 to provide reliable service to customers.[102] A performance metric should support an objective that is not already addressed through existing regulatory measures.[103] In addition, the Company has an existing financial incentive to improve reliability since it is permitted to earn a return on related capital investments.

Lastly, as I will explain in more detail below, when the BCA for this metric is corrected to account for the costs of the performance reward it is no longer cost-effective.

Q. Does the CEMI4-3P performance metric benefit ratepayers?

A. No, it does not. While the Company's BCA shows a BCR of 2.1,[104] this does not account for all related capital investments that will impact the CEMI4-3P performance targets. The Company includes $1.4 million in annual costs within its BCA, which represents the average cost of projects needed to meet the target.[105] However, the Company indicates that every project listed in the

[102] BGE Response to OPC 13-19.
[103] Order No. 89226 at 58.
[104] Company Exhibit SS-2.
[105] Singh Direct Testimony, pgs. 44-45.

category of system performance discussed in the Direct Testimony of Apte and Wright is targeted at reducing customers outages and could have overlap with the CEMI program.[106] In addition, BGE states its vegetation management budget includes work related to mitigating all vegetation-related outages, including potential CEMI4-3P customers.[107] None of those costs are included in the Company's BCA, yet they may help to reduce the number of CEMI4-3P customers, helping BGE reach its performance target and earn a reward. This indicates the BCR may be inflated.

Lastly, as noted earlier in my testimony, the NSPM for DERs is clear that, even under a societal cost test, performance incentives to the utility should be included as a utility system cost.[108] As shown in Table 2, the maximum performance incentive for CEMI4-3P is $2.6 million in 2025 and $2.8 million in 2026. When these costs are added to the Company's BCA the BCR is reduced from 2.1 to 0.7, with the costs outweighing the benefits. It is also worth noting that Company's proposed performance incentive almost equals the estimated reliability benefits.

[106] BGE Response to OPC 13-12.
[107] BGE Response to OPC 13-21.
[108] NSPM for DERs, pg. 5-14.

Table 16. CEMI4-3P BCA Summary with Performance Incentive Costs

	2025	2026	Total
Measurable Benefits ($ millions)			
Reliability Benefits (ICE Calculator)	$3.0	$3.0	$6.0
Operational Benefits (Avoided Truck Rolls)	$0.1	$0.1	$0.2
Total Benefits	**$3.1**	**$3.1**	**$6.2**
Estimated Costs ($ millions)			
CEMI4 Program Incremental Capital Costs ($ in prior year)	$1.4	$1.4	$2.9
CEMI4 Performance Reward	$2.6	$2.8	$5.4
Total Costs	**$4.0**	**$4.2**	**$8.3**
Benefit/Cost Ratio (nominal)			**0.7**

Sources: Company Exhibit SS-2, performance reward calculated from Case Direct Testimony, pg. 19, lines 13–14, and pg. 20, line 1.

Q. Do you have any proposed modifications to the CEMI4-3P performance metric?

A. Yes. I recommend the Commission modify the CEMI4-3P performance metric to be penalty only. The Company indicates that CEMI4-3P customers "are more indicative of long[-]term systemic issues due to their consistent history."[109] The Company has clearly failed these customers in providing reliable service; therefore, a penalty is appropriate.

F. Recommendations for Future PIMs

Q. Do you recommend PIMs for a future rate case?

A. Yes. While I do not support BGE's PIM proposal in the MYP 2, well-designed PIMs should be proposed and considered in future rate cases.

Q. What PIMs do you recommend?

[109] BGE Response to OPC 13-03.

A. I recommend that BGE adopt a PIM for non-pipes alternatives (NPA) and for lost and unaccounted-for gas (LAUF).

Q. Please describe an NPA.

A. NPAs are collections of measures, commonly located at end-use customers' facilities, that can meet an anticipated reliability need without new gas infrastructure investments. NPA measures could include, for example, temporary supply, energy efficiency, electrification, and demand response. NPAs could apply to anticipated gas distribution projects associated with main or service replacements and with load growth, and generally exclude those needed for safety and reliability. Like non-wires alternatives, NPAs can be designed to avoid the traditional infrastructure investment, or they can defer it for a period of time (for example, at least 5 years) until another lower-cost alternative to traditional infrastructure can be put into place.

Q. Why is an NPA suitable for a PIM?

A. The Company has a clear financial disincentive to pursue NPAs due to its ability to earn a return on gas distribution infrastructure investments. The Company may also perceive risk associated with changing its current gas distribution process to incorporate non-traditional solutions like efficiency and demand response. Therefore, a PIM is needed to address this risk and will incentivize BGE to support a new action it would not otherwise pursue. The adoption of an NPA PIM will also support the Climate Solutions Now

Act of 2022, which establishes state goals of a 60 percent reduction in GHG emissions (from a 2006 baseline) by 2031 and net zero emissions by 2045.

Q. Please describe your recommendation for an NPA PIM.

A. I recommend that BGE develop a PIM for the successful implementation of NPAs as part of its next rate case. The Company can model this PIM after the New York gas utilities. In New York, the gas utilities are required to file NPA screening and suitability criteria and to consider NPAs for projects that exceed a cost threshold. Consideration of NPAs involves conducting a "full-scale solicitation" of NPAs, followed by a BCA of potential solutions.[110]

NPAs can be structured as a shared-savings PIM, where the cost savings resulting from the NPA compared to a traditional investment are shared between the utility and customers. A list of additional utilities examining NPAs in other jurisdictions can be found as Exhibit ASH-3 to the direct testimony of OPC witness Asa Hopkins.

[110] New York Public Service Commission. Case 20-G-0131, Proceeding on Motion of the Commission in Regard to Gas Planning Procedures, Order Adopting Gas System Planning Process (issued May 12, 2022), p. 37.

Q. Please define what is meant by LAUF.

A. LAUF is typically defined as "the difference between the gas injected into a distribution system and the gas measured at customers' meters."[111]

Q. Please describe your recommendation for an LAUF Emissions PIM.

A. As part of the PC51 Phase II Working Group on Performance Based Regulation, OPC proposed a GHG PIM to account for fugitive emissions and the cost of reducing these emissions.[112] This PIM would be consistent with the policy goals of the STRIDE program to improve gas safety and reduce GHG emissions by accelerating the replacement of leaking and leak-prone pipe. A properly designed PIM for this policy objective would allow for further prioritization of leak-prone pipes while supporting cost-efficiency.

Q. Please describe the design of this PIM.

A. The LAUF Emissions PIM would be based on two outcomes, the reduction in LAUF gas and the cost per ton of CO_2e.

1. LAUF Gas Emissions: LAUF standards would be developed for this PIM based on BGE historical data. If the Company fails to achieve the LAUF standards, a penalty is assessed. For example, the Georgia

[111] Costello, Ken, June 2013, "Lost and Unaccounted-for Gas: Practices of State Utility Commissions", National Regulatory Research Institute, available at: https://pubs.naruc.org/pub/FA86BB52-AE3F-D8AC-B295-801BD6DC6435.

[112] CN 9618, Office of People's Counsel's February 28, 2020 Comments to 9618 Working Group.

Public Service Commission established a minimum LAUF-gas standard benchmark for the Atlanta Gas Light Company. If the Company's 16-year rolling average rises above the benchmark range, a penalty is assessed.[113]

2. Cost per Ton Reduction in CO_2e: The Company's ability to achieve the LAUF standards cost-effectively would result in a financial reward. The purpose of this PIM is to reward the utility for reducing gas leakage at the lowest cost in achieving the LAUF requirements described above. Subsection (d)(2) of the STRIDE law requires utilities to include costs estimates for each project in any field plan with the Commission. The STRIDE law also provides that estimated costs are collected at the same time the infrastructure replacement is made. Therefore, historical performance in planned versus actual costs can be used to develop a goal for such a PIM.

Specifically, I propose the LAUF PIM be designed with the following conditions for a reward, penalty, or no incentive:

		Emissions Standard		
		< 85%	**85% - 105%**	**>105%**
Cost Efficiency	**Fail**	Penalty	$0	$0
	Meet	Penalty	$0	Reward

[113] *Id*, p. 24.

Q. Please explain how this PIM would benefit ratepayers.

A. The combination of two asymmetrical PIMs helps to avoid the creation of perverse incentives for the Company to (a) spend any amount necessary to reduce emissions, or (b) only target the least-cost pipe replacements. The Company will not receive a reward or penalty if it meets the LAUF standards but does so at a higher cost per unit of CO_2e; however, it will also not receive an award unless it exceeds both the LAUF standards and does so at a lower cost.

Q. Do you have any additional recommendations regarding PIMs?

A. Yes. I recommend that the Commission reconsider its decision in Order No. 89638 that only the utility filing a rate case may propose a PIM.[114]

Q. Please explain why it is important for the Commission to allow all parties the opportunity to propose PIMs.

A. Allowing only the utilities to propose PIMs dismisses the importance of stakeholder input – especially stakeholders representing customer interests – and results in missed opportunities. As I discussed above, BGE's proposed PIMs serve the Company's interests to grow its rate base and achieve financial rewards for existing corporate initiatives. Allowing intervening parties to propose PIMs will help to better push the utility to stretch beyond

[114] Order No. 89638, pg. 12.

business as usual and help support new or improved services that it would not otherwise pursue.

While it is true that utilities have access to the data needed to inform the design of a PIM, litigated proceedings provide a process for parties to obtain such data through discovery, and, where appropriate, propose a PIM. Where it is not possible to design a PIM due to limited baseline data, parties could propose performance metrics to inform future recommended PIMs.

III. Electric Vehicle Program Budgets

A. Summary of BGE's EV Program Budget Proposal

Q. Please summarize the Company's EV program budget as filed in the MYP 2.

A. The Company includes an EV budget within the MYP 2 based on a potential portfolio of future investments. These investments include an electric school bus (EVSB) proposal; continued support of BGE's existing public charger network; and other future EV programs related to fleet and mass transit electrification, support for private investment in public charging infrastructure, multifamily charging, and grid management strategies.[115] The Company proposes to classify non-capital (O&M) investments as a regulatory asset, which it will recovery over a five-year amortization period. The Company proposes a total budget of $100.7 million over the MYP 2

[115] Case Direct Testimony, pg. 50, lines 8-13.

with $62.3 million in regulatory asset expenditures and $38.5 million in capital, as shown in Table 17 below.

Table 17. BGE's Proposed EV Program Spend for 2024–2026 ($ Millions)[116]

Program	Type	2024	2025	2026	Total
Fleet	Reg Asset	$2.3	$2.4	-	$4.7
BGE-owned stations	Reg Asset	$1.0	$1.2	$1.6	$3.8
	Capital	$2.8	$2.9	$1.4	$7.1
Make-Ready Programs	Capital	$3.1	$8.5	$8.7	$20.3
School Bus	Reg Asset	$8.7	$14.6	$15.1	$38.4
	Capital	$2.7	$3.9	$4.3	$11.0
Residential Managed Charging & TOU	Reg Asset	$0.7	$3.3	$3.6	$7.6
Program Administration and Marketing	Reg Asset	$2.4	$2.7	$2.6	$7.7
Total		**$23.8**	**$39.6**	**$37.3**	**$100.7**

Source: BGE Response to Staff 20-02.

The Company indicates that to the extent the Commission approves different EV programs through Case No. 9478 "and the associated work group process," those changes will be reflected the MYP 2 reconciliation process for the appropriate year(s).[117]

Q. Did BGE file any information related to the design of these programs in its MYP 2?

[116] In BGE Response to Staff 20-02, it notes that some of the dollar amounts listed above reflect the Commission's approved extension of its Fleet program in 2024 and 2025. The budget for BGE-owned stations program in 2024 and 2025 include both dollars that were included in the budget proposed by BGE to the Commission and dollars associated with additional program components that have not yet been approved by the Commission.

[117] Frain Direct Testimony, pgs. 24-25.

A. No, it did not. The Company does not propose actual programs as part of this MYP 2; it only requests approval of the estimated budgets. The Company indicates it will file actual programs in 2023.[118]

Q. Has the Company filed applications for the EV programs associated with these budgets since its MYP 2 application?

A. Yes. On March 3, 2023, the Company filed an application for an EVSB pilot program with the Commission.[119] In response to this application, the Commission opened an evidentiary proceeding (Case No. 9696) and BGE subsequently filed direct testimony in support of its EVSB pilot program on April 27, 2023.[120]

In addition, on May 24, 2023, the Company filed an application for a Phase II of its EVsmart® programs (EV Phase II) with the Commission in Case No. 9478.[121] The Commission subsequently requested comments from interested parties to be filed by October 3, 2023.[122]

Q. Have the Company's proposed EV program budgets changed since it filed the MYP 2?

[118] Case Direct Testimony, pg. 50, lines 13-17.

[119] Baltimore Gas and Electric Company Proposal for an Electric School Bus Pilot Program. Case No. 9478 and 9696 (ML 301632).

[120] Baltimore Gas and Electric Company Direct Testimony, Case No. 9696 (ML 302615) April 27, 2023.

[121] Baltimore Gas and Electric Company Electric Vehicle Program Phase II Proposal (EV Phase II Proposal). Case No. 9478 (ML 303131) May, 24, 2023.

[122] The Commission, Notice for Opportunity to Comment, Case No. 9478 (ML 303333) June 5, 2023.

A. Yes. Cost assumptions for the EVSB Program proposal have changed since they were included in BGE's MYP 2 application. As shown in Table 18, BGE's EVSB Program application in Case No. 9696 proposes a $3.4 million increase in requested budget over the MYP 2 Period, relative to the original MYP 2 application, with an increase of $11.8 million in regulatory asset spend and a decrease in 2.7 million in capital spend.

Table 18. Changes to BGE EVSB Pilot Program Budget

	2024	2025	2026	Total
Case No. 9692 – MYP 2				
Regulatory Asset Spend	$8.7	$14.6	$15.1	$38.4
Capital	$2.7	$3.9	$4.3	$11.0
Case No. 9696 – EVSB Pilot				
Regulatory Asset Spend	$11.4	$19.4	$19.4	$50.2
Capital	$0.6	$1.0	$1.0	$2.7
Change in Regulatory Asset	**$2.7**	**$4.8**	**$4.3**	**$11.8**
Change in Capital	**-$2.1**	**-$2.9**	**-$3.3**	**-$8.4**

Sources: BGE Response to Staff 20-02 and Case No. 9696, Direct Testimony of John C. Frain, pg. 4.

The Company also modified other aspects of its proposed MYP 2 EV program budget. In the Company's EV Phase II filing (Case No. 9478), the Company states it has made some budget adjustments since filing its MYP 2.[123] It is not possible to compare these two budgets because the Company did not provide the EV Phase II budgets in Case No. 9478 by year or by type

[123] Case No. 9478, BGE EV Phase II Proposal, pg. 14.

(i.e., regulatory asset vs capital) and does not provide specifics for how they changed compared to the MYP 2 filing.[124]

B. Proposed EV Program Budgets Should be Removed from MYP 2.

Q. Does BGE's treatment of future EV program budgets in the MYP 2 differ from its current suite of EV programs?

A. Yes. In 2018, BGE and the other Maryland utilities jointly filed a Petition for Implementation of a Statewide Electric Vehicle Portfolio (EV Phase I).[125] The EV Phase I filing included a proposal for EV programs along with the associated budgets. The programs and budgets were considered together as part of the proceeding. Only after the Commission approved the EV Phase I programs, were the utilities permitted to request cost recovery. Specially, in Order No. 88997, the Commission directed the utilities to seek cost recovery in a future rate case proceeding and stated that it expected the inclusion of detailed cost-benefit assessment for purposes of cost recovery in any future rate case.[126]

Q. What is the Company's rationale for including a budget for future EV programs in its MYP 2?

A. The Company states that the approved recovery mechanism for EV programs is base rates, which are now set via a multi-year rate plan for

[124] *Ibid*.

[125] Maillog #218613, Leader of PC44 Electric Vehicle Work Group, Petition for Implementation of a Statewide Electric Vehicle Portfolio (Jan. 22, 2018).

[126] Order 88997, pg. 77 and pg. 44, footnote 170.

BGE. The Company indicates that without inclusion of the proposed 2024–2026 EV programs in the MYP 2 filing the EV program benefits would not be realized. The Company also states that if EV program budgets associated with Case No. 9478 (EVSB pilot program) were not included in the MYP 2 base rates, these program costs would need to be recovered through future MYP reconciliations, increasing the overall amounts to be reconciled.[127]

Q. Do you agree with this conclusion?

A. No, I do not. First, the approved recovery mechanism for EV programs pertained to Phase I. The Commission has yet to opine on a cost-recovery mechanism for Phase II EV programs or BGE's proposed EVSB pilot program. Not only are there other types of cost-recovery mechanisms that may be more appropriate for EV programs, the program design and scope of the programs may be materially modified by the Commission in the applicable proceeding. Commission consideration of budgets and cost-recovery mechanisms in the same proceeding allows for a consistent determination of key issues rather than arbitrary bifurcation of central issues.

Furthermore, if the Company's proposal is considered in the MYP 2, I do not support the Company's proposal to continue categorizing non-capital expenditures as a regulatory asset. In light of the Commission's recent Order

[127] BGE Response to OPC 24-13.

ending the amortization cost-recovery approach for the EmPOWER Maryland programs, it is an appropriate time to consider a similar approach to non-capital EV program costs. The majority of the Company's proposed EV program budget represents customer rebates and incentives for off-peak charging. These costs are not capital assets owned, operated, and maintained by the Company. Such costs are more akin to the program incentives expenditures provided through the EmPOWER Maryland programs.

Q. The Company claims it is not requesting pre-approval of EV program budgets, do you agree?

A. No, I do not. The Company claims it is not requesting pre-approval of these budgets, and actual spending will be subject to a prudency review through the MYP 2 reconciliation process. The Company states that it filed its EV Phase II program proposal in Case No. 9478 and its EVSB pilot program in Case No. 9692, which will allow the Commission to consider these programs.[128] However, the Company is seeking approval of base rates in this proceeding that include the proposed EV program budget.[129] Therefore, the Company is requesting approval of these costs for at least the first year prior to the approval of the associated programs. Put simply, if approved,

[128] BGE Response to OPC 24-10(A).
[129] BGE Response to OPC 24-11.

ratepayers will incur costs which the Commission has not, and cannot, determine are "just and reasonable" at this time.

Furthermore, the subsequent filings for an EV Phase II and an EVSB pilot program in Case Nos. 9478 and 9692 do not provide sufficient justification for why the associated program costs should be included in the MYP 2. The Company has already made updates to its projected EV program budgets in these two cases. There will likely be more changes to BGE's proposed budgets and program design as these program proposals are vetted by parties and considered by the Commission through these proceedings. It is therefore more reasonable that the cost-recovery of these program costs occur after a final decision has been made on the overall scope and budget in the applicable filings.

Q. Does the MYP 2 reconciliation process adequately protect ratepayers?

A. No, it does not. Ratepayers would be better protected if EV program budgets were approved along with the applications for the associated programs. The outcome of BGE's subsequent program filings in Case Nos. 9692 and 9478 will directly impact the Company's proposed EV program budget and revenue requirement in MYP 2. The proposed MYP 2 annual reconciliation process would have ratepayers paying higher rates than necessary for an entire year should the MYP 2 EV budget be reduced in Case Nos. 9692 and

9478. The separation of EV program filings and budget filings is unreasonable and unnecessary.

Q. What is your recommendation for the treatment of future EV program budgets?

A. The Commission should reject BGE's proposal to include cost-recovery of future EV program budgets in the MYP 2 that have not been reviewed or considered by the stakeholders or the Commission. The approval of future EV program budgets in advance of, and separate from, the review of the associated programs causes unnecessary complexity and results in risks to ratepayers. A decision regarding the cost-recovery of EV Phase II program and the EVSB pilot program costs should be made in their specific docketed proceedings (Case No. 9696 and 9478). For example, the Commission could order BGE to include these costs in its next base rate case or create a rider to track and true-up these costs on an annual basis.

C. EV Phase II Budget Proposal Circumvents the Pilot Evaluation Process and EV Work Group

i. EV Pilot Evaluation Requirements

Q. When are BGE's Phase I EV programs set to expire?

A. Several of the Company's Phase I EV Programs are set to expire at the end of 2023. This includes its EV-only time-of-use (TOU) rate, online EV calculator, residential charger rebate, multifamily rebates, and workplace charging program. The remaining programs—BGE public charging stations,

BGE-owned multifamily stations, and fleet technical assessments—are approved until the end of 2025.

Q. Did the Commission require an evaluation and final review of the Phase I EV programs?

A. Yes. In Order No. 88997, the Commission set forth evaluation requirements for the Maryland utilities' Phase I EV programs. Specifically, the Commission required the completion of a final EV program report by March 1, 2024, and stated that a final program review will take place through a legislative-style hearing in May 2024. The Commission further indicated it would endeavor to issue a timely order following the conclusion of the final program review.[130]

Q. Did the Commission previously provide guidance related to the continuation of Phase I EV programs after conclusion of the pilot?

A. Yes. Within Order No. 88997, the Commission states that, "[f]or a transition plan, after the pilot study concludes, customers enrolled in a pilot program or rate offering can elect to continue in that posture pending a final decision by the Commission to extend of expand the applicable program."[131]

Q. Why is it important that a final evaluation of the Phase I EV programs take place prior to approval of Phase II EV programs?

A. In Order No. 99887, the Commission was clear that Phase I EV programs are considered pilots, which are meant to test assumptions and provide more

[130] Case No. 9478, Order No. 88997, pg. 74.
[131] *Id*., pg. 73.

clarity around the costs and benefits of utility program offerings. Specifically, the Commission stated that the proposed EV program portfolios "would benefit from applying the pilot-specific guidelines outlined in Case No. 9453."[132] It is important to examine the results of any pilot program before considering whether it is in the best interest of ratepayers to continue supporting utility EV programs, or how to modify programs to be in the ratepayer interest. The final report and evaluation will provide important information on the effectiveness of the utility's programs to address market barriers, participation rates, costs, utility-owned charging station usage, and the impacts of programs on encouraging off-peak charging. These are critical pieces of information that will help stakeholders and the Commission review proposals for Phase II programs.

ii. EV Work Group

Q. Please describe the EV Work Group?

A. In January 2017, the Commission revised the scope of the PC44 proceeding to include consideration of EV charging and encouraged the development of a coordinated strategy across various state entities, in conjunction with utilities, through an EV Work Group.[133] The EV Work Group informed the Maryland utilities' Phase I EV program filing through formal and informal

[132] *Id*., pg. 44.
[133] *Id*., pg. 5.

feedback over the course of numerous meetings in calendar year 2017.[134] Since that time, the EV Work Group has continued to meet to discuss issues pertaining to reliability standards, rate design, modifications to EV Phase I programs, and review utility proposals for modifications to EV Phase I programs and new program proposals.

Q. Are you a participant in the EV Work Group?

A. Yes. I have been a participant in the EV Work Group on behalf of OPC for the past two years.

Q. Did BGE indicate it would work with the EV Work Group to vet future programs?

A. Yes, witness Case states that BGE will separately work with the EV Work Group and other stakeholders to vet actual programs funded by its proposed MYP 2 EV program budget.[135] In addition, in its EV Phase II filing, BGE states that "BGE presented concepts for its new EV program proposals detailed in this filing to the PC44 Electric Vehicle Work Group and the Work Group provided feedback on BGE's proposals."[136]

Q. Do you agree that the EV Work Group was able to provide feedback and discuss BGE's Phase II proposal?

[134] Petition for Implementation of a Statewide Electric Vehicle Portfolio, January 19, 2018. Cover Letter.

[135] Case Direct Testimony, pg. 50, lines15-17.

[136] Case No. 9478, Electric Vehicle Program Phase II Proposal of Baltimore Gas and Electric Company, May 24, 2023, pg. 2.

A. No, not sufficiently. The Company presented a brief slide deck at the April 18, 2023, EV Work Group meeting. The Leader of the EV Work Group then requested stakeholders provide initial feedback on the presentation by May 8, 2023. While members of the EV Work Group submitted initial comments, there was no opportunity to have further discussion. The next EV Work Group meeting covered topics related to charger reliability standards, and by the time the following meeting occurred, BGE had already filed its EV Phase II proposal with the Commission. Now that BGE's proposal is a docketed proceeding, it can no longer be discussed at the EV Work Group. As a member of this work group, I do not believe that there was a meaningful opportunity to provide feedback.

Q. Why is it important for EV Phase II programs to be discussed at the EV Work Group.

A. There are numerous policy discussions that should occur in advance of approving a Phase II of utility EV programs. These discussions are best had in the form of a working group where stakeholders and the utilities can work together to develop outcomes that can be applied in a consistent framework across utility programs. For example, in the EV Work Group, OPC raised several key policy questions related to a potential EV Phase II that have yet to be thoroughly discussed. These include:

- Do the market barriers the utilities sought to address with Phase I still exist?

- Are there Phase I EV programs that are better provided by the market, rather than the utilities, going forward?
- Should Phase II still be considered a pilot?
- Should there be changes to the filing structure, approval, and cost-recovery process?

Ideally, these questions should be discussed amongst the Maryland utilities and stakeholders prior to a utility submitting a proposal for EV Phase II programs and budgets. This set of policy issues will impact the number of EV programs, the design of the programs, and their associated budgets.

In addition, there is a need to develop consistent definitions for Phase II program offerings through the EV Work Group. For example, in addition to BGE, other Maryland utilities are considering proposals for "make-ready" EV programs. It is not clear whether utilities have defined the type and scope of equipment included in the "make-ready" in the same way, which will cause market confusion and inconsistencies.

Q. What other issues did the EV Work Group plan to discuss related to a potential Phase II of the utility EV programs?

A. Prior to BGE circumventing the EV Work Group process by filing its proposal for EV Phase II budgets and programs, the group had begun to discuss current utility EV programs that were suitable for continuation after the expiration of Phase I (before a Phase II was established). This path provided a means to offer continuation of certain programs with stakeholder

support, while preserving the opportunity to vet utility proposals and discuss key policy questions related to a potential Phase II.

Q. Please summarize why the Commission should not approve BGE's budgets for EV programs in this case.

A. Seeking budgets before program design and cost recovery are vetted is inappropriate, contrary to standard ratemaking, and places unnecessary risk on ratepayers. Consideration of an EV Phase II should be discussed through the EV Work Group process, as occurred in advance of the filing for a Phase I EV pilot program. In the absence of this approach, the Commission should require decisions regarding program design and cost-recovery to be made in the same docket in which the EV programs and budgets are considered.

D. If EV Program Costs are Approved in the MYP 2, BGE's Request for Regulatory Asset Treatment Should be Denied

Q. Please summarize BGE's proposed cost-recovery approach for its EV program budget.

A. The Company proposes that non-capital EV program costs be deferred to a regulatory asset and recovered over a five-year amortization period.[137] Effectively, this means 100 percent of EV-related costs will be treated as capital investment.

Q. What is BGE's rationale for this approach?

[137] Frain Direct Testimony, pg. 24, lines 13-16.

A. The Company states that the approved recovery mechanism for EV programs is base rates, which are now set via a multi-year rate plan for BGE.[138]

Q. Did the cost-recovery framework approved in Order No. 88997 for Phase I EV program apply to all future filings?

A. No, it did not. Commission Order No. 88997, which directed utilities to seek cost recovery through standard ratemaking in a future rate case proceeding, pertained to the Phase I EV programs. The Commission has not yet made a determination on the cost-recovery mechanism for Phase II EV programs or the Company's EVSB pilot program.

Q. Why is it appropriate to reconsider this approach in advance of a second phase of EV programs?

A. The conclusion of the Phase I EV pilot program is an appropriate time to consider modifications to the cost-recovery structure. The final Phase I evaluation process and final legislative-style hearing represent an opportunity to consider changes and improvements to the framework of utility EV programs in advance of a second phase. It is also important to review EV program cost-recovery in light of the Commission's recent decision in Order No. 90306 to end the amortization cost-recovery approach for the EmPOWER Maryland programs.

[138] BGE Response to OPC 24-13.

Q. Please explain why changes were made to the EmPOWER Maryland cost-recovery structure.

A. As also discussed by OPC witness Eric Borden, the Commission has determined that the continued regulatory asset treatment of EmPOWER costs is not in the public interest and stated it is necessary to transition to full annual expensing of EmPOWER costs to avoid continuing to increase the unamortized balance and to develop a plan to recover the accumulated unamortized balance over time.[139]

Q. Are BGE's proposed Phase II EV programs and EVSB pilot program similar to the EmPOWER Maryland programs?

A. Yes. The Company's proposed EV programs classified as a regulatory asset in Table 17 are similar to the EmPOWER program. Through the EmPOWER Maryland programs, utilities provide financial incentives to encourage customers to install more-efficient equipment. This is similar to BGE's proposed EV programs that will provide rebates to customers to encourage the purchase of electric school buses and charging equipment and provide incentives to encourage off-peak EV charging. In both these cases, the utility's program cost supports an investment that will be owned and operated by the customer and not the utility.

Q. Will BGE own the equipment associated with the EV programs classified as a regulatory asset?

[139] Order No. 90306 (Maillog No. 241928), para. 23 and 25.

A. No, it will not. As indicated above, the costs currently classified as a regulatory asset in Table 17 pertain to customer-related investments and actions. The Company will not own or maintain these assets yet classifies these costs as a regulatory asset so they will be treated as if they were capital investments.

Q. How are non-capital expenditures typically recovered?

A. As noted in the Direct Testimony of OPC witness Borden, non-capital costs are typically expensed at the time they incur.[140]

Q. Have other jurisdictions addressed the treatment of non-capital investments?

A. Yes. As summarized in the Direct Testimony of OPC witness Borden, the California Public Utilities Commission (CPUC) recently ended the practice of utilities to own, and therefore capitalize, some of the customer-side-of-meter EV infrastructure incentivized through the utilities' EV programs.[141] As noted by witness Borden, the CPUC ended this practice due to the same affordability concerns noted in the Commission's EmPOWER Order No. 90306, including that capitalization of those costs will be significantly more expensive for ratepayers over time.[142]

[140] Direct Testimony of Eric Borden, pg. 5.
[141] *Id*., pg. 10.
[142] *Ibid*.

Q. Will BGE's proposal to recover non-capital EV program costs as a regulatory asset amortized over a five-year period increase costs to ratepayers?

A. Yes, it will. While regulatory asset treatment allows EV program costs to be amortized over time, which minimizes the upfront rate increase, ratepayers will pay more over that same period. This is because, in addition to the Company being eligible to earn a return on these costs, they are subject to the cost of debt, taxes, and other charges necessary to include costs in rate base

Specific to BGE's proposed EV program budget filed in the MYP 2, regulatory asset treatment would result in total ratepayer costs of $75.1 million over the time period, compared with $62.3 million in direct incentives.[143] This represents a 21 percent increase in costs to ratepayers over the amortization period due to the additional costs associated with including these programs in rate base.

Q. Do you expect BGE will have additional proposals for EV programs in the future?

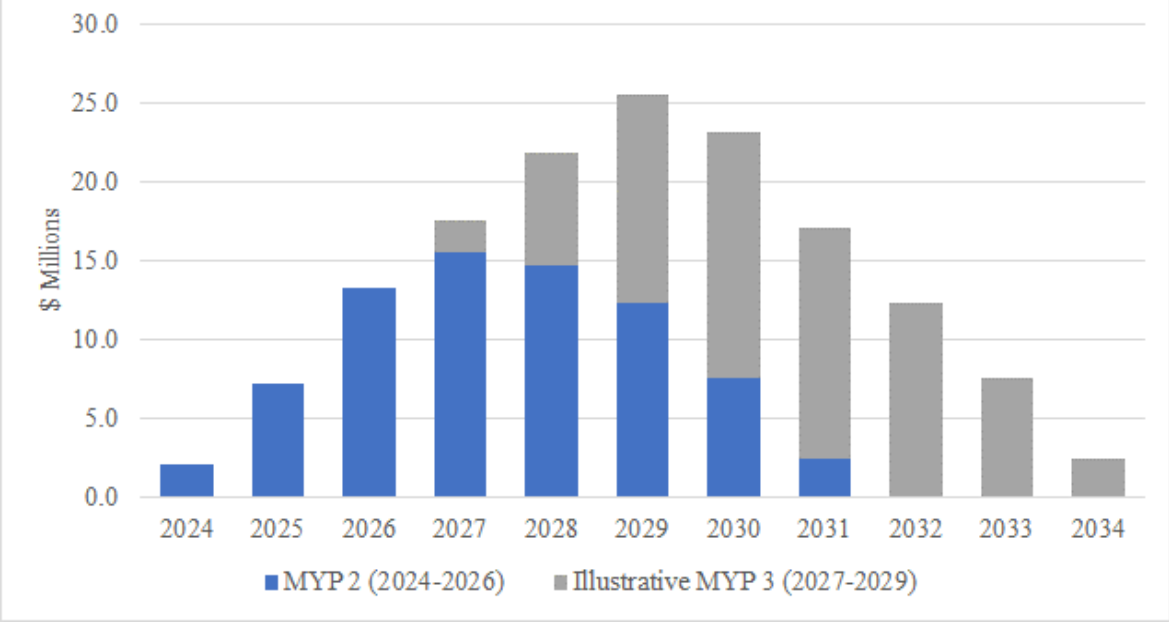
A. Yes. It is reasonable to assume that BGE will continue to propose future EV programs after the expiration of its EVSB pilot program and its EV Phase II program. If utilities continue to file for EV programs every three years, and continue to utilize regulatory asset treatment, this will compound the

[143] Calculated from BGE Response to OPC 09-11 Attachment 1.

accumulation of carrying costs, similar to what occurred with the EmPOWER programs. As a result, the impact to consumers can be expected to grow as each year's costs accumulate.

I provide an illustration of the potential for compounding revenue requirements in Figure 2 below. This figure illustrates the compounding revenue requirements if BGE were to utilize regulatory asset treatment for both the current MYP 2 EV program proposal and a hypothetical one of the exact same size and revenue requirement in three years. This would be further exacerbated should additional programs be introduced in the year 2030, and so on.

Figure 2. Illustrative Cumulative Revenue Requirement from Regulatory Asset Treatment of EV Program Costs



Q. Please summarize recommendation for the treatment of non-capital EV program costs.

A. I recommend that the Commission reject BGE's proposal to treat non-capital EV program costs as a regulatory asset if it chooses to approve a budget for EV programs in this proceeding. As shown above, this approach will cost ratepayers more over the long term, while allowing the Company to earn a return on program costs that are not capital investments. Should the Commission approve regulatory asset treatment of EV program costs, BGE should not be allowed to earn a return on that asset.

IV. Electric Vehicle BCA

A. Overview of MD EV-BCA Framework

Q. Why did the Company file an EV-BCA in this case?

A. In Order No. 88997, The Commission required utilities to include a detailed cost-benefit assessment "to substantiate, empirically, all cost expenditures related to EV charging for purposes of cost recovery in any future rate case."[144] The Commission noted the need to balance the goals of the utility EV programs against other considerations, such as "the appropriate size of an EV charging program, the level of utility involvement, the ratepayer impacts, the cost-effectiveness of the program, the overall benefits to all

[144] Order No. 88997 at 44, n.170.

Maryland ratepayers, and the potential impediments to competition by market participants."[145]

Q. Does BGE's EV BCA affect decisions beyond those related to cost recovery?

Yes. On May 24, 2023, the Company filed an application for a Phase II EV program with the Commission in Case No. 9478.[146] The BCAs filed in this case will provide valuable information on whether existing programs should be continued in Phase II or redesigned to increase benefits to customers and the electric system.

Q. Please summarize the EV Work Group process in the development of the MD EV-BCA.

A. The Commission tasked the EV Work Group with developing a consensus BCA proposal for Commission consideration by December 1, 2021, taking into account the NSPM for DERs and the existing BCA framework used to review the EmPOWER Maryland programs.[147]

The EV Work Group met 11 times during 2021 to review the NSPM for DERs, Maryland's policy goals, EV-BCAs used in other jurisdictions, and current BCA practices in Maryland.[148] Based on these discussions, Mr.

[145] *Id*. at 37.

[146] Baltimore Gas and Electric Company Electric Vehicle Program Phase II Proposal (EV Phase II Proposal). Case No. 9478 (ML 303131) May, 24, 2023.

[147] Order No. 89678, Application of Baltimore Gas and Electric Company for an Electric and Gas Multi-Year Plan (CN 9645, Dec. 16, 2020), at 113-14.

[148] In the Matter of the Petition of the Electric Vehicle Work Group for Implementation of a Statewide Electric Vehicle Portfolio, *Summary Report on a Statewide Electric Vehicle Benefit*

Warner, consultant for the Maryland Joint Utilities,[149] developed a whitepaper detailing a jurisdiction-specific EV-BCA. The EV Work Group members reviewed and provided comments on several iterations of the whitepaper, resulting in a final consensus version.

Q. Did you participate in the EV Work Group?

A. Yes. I participated in the EV Work Group on behalf of OPC. This included attending meetings, reviewing whitepaper drafts, and participating in the drafting of written feedback and comments that were submitted on behalf of OPC.

Q. Do you support the resulting Maryland EV-BCA Framework?

A. Yes. I support the Maryland EV-BCA Framework as a consensus work product of the EV Work Group.

Q. Please summarize the resulting Maryland EV-BCA Framework.

A. The Maryland EV-BCA Framework includes a primary cost-effectiveness test, the MD EV-JST, and several secondary tests and assessments, all of which I summarize below.

1. **MD EV-JST—the Primary Test**: Assesses the cost-effectiveness of utility EV programs and accounts for all applicable utility system

Cost Analysis Methodology, Prepared for the Commission by PC44 Electric Vehicle Work Group, ML No. 238013 (CN 9478, Dec. 1, 2021), at 2-3.

[149] The "Maryland Joint Utilities" includes Baltimore Gas and Electric Company (BGE), Potomac Electric Power Company (PEPCO), Delmarva Power & Light Company (DPL), The Potomac Edison Company (PE), and Southern Maryland Electric Cooperative (SMECO).

impacts and non-utility system impacts related to Maryland's policy goals, including host customer (i.e., program participant) impacts and societal impacts.

2. **Market-Wide Test (MWT)**: Assesses the impact of all EVs on society as a whole. This test uses the same methodology as the MD EV-JST but seeks to measure whether society is better off due to widespread transportation electrification, not just electrification directly induced by utility EV programs.
3. **Aggregate Non-Participating-Ratepayer Impact (ANRI)-All**: Quantifies the positive and negative impacts of utility EV programs to determine the net increase or decrease in costs to non-participating ratepayers. The ANRI-All case includes impacts that can be monetized on a utility bill (utility system impacts) and externalities that are currently not embedded in rates such as avoided environmental harm and improved public health.
4. **ANRI-Bills-Only:** Uses the same methodology as ANRI-All but only includes impacts that can be monetized on a utility bill.

The Maryland EV-BCA Framework also includes a list of impact factors within the categories of Utility (and Power Sector), Participant (Host Customer), and Societal.

Q. Did the whitepaper include examples of how the MD EV-JST should be applied to different types of utility EV programs?

A. Yes. The whitepaper included a summary table for how the MD EV-JST could be applied to different utility EV programs, as shown in Figure 3 below. These examples are referred to as "Impact-Factor" mapping.

Figure 3. MD EV-JST Impact Factor Mapping

Impact-Factor	MD EV-JST (UO-1): Residential Managed Charging	MD EV-JST (UO-2): Multi-Family Charging	MD EV-JST (UO-3): Utility Owned Public Chargers
Computation Scope:	Induced Charging Behavior	Induced Adoption	Induced Adoption
Baseline:	EV Owner, Nat-Chrging	No EV Adoption	Pull-Through Adoption
Utility (and Power Sector) Impacts			
Utility Program Administration Costs	Cost	Cost	Cost
Utility Program Implementation Costs	Cost	Cost	Cost
Impacts On Capacity Costs	Benefit	Cost	Cost
Impacts On Transmission Costs	Benefit	Cost	Cost
Wholesale Energy Cost Impacts	Benefit	Cost or Benefit	Cost or Benefit
Increased Electricity (KWHr) Costs (for EV charging)	N/A	Cost	Cost
Impacts on Grid Reinforcement	Benefit	Cost	Cost
Utility-Owned EV Chargers - Costs	N/A	N/A	Cost
Utility-Owned EV Chargers - Usage $ From EV Drivers	N/A	N/A	Transfer
Increased RPS Compliance Costs	N/A	Cost	Cost
T&D Losses	Benefit	Cost	Cost
Utility Equipment Incentives	Transfer	Transfer	Transfer
Utility Rate Incentives	Transfer	Transfer	Transfer
Increased Utility Revenues	Transfer	Transfer	Transfer
Participant Impacts(from EV Driver Perspective)			
Incremental EV Purchase Costs	N/A	Cost	Cost
EV Charger Costs (equipment and installation)	N/A	Cost	Cost
Avoided Vehicle Fuel Costs	N/A	Benefit	Benefit
Savings From Decreased Vehicle Maintenance	N/A	Benefit	Benefit
Federal Tax Incentive (EV purchase)	N/A	Benefit	Benefit
Societal Costs or Benefits (from Society's Perspective)			
Value Of Reduced GHG Emissions	N/A	Benefit	Benefit
Public Health Value Of Reduced/Shifted Emissions	N/A	Benefit	Benefit

Source: EV-BCA Whitepaper at 19, Figure 5.3-1.

Q. What was the purpose of the Impact-Factor mapping?

A. The Impact-Factor mapping was intended to illustrate how the MD EV-JST methodology can be applied across different types of EV programs offered by a Maryland utility. The EV-BCA Whitepaper illustrates Impact-Factor

mapping for three sample programs, referred to as "offer-classes." As shown in Figure 1, this includes (1) Residential Managed Charging, (2) Multi-Family Charging, and (3) Utility-Owned Public Chargers. The purpose of including these sample offer-classes was to highlight that the same cost-effectiveness test can be applied to—or "mapped to"—different types of programs, while demonstrating that an impact may be a cost, benefit, or not applicable depending on the program structure.

Q. Will all utility EV programs map to one of these three offer-classes?

A. Not necessarily. The offer-classes were based on common Maryland Joint Utility offerings but as indicated in the EV-BCA Whitepaper, "if new utility EV programs are introduced that don't map cleanly into one of these three offer-classes, a customized mapping would need to be created for that new class. In this way, this proposed methodology can be adapted to an evolving portfolio of programs over time."[150]

B. Flaws in BGE's EV Program BCA

i. Summary of Analysis

A. Mr. Warner applied the MD EV-BCA Framework to the Company's existing EVsmart® programs and combined programs where he deemed appropriate based on the fact that some programs are required to be used

[150] *EV-BCA Whitepaper* at 18.

together by customers.[151] A BCA was conducted for the following: (1) EV-Only Time-of-Use and Home Charging Incentive (EV-TOU & HCI); (2) Charger Rebate and Home Charging Incentive (Charger Rebate & HCI); (3) Charger Rebate, EV-Time-of-Use, and Home Charging Incentive (Charger Rebate & TOU & HCI); (4) Home Charging Incentive (HCI Only); (5) Public Level 2 (L2) Chargers; and, (6) Public Direct-Current Fast Chargers (DCFC).[152]

Q. What were the results of the assessment?

A. I summarize the results of Mr. Warner's assessments in Table 19 below.

Table 19. Summary of BGE's EV-Program BCA Results

	MD EV-JST	Market-Wide	ANRI (All)	ANRI (Bill Only)
EV-TOU & HCI	6.32		-$1,873,496	-$1,873,496
Charger Rebate & HCI	20.23		-$246,409	-$246,409
Charger Rebate & TOU &HCI	1.49		-$249,814	-$249,814
HCI Only	46.87		-$881,342	-$881,342
Public L2 Chargers	1.24		-$464,172,431	-$134,714,763
Public DCFC	1.05		-$283,966,584	-$70,305,173
Portfolio	1.17		$751,390,076	-$208,270,997
Market-Wide JST (100% Natural)		1.90		
Market-Wide JST (100% Managed)		2.24		
Market-Wide JST (Current Programs)		1.98		

Source: Direct Testimony of Mark Warner at 22, Figure 4.

For the MD EV-JST and the market-wide cost-effectiveness tests, a result over 1.0 demonstrates the program or portfolio is cost-effective. Table 19

[151] Direct Testimony of Mark Warner, pg. 8.
[152] *Id.*, pgs. 8-9.

shows that according to the MD EV-JST, all programs and the portfolio are cost-effective. The market-wide assessment, which accounts for the impacts of all EVs to society, beyond those directly resulting from BGE's programs, is cost-effective. The results of the MD EV-JST should be given the most weight as it is the primary cost-effectiveness test and only accounts for the costs and benefits directly resulting from BGE's program.

The ANRI assessments show the aggregate net impact on rates from BGE's programs. A positive result from an ANRI-bill-only assessment indicates ratepayer costs will increase from BGE's programs, while a negative result indicates a cost reduction. The ANRI-all assessment adds external impacts (i.e., emissions) that are not currently monetized in rates. Both ANRI assessment in Table 19 indicate that each of BGE's EV programs, and the portfolio, result in decreased costs to ratepayers.

Q. Does Mr. Warner's cost-effectiveness assessment adhere to the MD EVBCA Framework?

A. In part, yes. Based on my review of Mr. Warner's cost-effectiveness and ANRI assessments, I find that he adheres to the MD EV-BCA Framework except for his application of the MD EV-JST to the Charger Rebate & HCI BCA and the Charger Rebate & TOU & HCI BCA.

Q. Please describe the Charger Rebate program.

A. The Charger Rebate program provides customers with a $300 incentive to help offset the costs associated with the purchase and installation of an eligible Level 2 smart charger. The residential rebate is intended to incentivize EV owners to purchase a smart EV charger over a "dumb" charger that will enable customers to take advantage of available EV-Only TOU rates and future potential managed charging programs to reduce system load impacts.[153]

Q. Please describe the EV-TOU Rate.

A. The EV-TOU rate incentivizes customers to charge EVs at off-peak hours by offering a reduced rate per kilowatt-hour (kWh) for off-peak charging.[154]

Q. Please describe the HCI Program.

A. The Company originally proposed the HCI program as part of its September 15, 2021 Semi-Annual Progress Report and Mid-Course EV Program Evaluation Report Filing.[155] The HCI program provides an annual $50 credit to incentivize customers participating in the residential EV program to continue sharing charging data with the Company through its EVsmart® platform.[156] The Company explains that as a condition of receiving the

[153] Joint Utilities Compliance Filing Regarding Implementation of Approved Electric Vehicle Charging Program Offerings. Case No. 9478. (ML 224843, April 19, 2019), pg. 4.
[154] Case No. 9478, BGE Semi-Annual Progress Report and Mid-Course EV Program Evaluation Report Filings, pg. 26.
[155] Case No. 9478, BGE Semi-Annual Progress Report and Mid-Course EV Program Evaluation Report Filings, pg. 26.
[156] Case No. 9478, Order No. 90036, pg. 24.

credit, non-EV-TOU customers must keep their EVs connected the EVsmart® data platform for data-gathering purposes and charge their vehicles only between the hours of 9:00 PM and 7:00 AM for 90 percent of the time each year.[157] The HCI program replaced the Charger Rebate program, which ended when the Company's rebate funding was exhausted in June of 2021.[158]

Q. Was eligibility for the Charger Rebate contingent on the customer participating in the EV-TOU rate?

A. No, it was not. The Company indicates that only 52 percent of customers that received the $300 charger rebate enrolled the EV-TOU rate.[159]

Q. Was eligibility for the Charger Rebate contingent on the customer participating in the HCI program?

A. No, it was not. As indicated above the Company issued all of its approved Charger Rebates as of June of 2021.[160] In Order No. 90036, the Commission rejected the Company's proposal for an additional 2,500 charger rebates and instead approved the HCI program to encourage EV charger data sharing and off-peak charging.[161] Therefore, it is not possible for receipt of the

[157] Case No. 9478, Order No. 90036, pg. 25.
[158] Case No. 9478, BGE Semi-Annual Progress Report and Mid-Course EV Program Evaluation Report Filings, pg. 3.
[159] BGE Response to OPC 15-02(C).
[160] Case No. 9478, BGE Semi-Annual Progress Report and Mid-Course EV Program Evaluation Report Filings, pg. 3.
[161] Case No. 9478, Order No. 90036, pg. 23.

charger rebate to be contingent on enrollment in the HCI, as the HCI program was not available at the time customers received charger rebates.

Q. Please summarize how Mr. Warner assessed the cost-effectiveness of these two programs.

A. Mr. Warner conducted a BCA of the Charger Rebate program combined with the HCI program (Charger Rebate & HCI) and for the Charger Rebate program combined with both the EV-TOU rate and the HCI program (Charger Rebate & TOU & HCI). The BCAs for these program combinations were conducted using the impact factors (i.e., benefits and costs) as defined in the EV-BCA Whitepaper under the "UO -1: Residential Managed Charging" (UO-1 Offer Class), as shown in Figure 3 earlier in my testimony.[162]

C. Charger Rebate Costs Should Not Be Ignored

Q. Do you agree with Mr. Warner's approach to combine the Charger Program with the EV-TOU program?

A. No, I do not. According to the Company, only 52 percent of customers that received the $300 charger rebate enrolled the EV-TOU rate.[163] Mr. Warner's decision to only assess the cost-effectiveness of customers participating in both programs fails to capture the way in which 48 percent of customers participate. While it is appropriate to conduct a BCA for customers that

[162] Warner Direct Testimony at 15, Figure 2.
[163] BGE Response to OPC 15-02(C).

participated in both the Charger Rebate program and EV-TOU rate to understand how these offerings work together, it is just as critical to assess the cost-effectiveness of these programs separately.

****BEGIN CONFIDENTIAL****

A. [redacted]

****END CONFIDENTIAL****

Q. How does the EV-BCA Whitepaper define the UO-1 Offer Class?

A. The EV-BCA Whitepaper defines the UO-1 Offer Class as "programs which combine the charging infrastructure with economic incentives to encourage residential customers to charge their vehicles at preferred off-peak times."[165]

[164] BGE Response to OPC 16-02 CONFIDENTIAL.
[165] *EV-BCA Whitepaper* at 18.

Q. Do you agree that these programs should map to the UO-1 Offer Class?

A. No, I do not. It is only accurate to map the EV-TOU rate and the HCI program, on their own, to the UO-1 Offer Class. The EV-TOU rate and the HCI program are intended for customers that already have a qualifying Level 2 charger and seek to modify their charging behavior by offering incentives for off-peak charging. For these programs, it is accurate to exclude the costs of the Level 2 charger since the program utilizes existing equipment. However, when these two offerings are combined with the Charger Rebate program, the baseline changes. Mr. Warner's baseline for the combined Charger Rebate & HCI offering and the combined Charger Rebate & TOU & HCI programs is, therefore, incorrect.

The purpose of BGE's Charger Rebate program was to incentivize EV owners to purchase a smart EV charger over a "dumb" charger.[166] This is a standalone program given the customer did not have to enroll in EV-TOU rate to receive a rebate. In addition, the HCI program was not in place at the time customers received charger rebates. The program design assumes a baseline where the customer does not already have the qualifying charging equipment and therefore necessitates a rebate. This fact should not change when the Charger Rebate program is combined with either the EV-TOU rate

[166] Joint Utilities Compliance Filing Regarding Implementation of Approved Electric Vehicle Charging Program Offerings. Case No. 9478. (ML 224843, April 19, 2019), pg. 4.

of the HCI program. The rebate is still intended to incentivize the purchase of a qualifying Level 2 smart charger. The resulting baseline should therefore be either no charger or a non-networked "dumb" Level 2 charger. This baseline does not align with that found in the UO-1 Offer Class and does not map to any of the offer class examples in the EV-BCA Whitepaper.

Q. Are there costs associated with BGE's Residential Charger Rebate program?

Yes. There are costs associated with BGE's administration of the program and costs related to the $300 rebate paid to program participants. Both costs are considered utility system costs and are recovered from ratepayers. There are also costs to participants in the program. The $300 rebate from BGE only covers a portion of the purchase and installation costs of a qualifying Level 2 charger.

Q. Does Mr. Warner include any costs associated with the purchase and installation of Level 2 chargers in the Charger Rebate & HCI BCA or the Charger Rebate & TOU & HCI BCA?

A. No, he does not. Due to the fact Mr. Warner uses the costs and benefits defined by the UO-1 Offer Class, neither the utility costs associated with the charger rebates nor the participant share of the costs associated with the purchase and installation of the charger are included.[167]

Q. Does the EV-BCA Framework allow for the inclusion of EV charger costs?

[167] *EV-BCA Whitepaper* at 19, Figure 5.3-1: Mapping of "Impact Factors" To Societal-Scale Tests.

A. Yes, it does. The MD EV-JST includes participant costs associated with equipment and installation of EV chargers. Figure 4 below, details the impact factors (i.e., costs and benefits) as defined for the primary cost-effectiveness- test, the MD EV-JST.

Figure 4. MD EV-JST Impact Factors

Impact-Factor	MD EV-JST
Utility (and Power Sector) Impacts	
Utility Program Administration Costs	Cost
Utility Program Implementation Costs	Cost
Impacts On Capacity Costs	Cost or Benefit
Impacts On Transmission Costs	Cost or Benefit
Wholesale Energy Cost Impacts	Cost or Benefit
Increased Electricity (KWHr) Costs (for EV charging)	Cost
Impacts on Grid Reinforcement	Cost or Benefit
Utility-Owned EV Chargers - Costs	Cost
Utility-Owned EV Chargers - Usage $ From EV Drivers	Transfer
Increased RPS Compliance Costs	Cost
T&D Losses	Cost or Benefit
Utility Equipment Incentives	Transfer
Utility Rate Incentives	Transfer
Increased Utility Revenues	Transfer
Participant Impacts(from EV Driver Perspective)	
Incremental EV Purchase Costs	Cost
EV Charger Costs (equipment and installation)	Cost
Avoided Vehicle Fuel Costs	Benefit
Savings From Decreased Vehicle Maintenance	Benefit
Federal Tax Incentive (EV purchase)	Benefit
Societal Costs or Benefits (from Society's Perspective)	
Value Of Reduced GHG Emissions	Benefit
Public Health Value Of Reduced/Shifted Emissions	Benefit

Source: EV-BCA Whitepaper at 17, Figure 5.1-1.

Q. How does the EV-BCA Framework define EV Charger Costs?

A. The EV-BCA Framework defines EV Charger Costs as "the full costs of buying, installing, and operating (i.e., data and network charges,

maintenance) EV charging infrastructure. Any applicable utility charger incentives are not reflected in this factor (since that is a transfer). This factor is a cost under the MD EV-JST and MW tests."[168] In other words, the EV Charger Costs are the costs to the participant net of the utility rebate.

Q. Did you calculate the participant costs associated with the Level 2 chargers included in the Charger Rebate & HCI BCA and the Charger Rebate & TOU & HCI BCA based on this definition?

A. Yes. I calculated the participant costs for the Charger Rebate & HCI BCA and the Charger Rebate & TOU & HCI BCA using the data provided in Mr. Warner's exhibit "BGE BCA V1.1 Feb 16 2023 (CONFIDENTIAL).xlsx".

BEGIN CONFIDENTIAL [redacted] ** END CONFIDENTIAL**

While the EV-BCA Framework defines EV Charger Costs as "the full costs of buying, installing, and operating EV charging infrastructure", I also calculated the participant cost using the incremental cost of a "smart" L2 charger compared to a "dumb" L2 charger. I conducted this as a sensitivity

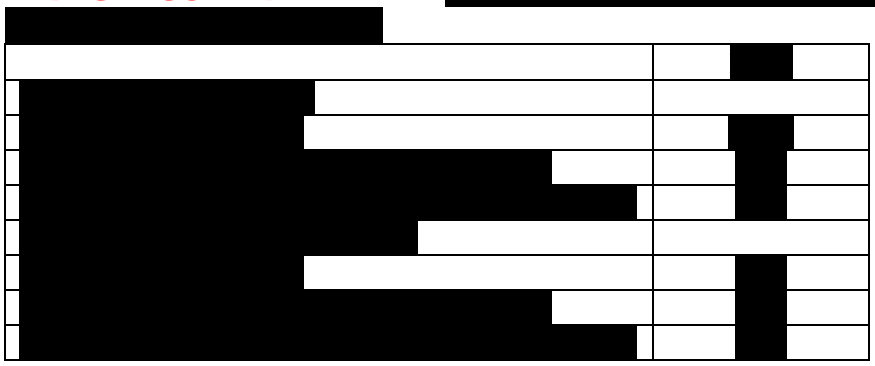
[168] EV-BCA Whitepaper at 15.

given the fact that BGE's Charger Rebate program is intended to incentivize EV owners to purchase a smart EV charger over a "dumb" charger.[169] For this sensitivity I assumed "smart" L2 smart charger equipment to be $500 more than "dumb" L2 charging equipment based on a recent report by the Rocky Mountain Institute.[170] I then subtracted the $300 rebate value to obtain the net cost to participant.

Q. Does the inclusion of participant costs impact the cost-effectiveness of these offerings?

A. Yes, it does. I show the comparison between Mr. Warner's BCAs for these programs as included in Table 19 earlier in my testimony and the updated BCAs including participant costs in ** **BEGIN CONFIDENTIAL**** [redacted] below.

**** BEGIN CONFIDENTIAL**** [redacted]



END CONFIDENTIAL As shown in this table, the inclusion of participant costs reduces the cost-effectiveness of these offerings. When the

[169] Joint Utilities Compliance Filing Regarding Implementation of Approved Electric Vehicle Charging Program Offerings. Case No. 9478. (ML 224843, April 19, 2019), pg. 4.

[170] Nelder, C. and Rogers, E., 2019, *Reducing EV Charging Infrastructure Costs*, Rocky Mountain Institute, pg. 19. Available at: https://rmi.org/ev-charging-costs (last accessed 6/13/23).

full cost of the charger (net of the $300 rebate) these offerings are no longer cost-effective. When just the incremental cost of the "smart" charger compared to the "dumb" charger (net of the $300) rebate, the programs remain cost-effective, but the BCR is reduced.

Q. What is your recommendation for conducting a BCA for the Charger Rebate & HCI and the Charger Rebate & TOU & HCI offerings?

A. These BCAs should include the participant impacts for EV charger costs as defined in the MD EV-JST for all participants that received a charger rebate. I recommend that the Commission require BGE to submit a corrected BCA as part of this proceeding.

V. Conclusion

Q. Please summarize your final conclusions and recommendations from your testimony.

A. My key conclusions and recommendations are as follows:

- PIMs: The Company's proposed PIM and performance metrics do not meet all the criteria set forth by the Commission in Order No. 89638 and BGE has existing financial incentives to achieve many of the proposed performance metrics. Therefore, the Commission should reject the PIM and associated performance metrics as proposed.
- EV Program Budget: I recommend the Commission reject BGE's proposed EV program budget in the MYP 2. Issues related to EV program design, budgets, and cost-recovery should be considered in the

same proceeding, namely, Case No. 9478, the Commission's EV pilot docket. Should the Commission decide to approve the proposed EV program costs in the MYP 2, I recommend the Commission reject BGE's proposal to classify non-capital EV program expenses as a regulatory asset. This approach will needlessly cost ratepayers more over the long term, while allowing the Company to earn a return on program costs that are not capital investments. Should the Commission approve regulatory asset treatment of EV program costs, BGE should not be allowed to earn a return on that asset.

- EV BCA: Mr. Warner does not accurately apply the EV-BCA Framework to the Charger Rebate & HCI BCA or to the Charger Rebate & TOU & HCI BCA. This is because he excludes the costs associated with the Level 2 smart chargers that are rebated through the Charger Rebate program, thereby inflating the cost-effectiveness of this program. The Commission should require BGE to revise and resubmit these BCAs and include the participant share of the Level 2 charger costs, net of the utility rebate.

Q. Does this conclude your testimony?

A. Yes, it does.

Courtney Lane, Principal Associate

Synapse Energy Economics I 485 Massachusetts Avenue, Suite 3 I Cambridge, MA 02139 I 617- 453-7028
clane@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Inc., Cambridge, MA. *Principal Associate*, September 2022 – Present, *Senior Associate,* November 2019 – September 2022.

Provides consulting and researching services on a wide range of issues related to the electric industry including performance-based regulation, benefit-cost assessment, rate and bill impacts, and assessment of distributed energy resource policies and programs. Develops expert witness testimony in public utility commission proceedings.

National Grid, Waltham, MA. *Growth Management Lead*, *New England,* May 2019 – November 2019, *Lead Analyst for Rhode Island Policy and Evaluation,* June 2013 – April 2019.

- Portfolio management of product verticals including energy efficiency, demand response, solar, storage, distributed gas resources, and electric transportation, to optimize growth and customer offerings.
- Strategy lead for the Performance Incentive Mechanisms (PIMs) working group.
- Worked with internal and external stakeholders and led the development of National Grid's Annual and Three-Year Energy Efficiency Plans and System Reliability Procurement Plans for the state of Rhode Island.
- Represented energy efficiency and demand response within the company at various Rhode Island grid modernization proceedings.
- Led the Rhode Island Energy Efficiency Collaborative; a group focused on reaching consensuses regarding energy efficiency plans and policy issues for demand-side resources in Rhode Island.
- Managed evaluations of National Grid's residential energy efficiency programs in Rhode Island, and benefit-cost models to screen energy efficiency measures.

Citizens for Pennsylvania's Future, Philadelphia, PA. *Senior Energy Policy Analyst*, 2005–2013.

- Played a vital role in several legislative victories in Pennsylvania, including passage of energy conservation legislation that requires utilities to reduce overall and peak demand for electricity (2009); passage of the $650 million Alternative Energy Investment Act (2008); and important amendments to the Alternative Energy Portfolio Standards law vital to the development of solar energy in Pennsylvania (2007).
- Performed market research and industry investigation on emerging energy resources including wind, solar, energy efficiency and demand response.
- Planned, facilitated and participated in wind energy advocates training meetings, annual partners retreat with members of wind and solar companies, and the PennFuture annual clean energy conference.

Northeast Energy Efficiency Partnerships, Inc., Lexington, MA. *Research and Policy Analyst,* 2004–2005.

- Drafted comments and testimony on various state regulatory and legislative actions pertaining to energy efficiency.
- Tracked energy efficiency initiatives set forth in various state climate change action plans, and federal and state energy regulatory developments and requirements.
- Participated in Regional Greenhouse Gas Initiative (RGGI) stakeholder meetings.
- Analyzed cost-effectiveness of various initiatives within the organization.

EnviroBusiness, Inc., Cambridge, MA. *Environmental Scientist,* July 2000 – May 2001

- Conducted pre-acquisition assessments/due diligence assignments for properties throughout New England. Environmental assessments included an analysis of historic properties, wetlands, endangered species habitat, floodplains, and other areas of environmental concern and the possible impacts of cellular installations on these sensitive areas.

EDUCATION

Tufts University, Medford, MA
Master of Arts; Environmental Policy and Planning, 2004.

Colgate University, Hamilton, NY
Bachelor of Arts; Environmental Geography, 2000, *cum laude.*

PUBLICATIONS

Fortman, N., J. Michals, T. Woolf, C. Lane. 2022. *Benefit-Cost Analysis: What it Can and Cannot Tell us About Distributional Equity of DERs*. E4TheFuture, Synapse Energy Economics. Presented at the 2022 ACEEE Summer Study of Energy Efficiency in Buildings.

National Energy Screening Project. 2022. *Methods, Tools and Resources: A Handbook for Quantifying Distributed Energy Resource Impacts for Benefit-Cost Analysis*. E4TheFuture, Synapse Energy Economics, Parmenter Consulting, Apex Analytics, Energy Futures Group.

Woolf, T., D Bhandari, C. Lane, J. Frost, B. Havumaki, S. Letendre, C. Odom. 2021. *Benefit-Cost Analysis of the Rhode Island Community Remote Net Metering Program*. Synapse Energy Economics for the Rhode Island Division of Public Utilities and Carriers.

Lane, C., S. Kwok, J. Hall, I. Addleton. 2021. *Macroeconomic Analysis of Clean Vehicle Policy Scenarios for Illinois*. Synapse Energy for the Natural Resources Defense Council.

National Energy Screening Project. 2020. *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources*. E4TheFuture, Synapse Energy Economics, Energy Futures Group, ICF, Pace Energy and Climate Center, Schiller Consulting, Smart Electric Power Alliance.

Lane, C., K. Takahashi. 2020. *Rate and Bill Impact Analysis of Rhode Island Natural Gas Energy Efficiency Programs.* Synapse Energy Economics for National Grid.

Chang, M., J. Frost, C. Lane, S. Letendre, PhD. 2020. *The Fixed Resource Requirement Alternative to PJM's Capacity Market: A Guide for State Decision-Making*. Synapse Energy Economics for the State Energy & Environmental Impact Center at the NYU School of Law.

TESTIMONY

New Mexico Public Regulation Commission (Case No. 22-00058-UT): Direct Testimony of Courtney Lane regarding the application of Public Service Company of New Mexico's for authorization to implement grid modernization. On behalf of the New Mexico Office of Attorney General. January 27, 2023.

Illinois Commerce Commission (Dockets 22-0432/22-0442 (Consol.): Direct and Rebuttal Testimony of Courtney Lane and Eric Borden regarding the petition of Commonwealth Edison Company for Approval of Beneficial Electrification Plan Under the Electric Vehicle Act. On behalf of the People of the State of Illinois. September 22, 2022 and November 16, 2022.

Illinois Commerce Commission (Docket No. 22-0431/22-0443): Direct and Rebuttal Testimony of Courtney Lane and Eric Borden regarding the petition of Ameren Illinois Company for Approval of Beneficial Electrification Pursuant to Section 45 of the Electric Vehicle Act. On behalf of the People of the State of Illinois. September 15, 2022 and November 7, 2022.

New Mexico Public Regulation Commission (Case No. 21-00178-UT): Direct Testimony of Courtney Lane regarding the application of Southwestern Public Service Company's for authorization to implement grid modernization. On behalf of the New Mexico Office of Attorney General. October 11, 2022.

Public Service Commission of Wisconsin (Docket 5-UR-110): Direct and Surrebuttal Testimony of Courtney Lane regarding the Joint Application of Wisconsin Electric Power Company and Wisconsin Gas, LLC for Authority to Adjust Electric, Natural Gas, and Steam Rates. On behalf of Clean Wisconsin. September 9, 2022 and October 3, 2022.

Maryland Public Service Commission (Docket No. 9681): Direct Testimony of Courtney Lane regarding the application of Delmarva Power & Light Company for an Electric Multi-Year Plan. On behalf of the Maryland Office of People's Counsel. August 19, 2022.

New Mexico Public Regulation Commission (Case No. 21-00269-UT): Testimony of Courtney Lane in Support of Unopposed Comprehensive Stipulation regarding the Application of El Paso Electric Company for Approval of a Grid Modernization Project to Implement an Advanced Metering System. On behalf of the New Mexico Office of Attorney General. May 11, 2022.

Public Utilities Commission of New Hampshire (Docket No. DG 21-104): Direct Testimony of Courtney Lane and Ben Havumaki regarding Northern Utilities, Inc.'s request for change in rates. On behalf of the Office of Consumer Advocate. April 1, 2022.

Public Utilities Commission of New Hampshire (Docket No. DE 20-092): Direct Testimony of Courtney Lane and Danielle Goldberg regarding the 2021-2023 Triennial Energy Efficiency Plan. On behalf of the Office of Consumer Advocate. April 19, 2022.

Maryland Public Service Commission (Docket No. 9655): Direct and Surrebuttal Testimony of Courtney Lane regarding the application of Potomac Electric Company for a Multi-Year Plan and Performance Incentive Mechanisms. On behalf of the Maryland Office of People's Counsel. March 3, 2021 and April 20, 2021.

Pennsylvania Public Utility Commission (Docket No. M-2020-3020830): Direct testimony of Alice Napoleon and Courtney Lane regarding PECO Energy Company's proposed Act 129 Phase IV Energy Efficiency and Conservation Plan. On behalf of the Natural Resources Defense Council. January 14, 2021.

Maryland Public Service Commission (Case No. 9645): Direct and Surrebuttal Testimony of Courtney Lane regarding the Application of Baltimore Gas and Electric Company for an Electric and Gas Multi-Year Plan. On behalf of the Maryland Office of People's Counsel. August 14, 2020 and October 7, 2020.

Maryland Public Service Commission (Case No. 9619): Comments of Maryland Office of People's Counsel Regarding Energy Storage Pilot Program Applications, attached Synapse Energy Economics Report. June 23, 2020.

Public Service Commission of the District of Columbia (Formal Case No. 1156): Direct, Rebuttal, Surrebuttal, and Supplemental Testimony of Courtney Lane regarding the Application of Potomac Electric Power Company for Authority to Implement a Multiyear Rate Plan for Electric Distribution Service in the District of Columbia. On behalf of the District of Columbia Government. March 6, 2020, April 8, 2020, June 1, 2020, and July 27, 2020.

Rhode Island Public Utilities Commission (Docket No. 4888): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2019 Energy Efficiency Program (EEP). On behalf of National Grid. December 11, 2018.

Rhode Island Public Utilities Commission (Docket No. 4889): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2019 System Reliability Procurement Report (SRP). On behalf of National Grid. December 10, 2018.

Rhode Island Public Utilities Commission (Docket No. 4755): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2018 Energy Efficiency Program (EEP). On behalf of National Grid. December 13, 2017.

Rhode Island Public Utilities Commission (Docket No. 4684): Oral testimony of Courtney Lane regarding the RI Energy Efficiency and Resource Management Council (EERMC) Proposed Energy Efficiency Savings Targets for National Grid's Energy Efficiency and System Reliability Procurement for the Period 2018-2020 Pursuant to §39-1-27.7. On behalf of National Grid. March 7, 2017.

Rhode Island Public Utilities Commission (Docket No. 4684): Oral testimony of Courtney Lane regarding National Grid's 2018-2020 Energy Efficiency and System Reliability Procurement Plan. On behalf of National Grid. October 25, 2017.

Rhode Island Public Utilities Commission (Docket No. 4654): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2017 Energy Efficiency Program Plan (EEPP) for Electric & Gas. On behalf of National Grid. December 8, 2016.

Rhode Island Public Utilities Commission (Docket No. 4580): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2016 Energy Efficiency Program Plan (EEPP) for Electric & Gas. On behalf of National Grid. December 2, 2015.

Pennsylvania Public Utility Commission (Docket No. P-2012-2320369): Direct testimony of Courtney Lane regarding the Petition of PPL Electric Utilities Corporation for an Evidentiary Hearing on the Energy Efficiency Benchmarks Established for the Period June 1, 2013 through May 31, 2016. On behalf of PennFuture. October 19, 2012.

Pennsylvania Public Utility Commission (Docket No. P-2012-2320334): Direct testimony of Courtney Lane regarding the Petition of PECO Energy for an Evidentiary Hearing on the Energy Efficiency Benchmarks Established for the Period June 1, 2013 through May 31, 2016. On behalf of PennFuture. September 20, 2012.

Pennsylvania Public Utility Commission (Docket No. I-2011-2237952): Oral testimony of Courtney Lane regarding the Commission's Investigation of Pennsylvania's Retail Electricity Markets. On behalf of PennFuture. March 21, 2012.

Committee on the Environment Council of the City of Philadelphia (Bill No. 110829): Oral testimony of Courtney Lane regarding building permitting fees for solar energy projects. On behalf of PennFuture. December 5, 2011.

Pennsylvania Public Utility Commission (Docket No. M-00061984): Oral testimony of Courtney Lane regarding the En Banc Hearing on Alternative Energy, Energy Conservation, and Demand Side Response. On behalf of PennFuture. November 19, 2008.

PRESENTATIONS

Lane, C. 2021. "Accounting for Interactive Effects: Assessing the Cost-Effectiveness of Integrated Distributed Energy Resources." Presentation at the 2021 American Council for an Energy-Efficient Economy (ACEEE) National Conference on Energy Efficiency as a Resource, October 27, 2021.

Lane, C. 2019. "The RI Test." Presentation for AESP Webinar: Emerging Valuation Approaches in Cost-Effectiveness and IRPs, October 31, 2019.

Lane, C., A. Flanders. 2017. "National Grid Rhode Island: Piloting Wireless Alternatives: Forging a Successful Program in Difficult Circumstances." Presentation at the 35th Annual Peak Load Management Association (PLMA) Conference, Nashville, TN, April 4, 2017.

Lane, C. 2013. “Regional Renewable Energy Policy Update.” Presentation at the Globalcon Conference, Philadelphia, PA, March 6, 2013.

Lane, C. 2012. “Act 129 and Beyond.” Presentation at the ACI Mid-Atlantic Home Performance Conference, October 1, 2012.

Lane, C. 2012. “Act 129: Taking Energy Efficiency to the Next Level.” Presentation at the Energypath Conference, June 28, 2012.

Lane, C. 2011. “Pennsylvania’s Model Wind Ordinance.” Presentation at Harvesting Wind Energy on the Delmarva Peninsula, September 14, 2011.

Lane, C. 2011. “Electric Retail Competition and the AEPS.” Presentation at the Villanova Law Forum, November 4, 2011.

Lane, C. 2009. “Act 129: Growing the Energy Conservation Market.” Presentation at the Western Chester County Chamber of Commerce, March 25, 2009.

Resume updated June 2023

CL-2
PUBLIC

Case No. 9692
Baltimore Gas and Electric Co.
Response to Staff Data Request 10
Request Received: March 02, 2023
Response Date: March 16, 2023
Sponsor(s): Dawn C. White

Item No.: StaffDR10-17

Regarding ZEVAC discussed on page 50 of Ms. White's testimony, please indicate the basis for the performance tiers were developed and how and they can be considered reasonable.

RESPONSE:

Please see the answer beginning on Line 16 of page 50 of the Direct Testimony of Company Witness White for a complete discussion of how the ZEVAC metric targets were derived. As noted on line 5, page 52, annual rewards are earned if the Company executes or exceeds its annual workplan target.

StaffDR10-17-*Attachment 1* provides the support for the penalty performance levels shown in Table 14, based on the number of applicable jobs completed.

As noted on Lines 7-9, page 52, the satisfactory performance range includes the performance values between the reward and penalty performance levels.

CL-2

Case No. 9692
Staff Data Request No. 10
Item No. 17
Attachment 1

Support for Proposed ZEVAC Performance Levels

Assumption for # of applicable jobs for each year of the MYP: 12

	2024	2025	2026
	(# of applicable jobs)		
Reward	3	6	12
Satisfactory	2	4 -5	10 - 11
Penalty	1	3	9

Table 14: Proposed ZEVAC Performance Levels

	2024	2025	2026	
	(% of applicable jobs)			
Reward	25%	50%	100%	
Satisfactory	11 - 24%	26 - 49%	76 - 99%	
Penalty	10%	25%	75%	<--- See cell formulae

Case No. 9692
Baltimore Gas and Electric Co.
Response to Staff Data Request 20
Request Received: March 08, 2023
Response Date: March 22, 2023
Sponsor(s): David M. Vahos; Mark D. Case

Item No.: StaffDR20-02

Please provide a breakdown of all new EV spend included in the MYP which has not yet been approved by the Commission.

RESPONSE:

Please see the below chart for all EV program spend in BGE's budget for 2024-2026.

Program	Type	2024	2025	2026	Total
Fleet	Reg Asset	$ 2,317,500	$ 2,387,025		$ 4,704,525
BGE-owned stations	Reg Asset	$ 1,007,517	$ 1,196,513	$ 1,638,383	$ 3,842,413
	Capital	$ 2,832,500	$ 2,917,475	$ 1,365,875	$ 7,115,850
Make-Ready Programs	Capital	$ 3,090,000	$ 8,487,200	$ 8,741,600	$ 20,318,800
School Bus	Reg Asset	$ 8,707,878	$ 14,605,941	$ 15,072,431	$ 38,386,249
	Capital	$ 2,738,006	$ 3,943,393	$ 4,348,970	$ 11,030,369
Residential Managed Charging & TOU	Reg Asset	$ 718,988	$ 3,316,708	$ 3,551,275	$ 7,586,971
Program Administration and Marketing	Reg Asset	$ 2,437,563	$ 2,733,953	$ 2,577,622	$ 7,749,137
Total		**$ 23,849,951**	**$ 39,588,208**	**$ 37,296,155**	**$ 100,734,314**

Please note that the Commission has approved BGE's continuation of the Fleet and BGE-owned stations program components (including the associated budgets) through 2025. *See* Commission Letter Orders issued on September 14, 2022 (Maillog #242311 and Maillog #242312). The dollar amounts listed above for the Fleet program in 2024 and 2025 were included in the budget proposed by BGE to the Commission. The dollar amounts listed above for the BGE-owned stations program in 2024 and 2025 include both dollars that were included in the budget proposed by BGE to the Commission and dollars associated with additional program components that have not yet been approved by the Commission. Please also see the Direct Testimony of Company Witness Case at pages 48-49.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): John C. Frain

Item No.: OPCDR09-11

Please refer to BGE's proposal for EV Programs to be accounted for as regulatory assets on pages 24-25 of the Direct Testimony of John C. Frain and provide the following information.

A. I n Microsoft Excel, please provide the annual revenue requirement for the EV program funds that BGE proposes to be accounted for as regulatory assets. This should be provided for the entire proposed five-year amortization period of the proposal on an annual basis. Please include in the response all supporting workpapers, calculations, and assumptions in Excel with formulas intact.
B. In Microsoft Excel, please provide the annual revenue requirement for BGE's proposal, assuming these program funds are treated as an expense and not a regulatory asset. Please include in the response all supporting workpapers, calculations, and assumptions in Excel with formulas intact.

RESPONSE:

Please see OPCDR09-11-*Attachment 1* for the annual revenue requirement for the EV program funds that BGE proposes to be accounted for as regulatory assets based on the EV program costs presented in the response to StaffDR20-02. Please note that the amounts included in the response to StaffDR20-02 represent total budgeted EV program costs, inclusive of overheads and other indirect costs, whereas the amounts shown in Table 4 of Company Witness Frain's Direct Testimony include direct costs only.

Please see OPCDR09-11-*Attachment 2* for the annual revenue requirement for BGE's proposal assuming the regulatory asset program funds included in OPCDR09-11-Attachment 1 are treated as an expense.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-21

Regarding BGE's proposal for the Tree Planting Program, please answer the following:

A. Provide performance metric examples from utilities in other jurisdictions that create reward/penalty incentives for meeting metrics related to tree planting.
B. Does BGE believe that any activity to reduce GHGs may be funded by ratepayers? Please explain how BGE delineates between programs that should be funded by state or national governments, or private entities and those that should be funded by electric ratepayers.
C. Did BGE base its Tree Planting Program on a utility in another jurisdiction? If yes, please provide the name of that utility, whether the program was funded through electric rates, and copies of materials reviewed by BGE to inform its Tree Planting Program.
D. Please summarize all existing BGE tree planting initiatives and the number of trees planted in BGE's service territory for each of the previous five years resulting from these initiatives. Please provide this information broken out by initiative. For example, trees planted for mitigation purposes and trees planted as part of community-based projects.
E. Does BGE have corporate goals related to tree planting? If yes, please explain those goals and provide the goal per year in terms of number of trees planted, as well as the source of this information.
F. Is there a penalty if BGE spends more than its proposed Tree Planting Program Budget on a total costs basis? If no, please explain how overspend on a total cost basis is treated within the proposed MYP 2.
G. Is there a penalty if BGE spends more than its proposed Tree Planting Program Budget on a unit cost basis? If no, please explain how overspend on a unit cost basis is treated within the proposed MYP 2.

RESPONSE:

A. While tree planting may be included as a performance metric for another utility, BGE is not aware of any instance where this is the case.

B. No. Only programs executed by or at the direction of BGE, and which are not funded by another organization, are eligible for rate relief before the Commission.

C. No. Please see the response to subpart A, above.

D. As part of its Arbor Day Energy Savings Tree Program, BGE provided 4,621 trees cumulatively to customers over the five-year period from 2018 - 2022. BGE does not maintain records by year for this program. There are 1,000 more trees available to provide customers in 2023.

As part of its Volunteer and Community Based Tree Planting efforts, where BGE works with local environmental non-profit organizations to assist in tree planting efforts, there are typically several planting events per year. BGE does not maintain the tree planting records for these activities.

BGE has Mitigation Tree Plantings activities, for which trees are planted on a project-by-project basis to mitigate for trees that need to be removed as part of specific projects. BGE does not maintain the tree planting records for these activities.

In 2023, BGE commenced a tree planting program funded by shareholders to assist with its Path to Clean efforts. BGE planted 5,700 trees in 2023.

E. No.

F. There is no penalty for spending more than the proposed budget. To the extent the Company exceeds its program budget, the Commission ultimately has the decision-making authority to consider the prudence of going over budget in an effort to reduce GHG emissions. This necessarily includes the authority to approve a reward for performance that meets or exceeds target when costs exceed the budget. In other words, the budget is not a gating mechanism for assessing metric performance.

G. Please see the response to subpart F, above.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-22

Refer to the discussion of a partnership with Maryland Department of Natural Resources (DNR) on page 24 and 25 of the Direct Testimony of Mark D. Case, and answer the following:

A. Please describe BGE's current partnership with DNR.
B. How many trees are planted per year through the existing partnership with DNR.
C. Please explain why BGE has not begun to pursue an extension of its partnership with DNR.
D. Under the existing partnership, please explain whether there is continued maintenance and care for a planted tree over the life of that tree. Please include in your response what entity performs this work and cost per tree for this work.

RESPONSE:

A. The partnership is new in 2023 and currently focused on one site. The Maryland Department of Health (MDH), BGE and the Maryland Department of Natural Resources (DNR) entered into a tree planting program to replace predominantly grassy areas with trees on MDH Springfield Hospital Center property located in Sykesville, Carroll County, Maryland, resulting in the creation of long-term forested areas. BGE participated in the Project in order to support its Path to Clean initiative. DNR has a desire to count the trees planted as part of the Springfield Hospital project toward the tree planting goals within the Tree Solutions Now Act (also known as the Five Million Tree Initiative) which has been leveraged towards a pledge by the state of Maryland as part of the U.S. Chapter of the Trillion Trees Initiative. MDH is required under the National Pollutant Discharge Elimination System municipal separate storm sewer systems (also known as the MS4 Permit) to reduce the impervious areas located on property it owns.

B. The partnership is new in 2023. 13 acres were identified for immediate planting on a 10'x10' grid, resulting in 5,700 trees planted. BGE plans to leverage its 2023 tree planting experience and partnership with DNR to plant at least 16,918 trees in 2024 as part of its Tree Planting program proposed in this proceeding.

C. BGE and the Maryland Department of Natural Resources (DNR) / Maryland Forest Service (MFS) have been focused on the successful execution of the Springfield Hospital tree planting to this point. Now that the initial planting is complete, BGE and DNR will be discussing future projects. BGE will likely start planning future project sites later in 2023.

D. The 2023 project includes 3 years of care and maintenance performed by the MFS-recommended contractor Shenandoah Habitats. This work was not bid on a per-tree basis but rather on a per-acre basis and included mowing ($185/acre/event), stake and shelter maintenance ($325/acre/event), and spot pesticide treatment ($245/acre/event) with multiple events per year. The 2024 planting bid has not gone out for bid yet; however, it is anticipated that a similar care and maintenance plan will be included.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-29

Refer to the Fleet Electrification Program described in the Direct Testimony of Mark D. Case beginning on page 28. Does BGE plan to implement this program as proposed regardless of whether the Commission approves its proposed GHG Emissions Reduction Performance Metric? If not, please explain how BGE would modify the Fleet Electrification Program.

RESPONSE:

Please refer to the response to OPCDR09-01, subpart B.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-23

Refer to page 26, lines 10-12 of the Direct Testimony of Mark D. Case, which states "BGE analyzed a time horizon of 2024-2050 for the GHG emissions benefits, resulting in approximately $1.3 million of benefits on a net present value basis."

A. How will BGE ensure that a tree planted under this program remains alive until 2050?
B. Are there ongoing costs related to tree maintenance that are not reflected in BGE's Annual Budget? If yes, what are the estimated costs per year beginning in year 2027 and how will BGE recover those costs? If no, please explain what entity will perform care and maintenance of trees planted within BGE's Tree Planting Program.
C. Will BGE adjust the annual performance results if a sapling dies over the course of the MYP 2? Please explain why or why not.

RESPONSE:

A. BGE will ensure care and maintenance of newly planted trees is provided for at least 3 years to improve the chance of survival. Tree planting will be certified by the Maryland Forest Service or a Maryland licensed forester. BGE intends to periodically inspect the plantings to perform monitoring, reporting and verification (MRV) of the trees and their carbon sequestration rates.

B. No. The 3+ years of care and maintenance are paid for up front and included in the proposed Tree Planting program budget of $500,000 per year.

C. No. Please refer to the Company's response to OPCDR09-26, subpart B.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-35

Is BGE allowed to include in rate base any costs related to the procurement of BEVs, PHEVS, and charging stations proposed as part of the Fleet Electrification Program? If yes, please answer the following:

A. Is the total revenue requirement (including return, taxes, and other elements of rate base) cost included in the BCA for the full depreciation life of all assets? If yes, please provide a reference to tabs and cells where this is located in the BCA.
B. If the answer to (b) is no, please provide an updated BCA where the cost includes the total annual revenue requirement for the full life of the assets associated with the Fleet Electrification Program.

RESPONSE:

Yes, BGE includes in rate base the costs related to the procurement of electric vehicles and charging stations that are not otherwise accounted for as O&M expense.

A. No. As noted in Company Exhibit MDC-2, BGE adopted the "societal cost test (SCT) as the relevant cost effectiveness framework for the assessment of BGE's proposed PIM programs." While the SCT incorporates the costs of the assets, the SCT methodology is not designed to include the other items noted above.

B. BGE has not performed this analysis.

D. Please see the table below for the ICE vehicles replaced with a BEV or PHEV in the last five years.

Year	BEV	PHEV	Total
2018	2	0	2
2019	0	0	0
2020	19	0	19
2021	11	0	11
2022	17	1	18

E. Please see the table below for the actual ICE vehicle replacements for the past five years.

Year	ICE Vehicle Replacements
2018	172
2019	153
2020	174
2021	151
2022	99

Please see the table below for the projected ICE vehicle replacements for the next five years.

Year	ICE Vehicle Replacements
2023	91
2024	121
2025	190
2026	167
2027	117

F. No. Please refer to the response to OPCDR09-21, subpart F.

G. Please see the response to subpart F, above.

H. Please see the response to subpart F, above.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-36

Regarding BGE's proposed Fleet Electrification Program described in the Direct Testimony of Mark D. Case, please answer the following:

A. Does BGE have any corporate goals related to electrification of Company-owned fleets? Please explain your response and provide the related goals by year.
B. Does BGE estimate that this program will result in net-savings in fuel, operations and maintenance costs associated with the conversion of existing internal combustion engine (ICE) vehicles to BEVs and PHEVs? If yes, will BGE keep those savings or are they passed along to ratepayers. Please explain your response.
C. Does the Company currently have a financial disincentive to replace ICE vehicles with BEVs and PHEVs? Please explain your response.
D. How many ICE vehicles were replaced with either a BEV or a PHEV in each of the previous five years?
E. How many ICE vehicles require replacement each year? Please provide for the previous five years and projections for the next five years.
F. Is there a penalty if BGE spends more than its proposed Fleet Electrification Budget? If no, please explain how overspend is treated within the MYP 2.
G. Is there a penalty if BGE spends more than its proposed Fleet Electrification Program Budget on a total costs basis? If no, please explain how overspend on a total cost basis is treated within the proposed MYP 2.
H. Is there a penalty if BGE spends more than its proposed Fleet Electrification Program Budget on a unit costs basis? If no, please explain how overspend on a unit cost basis is treated within the proposed MYP 2.

RESPONSE:

A. Yes. BGE has corporate goals of reaching 30% electrification by the end of 2025 and 50% by the end of 2030. The metric for the corporate goals is defined as the number of electrified vehicles (BEV, PHEV, or IMS) as a percentage of the total number of vehicles in the BGE fleet as of the end of 2020. There are no corporate goals for years in between.

B. Yes. Please refer to the response to OPCDR09-05.

C. No. The cost recovery construct is similar for both internal combustion engine (ICE) vehicles and electric vehicles.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-41

Referring to the Rooftop Solar Program described in the Direct Testimony of Mark D. Case beginning on page 35, does BGE plan to implement this program as proposed regardless of whether the Commission approves its proposed GHG Emissions Reduction Performance Metric? If not, please explain how BGE would modify the Rooftop Solar Program and planned solar installations on Company facilities.

RESPONSE:

BGE's final plan will ultimately be dependent on the Commission's directives in its order(s) in this proceeding. Absent its PIM proposal, BGE would have submitted a budget that included $2.5 million a year and not the accelerated spending of $7.5 million a year.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-42

Regarding BGE's plan to spend $7.5 million per year on solar installation projects over the 2024-2026 timeframe on page 36 of the Direct Testimony of Mark D. Case, what portion of this spend will be treated as a capital asset? Please provide for each year.

RESPONSE:

As noted on page 36 of the Direct Testimony of Company Witness Case, the entire $7.5 million per year relates to capital investments.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-43

On page 36, lines 18-21 of the Direct Testimony of Mark D. Case, it states that BGE plans to commence design work in 2023 for its Rooftop Solar program. Please explain if this work will begin prior to Commission approval of the MYP.

RESPONSE:

These costs were first included in the Case No. 9645 2023 Project List filed on November 1, 2022, as part of Project 77109 Path to Clean – Capital. As the Commission's order in this proceeding is not expected until December 2023, BGE will be performing the design work prior to its issuance.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Laura Wright

Item No.: OPCDR09-50

Refer to page 38 of Company Exhibit MDC-2, which indicates there is "increased reliability from the reduction in the number of OCBs as well as the effect of outages caused due to VCB failures." Please explain if the increased reliability resulting from the ROBE Program will also increase the Company's ability to meet its proposed CEMI4-3P Performance Metric targets.

RESPONSE:

BGE has conducted an analysis and provided in the table below the number of existing (2023) CEMI4-3P customers that are served from a breaker which has been planned for replacement under the accelerated plan in the ROBE PIM proposal. It is important to understand that there can be a variety of reasons for a customer to experience multiple interruptions and therefore it should not be expected that the breaker replacement alone would change the status of the impacted CEMI4-3P customers. Please note that the CEMI4-3P customers will change based on fluctuations in outages in a given year.

Year Planned for Breaker Replacement	Current (2023) CEMI4-3P customers that would be impacted
2024	0
2025	108
2026	65

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Laura Wright

Item No.: OPCDR09-51

Regarding avoided fines and regulatory costs discussed on page 10 of Company Exhibit MDC-2 related to the ROBE Program, please answer the following:

A. Does the Company file a compliance report on oil leaks from OCBs as part of the Maryland Department of the Environment (MDE) Oil Control Program? If yes, where and when are those reports filed.
B. Is the Company subject to penalties or fines under the MDE Oil Control Program? If yes, how many times in the last 10 years did BGE receive a financial penalty or fine and what was the associated cost?
C. Has OCB failure and oil leakage from OCBs caused the Company to be in non-compliance with the federal Clean Water Act? If yes, how many times in the last 10 years did that occur and what were the total fines associated with each act of non-compliance.
D. Please explain if the Company shareholders pay for these fines and penalties or if these costs are recovered by ratepayers.
E. Please provide the number of fines and the total cost of the fines resulting from oil spills from circuit breakers in each of the last five years
F. Please provide the total regulatory costs due to oil spills from circuit breakers in each of the last five years.

RESPONSE:

A. Yes, BGE files monthly electronic reports with the MDE Oil Control Program.

B. Yes, BGE is subject to potential penalties or fines. BGE has not received any financial penalties or fines in the last 10 years.

C. No, BGE OCB failures and oil leakage have not caused a non-compliance with the federal Clean Water Act in the last 10 years.

D. Fines and penalties would be recorded below the line.

E. BGE has not received any fines/regulatory costs resulting from oil spills from circuit breakers in the last 5 years.

F. See the response to subpart E, above.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Laura Wright

Item No.: OPCDR09-55

Refer to the baseline for OCB replacement with VCBs on page 16 of Company Exhibit MDC-2.

A. What factors went into determining BGE's existing OCB replacement schedule of 20 OCBs each year between 2024 through 2026. Please provide all supporting workpapers and analysis.
B. How many OCBs have been replaced with VCBs in each of the last five years.
C. Does the Company currently have a financial disincentive to replace OCBs with VCBs?
D. What are the current barriers in place to BGE replacing more OCBs per year with VCBs?

RESPONSE:

A. In 2017, BGE developed a recommendation for a 60 breaker per year replacement cycle. That recommendation was reduced to 20 breakers per year due to a reprioritization of capital funds. See the CONFIDENTIAL presentation for Project 67883 Distribution Substation Oil Circuit Breaker Replacements posted under Company Witness Apte/Wright in the BGE Project Presentations - CONFIDENTIAL folder on the SharePoint site BGE has set up for this matter and accessible to OPC, Staff and others, as appropriate, through the link provided below:

Home - BGE Rate Case (sharepoint.com)

B. The table below shows the number of OCBs replaced by VCBs during the timeframe of 2017-2021.

Equipment	2018	2019	2020	2021	2022
OCB (Gallons)	4,690	3,540	1,750	1,300	2,550
OCB 13kV	13	9	0	5	5
OCB 34kV	13	12	7	4	9

C. The company does not have a disincentive to replace OCBs with VCBs. The baseline replacement rate has been driven by funding prioritization and availability.

D. The barriers to replacing more circuit breakers per year are equipment leads times, outage windows, construction resource availability and funding availability.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR09-57

Is BGE allowed to include in rate base any costs related to the ROBE Program? If yes, please answer the following:

A. Is the total revenue requirement (including return, taxes, and other elements of rate base) cost included in the BCA for the full depreciation life of all assets? If yes, please provide a reference to tabs and cells where this is located in the BCA.
B. If the answer to (b) is no, please provide an updated BCA where the cost includes the total annual revenue requirement for the full life of the assets associated with the ROBE Program.

RESPONSE:

Yes, BGE includes in rate base the capital expenditures related to the ROBE program that are in Project 67883 - Distribution Substation Oil Circuit Breaker Replacements. For subparts A – B, please refer to the response to OPCDR09-35.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 9
Request Received: April 17, 2023
Response Date: May 01, 2023
Sponsor(s): Laura Wright

Item No.: OPCDR09-59

Refer to BGE Response to Staff Data Request 23-01 regarding the potential of an OCB failure leading to an oil spill.

A. How many spills related to OCB failure occurred in each of the previous ten years?

RESPONSE:

There have been three reportable OCB spills in the previous ten years.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Steven Singh

Item No.: OPCDR13-03

Customers Experiencing Multiple Interruptions (CEMI4-3P)

Refer to pages 40 and 42 of the Direct Testimony of Steven A. Singh, which states that under the CEMI program currently in place, BGE examines the CEMI4-2P. Please explain why the Company did not choose CEMI4-2P for the performance metric.

RESPONSE:

CEMI4-3P customers are more indicative of long term systemic issues due to their consistent history. Choosing CEMI4-2P customers as the performance metric would not allow the Company to monitor if the CEMI issue is the result of systemic issues as opposed to transient issues. Therefore, focusing on CEMI4-3P customers instead of CEMI4-2P customers allows us to address long term sustainability solution as opposed to short term remediation efforts.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Steven Singh

Item No.: OPCDR13-12

Customers Experiencing Multiple Interruptions (CEMI4-3P)

Refer to page 45, lines 2-6 of the Direct Testimony of Steven A. Singh related to the projects needed to achieve 1,500 or fewer customers experiencing four or more interruptions in 2025 and 2026. Are there other capital projects included in the MYP 2 that will lead to a reduction in the number of CEMI4-2P customers? If yes, please describe those projects and provide the budget associated with those projects.

RESPONSE:

The projected spend in Project 61435: Customers Experiencing Multiple Interruptions (CEMI) Program is geared towards the reduction of high count CEMI customers, including CEMI4-3P customers. The project does not generally address CEMI4-2P customers as the population for CEMI4-2P is significantly larger. However, every project in system performance discussed in Company Witness Apte's/Wright's testimony is geared towards reducing customer outages so there could be some overlap but the CEMI program is the only work specifically geared towards CEMI customers.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Steven Singh

Item No.: OPCDR13-13

Customers Experiencing Multiple Interruptions (CEMI4-3P)

Refer to Table 25 in the Direct Testimony of Steven A. Singh, related to CEMI4 capital expenditures.

a. Please provide all worksheets and analysis in Microsoft Excel with formulae intact used to calculate the Year 2 Customers, Total CEMI Spend, and $/Customer.
b. Please update this table with data going back to 2011 to provide 10 years of history for CEMI4 capital expenditures.
c. How many projects per year are completed under the existing CEMI program?

RESPONSE:

a. See BGE's response to OPCDR13-04, subpart (a).

b. CEMI4-3P is a metric for BGE that has only been tracked since 2019.

c. See table below:

Year	# of CEMI projects completed
2019	14
2020	26
2021	18
Total	58

Gas Distribution System Pipelines and Service Runs

2021 DOT REPORT	Protected Steel	Unprotected Steel	Plastic	Cast Iron	Copper	Mass CH4	Mass CO2	Total Mass Emissions	
Miles of Main	2,779.40	13.64	3,759.75	973.93	-	5,370.79	161.9	5,532.64	mT
CO2	4.9	0.9	21.5	134.5					
CH4	163.62	28.86	714.57	4,463.75					
No. of Services	43,399	49,889	440,988	20	14,939	1,889.81	57.0	1,946.76	mT
CO2	4.4	48.0	2.2		2.3				
CH4	145.99	1,594.28	74.17		75.38				
							TOTAL MASS =	7,479.4	mT

218.8	CO2
7260.60	CH4

181,733.87 w GWP

The GHG emissions from pipeline equipment leaks are primarily based on the number of miles of pipeline that are present in the distribution network. For service lines, equipment leaks are based on the number of service lines in operation within the LDC. The MRR calculation methodology utilizes population emission factors (per mile of pipeline) for four different commonly used pipeline/service line materials (unprotected steel, protected steel, plastic, cast iron, and copper). The GHG leak emissions for pipelines are calculated using Equation W-31.

$$E_{s,e,i} = Count_e * EF_{s,e} * GHG_i * T_e$$ Eq. W-32A)

Where:
s = Specific sources are defined as each of th following types of pipeline/service line:
--Unprotected Steel
--Protected Steel
--Plastic
--Cast Iron
--Copper

$E_{s,e,i}$ = Annual volumetric GHG emissions at standard conditions from each type of pipeline/service line in cubic feet.

$Count_e$ = Total miles of each type of pipeline/ total number of each type of service line.

$EF_{S,e}$ = Population based emission factor for each type of pipeline/service line listed in Table W-7 of Subpart W (units of scf/hour/mile) or (unites of scf/hour/number of services).

GHG_i = Default GHG concentrations in pipeline/service line of natural gas:
--GHG_i = 1 for CH_4
--GHG_i = 1.1 x 10^{-2} for CO_2

T_e = Total time, in hours, each specific pipeline/service line type was operational in the calendar year.

The volumetric GHG emissions calculated using Equation W-32A will need to be converted to mass emissions using Equation W-36 as indicated in Section 4.1.1.

The volumetric GHG emissions calculated using Equation W-30B will need to be converted to mass emissions using Equation W-36. Equation W-36, defined below, converts CH_4 or CO_2 emissions into CO_2e emissions in the required reporting units of metric tons per year.

$$Mass_i = E_{s,i} * \rho_i * 10^{-3}$$ (Eq. W-36)

$Mass_i$ = GHG_i (either CH_4 or CO_2) mass emissions in metric tons of CO_2e.

$E_{s,i}$ = GHG_i (either CH_4 or CO_2) volumetric emissions at standard conditions, in cubic feet (as calculated via Eq. W-30B)

ρ_i = Density of GHG:
CO_2 = 0.0526 kg/ft^3 at 60°F and 14.7 psia
CH_4 = 0.0192 kg/ft^3 at 60°F and 14.7 psia

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Steven Singh; Mark D. Case

Item No.: OPCDR13-19

Customers Experiencing Multiple Interruptions (CEMI4-3P)

Is providing reliable electric service a core responsibility of BGE? Please explain.

RESPONSE:

Yes. Under Public Utilities Article §5-303, "A public service company shall furnish equipment, services, and facilities that are safe, adequate, just, reasonable, economical, and efficient, considering the conservation of natural resources and the quality of the environment."

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Steven Singh

Item No.: OPCDR13-21

Customers Experiencing Multiple Interruptions (CEMI4-3P)

Referring to BGE Response to Staff Data Request 54-15(b), does BGE's vegetation management budget include work related to customers classified as CEMI4-3P? If yes, please provide the number of CEMI4-3P customers assumed in the MYP 2 vegetation management budget. If no, please explain why not.

RESPONSE:

Yes, BGE's vegetation management budget includes work related to mitigating all vegetation related outages, which includes potential CEMI4-3P customers. Both cycle trimming and off cycle (hot spotting) trim help to mitigate vegetation outages. BGE does not estimate vegetation management work down to the CEMI4-3P level because there is no budget set aside specifically for CEMI4-3P customers. Cycle trimming is required by RM43 so it would not make sense to split out the cost specifically for CEMI4-3P customers. Off cycle trim is not specifically for CEMI4-3P customers, it is for areas where we are seeing off cycle growth issues and mitigation is needed.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Mark D. Case; Dawn C. White

Item No.: OPCDR13-24

Zero Emissions Vacuum (ZEVAC)

Please explain why the Company did not propose to include the ZEVAC Performance Metric as a program within its proposed GHG Emissions Reduction Performance Metric.

RESPONSE:

The Company does not forecast the number of metric tons of CO_{2e} GHG emissions expected to be released by jobs with a purging operation. The Company developed the ZEVAC performance metric to instead be based strictly on the operational aspect of job completions.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Dawn C. White

Item No.: OPCDR13-26

Zero Emissions Vacuum (ZEVAC)

Refer to Company Exhibit MDC-2, page 1, which states BGE currently has two ZEVAC machines.

a. Please explain what barriers are in place to BGE utilizing ZEVAC machines on all applicable jobs.
b. What are the current barriers in place to BGE using its ZEVAC machine on main abandonment jobs more frequently?
c. Does the Company already have an incentive to utilize this existing ZEVAC machine as much as possible?
d. Does the Company have a financial disincentive to use a ZEVAC machine on applicable jobs?
e. Is the Company committed to reducing GHGs through the use of its ZEVAC machine?
f. Please describe the impetus behind the Company's decision to purchase two ZEVAC machines.

RESPONSE:

a. Please see the Company's response to StaffDR10-20.

b. Please see the Company's response to StaffDR10-20.

c. The Company has no current financial incentive to use the ZEVAC machine as much as possible.

d. In general, use of the ZEVAC machine results in a more complex work procedure for main abandonments along with a longer purging operation, additional safety set up considerations, increased transportation, and more coordination between personnel working the job.

e. The Company's planned commitment to reducing greenhouse gas emissions is multi-faceted, with use of the ZEVAC machines on gas main abandonment jobs being one facet of the overall plan.

f. The Company purchased two ZEVAC machines recognizing that the use of multiple ZEVAC machines on certain larger gas main abandonment jobs has the potential to increase efficiency as compared to using a single ZEVAC machine.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Dawn C. White

Item No.: OPCDR13-29

Zero Emissions Vacuum (ZEVAC)

Refer to the statement on page 34 of Company Exhibit MDC-2, that "the transport and operation of the ZEVAC machines generally increase the cost of carrying out a main abandonment job. Due to these higher costs and increased scheduling complexity, ZEVAC operations are not yet a routine part of main abandonment jobs."

a. Was BGE aware of the increased cost at the time it purchased the two ZEVAC units?
b. Are the costs associated with performing the proposed number of ZEVAC jobs set included in the O&M costs contained in the MYP 2 application?
c. Please provide the average cost of a main abandonment job without the use of ZEVAC machines for each of the previous five years.
d. Please provide the average cost of a main abandonment job with the use of ZEVAC machines for each of the previous five years. If that data is not available, please provide the cost for the most recent main abandonment jobs with the use of ZEVAC machines.

RESPONSE:

BGE was aware of the potential for increased costs with respect to utilizing ZEVAC units in purging operations as a result of longer purge time, increased complexity in operations, increased coordination requirements, and safety set up requirements. The expected incremental costs related to ZEVAC operations, as discussed in Company Witness White's Direct Testimony on page 51, lines 4 through 8, are assumed in the appropriate capital projects filed in the MYP 2 application. (Note ZEVAC will be used on capital jobs, not O&M.) BGE has not tracked the average costs of main abandonment jobs with or without ZEVAC. Additionally, BGE does not track main abandonment costs separately from the entire scope of a job.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR13-39

Transportation Electrification

Refer to page 35, lines 3-4 of the Direct Testimony of Mark D. Case, which states "the Fleet Electrification program supports the State of Maryland's policy targeting the achievement of net-zero GHG emissions by 2045."

a. Please provide the total annual CO2e GHG emissions from BGE's electric operations for each of the previous five years.
b. Please provide the total annual CO2e GHG emissions from BGE's current commercial fleet of vehicles.

RESPONSE:

a. BGE's annual operations-driven GHG emissions related to electric distribution operations for the past five years are shown in the table below. Operations-driven emissions include 100% of our Scope 1 GHG emissions and the portion of Scope 2 GHG emissions associated with building energy use.

b.

Electric Distribution Operations-Driven GHG Emissions				
2018	2019	2020	2021	2022
(Metric tons CO_2e)				
32,024	30,238	29,819	31,909	32,967

The GHG emission values included in the table above represents total common amounts, meaning they also relate to BGE's gas distribution and electric transmission operations. There are no direct electric distribution emissions. Direct gas and direct electric transmission operations emissions are excluded.

c. BGE's annual GHG emissions related to its entire commercial fleet for the past five years are shown in the table below. Please note that these emissions are included in the table provided in subpart a) above.

Fleet GHG Emissions				
2018	2019	2020	2021	2022
(Metric tons CO_2e)				
15,743	15,376	16,085	17,271	17,673

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR13-40

General

Refer to Figure 1 on page viii of Company Exhibit MDC-2. Does the BCA for the proposed programs include the costs associated with the financial reward for the proposed PIM? If not, please provide an updated BCA in Microsoft Excel with formulae intact that accounts for the cost of the maximum annual basis points reward for each performance metric according to Table 2 on page 19 of the Direct Testimony of Mark D. Case.

RESPONSE:

The Company did not include annual rewards or penalties in its benefit cost analysis (BCA). It would be inappropriate to do so as the reward or penalty is uncertain and completely dependent on the outcome of the program. The purpose of the BCA is to assist in the decision to move forward with the program or not. Rewarding or penalizing performance is a separate decision outside the scope of the BCA. Furthermore, the reward or penalty for the proposed PIM would be a transfer payment between BGE and customers and does not belong in the scope of the societal cost test that was relied upon for the BCA. Therefore, the Company did not prepare the requested analysis.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 13
Request Received: April 21, 2023
Response Date: May 05, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR13-41

General

Regarding the Company's proposed GHG Emissions Reduction Performance Metric, did the Company analyze the cost per ton of CO_{2e} reduction of the proposed programs to determine which programs to select for this metric? Please explain whether the Company examined the relative cost-effectiveness (cost per ton of CO_{2e} reduction) of its programs when determining its GHG PIM. If yes, please provide a copy of this analysis in Microsoft Excel with all formulae intact and explain how it was used to inform the PIM.

RESPONSE:

The Company selected the Rooftop Solar, Fleet Electrification, and Tree Planting programs to accelerate its plans for these important programs. BGE did not specifically analyze the cost per ton of CO_{2e} reduction of the proposed programs to determine which programs to select for this metric.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 15
Request Received: April 25, 2023
Response Date: May 09, 2023
Sponsor(s): Mark D. Case; Mark Warner

Item No.: OPCDR15-02

Electric Vehicle Benefit Cost Analysis

Refer to the description of the Charger Rebate and Home Charging Incentive (Offering 2) on page 9 of the Direct Testimony of Mark Warner.

A. Please confirm there is no overlap within the benefit-cost analysis (BCA) between participants in EV-Time-of-Use and Home Charging Incentive (Offering 1) and the Charger Rebate and Home Charging Incentive (Offering 2). If not confirmed, please explain.
B. What percentage of customers that receive a Charger Rebate continue participating in the Home Charing Incentive offering one year after initial enrollment?
C. What percentage of customers that receive a Charger Rebate enroll in the EV-Time-of-Use offering?

RESPONSE:

A. There is no overlap between EV-Time-of-Use and Home Charging Incentive (Offering 1) and the Charger Rebate and Home Charging Incentive (Offering 2).

B. All participants remained enrolled but not all participants provided consistent data and/or charged 90% of the time off-peak.

C. The percentage of customers that received the $300 rebate and have enrolled in EV TOU is 52%.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 16
Request Received: April 25, 2023
Response Date: May 09, 2023
Sponsor(s): Mark Warner

Item No.: OPCDR16-02

[redacted]

[redacted]

[redacted] [redacted]

[redacted]

[redacted]

[2] While the referenced workpaper was marked by BGE as CONFIDENTIAL, BGE does not consider any of the specific information provided in this data request or its response thereto to be Confidential.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 17
Request Received: April 27, 2023
Response Date: May 11, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR17-01

Refer to the following statement on page 23 of Witness Case's Testimony:
BGE is committed to minimizing GHG emissions, which supports the State of Maryland's policy that targets the achievement of net-zero GHG emissions by 2045. With this filing, BGE is proposing a performance metric designed to accelerate GHG emissions reductions under three specific programs: Tree Planting, Fleet Electrification, and Rooftop Solar on Company facilities."

A. Has BGE done an analysis identifying all possible GHG emission reduction projects, and their associated cost per MTCO2e reduced? If so, please provide this analysis, with live formulas if in Excel.
B. How did BGE screen potential GHG emission reduction projects (including but not limited to those projects proposed under the GHG emission reduction performance metric)?
    i. If BGE screened potential projects, what criteria did BGE use? In your answer, please provide the definition of the criteria, the quantitative thresholds, and the calculation methodology used to calculate these thresholds.

RESPONSE:

A. No.

B. BGE targeted the activities that were thought to be most relevant to BGE and Maryland's goals around planting trees, vehicle electrification, clean energy generation and GHG reduction goals.

    i. See the Company's response to subpart B, above. BGE did not establish quantitative thresholds as part of these efforts.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 17
Request Received: April 27, 2023
Response Date: May 11, 2023
Sponsor(s): Dawn C. White

Item No.: OPCDR17-13

Refer to the following statement on page 49 of witness White's testimony:
"Each time BGE uses ZEVAC instead of purging operations, we are preventing the release of methane, a known GHG, into the atmosphere. By increasing the use of ZEVAC into our operations, BGE can help do its part in reducing GHGs through innovative technology."

A. What was BGE's rationale for investing in ZEVAC? Please provide the workpapers, spreadsheets and memos supporting this investment.
B. What is the rationale for developing a performance metric using the percentage of applicable jobs where ZEVAC was used to total number of applicable jobs, instead of GHG emission reductions achieved?

RESPONSE:

A. ZEVAC units were initially identified as a potential candidate for lowering GHGs during certain main abandonments based on industry conversations. BGE reached out to the vendor for a demo and engaged with other utilities utilizing the technology to gain further insight before deciding to move forward with purchasing the units. Following investigation into the viability of the units, BGE purchased two ZEVAC units as part of its overall strategy of lowering greenhouse gas (GHG) emissions. Please refer to OPCDR17-13-*Attachment 1* and OPCDR17-13-*Attachment 2*.

B. Please refer to the Company's response to OPCDR13-24.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 24
Request Received: May 12, 2023
Response Date: May 26, 2023
Sponsor(s): John C. Frain

Item No.: OPCDR24-10

Refer to BGE's response to OPC DR 13-34(c).

A. Please explain why ratepayers should pay for a portfolio of transportation electrification projects that may ultimately not be approved by the Commission?
B. In a scenario where the Commission determines there should be changes to BGE's proposed EV programs as stated in this response, how long will customers have to wait to have those costs reconciled?

RESPONSE:

A. Please see the response to OPCDR13-36. The Company is not requesting pre-approval of the transportation electrification projects. Actual spending on the projects will be subject to prudency review through the MYP reconciliation process. Additionally, BGE filed its EVsmart 2.0 program in Case No. 9478 on May 24, 2023, which will allow the Commission to consider the transportation electrification programs in Case No. 9478 while Case No. 9692 is still pending.

B. In the event that the Commission approves changes to BGE's proposed EV programs, any differences will be reflected in the MYP Annual Informational Filings in the applicable year and passed back to customers through the MYP Adjustment Riders in accordance with the process set forth by the Commission.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 24
Request Received: May 12, 2023
Response Date: May 26, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR24-11

Refer to BGE's response to OPC DR 13-36. Please confirm that the Company is seeking approval of rates that include the transportation electrification budget. If not confirmed, please explain.

RESPONSE:

The Company is seeking approval of base rates that include the proposed transportation electrification program budget.

Case No. 9692
Baltimore Gas and Electric Co.
Response to OPC Data Request 24
Request Received: May 12, 2023
Response Date: May 26, 2023
Sponsor(s): Mark D. Case

Item No.: OPCDR24-13

Refer to BGE's response to OPC DR 13-37. Please explain why BGE is not waiting to recover costs in a future rate case after an application is approved through Case No. 9478 as was done for its Phase I EV pilots.

RESPONSE:

See the responses to OPCDR13-34, subparts (b) and (c). The Company's current EV programs were approved in 2019[1], prior to the Commission's approval of the use of multi-year rate plans in Maryland in Case No. 9618. The approved recovery mechanism for EV programs is base rates, which are now set via a multi-year rate plan for BGE. Multi-year rate plans are intended to deliver awareness and transparency into the Company's workplans for the multi-year period as well as rate certainty for customers. Without inclusion of the proposed 2024-2026 EV programs in the Company's 2024-2026 MYP filing, those benefits with regard to the proposed EV programs would not be realized. If the Commission determines in Case No. 9478 that there should be changes to BGE's proposed EV programs which impacts the budgets included in the 2024-2026 MYP, those changes would be captured through the MYP's reconciliation mechanism and any approved adjustments would be recovered or passed back to customers through the MYP Adjustment Rider. However, if no EV program budget had been included by the Company in the proposed 2024-2026 MYP base rates, all of the 2024-2026 MYP EV program costs would necessarily need to be recovered through future MYP reconciliations, increasing the overall amounts to be reconciled.

[1] Order No. 88997 issued January 14, 2019