

**DELAWARE PUBLIC SERVICE COMMISSION**

APPLICATION OF DELMARVA )  
POWER AND LIGHT ) PSC Docket No. 17-0985  
*In the matter of the Application for* )  
*Approval of Energy Efficiency Programs* )  
*for Electric Customers* )

Direct Testimony of

**Jeffrey Loiter**

On Behalf of the  
**Delaware Energy Efficiency Advisory Council**

November 3, 2017

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

2 A. My name is Jeffrey Loiter and my business address is Optimal Energy,  
3 Incorporated, 10600 Route 116, Hinesburg, Vermont, 05461.

4 **Q. On whose behalf are you testifying?**

5 A. I am testifying on behalf of the Delaware Energy Efficiency Advisory Council.

6 **Q. Mr. Loiter, by whom are you employed and in what capacity?**

7 A. I am a Partner in Optimal Energy, Inc., a consultancy specializing in energy  
8 efficiency and utility planning. In this capacity, I direct and perform analyses,  
9 author reports and presentations, manage staff, and interact with clients to serve  
10 their consulting needs. My clients include state energy offices and efficiency  
11 councils, utilities and third-party program administrators, and non-governmental  
12 organizations.

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

14 A. I have over 20 years of consulting experience in environmental policy, energy,  
15 and natural resource issues. For the past 11 years, I have been engaged in a  
16 variety of work at Optimal Energy related to energy efficiency program design  
17 and analysis. I have assisted with the design and development of statewide and  
18 utility-specific efficiency programs in Maine, Maryland, New York,  
19 Massachusetts, Rhode Island, Tennessee, and Delaware. I currently support  
20 program implementation and on-going program design and development for  
21 Orange and Rockland Utilities in New York, and the Connecticut Municipal  
22 Electric Energy Cooperative. I have submitted written testimony to and/or  
23 testified before public utility commissions in Arkansas, Kansas, Kentucky,

1 Maryland, Ohio, Virginia, and West Virginia on topics such as demand-side  
2 management, integrated resource planning, and efficiency as a resource in state  
3 energy plans. Since 2015, I have directed planning and analysis work for the  
4 Consultant Team advising the Delaware Energy Efficiency Advisory Council.

5 Prior to joining Optimal Energy in 2006, I was a Senior Associate at  
6 Industrial Economics, Inc. in Cambridge, Massachusetts, where I supported state,  
7 federal, and international governmental clients with analysis on topics of  
8 environmental policy and natural resources damages. I have a *B.S. with distinction*  
9 in Civil and Environmental Engineering from Cornell University and an *M.S.* in  
10 Technology and Policy from the Massachusetts Institute of Technology.

11 **Q. Have you previously testified before the Delaware Public Service**  
12 **Commission ( “the Commission” or “PSC”)?**

13 A. No, I have not.

14 **Q: How is your testimony organized?**

15 A: My testimony is organized into the following sections:

- 16 I. Discussion of the appropriateness of Delmarva's proposed programs
- 17 II. Whether Delmarva's proposed programs meet the requirements of the  
18 relevant regulations
- 19 III. The cost-effectiveness of the proposed programs
- 20 IV. Review of Delmarva’s proposed approach to evaluation, measurement, and  
21 verification
- 22 V. Delmarva’s proposed approach to cost recovery

23 **Q. Are you submitting attachments along with your testimony?**

24 A. Yes. I have attached my resume as Attachment JML-1. In addition, I reference:

1                   ▪ JML-2 – Minutes and approved materials from 26 August 2017 Energy  
2                   Efficiency Advisory Council (EEAC, or “Council”) meeting

3 **Q. What actions do you recommend the Commission take in this proceeding?**

4 A: I recommend that the Commission:

- 5                   ▪ Approve the two energy efficiency programs as filed.  
6                   ▪ Approve the proposed cost recovery mechanism.

7 **I. The Appropriateness of Delmarva’s Proposed Programs**

8 **Q: Can you please summarize the programs that Delmarva proposes to deliver**  
9 **to their customers, as you understand them?**

10 A: Delmarva proposes to deliver two programs to their residential customers: a  
11 Consumer Products Program and a Behavioral Program. The former provides  
12 discounts or rebates for lighting products and ENERGY STAR® certified  
13 appliances that are designed to encourage consumers to select higher efficiency  
14 equipment when they make a purchasing decision. The program also includes an  
15 appliance recycling component that aims to remove older, inefficient equipment  
16 from use. The Behavioral Program uses direct communication with consumers  
17 about their energy use to motivate changes in behavior and purchasing decisions.  
18 The program relies on comparisons between customers receiving the  
19 communications and customers in a control group to identify savings attributable  
20 to the program.

1    **Q:    Are these programs comparable to programs offered by utilities in other**  
2    **jurisdictions?**

3    A:    Yes, they are. Delmarva delivers a similar Consumer Products Program in  
4    Maryland, and programs of this type have typically been a core part of efficiency  
5    portfolios throughout the country. While the behavioral programs are a newer  
6    development, they too are now commonly implemented. Along with Maryland,  
7    Massachusetts, Rhode Island, Pennsylvania, and Ohio are just a few of the states  
8    where behavioral programs have been or still are being implemented. In addition,  
9    the New Jersey Board of Public Utilities recently approved a new behavioral  
10   program for PSE&G.

11   **Q:    Have you reviewed the proposed programs and their design and**  
12   **implementation details?**

13   A:    Yes, I have. Delmarva provided a comprehensive explanation of the program  
14   designs and implementation strategies in their Three-Year Program Plan  
15   submitted to the EEAC on February 15, 2017.

16   **Q:    What are your findings, based on that review?**

17   A:    The proposed programs are well-designed and in keeping with industry practice.  
18   Delmarva has considered and accounted for both local market conditions and  
19   likely changes to these conditions for the period over which they will be  
20   delivered. For the Consumer Products Program, the measures included and the  
21   rebates offered are reasonable and appropriate.

1    **Q:    How do these programs relate to other energy efficiency programs that may**  
2           **be offered to Delmarva customers?**

3    A:    The proposed programs are not duplicative of any other offerings in Delaware.  
4           The EEAC engaged in much discussion on this issue, the result of which is that  
5           Delmarva’s programs are limited to those that address efficient products for  
6           residential customers and those that address residential energy consumption  
7           through behavioral approaches. Residential programs that address whole-house  
8           energy consumption and all types of programs for commercial and industrial  
9           customers will be implemented by either the Delaware Sustainable Energy Utility  
10          or the Delaware Department of Natural Resources and Environmental Control  
11          (DNREC). With the exception of a small part of the Consumer Products program  
12          related to low-cost refrigerator replacements, programs for income-eligible  
13          customers will also be implemented by entities other than Delmarva. In short,  
14          Delmarva’s proposed programs will exist as part of a larger, comprehensive  
15          portfolio of energy efficiency offerings for Delaware customers. This is important  
16          to keep in mind when considering the requirements of the enabling statute, which  
17          I will address later in my testimony.

18   **Q:    Did you review the cost of the proposed programs, and if so, what are you**  
19           **findings?**

20   A:    Yes, I did review the program costs. The program costs are reasonable given the  
21           types of programs and the “start-up” nature of Delmarva’s efforts in Delaware.  
22           For the Consumer Products Program, the majority of program costs are for  
23           customer incentives, while the Behavioral Program has no incentive costs.

1 **II. Delmarva's Proposed Programs Meet the Requirements of the Relevant**  
2 **Regulations**

3 **Q: Are you familiar with the portion of the Delaware Code in Title 29, Chapter**  
4 **80, Section 8059, titled "Sustainable Energy Utility," and more specifically**  
5 **with subsection (h) of that Section titled "Expansion of cost-effective energy**  
6 **efficiency programs?"**

7 A: Yes, I am. Although I am not an attorney, as a consultant specializing in energy  
8 efficiency, it is necessary to understand the statutes that apply to the work I am  
9 engaged in. In this case, the work I am engaged in with the EEAC is governed by  
10 specific statutory provisions. I have reviewed those sections of the Delaware  
11 Code on numerous occasions to fulfill my responsibilities as Consultant to the  
12 EEAC, which was created by that same statute.

13 **Q: Then you are familiar with the portions of that subsection related to the**  
14 **implementation of energy efficiency programs by so-called "affected energy**  
15 **providers," correct?**

16 A: Yes, I am. It is my understanding that Delmarva is an affected energy provider as  
17 defined in the statute.

18 **Q: In your role as the EEAC's energy efficiency consultant, as opposed to an**  
19 **attorney, would you please address the portions of the statute that you**  
20 **believe are relevant to the development and delivery of programs, as**  
21 **specified in §8059(h)(1), and further, indicate whether Delmarva's proposed**  
22 **programs represent the results of actions in keeping with the statute?**

1 A: There are several components of the statute that are relevant. Sections (1)(a) and  
2 (1)(b) include a number of requirements related to both the actions of the EEAC  
3 as initiated by DNREC , and to the nature of the energy efficiency programs  
4 themselves.

5 **Q: Let's start with the requirements related to the actions of the Council itself.**

6 A: These are several, and sometimes closely related or overlapping.

- 7 • The Council shall assist in the development of programs – From its earliest  
8 meetings, the Consultant Team began providing the Council with information  
9 on typical energy efficiency portfolios and program types to support their  
10 ability to meet this requirement. Subsequent to that, several of the affected  
11 energy providers brought forward suggestions for efficiency programs  
12 addressing a wide range of technologies, markets, and customer segments.  
13 These programs were discussed in Council meetings, and several Council  
14 members spoke regarding their preferences and interests regarding the  
15 programs, which the affected energy providers, including Delmarva, were  
16 present for. Ultimately, the Council voted to approve a list of proposed  
17 programs for inclusion in a Delaware energy efficiency portfolio (Attachment  
18 JML-2). This list included both a residential products program and a  
19 behavioral program.
- 20 • The Council shall assist in evaluation, measurement and verification of energy  
21 savings – The Council created a standing Evaluation, Measurement, and  
22 Verification (EM&V) Committee to address the many requirements in this  
23 area. The EM&V Committee worked to develop a proposed EM&V  
24 framework to support the development of EM&V regulations by DNREC. In  
25 addition, the Committee and the Council as a whole discussed various  
26 components of evaluation on several occasions, including net-to-gross ratios,  
27 options for developing or updating a Technical Reference Manual (TRM), and  
28 how evaluation results would affect the reporting of energy savings. Delmarva  
29 was a regular participant in these activities.



- 1           • The Council shall recommend adoption of financing mechanisms – The  
2           Council discussed the use of financing mechanisms in relation to incentive-  
3           driven efficiency programs and received a presentation on effective practices  
4           in financing from an industry expert. The Council noted that several of the  
5           programs offered by the SEU include financing and were already available to  
6           Delaware customers. The Council also received information about the SEU’s  
7           efforts to support Property Assessed Clean Energy (PACE) financing,  
8           including plans to ensure that projects funded through PACE receive an  
9           energy audit.
- 10          • The Council shall collaborate with Public Service Commission Staff and the  
11          Public Advocate – Representatives of Staff and the Public Advocate were  
12          welcome attendees in Council and EM&V Committee meetings; they have  
13          provided valuable input to the Council’s work and program development.  
14          Recently, the EM&V Committee formalized its membership to include a  
15          representative from each of these entities. The Consultant Team and DNREC  
16          also engaged in several conversations directly with Staff and the Advocate,  
17          via telephone, email, and in person. The Direct Testimony of Wayne Hudders  
18          further discusses Delmarva’s direct collaboration with Staff and the Public  
19          Advocate.
- 20          • The Council shall recommend candidate programs that are cost-effective,  
21          reliable, and feasible – As I previously described, the Council deliberated and  
22          discussed programs and program designs on several occasions, including  
23          providing direct feedback to Delmarva and other affected energy providers on  
24          their proposals.
- 25          • The Council shall define savings targets – This was one of the Council’s first  
26          actions through the first half of 2015. Statewide energy savings targets were  
27          adopted by a consensus vote of the Council at the August 26, 2015 Council  
28          meeting

1    **Q:    Can you please provide similar information related to the requirements for**  
2    **the programs themselves?**

3    A:    Certainly. A common theme with these requirements is the fact that Delmarva's  
4    programs do not exist in isolation, but rather in concert with programs delivered  
5    by other entities, many of which pre-date Delmarva's proposal and the activities  
6    of the Council. In general, it would not be appropriate for Delmarva to offer a  
7    program that duplicates or competes with these other programs.

- 8    •    Programs shall be designed to maximize benefits by utilizing private financing  
9    and proceeds from the Regional Greenhouse Gas Initiative (RGGI) to the  
10   maximum extent practicable – Delmarva's proposed programs were  
11    developed to address customers and segments of the market that were not  
12    already being addressed by programs planned or already delivered by the SEU  
13    and DNREC. These other programs are not funded by rate recovery, but by  
14    RGGI proceeds, settlement funds related to the Exelon-PHI merger, and other  
15    state budget allocations. That is, these other sources were indeed utilized  
16    before programs that would be funded by recovery from Delmarva's  
17    customers were recommended to the PSC by the Council.
- 18    •    Programs shall include financing mechanisms – As noted earlier, the Council  
19    received expert information on financing mechanisms and their role in energy  
20    efficiency programs, and took note of the financing available from the SEU  
21    for energy efficiency projects. Through the Energize Delaware program,  
22    customers throughout the state have access to loans to help finance energy  
23    efficiency upgrades.
- 24    •    Programs shall prioritize the use of energy audits – The SEU has an existing  
25    program (Home Performance with ENERGY STAR) that uses a  
26    comprehensive energy audit as the first step towards identifying energy  
27    efficiency improvements to customers' homes. In addition, DNREC's Energy  
28    Efficiency Investment Fund program includes funding for energy audits for  
29    commercial and industrial customers.

1    **III. Cost-Effectiveness of the Programs**

2    **Q:     In section (1)(c), the statute says the Council should recommend programs**  
3           **for approval if it finds them to be cost-effective. Can you please explain the**  
4           **meaning of “cost-effective” as used by the Council?**

5    A:     With respect to energy efficiency programs, the term “cost-effective” means that  
6           the benefits of a program outweigh the costs. Industry practice is to express both  
7           the benefits and costs as net-present value dollar amounts to ensure their  
8           comparability. The statute uses similar language, referencing a “net-cost-benefit  
9           analysis.” An early reference document for energy efficiency practitioners, the  
10          California Standard Practice Manual, further defined cost-effectiveness from  
11          several different perspectives, such as the utility, participant, and ratepayer.<sup>1</sup>

12   **Q:     Which perspective, if any, does the Delaware statute reference?**

13   A:     The statute does not use one of the standard terms for a cost-effectiveness  
14          perspective, but does state that the analysis should consider cost savings “in their  
15          entirety.” The Consultant Team used this language as the basis for discussion with  
16          the Council and the EM&V Committee in recommending an approach for the  
17          regulations promulgated pursuant to section §8059(h)(3). The regulations specify  
18          that the Total Resource Cost test serve as the basis for assessing cost-  
19          effectiveness. This test strives to capture all costs and benefits of the program,  
20          regardless of who incurs or receives them. In many jurisdictions, the TRC is  
21          either the primary or the only cost-effectiveness test.

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<sup>1</sup> [http://www.cpuc.ca.gov/uploadedFiles/CPUC\\_Public\\_Website/Content/Utilities\\_and\\_Industries/Energy\\_-\\_Electricity\\_and\\_Natural\\_Gas/CPUC\\_STANDARD\\_PRACTICE\\_MANUAL.pdf](http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/CPUC_STANDARD_PRACTICE_MANUAL.pdf)

1                   I also should note that the statute includes an additional statement that  
2                   programs “must reduce overall utility bills.” For this to be true, the total cost of  
3                   the programs must be less than what customers will save as a result of the  
4                   programs. In effect, the programs result in customers using less energy, which  
5                   translates directly into reductions in the energy supply portion of customers’ bills  
6                   that are larger than the amount that customers are paying for the programs.

7   **Q:   Please explain how the benefits of efficiency programs are measured to**  
8                   **produce a net present value for comparison with the costs of implementing**  
9                   **the programs.**

10  A:   The primary benefit of energy efficiency programs is the avoided cost of  
11                   supplying the energy that is no longer consumed by customers who implemented  
12                   efficiency measures. For an electric utility, there are several categories of these  
13                   “avoided costs,” including the value of avoided energy generation or purchase,  
14                   avoided transmission costs, and avoided peak capacity costs.

15  **Q:   How did Delmarva estimate these benefits when determining the cost-**  
16                   **effectiveness of their proposed programs?**

17  A:   Delmarva relied upon avoided costs developed by the EM&V Committee in  
18                   consultation with the Consultant Team and an industry expert on this topic. In the  
19                   absence of a comprehensive effort to develop avoided costs specifically for  
20                   Delaware, the Committee proposed—and the Council approved—a conservative  
21                   set of avoided costs based in part on values developed for Delmarva’s energy  
22                   efficiency efforts in Maryland.

1    **Q:    Are there other benefits beyond these energy-related avoided costs?**

2    A:    Yes. Depending on the type of efficiency measure, there may be economic  
3           benefits from reduced operation & maintenance costs; avoided water, wastewater,  
4           or solid waste disposal costs; and the deferral of future equipment replacement. In  
5           addition, reduced energy consumption usually leads to reductions in air pollution  
6           from power generating stations, and home improvements related to weatherization  
7           can provide health and safety benefits, particularly in income-eligible homes.

8    **Q:    Did Delmarva include these benefits in its cost-effectiveness analysis?**

9    A:    To the extent that the Delaware TRM includes information that allows for the  
10           quantification of the effects related to specific measures (e.g., O&M, avoided  
11           water costs), yes. For the broader impacts associated with reduced pollution or  
12           health and safety, Delmarva presents the cost-effectiveness of their programs both  
13           with and without the monetized benefits determined using values developed by  
14           the EM&V Committee and accepted by the Council. In this way, the TRC ratio  
15           they report is highly conservative.

16   **Q:    Are the proposed programs cost-effective?**

17   A:    Yes, they are. For both of Delmarva's proposed programs, the net present value of  
18           benefits exceeds the net present value of the total cost of the efficiency  
19           investments and other program costs. Another way of stating this is to calculate  
20           the ratio of benefits to costs. When a program is cost effective this benefit-cost  
21           ratio (BCR) will be greater than one, because the numerator (the benefits) is larger  
22           than the denominator (the costs). The BCR for the Consumer Products Program is

1           1.5 using the most conservative assumptions, and for the Behavioral Program it is  
2           2.4.

3   **IV. Proposed EM&V Approaches**

4   **Q:    The statute at §8059(h)(3) lays out the requirements for evaluation,**  
5           **measurement, and verification [EM&V] of energy efficiency. Can you speak**  
6           **to the nature of EM&V as it relates to Delmarva’s proposed programs?**

7   A:    Yes. The statute requires that DNREC develop EM&V regulations to address  
8           three topics:

- 9           • Procedures and standards for EM&V  
10          • Requirements for affected energy providers to demonstrate and document  
11            progress towards compliance with energy savings targets  
12          • Procedures and standards for defining and measuring energy savings that can  
13            be counted towards savings targets previously established under the Energy  
14            Efficiency Resource Standards in Title 26 §1502.

15   **Q:    How did DNREC go about establishing these procedures and requirements?**

16   A:    As with other aspects of EM&V, the EM&V Committee developed proposed  
17           material and approaches for review, discussion, and approval by the full  
18           Committee. As required by the statute, the promulgation of the regulations then  
19           proceeded in compliance with the state’s Administrative Procedures Act. This  
20           included a number of venues for stakeholder input and engagement as well as  
21           collaboration with the affected energy providers, PSC Staff, and the Public  
22           Advocate.

1 **Q: Has Delmarva followed the EM&V regulations in their proposed programs**  
2 **and application?**

3 A: To the extent possible at this time, yes. Many of the regulations address actions  
4 taken after efficiency programs have been implemented; these are not yet  
5 applicable to Delmarva's proposed programs. But Delmarva did follow the  
6 Delaware TRM, Council approved net-to-gross ratios, and Council approved  
7 avoided costs.

8 **V. Cost Recovery**

9 **Q: You previously provided your opinion on the costs of Delmarva's programs.**  
10 **How does the Company propose to recover these costs?**

11 A: Without getting into much detail, the Company proposes to recover the program  
12 costs through an Energy Efficiency Charge appearing on customers' bills. The  
13 costs of the programs would be amortized over period of five years, with the  
14 return on the unamortized balance at the Company's authorized rate of return. The  
15 Energy Efficiency Charge would be adjusted each year.

16 **Q: Did you also review the guidance on cost recovery provided in h(1)(e)?**

17 A: Yes, but only to a limited extent.

18 **Q: Why only to a limited extent?**

19 A: Because Delmarva presented a proposed cost recovery mechanism to the EEAC  
20 in October of 2016, in advance of this filing. As I understand it, the proposed  
21 mechanism represented the outcome of collaboration between the Company, PSC  
22 Staff, and representatives of the Division of Public Advocate. The Council had the  
23 opportunity to ask questions of the Company. Subsequently, the program plan

1 was presented to the EEAC again in February of 2017. Again, the Council had the  
2 opportunity to ask questions of the Company. The Council then unanimously  
3 recommended Delmarva's program plan and associated cost recovery proposal to  
4 the PSC. Therefore, I believe that the cost recovery mechanism has been fully  
5 reviewed by several parties, but I did not undertake a detailed review myself.

6 **Q: In your opinion, should the Commission approve the proposed cost recovery**  
7 **mechanism?**

8 A: Yes.

9 **VI. Conclusion**

10 **Q: Please summarize your testimony.**

11 A: I have the following conclusions:

- 12       ▪ Delmarva's proposed programs are well-designed and are comparable to  
13 programs offered by utilities in other jurisdictions; the cost of these  
14 programs is reasonable.
- 15       ▪ The EEAC took appropriate actions as required by of Title 29  
16 §8059(h)(1).
- 17       ▪ Delmarva's programs, when considered in the context of other energy  
18 efficiency programs already operating in Delaware, meet the requirements  
19 of Title 29 §8059(h)(1).
- 20       ▪ Delmarva's programs are cost-effective under the guidelines established in  
21 the EM&V regulations promulgated by DNREC, as well as under a more  
22 conservative set of assumptions developed by Delmarva.



1                   ▪ To the extent possible at this time, Delmarva has followed the EM&V  
2                   regulations in proposing these programs and allocating funds for future  
3                   evaluation efforts.

4                   ▪ The proposed cost recovery mechanism is reasonable and should be  
5                   approved

6   **Q:    Does this conclude your testimony?**

7   **A:    Yes.**