

Virginia State Corporation Commission eFiling CASE Document Cover Sheet

030024035

Case Number (if already assigned)	PUR-2017-00126
Case Name (if known)	Petition of Appalachian Power Co. for approval of a rate adjustment clause, the EE-RAC, pursuant to Section 56-585.1 A 5 c of the Code of Virginia and for approval of new energy efficiency programs
Document Type	RETE
Document Description Summary	Rebuttal Testimony of Appalachian Power Company

Total Number of Pages	24
Submission ID	14048
eFiling Date Stamp	2/20/2018 2:12:49PM



BOUNDLESS ENERGY

American Electric Power
1051 L Cary Street, Suite 1100
Richmond, Virginia 23219
AFP.com

18023088

February 20, 2018

BY ELECTRONIC FILING

Hon. Joel H. Peck, Clerk
State Corporation Commission
Document Control Center
1300 E. Main Street – 1st Floor
Richmond, Virginia 23218

Noelle J. Coates
Senior Counsel - Regulatory
Services
(804) 698-5541 (P)
(804) 698-5526 (F)
njcoates@aep.com

Re: Petition of Appalachian Power Company, for approval of a rate adjustment clause, the EE-RAC, pursuant to §56-585.1 A 5 c of the Code of Virginia and for approval of new energy efficiency programs

Case No. PUR-2017-00126

Dear Mr. Peck:

Please find enclosed for filing in the above-referenced case the Rebuttal Testimony of Appalachian Power Company.

Sincerely,

Noelle J. Coates

Enclosure

- cc: K. Beth Clowers, Esq.
- Andrea B. Macgill, Esq.
- Cody T. Murphey, Esq.
- Robert D. Perrow, Esq.
- John L. Walker, III, Esq.
- William C. Cleveland, Esq.
- Nathaniel H. Benforado, Esq.
- Cale Jaffe, Esq.
- Timothy E. Biller, Esq.

APCo Exhibit No. _____
Witness: FDN

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

**REBUTTAL TESTIMONY OF
FRED D. NICHOLS II
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2017-00126**

SUMMARY OF REBUTTAL TESTIMONY OF FRED D. NICHOLS II

My rebuttal testimony addresses the following:

1. Staff's concerns related to the Company's projected program participation levels for the Residential Bring-Your-Own Smart Thermostat (BYOT) Program. Although in late 2015 the Company estimated just under 10,000 smart thermostats were installed in the Company's Virginia service territory, the smart thermostat market continues to expand at a rapid pace nationally. With marketing efforts focused on customers with and without existing smart thermostats, the participation goals for the BYOT Program are achievable.
2. Staff's concerns related to potential interaction between participation in the proposed BYOT Program and the existing Peak Reduction Program. Each program will target a very different subset of customers. The Peak Reduction Program requires a customer to do nothing more than enroll to participate. The BYOT Program is more suited to tech savvy customers who have a desire to proactively manage their energy use. Given this, it is appropriate to operate these programs independently rather than rolling both options into a single program.
3. It is appropriate to include avoided capacity benefits in the cost benefit analysis of the proposed BYOT Program. Implementing the program now reduces the amount of capacity that would need to be secured in future years. Also, the Company will seek to reduce load coincident with the PJM summer 5 Coincident Peaks with the BYOT Program.
4. The Environmental Respondent's misunderstanding of how the Company's Evaluation, Measurement and Verification (EM&V) processes work. The Company performs EM&V, both impact and process, on its programs each program year, not at the end of a three-year cycle as the Environmental Respondents presumed. Site visits and customer surveys are conducted by the Company's EM&V contractor during the course of each program year. This provides timely feedback on any needed program improvements.
5. The Environmental Respondent's incorrect statement that the customer incentive levels for the proposed Commercial and Industrial (C&I) Lighting Program are too low and will not drive customers to retire existing working lighting lamps and fixtures early. Customers and trade allies have embraced the current incentive levels associated with the Company's existing C&I Prescriptive Program, and the proposed incentive level is sufficient to drive early replacement of units in the proposed C&I Lighting Program.
6. The Environmental Respondent's misunderstanding of available energy efficiency measures in the Company's current C&I Prescriptive Program, and incorrect assumption that the measures proposed in the C&I Standard Program were already being incentivized, which they are not. Also, with the same program implementation contractor implementing the proposed C&I Lighting and the proposed C&I Standard programs, there is not a potential for "administrative overlap" as suggested.

**REBUTTAL TESTIMONY OF
FRED D. NICHOLS II
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR 2017-00126**

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION.**

2 A. My name is Fred D. Nichols II. My business address is 40 Franklin Road SW, Roanoke
3 VA 24011. I am employed by Appalachian Power Company (APCo or the Company) as
4 Manager of Energy Efficiency and Alternative Energy Initiatives.

5 **Q. ARE YOU THE SAME PERSON WHO SUBMITTED DIRECT AND
6 SUPPLEMENTAL DIRECT TESTIMONY IN THIS PROCEEDING?**

7 A. Yes.

8 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

9 A. The purpose of my rebuttal testimony is to respond to the conclusions and
10 recommendations made by Staff witness Brian S. Pratt as well as witness Jeffery Loiter
11 who testifies on behalf of the Environmental Respondents. Specifically, I:

- 12 • Address Mr. Pratt's concerns related to the proposed Residential Bring-Your-
13 Own Smart Thermostat (BYOT) Program; and
- 14 • Address issues raised by Mr. Loiter related to EM&V activities for the eScore
15 program and the design of some of the Company's proposed programs.

16 **Q. STAFF WITNESS PRATT STATES THAT THE COMPANY'S PROGRAM
17 PARTICIPATION ESTIMATES FOR THE RESIDENTIAL BYOT PROGRAM
18 ARE OVERSTATED. DO YOU AGREE?**

A. No. In his testimony, Mr. Pratt cites the estimate of 9,900 Wi-Fi enabled thermostats, which the Company estimated were installed in its Virginia service territory, and concludes that 91 percent of these customers would have to participate in the program for the Company to reach participation levels in the proposed BYOT program. The 9,900 Wi-Fi thermostat estimate was based on the most recent Residential Appliance Saturation Survey completed by American Electric Power Service Corporation (AEPSC). This survey was conducted in late 2015 and compiled in early 2016, and the number of Wi-Fi thermostats quantified in this survey represents a snapshot in time, more than two years ago, of estimated units. Moreover, industry research suggests the smart thermostat market has and will continue to witness substantial growth over the next several years.¹

In addition, APCo will market the BYOT Program to both customers who currently have a smart thermostat installed and to those who may be interested in purchasing and installing one. Cross marketing of the BYOT Program with customers purchasing smart thermostats through other energy efficiency programs offered by the Company would also be performed. Given this, the participation goals associated with the proposed BYOT Program are achievable.

Q. STAFF HAS CONCERNS REGARDING THE POTENTIAL INTERACTION BETWEEN PARTICIPATION IN THE BYOT PROGRAM AND THE PEAK REDUCTION PROGRAM. DO YOU HAVE ANY COMMENTS?

A. While it is possible that customers on the Peak Reduction Program could decide they would rather participate in the BYOT Program, as Staff witness Pratt states in his direct

¹ See, e.g. <https://www.pnnewswire.com/news-releases/parks-associates-13-of-us-broadband-households-owned-a-smart-thermostat-at-the-end-of-2017-300584560.html>; <https://www.nrtc.coop/rural-connect/new-nest-thermostat-emphasizes-e-for-easy-and-efficient-environment>.

1 testimony, the Company does not plan to market or promote the BYOT Program to
2 current participants of the Peak Reduction Program. And, the Company will ensure that
3 its program implementation contractor, who will operate both of these programs on
4 behalf of the Company, will not encourage customers to participate in one program over
5 the other. That will strictly be the customer's choice.

6 Although both programs seek the same goal, to provide residential customers the
7 opportunity to reduce energy consumption at peak times, each program targets a different
8 subset of residential customers. The Peak Reduction Program utilizes a load control
9 switch, installed by the Company's program implementation contractor on or near the
10 customer's outdoor air conditioner or heat pump, to cycle the unit. Other than enrolling
11 in the program, there is nothing else the customer has to do to participate. Conversely,
12 the BYOT Program requires customers to install and operate a wi-fi enabled
13 programmable thermostat. It targets, and is more suited to, customers who are tech
14 savvy, tend to adopt and embrace newer technology, and have a desire to proactively
15 manage their energy use. The BYOT and Peak Reduction programs should be operated
16 independently. In addition to appealing to different customer segments that might not
17 overlap, each program has a different incentive structure and combining the two
18 programs could lead to customer confusion.

19 **Q. STAFF CONDUCTED AN "AVOIDED CAPACITY SENSITIVITY" ANALYSIS**
20 **THAT REMOVED THE COMPANY'S PROJECTED AVOIDED CAPACITY**
21 **BENEFITS, FOR THE YEARS 2019 THROUGH 2025, TO RECALCULATE THE**
22 **FOUR REQUISTE COST BENEFIT TESTS FOR THE PROPOSED BYOT**
23 **PROGRAM BECAUSE "THE COMPANY WOULD HAVE NO NEED TO**

ACQUIRE ADDITIONAL CAPACITY RESOURCES UNTIL AT LEAST 2026.”

IS THIS APPROPRIATE?

A. No. As explained in the California Standard Practice Manual, including avoided capacity benefits is appropriate when analyzing the cost benefit of utility programs. Implementing the BYOT program now reduces the amount of capacity that must be added in 2026. As part of the program, the Company will seek to reduce load coincident with the PJM summer 5 Coincident Peaks. These reductions in load will result in a lower PJM capacity requirement than would have otherwise been required in the absence of the BYOT Program.

Q. TURNING TO MR. LOITER’S TESTIMONY, MR. LOITER STATES THE QUALITY ASSURANCE / QUALITY CONTROL PROCESSES ARE NOT APPROPRIATE AND SUFFICIENT FOR THE ESCORE PROGRAM. DO YOU HAVE ANY COMMENTS?

A. Yes. On page 29 of his direct testimony, Mr. Loiter states that on-site visits, as part of the Evaluation, Measurement and Verification (EM&V) process of the eScore Program, will not provide needed, timely feedback following implementation of a new program design. Mr. Loiter’s statement is not accurate. On page 27 of his direct testimony, Mr. Loiter has incorrectly assumed that the vast majority of EM&V work occurs near the end of the three-year cycle. EM&V, both process and impact, is conducted on the Company’s programs each program year. Furthermore, EM&V site visits and surveys by the EM&V contractor for the eScore Program will occur during the course of each program year. Any problems associated with participant satisfaction, implementation processes or measure installation / operations that are identified during EM&V site visits

1 are relayed by the EM&V contractor so they can be addressed by the Company in a
2 timely manner.

3 **Q. MR. LOITER STATES THE INCENTIVES BEING PROPOSED FOR THE C&I
4 LIGHTING PROGRAM ARE TOO LOW TO PROMPT CUSTOMERS INTO
5 EARLY RETIREMENT OF FUNCTIONING FIXTURES. DO YOU AGREE?**

6 A. No. The incentive level being proposed for the Commercial and Industrial C&I Lighting
7 Program is similar to what is currently available in the Company's C&I Prescriptive
8 Program. The Company has seen significant customer interest and participation in this
9 program using a five cent per annual kWh saved incentive level. The incentive proposed
10 for the C&I Lighting Program is sufficient to encourage customers to retire existing
11 operational fixtures early.

12 Also, it should be noted the Company's current C&I Prescriptive Program has
13 been widely accepted by local, regional and national trade allies who are aggressively
14 marketing the program to qualifying customers. The Company is confident these trade
15 allies, and likely others, would similarly embrace the proposed C&I Lighting and C&I
16 Standard programs.

17 **Q. MR. LOITER RECOMMENDS COMBINING THE PROPOSED C&I LIGHTING
18 AND C&I STANDARD PROGRAMS. DO YOU HAVE ANY COMMENTS?**

19 A. Yes. In his testimony, Mr. Loiter stated that the energy efficiency measures included in
20 the C&I Standard Program were already available in the Company's existing C&I
21 Prescriptive Program. Mr. Loiter is incorrect, as the measures included in the proposed
22 C&I Standard Program are not currently available in the C&I Prescriptive Program.

23 Also, because the Company plans to use the same program implementation contractor for



1 both the proposed C&I Lighting Program and the proposed C&I Standard Program, the
2 potential for “administrative overlap,” as Mr. Loiter suggests, does not exist.

3 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

4 **A. Yes, it does.**

APCo Exhibit No. _____
Witness: ZLB

180230923

**REBUTTAL TESTIMONY OF
ZACHARY L. BACON
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2017-00126**

SUMMARY OF REBUTTAL TESTIMONY OF ZACHARY L. BACON

My rebuttal testimony addresses the following topics:

1. Staff witness Pratt made preliminary adjustments to the Company's cost effectiveness calculations. The Company does not object to these preliminary adjustments, and confirms that the effect of these adjustments marginally changes the overall cost benefit scores of each program.
2. The Appliance Recycling Program should be extended another three years despite a TRC score of 0.96. The program is potentially undervalued and its value may not be fully reflected in the score. The Company has already researched strategies to improve the net-to-gross ratio for the program and plans to implement these strategies immediately. Successful implementation of these strategies would result in a TRC score above 1.0. Additionally, the Company fully expects participation rates to reach its proposed annual goal.
3. The Efficient Products Program (EPP) will not be cost effective if the 2020 EISA efficiency standards go into effect on January 1, 2020. The Environmental Respondents contend that the EPP will remain cost effective if the standards go into effect, but their analysis does not follow the approach of the Mid-Atlantic Technical Reference Manual (Mid-Atlantic TRM). Given the uncertainty around the standards and severe degradation in cost-effectiveness if realized, the Company is withdrawing its request for approval to extend the Efficient Products Program at this time.
4. The 2020 EISA efficiency standards should not be applied to residential lighting measures within the proposed eScore and Multifamily Direct Install (MFDI) programs. The eScore and MFDI programs are "Direct Install" programs that replace working, and less efficient incandescent lighting products with efficient Light Emitting Diode (LED) products. The Mid-Atlantic TRM defines a baseline condition for a direct install scenario as the replacement of "existing equipment," which in this case is the incandescent bulb. Following the Mid-Atlantic TRM, the eScore and MFDI programs continue to be cost effective.
5. The Company does not oppose providing information in future filings that was suggested by Staff witness Mangalam. The Company recognizes the complications Staff encountered with its audit of incentive documentation and has already taken steps to improve the process. The Company would be willing to collaborate with Staff prior to filings to better understand what data would be useful in performing their audit of the Company's programs.

**REBUTTAL TESTIMONY OF
ZACHARY L. BACON
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2017-00126**

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION.**

2 A. My name is Zachary L. Bacon. My business address is 40 Franklin Road SW, Roanoke
3 VA 24011. I am employed by Appalachian Power Company (APCo or the Company) as
4 Senior Coordinator of Energy Efficiency and Alternative Energy Initiatives.

5 **Q. ARE YOU THE SAME PERSON WHO SUBMITTED DIRECT TESTIMONY IN**
6 **THIS PROCEEDING?**

7 A. Yes.

8 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

9 A. Yes. I am sponsoring APCo Exhibit No. __ (ZLB) Rebuttal Schedule 1 – Excerpt from
10 Mid-Atlantic Technical Reference Manual.

11 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

12 A. The purpose of my rebuttal testimony is to respond to the conclusions and
13 recommendations made by Staff witnesses Brian S. Pratt and Madhu S. Mangalam, as
14 well as witness Jeffery Loiter on behalf of the Environmental Respondents. Specifically
15 I:

- 16 • Address Staff witness Pratt's comments regarding the Company's cost-benefit
17 results;
- 18 • Discuss reasons why the Appliance Recycling Program should be approved;
- 19 • Address the 2020 EISA efficiency standard and how it relates to the Company's
20 proposed programs;
- 21 • Provide additional information on the design of the proposed eScore Program,
22 and how the design will achieve projected participation targets related to the
23 rebate component; and



- 1 • Respond to Staff's audit of the Company's programs.

2 **Q. DO YOU HAVE ANY OVERARCHING COMMENTS ABOUT STAFF'S AND**
3 **THE ENVIRONMENTAL RESPONDENT'S RECOMMENDATIONS?**

4 A. Yes. The Company has strived to develop, enhance, and propose programs in a steady
5 and orderly manner. This provides customers, including residential, commercial, and
6 industrial customers, with the opportunity to participate in, and benefit from, the
7 Company's energy efficiency programs. These programs enable participating customers
8 to become more energy efficient, realizing savings on their electric bills, and, in the case
9 of commercial and industrial customers, to become more cost competitive. Finally, these
10 programs help customers reduce their environmental impacts and carbon footprint.

11 **Q. ON PAGE 11 OF STAFF WITNESS PRATT'S TESTIMONY, HE MADE THREE**
12 **ADJUSTMENTS TO THE COMPANY'S COST-BENEFIT MODEL. DO YOU**
13 **AGREE WITH THESE ADJUSTMENTS?**

14 A. Yes. The adjustments made to the Company's Ratepayer Impact Measure cost calculation
15 and Total Resource Cost (TRC) calculations are appropriate. The Company does not
16 object to using the WACC determined in PUE-2016-00090 for the purposes of
17 performing cost-effectiveness in this case.

18 **Q. WHAT IS THE EFFECT OF WITNESS PRATT'S ADJUSTMENTS ON THE**
19 **COST EFFECTIVENESS OF THE PROPOSED APPLIANCE RECYCLING**
20 **PROGRAM?**

21 A. As Mr. Pratt discusses in his testimony, the calculation for the Appliance Recycling
22 Program (ARP) results in a net TRC cost of \$73,842 and a resulting score of 0.96.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

1 **Q. DESPITE THE MARGINAL SCORE, SHOULD THE APPLIANCE RECYCLING**
2 **PROGRAM BE APPROVED?**

3 A. Yes. While the Company agrees with Mr. Pratt's calculation, there are a few reasons
4 why the program's potential value is not fully reflected in the score. First, the Net-to-
5 gross ratio (NTGR) for the ARP was modeled based on the Evaluation, Measurement and
6 Verification report for the 2016 program year, which was the first year of the program.
7 The net-to-gross ratio captures the effects of participants who were going to recycle their
8 appliance in the absence of the program. In the report, the NTGR was 46 percent and 60
9 percent for refrigerators and freezers, respectively. The Company has already researched
10 strategies to improve the NTGR and this plan includes the implementation of those
11 strategies. Strategies to improve NTGR include continuing active recruitment of
12 customers through email campaigns and mailings and focusing on the removal of
13 secondary units through marketing messaging. Further, it is typical for the NTGR to
14 improve as the program matures. Simply improving the NTGR for refrigerators by 4% to
15 50% results in a TRC score above 1.0 and a positive net TRC benefit of \$27,114.
16 Additionally, participation in the program has continued to increase as the program
17 advances. For reference, the average monthly participation over the last five months has
18 been approximately 190 units per month. The Company fully expects participation rates
19 to increase as the program enters its third year, and will likely be able to reach the annual
20 goal of 2,300 units as proposed by the Company.

1 Q. PLEASE ADDRESS THE EISA 2020 “BACKSTOP” ISSUE RAISED BY THE
2 ENVIRONMENTAL RESPONDENTS.

3 A. In this proceeding, Environmental Respondent witness Loiter raised the 2020 EISA
4 efficiency standard issue when he states “At the very least, the filing should acknowledge
5 the potential changes on the horizon.” If it goes into effect, the standard will restrict the
6 sale of less efficient incandescent lighting products, decreasing the baseline wattage
7 against which savings for lighting products are measured. Mr. Loiter states that even if
8 the standard does become effective on January 1, 2020, the program should still, in his
9 estimation, be cost effective. To draw that conclusion, Mr. Loiter did an approximate
10 calculation adjusting the effective useful life of point-of-sale residential Light Emitting
11 Diodes (LEDs) to comport with the standard as if it were in effect January 1, 2020.

12 This is not consistent with the approach taken in the Mid-Atlantic Technical
13 Reference Manual (Mid-Atlantic TRM), and further supported by Staff witness Pratt,
14 which requires that the savings be measured against the increased baseline. Contrary to
15 Mr. Loiter’s claim that the Efficient Products Program (EPP) would remain cost
16 effective, the reality is that it will not be cost effective if the 2020 EISA efficiency
17 standards go into effect on January 1, 2020. Given the uncertainty and severe
18 degradation in cost-effectiveness if the standard does go into effect, the Company is
19 withdrawing its request for approval to extend the EPP at this time.

20 Q. DOES THIS MEAN THE COMPANY HAS NO PLANS TO OFFER THE
21 EFFICIENT PRODUCTS PROGRAM IN THE FUTURE?

22 A. No. The EPP is a key component of the Company’s portfolio, and a valuable resource for
23 educating customers on LED technologies. In addition, the EPP has proven to be a

“gateway” for LED product availability in local hardware and discount retailers, including stores in underserved areas, such as True Value and Dollar General. Without the presence of the EPP, LED products in these stores would be limited and expensive, or not available at all. In the event that the EISA 2020 standards were to be revised or amended, and halogen products remained in the market past January 1, 2020, the Company would likely seek approval of the EPP in a future filing.

Q. SHOULD THE EISA 2020 EFFICIENCY STANDARD BE APPLIED TO LIGHTING SAVINGS WITHIN THE E-SCORE AND MULTIFAMILY DIRECT INSTALL PROGRAMS?

A. No. Staff witness Pratt applied a baseline wattage adjustment based on instructions for calculating energy savings from residential LEDs in the Mid-Atlantic TRM. This adjustment shifted baseline wattages against which LED savings are measured from incandescent bulb wattages to compact fluorescent bulb (CFL) wattages, thus reducing the savings potential for residential LEDs. I have several concerns with his adjustments.

First, the eScore and Multifamily Direct Install (MFDI) programs are “Direct Install” programs that only install LED products in fixtures with existing, working incandescent lighting products. The Mid-Atlantic TRM defines a baseline condition for a direct install scenario as the replacement of “existing equipment,” which in this case is the incandescent bulb. A copy of the definition is found in APCo Exhibit No. __ (ZLB) Rebuttal Schedule 1.

Second, the adjustment does not appear to follow the *Rules Governing the Evaluation, Measurement, and Verification of the Effects of Utility-Sponsored Demand-Side Management Programs* in 20VAC5-318-40. In section 20VAC5-318-40, it states

1 that the first source of all data or estimates used as inputs for proposed DSM measures or
2 programs shall be “utility-specific data.” In the case of the eScore and MFDI programs,
3 the incandescent bulb that was replaced should be considered utility-specific data. By
4 using the Mid-Atlantic TRM and further applying a baseline shift, Staff appears to use
5 data from non-Virginia jurisdictions or sources, even though utility-specific data is
6 readily available. Based on these reasons, the Company contends it is inappropriate to
7 discount energy savings from LEDs. Without applying those discounts, the eScore and
8 MFDI programs continue to be cost effective.

9 **Q. STAFF WITNESS PRATT EXPRESSES CONCERNS WITH PARTICIPATION**
10 **IN THE REBATE PORTION OF THE PROPOSED ESCORE PROGRAM. CAN**
11 **YOU RESPOND TO HIS CONCERNS?**

12 A. Yes. Witness Pratt’s concerns are based on an incorrect assumption regarding the design
13 of the proposed eScore Program: that customers will need to have an in-home assessment
14 conducted before qualifying for rebates for major measures, such as Heat Pump
15 replacements. This approach is currently followed in the Company’s Home Performance
16 Program and the Company has recognized it as a barrier to participation in major
17 measures. To address this barrier, the proposed eScore Program will allow customers to
18 receive major measure upgrades prior to receiving the in-home assessment. Using this
19 approach, the program trade allies who perform the major measure installations will
20 essentially “sell” the program to customers, thus increasing the participation rates for
21 major measure upgrades. The Company’s selected implementation contractor for the
22 eScore Program implements the same program for the Tennessee Valley Authority and
23 results from that program indicate high participation rates for major measure upgrades.

1 Based on these reasons, the Company's forecasted rate of participation of approximately
2 43 percent is not unrealistic.

3 **Q. WILL THERE BE CLOSE COORDINATION BETWEEN THE PROPOSED**
4 **MFDI PROGRAM AND C&I PROGRAMS?**

5 A. Yes. The Company recognized this opportunity during the design phase, and
6 incorporated this approach in the MFDI program template. Contrary to Mr. Loiter's
7 claim, there is no "lost opportunity" as coordination between programs has already been
8 incorporated into the design of the portfolio as a whole.

9 **Q. DOES THE COMPANY OPPOSE THE IMPOSITION OF CAPS ON THE COSTS**
10 **OF EACH PROGRAM?**

11 A. Yes. However, if the Commission finds a cost cap in some form is necessary, it is more
12 constructive to apply it at the portfolio level. Success of the Company's programs will be
13 driven largely by customer participation. If a particular program is underperforming, a
14 cap at the portfolio level would allow the Company to shift a portion of funds from that
15 program to another program.

16 **Q. WHY SHOULD A COST CAP NOT INCLUDE STAFF'S ESTIMATE OF**
17 **REDUCED REVENUES?**

18 A. The Company does not support Staff's inclusion of lost revenues in the caps at this time,
19 as Staff's estimate of reduced revenues is not based on the Company's actual experience
20 and data. Reduced revenues will be contingent on several factors, such as the success of
21 the programs and the market price for power. The Company has not asked to recover
22 reduced revenues in the current proceeding and it would be premature for the
23 Commission to determine the total allowable reduced revenue amount at this time.

1 Q. STAFF WITNESS MANGALAM MADE SEVERAL RECOMMENDATIONS
2 REGARDING THE AUDIT OF THE COMPANY'S PROGRAMS. PLEASE
3 COMMENT.

4 A. Staff was able to verify all costs and revenues associated with the Company's current
5 programs. Staff recommendations address data capture requirements that will serve to
6 simplify the process in future filings.

7 Q. DOES THE COMPANY OPPOSE PROVIDING INFORMATION IN FUTURE
8 FILINGS OUTLINING FIXED VERSUS VARIABLE COSTS ASSOCIATED
9 WITH IMPLEMENTATION CONTRACTS?

10 A. No, the Company would not oppose providing this information in future filings. The
11 Company would note, however, that this information would not always be an "apples-to-
12 apples" comparison as no two contracts are exactly the same and some contracts have a
13 time and material component.

14 Q. WILL THE COMPANY PROVIDE ADDITIONAL INFORMATION IN FUTURE
15 FILINGS AS RECOMMENDED BY STAFF WITNESS MANGALAM?

16 A. Yes, the Company will continue to provide the following in future filings:
17 • A chart similar to Schedule 1 of my direct testimony.
18 • Information on the controls and procedures in place around rebate, incentive,
19 and/or vendor payments for each of its approved programs as sponsored in
20 Company Witness Nichols' supplemental direct testimony.

1 Q. DO YOU HAVE ANY COMMENTS REGARDING STAFF'S AUDIT OF
2 INCENTIVE DOCUMENTATION?

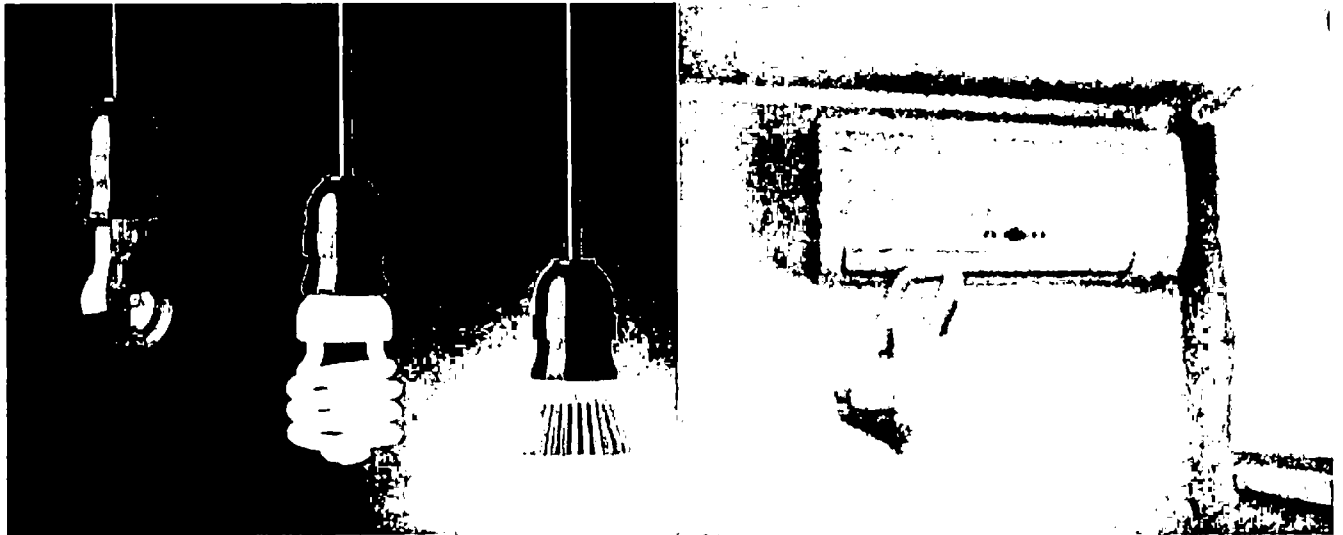
3 A. Yes. The Company recognizes the complications Staff encountered with its audit of
4 incentive documentation and has already taken several steps to improve the process. For
5 example, in the Company's response to Staff Interrogatory No. 1-007, the Company was
6 not aware of Staff's intention to tie individual rebates to the period in which those
7 payments hit the Company's books. In future filings, the Company will provide the
8 "book date" for each rebate requested to assist with Staff's audit. The Company continues
9 to be willing to collaborate with Staff to define what data would be useful in performing
10 their future audits of the Company's programs.

11 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

12 A. Yes.



Northeast Energy Efficiency Partnerships



MID-ATLANTIC TECHNICAL REFERENCE MANUAL VERSION 7.0

Final Draft

May 2017



model results, they also provide flexibility and opportunity for users to substitute locally specific information and to update some or all parameters as they become available on an ad hoc basis. One limitation is that certain interactive effects between end uses, such as how reductions in waste heat from many efficiency measures impacts space conditioning, are not universally captured in this version of the TRM.⁴

- For some of the whole-building program designs that are being planned or implemented in the Mid-Atlantic, simulation modeling may be needed to estimate savings.
- In general, the baselines included in the TRM are intended to represent average conditions in the Mid-Atlantic. Some are based on data from the Mid-Atlantic, such as household consumption characteristics provided by the Energy Information Administration. Some are extrapolated from other areas, when Mid-Atlantic data are not available. Some are based on code.
- The TRM anticipates the effects of changes in efficiency standards for measures as appropriate, specifically lighting and motors.

The following table outlines the terms used to describe the assumed baseline conditions for each measure. The third portion of each measure code for each measure described in this TRM includes the abbreviation of the program type for which the characterization is intended:

Baseline Condition	Attributes
Time of Sale (TOS)	<p>Definition: A program in which the customer is incented to purchase or install higher efficiency equipment than if the program had not existed. This may include retail rebate (coupon) programs, upstream buydown programs, online store programs, contractor based programs, or CFL giveaways as examples. May include replacement or existing equipment at the end of it's life (i.e., replace on burnout), or purchase of new equipment. In cases where a new construction characterization isn't explicitly provided, the TOS characterization is typically appropriate.</p> <p>Baseline = New standard efficiency or code compliant equipment.</p> <p>Efficient Case = New, premium efficiency equipment above federal and state codes and standard industry practice.</p> <p>Example: Appliance rebate</p>
New Construction (NC)	<p>Definition: A program that intervenes during building design to support the use of more-efficient equipment and construction practices.</p> <p>Baseline = Building code or federal standards.</p> <p>Efficient Case = The program's level of building specification</p>

⁴ They are captured for lighting and some motor-related measures.



Baseline Condition	Attributes
	<u>Example:</u> Building shell and mechanical measures
Retrofit (RF)	<u>Definition:</u> A program that <i>upgrades</i> or enhances existing equipment. <u>Baseline</u> = Existing equipment or the existing condition of the building or equipment. A single baseline applies over the measure's life. <u>Efficient Case</u> = Post-retrofit efficiency of equipment. <u>Example:</u> Air sealing, insulation, and controls.
Early Replacement (EREP)	<u>Definition:</u> A program that <i>replaces</i> existing, operational equipment. ⁵ <u>Baseline</u> = Dual; it begins as the existing equipment and shifts to new baseline equipment after the remaining life of the existing equipment is over. <u>Efficient Case</u> = New, premium efficiency equipment above federal and state codes and standard industry practice. <u>Example:</u> Refrigerators and freezers.
Early Retirement (ERET)	<u>Definition:</u> A program that <i>retires</i> inefficient, operational duplicative equipment or inefficient equipment that might otherwise be resold. <u>Baseline</u> = The existing equipment, which is retired and not replaced. <u>Efficient Case</u> = Assumes zero consumption since the unit is retired. <u>Example:</u> Appliance recycling.
Direct Install (DI)	<u>Definition:</u> A program where measures are installed during a site visit. <u>Baseline</u> = Existing equipment. <u>Efficient Case</u> = New, premium efficiency equipment above federal and state codes and standard industry practice. <u>Example:</u> Lighting and low-flow hot water measures

Going forward, the project sponsors can use this TRM, along with other Forum products on common EM&V terminology, guidelines on common evaluation methods, and common reporting formats, along with the experience gained from implementation of the efficiency programs to inform decisions about what savings assumptions should be updated and how.

Measure Cost Development and Use

Measure costs are calculated differently depending upon the program type, discussed above, used to promote a given measure. These calculations are summarized below.

Time of Sale and New Construction Incremental Costs

⁵ The criteria that are used to determine whether equipment is "operational" vary among jurisdictions and there is no related industry standard practice. This TRM provides assumptions for estimating savings and costs for early replacement measures, but does not address this threshold question of whether a measure should be considered early replacement.

CERTIFICATE OF SERVICE

I hereby certify that on this 20th day of February 2018 a true copy of the foregoing was delivered by hand or mailed, first-class, postage prepaid, to the following:

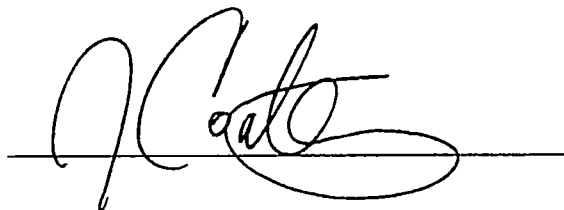
K. Beth Clowers, Esq.
Andrea B. Macgill, Esq.
Office of General Counsel
State Corporation Commission
1300 East Main Street
Richmond, Virginia 23219

Cody T. Murphey, Esq.
Office of the Attorney General
Div. of Consumer Counsel
202 N. Ninth Street
Richmond, Virginia 23219

Nathaniel H. Benforado, Esq.
William C. Cleveland, Esq.
Southern Environmental Law Center
201 W. Main Street – Suite 14
Charlottesville, Virginia 22902-5065

Cale A. Jaffe, Esq.
Dir. of Environmental & Regulatory
Law
University of Virginia School of Law
580 Massie Road
Charlottesville, Virginia 22903

Robert D. Perrow, Esq.
John L. Walker, III, Esq.
Williams Mullen
200 S. 10th Street – Suite 1600
Richmond, Virginia 23219

A handwritten signature in black ink, appearing to read "R. Perrow", is written over a horizontal line.