

**BEFORE THE
MARYLAND PUBLIC SERVICE COMMISSION**

IN THE MATTER OF DELMARVA
POWER & LIGHT COMPANY'S
APPLICATION FOR AN ELECTRIC
MULTI-YEAR PLAN

*

*

Case No. 9681

*

*

* * * * *



DIRECT TESTIMONY

OF

COURTNEY LANE

ON BEHALF OF THE OFFICE OF PEOPLE'S COUNSEL

August 19, 2022

TABLE OF CONTENTS

INTRODUCTION 1

I. Summary and Recommendations 4

II. Overview of MD EV-BCA Framework..... 6

III. Flaws in Delmarva’s EV Program BCA 10

 A. Summary of Analysis..... 10

 B. Residential Charger Rebates Should Not be Ignored 14

 C. Benefits Should Not be Overstated..... 19

IV. Conclusion 22

APPENDIX A - Resume of Courtney Lane

ATTACHMENTS – Data Requests and Responses Referenced in Testimony

1
2
3
4

**DIRECT TESTIMONY OF
COURTNEY LANE**

INTRODUCTION

5 **Q. Please state your name and business address.**

6 A. My name is Courtney Lane. I am a Senior Associate at Synapse Energy
7 Economics, Inc. (Synapse) located at 485 Massachusetts Avenue, Suite 3,
8 Cambridge, MA 02139.

9 **Q. Please describe Synapse Energy Economics, Inc.**

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

22 **Q. Please summarize your professional and educational experience.**

23 A. I have over 17 years of experience in energy policy and regulation. At Synapse, I
24 work on issues related to the assessment of cost-effectiveness tests and conduct

1 rate and bill impacts assessments for distributed energy resources. I also
2 contributed to the development of the *National Standard Practice Manual for*
3 *Benefit-Cost Analysis of Distributed Energy Resources* (NSPM for DERs).¹ Prior
4 to working at Synapse, I was employed by National Grid. At National Grid, I
5 oversaw the benefit-cost models for the company's Rhode Island energy efficiency
6 programs and was a core contributor to the development of the Rhode Island
7 Benefit Cost Test (RI Test). During my employment at National Grid, I also
8 served as the Growth Management Lead for New England, where I oversaw the
9 development of customer products, services, and business models for
10 Massachusetts and Rhode Island, which included electric vehicle programs. Prior
11 to joining National Grid, I worked on regulatory and state policy issues pertaining
12 to energy conservation, retail competition, net metering, and the Alternative
13 Energy Portfolio Standard for Citizens for Pennsylvania's Future (PennFuture).
14 Prior to that, I worked for Northeast Energy Efficiency Partnerships, Inc. where I
15 promoted energy efficiency throughout the Northeast.

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

¹ National Energy Screening Project (NESP), *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources* (NSPM for DERs), Aug. 2020. Available at: https://www.nationalenergyscreeningproject.org/wp-content/uploads/2020/08/NSPM-DErs_08-04-2020_Final.pdf.

1 **Q. Have you previously appeared before the Maryland Public Service**
2 **Commission (Commission)?**

3 A. Yes. I previously testified on behalf of the Office of People's Counsel (OPC) on
4 matters related to the benefit-cost analysis (BCA) of utility electric vehicle (EV)
5 programs in Case No. 9645, Baltimore Gas and Electric Company's Application
6 for an Electric and Gas Multi-Year Plan, and in Case No. 9655, Potomac Electric
7 Power Company's Application for an Electric Multi-Year Plan.

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

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

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

16 A. I am presenting testimony on behalf of OPC.

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

18 A. The purpose of my testimony is to respond to the BCA conducted by witness Mark
19 Warner on behalf of Delmarva Power & Light Company ("Delmarva") regarding
20 its suite of EV programs and whether it adheres to the EV-BCA Framework
21 developed by the PC44 Electric Vehicle Work Group ("EV Work Group"), as
22 included in the Electric Vehicle Benefit/Cost Analysis Methodology by the

1 Maryland Joint-Utilities (“EV-BCA Whitepaper”) and approved by the
2 Commission.²

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

4 A. The sources for my testimony are Delmarva’s Application and responses to
5 discovery requests, public documents, and my personal knowledge and
6 experience.

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

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

10 **I. Summary and Recommendations**

11 **Q. Please summarize your primary conclusions regarding Delmarva witness**
12 **Mark Warner’s BCA.**

13 A. My primary conclusion is that the EV-BCA Framework is not accurately applied
14 to the combined Charger and Off-Peak/Off-Bill (OPOB) offering as it does not
15 account for the unique program design of the Residential Charger Rebate. This
16 program provides rebates to customers to offset the purchase and installation costs
17 of a Level 2 smart charger but does not make this rebate contingent on enrollment
18 in the OPOB offering or time-of-use rate. Due to the fact a customer can receive a
19 charger rebate without having to modify their charging behavior, the Residential

² Case No. 9478, Electric Vehicle Benefit/Cost Analysis Methodology by the Maryland Joint-Utilities (EV-BCA Whitepaper), prepared by Mark Warner, Gabel Associates Inc., in support of the EV-BCA Work Group, ML No. 238013, December 1, 2021 (approved by the Commission via letter order, ML No. 238539, January 13, 2022).

1 Charger Rebate program does not create any benefits from off-peak charging. In
2 fact, it creates costs without any benefits to the utility system. Mr. Warner does
3 not capture the effect of this program design in his BCA and therefore inflates the
4 cost-effectiveness of this offering.

5 I also find that the resulting benefit-cost ratio of the Charger and OPOB offering is
6 likely inflated due to the unfounded assumption that 100 percent of the customers
7 enrolled in this program will continue off-peak charging behavior after the
8 program ends. There are currently no data or studies to support this finding.

9 **Q. Please summarize your recommendations.**

10 A. My primary recommendations include the following:

- 11 • Delmarva's Residential Charger Rebate offering should be modified to ensure
12 that off-peak charging benefits associated with rebates for Level 2 smart
13 chargers are realized. This modification should include a requirement that
14 customers are only eligible to receive a Level 2 smart charger rebate if they
15 enroll in the OPOB program or other time-of-use charging rate for a specific
16 amount of time.
- 17 • Benefits that depend on the existence of a program should not be counted in a
18 BCA after the program ends unless there is sufficient evidence to support that
19 treatment. For this reason, I recommend the BCA for the OPOB program be

1 revised to include a range of assumptions regarding the persistence of off-peak
2 charging behavior after the program's expiration.

- 3 • The Commission should provide guidance on the application of the MD EV-
4 BCA Framework indicating that it should be applied in a manner that accounts
5 for differences in program design. While the offer-class examples and
6 baselines included in the EV-BCA Whitepaper should be used as guidance and
7 serve as examples, the framework should be applied in a manner that accounts
8 for nuances in program design. It is the design of the program and the way the
9 utility incentives are deployed that should help inform the baseline and the
10 application of the Maryland EV Jurisdiction-Specific Test (MD EV-JST).

11 **II. Overview of MD EV-BCA Framework**

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

14 A. The Commission tasked the EV Work Group with developing a consensus BCA
15 proposal for Commission consideration by December 1, 2021, taking into account
16 the NSPM for DERs and the existing BCA framework used to review the
17 EmPOWER Maryland programs.³

18 The EV Work Group met 11 times during 2021 to review the NSPM for DERs,
19 Maryland's policy goals, EV-BCAs used in other jurisdictions, and current BCA

³ Order No. 89678, Case No. 9645. ML No. 232998, pgs. 113-114.

1 practices in Maryland.⁴ Based on these discussions, Mr. Warner, consultant for the
2 Maryland Joint Utilities,⁵ developed a whitepaper detailing a jurisdiction-specific
3 EV-BCA. The EV Work Group members reviewed and provided comments on
4 several iterations of the whitepaper, resulting in a final consensus version.

5 **Q. Did you participate in the EV Work Group?**

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

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

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

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

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

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

⁴ Case No. 9478, *Summary Report on a Statewide Electric Vehicle Benefit Cost Analysis Methodology*, Prepared for the Commission by PC44 Electric Vehicle Work Group, ML No. 238013, December 1, 2021 at 2-3.

⁵ The Maryland Joint Utilities includes Baltimore Gas and Electric Company (BGE), Potomac Electric Power Company (PEPCO), Delmarva Power & Light Company (DPL), Potomac Edison (PE), and Southern Maryland Electric Cooperative (SMECO).

1 non-utility system impacts related to Maryland's policy goals, including
2 host customer impacts and societal impacts.

3 2. **Market-Wide Test (MWT):** Assesses the impact of all EVs to society as a
4 whole. This test uses the same methodology as the MD EV-JST but seeks
5 to measure whether society is better off due to widespread transportation
6 electrification, not just electrification directly induced by utility EV
7 programs.

8 3. **Aggregate Non-Participating-Ratepayer Impact (ANRI) - All:**
9 Quantifies the positive and negative impacts of utility EV programs to
10 determine the net increase or decrease in costs to non-participating
11 ratepayers. The ANRI-All case includes impacts that can be monetized on a
12 utility bill (utility system impacts) and externalities that are currently not
13 embedded in rates such as avoided environmental harm and improved
14 public health.

15 4. **ANRI – Bills Only:** Uses the same methodology as ANRI-ALL but only
16 includes impacts that can be monetized on a utility bill.

17 The framework also includes a list of impact factors within the categories of
18 Utility (and Power Sector), Participant (Host Customer), and Societal.

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

21 **A.** Yes. The whitepaper included a summary table for how the MD EV-JST could be
22 applied to different utility EV programs, as shown in Figure 1 below.

1

Figure 1. 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	Market-Wide Test
Computation Scope:	Induced Charging Behavior	Induced Adoption	Induced Adoption	All EVs On The Road
Baseline:	EV Owner, Nat-Chrging	No EV Adoption	Pull-Through Adoption	Depends on Scenario
Utility (and Power Sector) Impacts				
Utility Program Administration Costs	Cost	Cost	Cost	Cost
Utility Program Implementation Costs	Cost	Cost	Cost	Cost
Impacts On Capacity Costs	Benefit	Cost	Cost	Cost or Benefit
Impacts On Transmission Costs	Benefit	Cost	Cost	Cost or Benefit
Wholesale Energy Cost Impacts	Benefit	Cost or Benefit	Cost or Benefit	Cost or Benefit
Increased Electricity (KWhr) Costs (for EV charging)	N/A	Cost	Cost	Cost
Impacts on Grid Reinforcement	Benefit	Cost	Cost	Cost
Utility-Owned EV Chargers - Costs	N/A	N/A	Cost	Cost
Utility-Owned EV Chargers - Usage \$ From EV Drivers	N/A	N/A	Transfer	Transfer
Increased RPS Compliance Costs	N/A	Cost	Cost	Cost
T&D Losses	Benefit	Cost	Cost	Cost
Utility Equipment Incentives	Transfer	Transfer	Transfer	Transfer
Utility Rate Incentives	Transfer	Transfer	Transfer	Transfer
Increased Utility Revenues	Transfer	Transfer	Transfer	Transfer
Participant Impacts (from EV Driver Perspective)				
Incremental EV Purchase Costs	N/A	Cost	Cost	Cost
EV Charger Costs (equipment and installation)	N/A	Cost	Cost	Cost
Avoided Vehicle Fuel Costs	N/A	Benefit	Benefit	Benefit
Savings From Decreased Vehicle Maintenance	N/A	Benefit	Benefit	Benefit
Federal Tax Incentive (EV purchase)	N/A	Benefit	Benefit	Benefit
Societal Costs or Benefits (from Society's Perspective)				
Value Of Reduced GHG Emissions	N/A	Benefit	Benefit	Benefit
Public Health Value Of Reduced/Shifted Emissions	N/A	Benefit	Benefit	Benefit

2
3

Source: EV-BCA Whitepaper, Figure 5.3-1: Mapping of “Impact Factors” To Societal-Scale Tests.

4 **Q. What was the purpose of the Impact-Factor Mapping?**

5 A. The Impact-Factor mapping was intended illustrate how the MD EV-JST
6 methodology can be applied to any EV program offered by a Maryland utility,
7 referred to here as “offer-classes”. It was important to highlight that the same cost-
8 effectiveness test can be applied to different offer-classes while demonstrating that
9 an impact may be a cost, benefit, or not applicable depending on the program
10 structure.

11 The offer-classes included in this table were based on the common set of programs
12 currently offered or being proposed by the Maryland Joint Utilities. As shown in

1 in Figure 1, this includes Residential Managed Charging programs, Multi-Family
2 Charging programs, and Utility Owned Public Chargers.

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

4 A. Not necessarily. The offer-classes were based on common Maryland Joint Utility
5 offerings but as indicated in the EV-BCA Whitepaper, “if new utility EV
6 programs are introduced that don’t map cleanly into one of these three offer-
7 classes, a customized mapping would need to be created for that new class. In this
8 way, this proposed methodology can be adapted to an evolving portfolio of
9 programs over time.”⁶

10 **III. Flaws in Delmarva’s EV Program BCA**

11 **A. Summary of Analysis**

12 **Q. What programs did Mr. Warner assess?**

13 A. Mr. Warner applied the MD EV-BCA Framework to Delmarva’s Whole-House
14 Time-Of-Use (TOU), Charger and Off-Peak/Off-Bill (OPOB), Public Level 2 (L2)
15 Charger, and Public Direct-Current Fast Chargers (DCFC) programs.

16 **Q. What were the results of the assessment?**

17 A. I summarize the results of Mr. Warner’s assessments in Table 1 below.

⁶ EV-BCA Whitepaper, at 18.

Table 1. Summary of Delmarva Power EV-Program Assessments

	MD EV- JST	Market- Wide	ANRI (Bill Only)	ANRI (All)
Whole House TOU	1.14		-\$4,864	-\$4,864
Charger & OPOB	4.42		-\$18,904	-\$18,904
Public L2	1.03		\$5,844,147	-\$1,997,750
Public DCFC	1.18		\$774,416	-\$2,122,339
Portfolio	1.09		\$6,606,115	-\$6,445,375
Market-Wide JST (100% Natural)		1.19		
Market-Wide JST (100% Managed)		1.34		
Market-Wide JST (Current Programs)		1.19		

Source: Direct Testimony of Delmarva Power witness Mark Warner (Corrected Copy of July 19, 2022) at page 20: lines 9-10 (Figure 4).

Q. Does Mr. Warner’s cost-effectiveness assessment adhere to the MD EV-BCA 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 Delmarva’s Residential Charger Rebate program and the Off-Peak/Off-Bill (OPOB) offering, which he combines into the “Charger & OPOB” offering.

Q. Please describe the Residential Charger Rebate offering.

A. The Residential Charger Rebate offering provides customers with a \$300 incentive to help offset the costs associated with the purchase and installation of an eligible Level 2 smart charger. According to Mr. Warner, the full cost of the Level 2 smart charger can range from \$500 to \$900, and installation costs depend on site conditions.⁷

Q. Please describe the OPOB offering.

⁷ Delmarva Response to OPC DR 4-10(a).

1 A. The OPOB offering provides customers with a rebate in the form of an e-card each
2 quarter for charging their EV during off-peak hours. Delmarva calculates the
3 rebate by subtracting any on-peak charging (kWh) from total off-peak charging
4 (kWh) at 3 cents per kWh.⁸ To be eligible to participate in the OPOB offering,
5 customers are required to have purchased and installed an eligible Level 2 smart
6 charger as defined by Delmarva.⁹

7 **Q. Is participation in the OPOB offering a requirement of receiving a Level 2**
8 **smart charger rebate?**

9 No. A customer does not have to participate or commit to participating in the
10 OPOB offering to be eligible for the \$300 rebate.¹⁰ For this reason, I consider the
11 Residential Charger Rebate to be an offering distinct from the OPOB.

12 **Q. Please summarize how Mr. Warner assessed the cost-effectiveness of these**
13 **two offerings.**

14 A. Mr. Warner combines these offerings for his cost-effectiveness assessment. Mr.
15 Warner indicates that the combined Charger & OPOB offering is considered a
16 “charging behavior modification program” and aligns with the MD EV-JST
17 Impact Factor Mapping as represented generically in the EV-BCA Whitepaper as
18 “UO -1: Residential Managed Charging” (UO-1 Offer Class).¹¹

⁸ Delmarva, Residential Charger Rebate,
<https://www.delmarva.com/SmartEnergy/InnovationTechnology/Pages/ResidentialChargerRebate.aspx#:~:text=Off%2DPeak%20Off%2DBill%20Program,other%20hours%20are%20off%2Dpeak> (last visited August 9, 2022).

⁹ Delmarva Response to OPC DR 4-10(b).

¹⁰ Delmarva Response to OPC DR 4-10(b).

¹¹ Delmarva Response to OPC DR 4-11(a).

1 Due to its classification as a UO-1 Offer Class, Mr. Warner only accounts for
2 Impact-Factors mapped to this class, as shown in Figure 1 earlier in my testimony.
3 He excludes participant impacts, societal impacts, or utility impacts related to
4 increased electricity, utility-owned chargers, renewable portfolio standard
5 compliance, or utility incentives and revenues. Mr. Warner calculates the net-
6 present value (NPV) of the costs and benefits from this offering, accounting for
7 these relevant impact factors.

8 While the OPOB program is currently approved to run from 2021 through 2024,
9 the NPV is taken over the years 2019 to 2035 to standardize Mr. Warner's overall
10 BCA workbook to assess multiple program offerings in a consistent way.¹²

11 ****BEGIN CONFIDENTIAL**** [REDACTED]

12 [REDACTED]

13 [REDACTED] ****END**

14 **CONFIDENTIAL.**¹³

15 **Q. What are your concerns with this approach?**

16 A. I have identified two key issues with Mr. Warner's analysis. The first relates to the
17 application of the EV-BCA Whitepaper offer-class mapping in a manner that does
18 not reflect the actual design of Delmarva's program, which leads to the exclusion
19 of Level 2 smart charger costs in the BCA. The second issue pertains to the

¹² Delmarva Response to OPC DR 4-3.

¹³ ****BEGIN CONFIDENTIAL**** [REDACTED]

****END CONFIDENTIAL****

1 inclusion of off-peak charging benefits after the expiration of the program, without
2 continuation of a utility program or associated administrative costs. I will address
3 these issues in more detail in the next sections of my testimony.

4 **B. Residential Charger Rebates Should Not be Ignored**

5 **Q. What is Mr. Warner's rationale for mapping a combined Charger & OPOB**
6 **offering to the UO-1 Offer Class?**

7 A. Mr. Warner explains this choice was based on the fact the EV-BCA Framework
8 does not contemplate a charger-only offering and because the EV-BCA Work
9 Group defined the UO-1 Offer Class as a combination of smart charger and an
10 economic incentive to encourage off-peak charging. He further indicates that the
11 BCA was conducted relative to a baseline where a customer has a smart charger
12 but does not take advantage of an off-peak incentive.¹⁴

13 **Q. Do you agree with this rationale?**

14 A. No, I do not. The design of Delmarva's Residential Charger Rebate program
15 creates a baseline that does not map to the UO-1 Offer Class as defined in the EV-
16 BCA Whitepaper. As indicated above, the offer-classes were not meant to be the
17 only definitive options for applying the MD EV-JST to utility EV programs. If
18 programs do not map cleanly, the methodology can be adapted.¹⁵

19 The UO-1 Offer Class, as defined in the EV-BCA Whitepaper, assumes the
20 customer already has a charger installed but is not charging off peak. This offer

¹⁴ Delmarva Response to OPC DR 13-1(a).

¹⁵ EV-BCA Whitepaper at 18.

1 class does not consider the cost of the Level 2 charger because it is isolating for
2 the effect of just the change in charging behavior from on peak to off peak. It does
3 not consider how the customer paid for the charger or if there was a utility
4 incentive for that charger. However, in reality, Delmarva has a Residential
5 Charger Rebate program where participation is not contingent on enrollment in the
6 OPOB offering. Based on this program design, the purpose of the charger rebate is
7 to incentivize the adoption of charging equipment. This results in a baseline where
8 the customer doesn't have charging equipment. Therefore, a BCA should be
9 conducted separately for just the Residential Charger Rebate program that is
10 relative to a baseline where a customer doesn't have a Level 2 smart charger. In
11 this case the costs of that charging equipment should be included.

12 **Q. What is your recommendation for conducting a BCA of the Residential**
13 **Charger Rebate and the OPOB?**

14 A. My recommendation is depending on the structure of these two offerings.

- 15 • BCAs for current program design: Based on the fact the charger rebate is
16 not contingent on enrollment in the OPOB, two separate BCAs should be
17 conducted.

- 18 1. BCA for the Residential EV Charger Rebate. For this BCA,
19 the baseline would assume the customer does not have a
20 Level 2 smart charger because the purpose of the rebate is to
21 encourage the customer to purchase and install a Level 2

1 smart charger. The full cost of the charger would be included,
2 and there are not benefits.

3 2. BCA for the On Peak/Off Bill (OPOB) program. This BCA
4 would mirror what Mr. Warner filed. This assumes the
5 customer already has a charger and the resulting benefits are a
6 result of the financial incentive to the customer to encourage
7 switching from on to off peak charging.

- 8 • BCA for modified program design. If Delmarva modifies its program
9 design to make the Level 2 smart charger rebate contingent on enrollment
10 in the OPOB, then two separate BCAs should be conducted. Here the BCAs
11 would need to address two different scenarios, one where the customer
12 receives a charger rebate and then must enroll in the OPOB offering, and a
13 second where the customer already has an eligible charger and enrolls in
14 the OPOB offering.

15 1. BCA for OPOB where customers take the charger rebate.

16 This BCA would apply to customers that receive the Level 2
17 smart charger rebate and enroll in the OPOB program. The
18 baseline for this program is no Level 2 smart charger and on
19 peak charging. This program both directly incentivizes the
20 purchase and installation of the charger and switching to off
21 peak charging. Therefore, both the full cost of the charger and

1 the benefits associated with switching to off peak charging
2 would be included.

3 2. BCA for customers enrolling in OPOB and have an existing
4 eligible charger. This BCA applies to customers that did not
5 receive a rebate from Delmarva for the Level 2 smart charger.
6 These customers already have an existing eligible charger and
7 voluntarily enroll in the OPOB offering. This BCA would
8 mirror what Mr. Warner filed. This assumes the customer
9 already has a charger and the resulting benefits are a result of
10 the financial incentive to the customer to encourage switching
11 from on to off peak charging.

12
13 **Q. Did you calculate the costs associated with the Level 2 chargers?**

14 A. Yes. The EV-BCA Framework defines EV Charger Costs as “the full costs of
15 buying, installing, and operating (i.e., data and network charges, maintenance) EV
16 charging infrastructure. Any applicable utility charger incentives are not reflected
17 in this factor (since that is a transfer). This factor is a cost under the MD EV-JST
18 and MW tests.”¹⁶

19 Based on this definition, I calculated the average total cost of a residential charger
20 across the years 2021–2023, using the data on ****BEGIN CONFIDENTIAL**** [REDACTED]

¹⁶ EV-BCA Whitepaper at 15.

1 [REDACTED]

2 [REDACTED] **END

3 CONFIDENTIAL** and multiplied that average cost of **BEGIN

4 CONFIDENTIAL** [REDACTED] **END CONFIDENTIAL** by Delmarva's planned

5 **BEGIN CONFIDENTIAL** [REDACTED] **END

6 CONFIDENTIAL**¹⁷ This results in **BEGIN CONFIDENTIAL** [REDACTED]

7 **END CONFIDENTIAL** in costs that are unaccounted for in the BCA.

8 **Q. Is the Residential Charger Rebate offering cost-effective under the MD EV-**
9 **JST?**

10 A. Providing an incentive for a Level 2 smart charger without requiring off-peak
11 charging is likely not cost-effective. Without requiring the recipient of the rebate
12 to charge off peak or enroll in a time-of-use offering there would not be any
13 associated utility system benefits.

14 Furthermore, if you add the NPV of the charger costs to Mr. Warner's Charger &
15 OPOB BCA, this offering is no longer cost-effective. Mr. Warner calculates the
16 NPV of this offering to be **BEGIN CONFIDENTIAL** [REDACTED] **END

17 CONFIDENTIAL**¹⁸ The benefits from off-peak charging are much less than the
18 NPV of the costs associated with the **BEGIN CONFIDENTIAL** [REDACTED]

19 [REDACTED] **END CONFIDENTIAL**

¹⁷ **BEGIN CONFIDENTIAL** [REDACTED]
[REDACTED] **END CONFIDENTIAL**

¹⁸ *Id.*

1 Therefore, without including the benefits from off-peak charging, a stand-alone
2 rebate program would be even less cost-effective.

3 **Q. What is your recommendation regarding the BCA and Delmarva's**
4 **Residential Charger Rebate?**

5 A. When the specific design of Delmarva's Residential Charger Rebate is accounted
6 for in the MD EV-JST, it is clear that the offering is not cost-effective. Therefore,
7 I recommend that Delmarva revise its Residential Charger Rebate offering to
8 make receipt of a charger rebate contingent on a customer enrolling in the OPOB
9 offering or time-of-use rate for a set period of time. This will help to ensure that
10 benefits are created from this investment.

11 **C. Benefits Should Not be Overstated**

12 **Q. Please summarize your second concern with the Charger & OPOB BCA.**

13 A. The second issue I identified in this BCA pertains to the inclusion of benefits
14 associated with customers charging off peak instead of on peak after the expiration
15 of the program in 2024, which inflates the cost-effectiveness of this offering. Mr.
16 Warner assumes that 100 percent of the customers enrolled in the program will
17 continue to charge their vehicles off-peak without any utility intervention or
18 incentives.

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

20 A. There is no evidence to support the claim that customer charging behavior will
21 continue after the conclusion of the program. Mr. Warner indicates he is "not
22 aware of any current research regarding the extent to which customers will

1 continue charging at off-peak periods after an off-peak incentive program under
2 which they have been compensated terminates.”¹⁹ Support for this assumption is
3 based on his opinion that the customer will be trained on a preferred charging
4 behavior. Mr. Warner also indicates the customers that programmed either their
5 vehicle, charger, or both to align with the OPOB off- and on-peak periods would
6 have no incentive to actively change that existing programming and would
7 therefore continue charging off peak.²⁰

8 **Q. Are you aware of any research that supports this conclusion?**

9 A. I am not. The closest area of research I am aware of pertains to examining the
10 persistence of behavioral energy efficiency program savings from Home Energy
11 Reports (HERs). These programs typically involve providing customers with
12 HERs that contain personalized energy usage data, how it compares to similar
13 dwellings, and tips for how to save energy. Regulators have historically not
14 allowed utilities and program administrators to claim energy savings in years
15 when the program is not offered due to uncertainty over whether savings from
16 behavioral changes persist after the program ends.²¹ Recent evaluations seeking to
17 answer the question of HER savings persistence found there is a decrease in

¹⁹ Delmarva Response to OPC DR 4-2.

²⁰ Delmarva Response to OPC DR 4-2.

²¹ For example, Massachusetts and Rhode Island HER programs are only permitted a one-year measure life. For Massachusetts see 2022-2024 Three-Year Energy Efficiency Plan, Statewide Data Tables – Electric, Tab Savings, available at: <https://ma-eeac.org/wp-content/uploads/Addendum-Att.-4-Exh-1-App-C.1-Rev-4-1-22-Data-Tables-Electric.xlsx>. For Rhode Island see National Grid’s 2022 Annual Energy Efficiency Plan, Technical Reference Manual pages M1-M8, available at: <https://ripuc.ri.gov/eventsactions/docket/1%20PY2022%20RI%20TRM.pdf>.

1 behavioral energy savings after the program ends. These studies show energy
2 savings decay rates ranging from a low of 11 percent to a high of 83 percent each
3 year depending how long the program was in place.²²

4 **Q. What is the resulting BCA if the savings are only counted in the years that the**
5 **program is offered?**

6 A. While I am not able to recreate Mr. Warner's BCA, if the benefits of off-peak
7 charging are zeroed out after the conclusion of the program in 2023, the benefit-
8 cost ratio is reduced from 4.42 to 0.91.

9 **Q. What is your recommendation?**

10 A. Given the uncertainty around the persistence of savings after the end of this
11 program, I recommend the BCA be updated to include a sensitivity analysis
12 related to how many customers continue to charge off-peak. This is appropriate
13 because it is unlikely 100 percent of customers will continue existing charging
14 behavior. At a minimum the revised analysis should include a sensitivity where
15 customers only continue charging off peak while the program is in place and one
16 where a portion of customers (but less than 100 percent) continue off-peak
17 charging. The percent of customers that continue to charge off-peak could be
18 modeled after the decay rates of energy savings from energy efficiency behavioral
19 evaluations cited above in the absence of EV charging specific evaluations. This
20 revised analysis would show a range of potential benefit-cost ratios based on each

²² M. Sami Khawaja, Ph.D. and James Stewart, Ph.D., 2017, *Long-Run Savings and Cost-Effectiveness of Home Energy Report Programs*, The Cadmus Group LLC. Available at: <https://cadmusgroup.com/papers-reports/long-run-savings-cost-effectiveness-home-energy-report-programs/>.

1 sensitivity and will provide the Commission and stakeholders with valuable
2 information to help determine whether this program should be extended into the
3 future.

4 **IV. Conclusion**

5 **Q. Please summarize your conclusions.**

6 A. It is important that the MD EV-BCA Framework be applied in a manner that
7 accounts for differences in program design and does not overstate benefits. While
8 the offer-class examples and baselines included in the EV-BCA Whitepaper
9 should be used as guidance and serve as examples, the framework should be
10 applied in a manner that accounts for nuances in program design. It is the design
11 of the program and the way the utility incentives are deployed that should help
12 inform the baseline and the application of the MD EV-JST. If the MD EV-BCA
13 Framework is not applied in this manner, the results of the analysis will not
14 provide sufficient detail into whether programs are designed in a manner to create
15 the most cost-effective outcome.

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

17 A. Yes, it does.



Courtney Lane, Senior Associate

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

PROFESSIONAL EXPERIENCE

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

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 consensus 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.

Massachusetts Executive Office of Environmental Affairs, Boston, MA. *Field Projects Extern*, 2003.

- Worked for the Director of Water and Watersheds at the EOEA, examining the risks and benefits of different groundwater recharge techniques and policies throughout the U.S.
- Presented a final report to both Sea Change and the EOEA with findings and policy recommendations for the state.

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

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.

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.

TESTIMONY

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. 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.

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.

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 (EPPP) 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 (EPPP) 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 July 2022

**DELMARVA POWER & LIGHT COMPANY'S APPLICATIONS FOR AN
ELECTRIC MULTI-YEAR PLAN**

Case No. 9681

**Data Responses Referenced in the Direct Testimony of
Courtney Lane**

DPL Response to OPC DR 4-2

DPL Response to OPC DR 4-3

DPL Response to OPC DR 4-10

DPL Response to OPC DR 4-11

DPL Response to OPC DR 13-1

DPL Response to Voluntary DR 1-11 (**Confidential** – Omitted from Public Version)

DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9681
RESPONSE TO OPC DATA REQUEST NO. 4

QUESTION NO. 2

Refer to page 16, lines 5 through 9 of Witness Warner's Direct Testimony and provide citations and copies of all materials used to support the determination that customers will continue changed charging behavior after the incentive period.

RESPONSE:

Company Witness Warner is not aware of any current research regarding the extent to which customers will continue charging at off-peak periods after an off-peak incentive program under which they have been compensated terminates. However, it is a reasonable working assumption at this time because the off-peak incentive trains the customer on a preferred behavior during the incentive period, and off-peak charging is implemented by most customers through programming of either the vehicle, the charger, or both. Therefore, it is reasonable to assume that the off-peak charging behavior would continue because a) a customer would have to actively change their behavior, and there is no motivation for them to do so, b) if the off-peak scheduling is programmed into the vehicle or charger, that program would naturally remain in place even after the incentive program terminates.

SPONSOR: Mark K. Warner

DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9681
RESPONSE TO OPC DATA REQUEST NO. 4

QUESTION NO. 3

Referring to the discussion of service life on page 16, lines 3 through 5, of Witness Warner's Direct Testimony, please explain the discrepancy between that statement that the "benefit/cost calculations are performed over a multi-year period based on the length of the service life of the investment" and the fact the benefit/cost calculations cover a longer period than this in the electric vehicle (EV) BCA included in MD 9681 Voluntary DR 1-11 Attachment T.

RESPONSE:

MD 9681 Voluntary DR 1-11 Attachment T Confidential Electronic Only Revised does reflect calculations consistent with service life, as noted in the section of direct testimony quoted. However, it is important to note that the overall BCA framework was set up to cover the period from 2019 to 2035, providing a standardized framework for assessing multiple offers in a consistent way. This standard framework was broad enough to fully cover the relevant time-periods for each offer. Regardless of that standard framework, actual costs and impacts for each offer are mapped to the relevant year for each offer, and the Net-Present-Value (NPV) is based on when those costs and impacts are actually recognized. All NPVs are referenced back to 2019 for consistency. The fact that there may be zeros after a program ends doesn't impact the NPV outcome arithmetically. This standardized framework allowed for significant consistency in the model.

SPONSOR: Mark K. Warner

DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9681
RESPONSE TO OPC DATA REQUEST NO. 4

QUESTION NO. 10

Please refer to the description of the Charger and Off-Peak/Off-Bill (OPOB) pilot on page 8 of Witness Warner's Direct Testimony and answer the following:

- a. Does the \$300 rebate cover the full cost of a utility-approved smart charger? If no, what is the estimated cost to the participant after the rebate?
- b. To be eligible for the \$300 charger rebate, does the customer have to commit to participating in the off-peak charging incentive?

RESPONSE:

- a. No, the \$300 rebate does not cover the full cost of a utility-approved smart charger at this time. Smart Chargers range in cost from \$500 to \$900, and installation costs widely depending on site conditions. Total costs for residential chargers are shown on line 142, on the "Inputs – Econ & Emissions" tab of the main EV-BCA model, and are significantly in excess of the \$300 rebate.
- b. No, a customer does not have to commit to participating in the off-peak charging incentive to be eligible for the \$300 rebate. But any customer participating in the off-peak incentive must have installed a smart charger under the Company's \$300 rebate program. The BCA was structured using these assumptions.

SPONSOR: Mark K. Warner / William Sullivan

DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9681
RESPONSE TO OPC DATA REQUEST NO. 4

QUESTION NO. 11

Refer to the “JST – Charger + OPOB” tab in MD 9681 Voluntary DR 1-11 Attachment T and answer the following:

- a. Please explain why participant costs related to the EV Charger Costs (equipment and installation) are not included within this BCA.
- b. Does the exclusion of costs associated with the EV Charger (both the Utility Incentive and the Participant Impacts) align with the MD EV-JST? Please explain why or why not.
- c. Would the Benefit Cost Ratio be lower if participant costs related to the EV Charger were included? Please explain.

RESPONSE:

- a. The charger rebate combined with an off-peak/off-bill incentive is considered a charging behavior modification program, represented generically as “UO -1: Residential Managed Charging” in the EV-BCA Working Group Whitepaper. As noted in Figure 5.3 – 1 of the final report, Participant Costs for chargers are not included in the JST.
- b. Yes, see response to OPC DR 4-11 a.
- c. Yes, but that approach would be inconsistent with the EV-BCA methodology recommended by the EV-BCA working group and approved by the Commission.

SPONSOR: Mark K. Warner

DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9681
RESPONSE TO OPC DATA REQUEST NO. 13

QUESTION NO. 1

Referring to Delmarva Response to OPC DR 4-10, please answer the following:

- a. If a customer can receive a charger rebate, but does not have to opt-into the Off-Peak/Off-Bill (OPOB) offering, please explain why the charger rebate is not a standalone offering that should have its own benefit-cost assessment?
- b. Does Witness Warner assume that all rebated chargers participate in the OPOB offering? Please explain why or why not.
- c. Please confirm that the utility cost associated with the charger rebates is not included in the benefit-cost assessment for this combined offering.

RESPONSE:

- a. A BCA was not done for a stand-alone charger-only program for two reasons. First, the EV-BCA method approved by the Commission does not contemplate a charger-only offer structure. Instead, the EV-BCA working group defined a combination of a smart charger and an economic incentive to encourage off-peak charging. See the definition of the offer-class “Managed Residential Charging Programs (UO-1)” on page 18 of the EV-BCA Whitepaper (Attachment T of the voluntary disclosure). The EV-BCA provided in the testimony by Company Witness Warner is consistent with that program definition. Secondly, all the BCA calculations are done relative to a baseline, and in the case of the residential managed charging programs, that baseline is the “natural” charging behavior of customers that have a smart charger but which are not taking advantage of an off-peak incentive of any type. Attempting to do a BCA calculation for a stand-alone charger solution would therefore represent comparing the baseline to itself, which is not meaningful.
- b. No. Only customers that have both a charger rebate and participate in the OPOB are included in the EV-BCA calculation for the combined offer. The Commission approved the OPOB program for a subset of the charger rebate customers so that the charger-only customers would serve as the “control group” that provided data on baseline natural charging behavior.
- c. The utility charger-rebate cost is not included in the Primary-JST. See Figure 5.4 – 1 of the MD 9681 Voluntary DR No. 1-11 Attachment T.

SPONSOR: Mark Warner