



**NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION**

August 11, 2021

Ms. A. Shonta Dunston, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Docket No. G-9, Sub 722 – Petition for Consolidated Construction/Redelivery Agreement; G-9, Sub 781 – Application for General Rate Increase; and G-9, Sub 786 – Application of Piedmont Natural Gas Company, Inc., for Modifications to Existing Energy Efficiency Program and Approval of New Energy Efficiency Programs

Dear Ms. Dunston:

Attached for filing in the above-referenced docket is the joint testimony of James M. Singer, Utilities Engineer, Natural Gas Section, Energy Division, and David M. Williamson, Utilities Engineer, Electric Section, Energy Division.

By copy of this letter, I am forwarding a copy to all parties of record by electronic delivery.

Sincerely,

Electronically submitted
s/ Elizabeth D. Culpepper
Staff Attorney
elizabeth.culpepper@psncuc.nc.gov

s/ Megan Jost
Staff Attorney
megan.jost@psncuc.nc.gov

Attachment

Executive Director
(919) 733-2435

Accounting
(919) 733-4279

Consumer Services
(919) 733-9277

Economic Research
(919) 733-2267

Energy
(919) 733-2267

Legal
(919) 733-6110

Transportation
(919) 733-7766

Water/Telephone
(919) 733-5610

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. G-9, SUB 722
DOCKET NO. G-9, SUB 781
DOCKET NO. G-9, SUB 786

DOCKET NO. G-9, SUB 722)
)
In the Matter of)
Consolidated Natural Gas Construction)
and Redelivery Services Agreement)
Between Piedmont Natural Gas)
Company, Inc., and Duke Energy)
Carolinas, LLC)

DOCKET NO. G-9, SUB 781)
)
In the Matter of)
Application of Piedmont Natural Gas)
Company, Inc., for an Adjustment of)
Rates, Charges, and Tariffs Applicable)
to Service in North Carolina)

DOCKET NO. G-9, SUB 786)
)
In the Matter of)
Application of Piedmont Natural Gas)
Company, Inc., for Modification to)
Existing Energy Efficiency Program)
and Approval of New Energy Efficiency)
Programs)

JOINT TESTIMONY OF
JAMES M. SINGER AND
DAVID M. WILLIAMSON
PUBLIC STAFF – NORTH
CAROLINA UTILITIES
COMMISSION

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

**DOCKET NO. G-9, SUB 722
DOCKET NO. G-9, SUB 781
DOCKET NO. G-9, SUB 786**

**JOINT TESTIMONY OF
JAMES M. SINGER AND DAVID M. WILLIAMSON
ON BEHALF OF THE PUBLIC STAFF
NORTH CAROLINA UTILITIES COMMISSION**

AUGUST 11, 2021

1 **Q. MR. SINGER, PLEASE STATE YOUR NAME, BUSINESS**
2 **ADDRESS, AND PRESENT POSITION.**

3 A. My name is James M. Singer and my business address is 430 North
4 Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am a
5 Utilities Engineer with the Energy Division of the Public Staff - North
6 Carolina Utilities Commission.

7 **Q. WOULD YOU BRIEFLY DISCUSS YOUR EDUCATION AND**
8 **EXPERIENCE?**

9 A. Yes. My education and experience are attached as Appendix A to
10 this testimony.

11 **Q. MR. WILLIAMSON, PLEASE STATE YOUR NAME, BUSINESS**
12 **ADDRESS, AND PRESENT POSITION.**

1 A. My name is David M. Williamson and my business address is 430
2 North Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am
3 a Utilities Engineer with the Energy Division of the Public Staff - North
4 Carolina Utilities Commission.

5 **Q. WOULD YOU BRIEFLY DISCUSS YOUR EDUCATION AND**
6 **EXPERIENCE?**

7 A. Yes. My education and experience are attached as Appendix B to
8 this testimony.

9 **Q. WHAT IS THE PURPOSE OF YOUR JOINT TESTIMONY?**

10 A. The purpose of our testimony is to present to the Commission the
11 Public Staff's recommendations regarding Piedmont Natural Gas
12 Company, Inc.'s (Piedmont or the Company) proposed Energy
13 Efficiency (EE) Portfolio. Our review includes an evaluation of the
14 following topics:

- 15 • The Company's historical operation of its EE portfolio;
- 16 • The Company's proposed new and modified programs, and
17 current programs that were not filed for approval in this
18 proceeding;
- 19 • The Company's cost effectiveness model and its inputs; and

- 1 • The Company's evaluation, measurement, and verification
2 (EM&V) of its programs.

3 **Q. WHAT GENERAL STATUTES, COMMISSION RULES, AND**
4 **COMMISSION ORDERS HAVE YOU APPLIED IN YOUR REVIEW**
5 **OF THE COMPANY'S APPLICATION FOR APPROVAL OF ITS**
6 **PORTFOLIO OF EE PROGRAMS?**

7 A. Since there is not a statute or Commission rule that specifically
8 addresses natural gas EE, the Public Staff has reviewed the
9 Company's application in a similar manner to how it would review the
10 programs of an investor-owned electric utility (electric IOU) EE
11 program. Commission Rule R6-95 contains guidelines for programs
12 designed to incent the use of natural gas (both EE and non-EE
13 related). This Commission Rule, along with N.C. Gen. Stat. § 62-
14 133.9 and Commission Rules R8-68 and 69 were used to help guide
15 our investigation and to create a framework by which to evaluate the
16 Company's proposal.

17 The Public Staff also reviewed previous Commission orders
18 involving natural gas EE programs, including Docket No. G-9, Subs
19 550A, and 743A. Within the Sub 743A docket, we reviewed the
20 Annual Conservation Program Reports for program years 2019 and
21 2020.

1 Q. PLEASE PROVIDE A SUMMARY OF YOUR
2 RECOMMENDATIONS.

3 A. With respect to the Company's natural gas EE programs, the Public
4 Staff recommends that the Commission:

5 1) Approve the proposed modification to its Equipment Rebate
6 Program.

7 2) Approve the proposed Commercial HVAC & Water Heating
8 Rebate Program, Residential HVAC and Water Heating
9 Program, Commercial Food Services Program, and
10 Residential New Construction Program.

11 3) Approve the Company's proposal to remove the costs of all of
12 its EE programs from base rates and allow the costs to be
13 recovered through an annual rider.

14 4) Approve the Company's entire portfolio of natural gas EE
15 programs, including the currently existing Residential Low-
16 Income and School Conservation Education programs as pilot
17 programs in order to collect operational data, perform EM&V,
18 and assess cost-effectiveness.

19 5) Require the Company to conduct more rigorous EM&V during
20 the pilot period, including both process and impact

1 evaluations, and to determine and include appropriate Net-to-
2 Gross (NTG) assumptions for each program and inputs
3 associated with avoided cost.

4 6) Approve these pilot programs for a period of three years, to
5 commence within six months of the Commission's final order
6 in this docket. At the end of the pilot period or sooner, if
7 program performance dictates, the Company should for each
8 program seek either approval as a full program or termination.
9 Any petition for full approval or termination should include
10 supporting testimony on the updated inputs for participation,
11 savings, NTG ratio, avoided costs, program costs, and cost-
12 effectiveness test results.

13 The Company's Historical Gas EE Programs

14 **Q. HAS THE COMPANY OFFERED NATURAL GAS EE PROGRAMS**
15 **IN THE PAST?**

16 A. Yes. The Company has been offering the Residential Low-Income,
17 Equipment Rebate, and School Conservation Education programs.
18 These programs were originally approved in Docket No. G-9, Sub
19 550A on March 23, 2009.

20 **Q. PLEASE DESCRIBE THESE THREE PROGRAMS.**

1 A. The Residential Low-Income Program provides EE measures and
2 weatherization assistance to low-income residential customers
3 within Piedmont's North Carolina service territory.

4 The Equipment Rebate Program provides rebates to Piedmont's
5 North Carolina customers who purchase and install qualifying high
6 efficiency natural gas heating, ventilation, and air conditioning
7 (HVAC) and water heating equipment to replace existing natural gas
8 equipment.

9 The School Conservation Education Program provides interactive
10 performances, educational lessons, and take-home activities to K-5
11 grade students on the importance of natural gas conservation and
12 safety.

13 **Q. HOW HAVE THE COSTS FOR THESE PROGRAMS BEEN**
14 **RECOVERED?**

15 A. Since program inception, the costs for these programs have been
16 recovered from customers through the Company's base rates.
17 Piedmont incurred \$1,275,000 in 2020 for program development,
18 marketing, rebates, and EM&V for these programs.

19 **Q. HAS THE COMPANY FILED ANY REPORTS ON THESE**
20 **PROGRAMS?**

1 A. Yes. The Company files an annual report on the programs that cover
2 a number of topics for each program such as the administration
3 budget, total number of measures/rebates, satisfaction surveys,
4 estimated annual therm reductions, and cost-effectiveness results.¹

5 The Company's Proposal for Gas EE Programs

6 **Q. WHAT CHANGES DOES THE COMPANY PROPOSE IN DOCKET**
7 **NO. G-9, SUB 786 FOR ITS PORTFOLIO OF EE PROGRAMS?**

8 A. First, the Company has not proposed any changes to its
9 Residential Low-Income and School Conservation Education
10 programs. The Company has indicated to the Public Staff that it did
11 not see a need to include these programs in the subject filing
12 because of their limited nature and societal and education aspects.
13 As indicated in the 2021 Annual Report, these two programs have
14 had limited participation and spending over the years and were never
15 intended to have participation greater than what was allowed by the
16 limited funding that was available. The Public Staff believes these
17 programs could be modified to advance EE and to assist customers
18 in reducing their gas utility bills.

¹ The most recent Piedmont annual report was filed in Docket No. G-9, Sub 743A, on June 15, 2021 (2021 Annual Report).

1 Second, the Company is proposing to update the measures offered
2 in its Equipment Rebate program. The Company is also renaming
3 the program as the Residential HVAC & Water Heating Program.

4 Last, the Company is requesting approval for three new Natural Gas
5 EE programs: Commercial HVAC & Water Heating Rebate Program,
6 Commercial Food Services Program, and Residential New
7 Construction Program.

8 **Q. PLEASE DESCRIBE THE COMPANY'S PROPOSED**
9 **MODIFICATIONS TO ITS EXISTING PROGRAMS AS WELL AS**
10 **ITS PROPOSED NEW PROGRAMS.**

11 A. The Commercial HVAC & Water Heating Rebate Program is a new
12 program that includes the two measures that were part of the
13 previous program (tankless water measures), additional HVAC and
14 water heating measures, and a smart thermostat measure. This
15 program is designed to provide rebates to Piedmont's North Carolina
16 commercial customers who purchase and install qualifying high
17 efficiency natural gas HVAC and water heating equipment to replace
18 their existing natural gas equipment.

19 The Residential HVAC and Water Heating Program is virtually
20 identical to the Commercial HVAC & Water Heating Rebate program

1 in terms of the measures that are offered, but the target customer
2 segment is residential customers.

3 The Commercial Food Services Program is a new program designed
4 to provide rebates to commercial customers who purchase and
5 install ENERGY STAR certified natural gas food service equipment.

6 The Residential New Construction Program is a new program
7 designed to offer incentive payments to single-family home builders
8 or designated representatives who are installing higher efficiency
9 natural gas equipment or meeting or exceeding the whole house
10 standards of the current North Carolina Energy Conservation Code
11 High Energy Residential Option (HERO). Prescriptive measures
12 offered under this program include, but are not limited to, natural gas
13 high-efficiency furnaces, water heaters, and smart thermostats. This
14 program will enable builders to offset a portion of the higher cost of
15 more efficient equipment or a more energy efficient home. For the
16 HERO measure, the incentive is \$500 per home if the builder meets
17 the requirements of the HERO code and installs a furnace with a 90%
18 AFUE² or higher.

19 This is slightly different from the incentive structure proposed by
20 Duke Energy Carolinas, LLC (DEC), in its proposed Residential New

² Annual Fuel Utilization Efficiency

1 Construction Program filed in Docket No. E-7, Sub 1155. Under
2 DEC's program, the incentive is based on a dollar per kilowatt-hour
3 saved and encompasses more whole house, building envelope
4 measures that can reduce both electricity and gas consumption.

5 Cost Effectiveness

6 **Q. PLEASE EXPLAIN HOW COST EFFECTIVENESS IS**
7 **DETERMINED.**

8 A. The cost effectiveness of measures or programs is generally
9 measured by comparing the ratio of the costs to the benefits using
10 four different tests: the Utility Cost test (UC), Total Resource Cost
11 test (TRC), Participant test, and Ratepayer Impact Measure (RIM)
12 test. Each test focuses on a different perspective and may include
13 different costs and benefits, and as a result, a program may have a
14 cost effectiveness score above 1.0 on one or more tests (the benefits
15 outweigh the costs), and below 1.0 on other tests (the costs outweigh
16 the benefits). In its review of electric EE programs and measures, the
17 Public Staff currently uses the UC test to screen for cost-
18 effectiveness, but also considers the TRC test. The Public Staff has
19 used this same approach in reviewing the natural gas EE programs.

20 The TRC test considers the net benefit or cost of an EE program as
21 a resource option based on the total costs of the program, including

1 both the participants' and the utility's costs, as well as the benefits of
2 the program, typically measured using the utility's avoided costs. The
3 UC test likewise measures benefits and costs, but on the cost side
4 only takes into account the costs incurred by the utility. A UC test
5 result greater than 1.0 indicates that the program is cost beneficial to
6 the utility (the overall system benefits are greater than the utility's
7 costs, including incentives paid to participants), thus lowering the
8 aggregate cost (and revenue requirement) of providing utility service.
9 The Participant test is used to evaluate the benefits and costs
10 specific to those ratepayers who participate in a program, looking at
11 the impact of participants' bills. The RIM test is used to understand
12 how ratepayers who do not participate in a program will be impacted
13 by the program.

14 **Q. WHAT TEST DID THE COMPANY USE TO DETERMINE COST**
15 **EFFECTIVENESS FOR ITS PORTFOLIO OF NATURAL GAS EE**
16 **PROGRAMS?**

17 A. The Company utilized the UC test as the primary test for its
18 determination of program cost effectiveness of its new EE portfolio.

19 **Q. HOW DID THE COMPANY ANALYZE THE COST**
20 **EFFECTIVENESS OF ITS PROGRAMS?**

1 A. The Company contracted the services of Nexant, Inc. (Nexant) to
 2 perform the cost effectiveness modeling for the Company's portfolio
 3 of Natural Gas EE programs.

4 **Q. PLEASE DESCRIBE THE RESULTS OF THE COST**
 5 **EFFECTIVENESS ANALYSIS AS CONTAINED IN THE**
 6 **COMPANY'S APPLICATION.**

7 A. The Company's cost effectiveness results are:

Programs	TRC	UC	Participant	RIM
Residential HVAC & Water Heating Rebates	1.04	2.04	3.37	0.34
Residential New Construction	0.68	1.06	2.43	0.30
Commercial HVAC & Water Heating Rebates	0.97	1.49	3.38	0.39
Commercial Food Services Rebates	0.71	2.05	1.79	0.42
Totals	0.80	1.34	2.87	0.32

8

9 Based on the Company's analysis, each program passes the UC and
 10 Participant tests, but only the Residential HVAC & Water Heating
 11 Program passes the TRC.

12 **Q. BASED ON YOUR REVIEW OF THE COMPANY'S COST**
 13 **EFFECTIVENESS ANALYSIS, DO YOU HAVE ANY CONCERNS?**

14 A. For purposes of this proceeding, the Public Staff believes that the
 15 Company's calculations and cost-effectiveness test results are
 16 sufficient for approval of the programs as part of a pilot. However, we
 17 do have concerns with some of the inputs that feed into the

1 calculations, and these inputs should be carefully reviewed as part
2 of the evaluation of the pilot.

3 **Q. WHAT ARE YOUR CONCERNS WITH THE INPUTS TO THE COST**
4 **EFFECTIVENESS ANALYSIS?**

5 A. As stated above, the Company has been offering three EE programs
6 to its customers for over a decade (Equipment Rebate, Residential
7 Low-Income, and School Conservation Education programs). Over
8 that time, outside of the limited data provided in the annual reports,
9 it does not appear that the Company has updated its analysis or the
10 inputs to the analysis of the cost effectiveness of its programs. The
11 only program that has had any EM&V or other assessment is the
12 Equipment Rebate program. The Public Staff's review of the
13 Equipment Rebate program evaluation has revealed two major
14 concerns with some of the inputs currently used.

15 First, in the *Order Approving Conservation Programs*, the original
16 program approval order, issued March 23, 2009, in Docket No. G-9,
17 Sub 550A (Sub 550A Order), the Commission noted the following:

18 In response to Duke's contention that Piedmont's cost-
19 effectiveness analysis failed to take into account free-
20 ridership, Piedmont asserted that its consultants
21 analyzed the likelihood of free-ridership based on up-
22 to-date data available from the New York State Energy
23 [Research] and Development Authority (NYSERDA),
24 National Grid, and Wisconsin Focus on Energy, and
25 recommended an initial net-to-gross ratio of 1.0 for
26 Piedmont's programs.

1 (Sub 550A Order at 6.)
2 Over ten years have elapsed since the issuance of the Sub 550A
3 Order and it does not appear that the Company has performed any
4 analysis to update its original assumptions regarding an NTG ratio.
5 The Company continues to use a NTG ratio of 1.0 for each program
6 measure included in the proposed EE portfolio.

7 In response to a Public Staff data request, the Company provided an
8 Equipment Rebate Program Evaluation report performed by Cadmus
9 where data was collected for calendar year 2019 (Cadmus Report).
10 Some of the results in this report show the potential for a NTG ratio
11 of less than 1.0. Namely, when asked how influential the PNG rebate
12 offer was in the decision to purchase a high-efficiency measure, 38%
13 of survey respondents replied the rebate was “not influential at all.”
14 This degree of non-influence demonstrates a potential for free
15 ridership. Free ridership connotes that the participant would have
16 implemented the measure regardless of the incentive paid (the
17 participant incentive). Free ridership is included in the calculation of
18 the NTG ratio, which is an input into the calculation of cost
19 effectiveness. NTG could also include spillover, which accounts for
20 the increase in energy savings due to additional EE measures that
21 are adopted by participants who were motivated by the program to
22 implement the program. However, the Cadmus Report does not
23 indicate the existence of any spillover.

1 The Public Staff has significant reservations with the use of a
2 universal NTG ratio of 1.0. Recent electric utility EM&V reports for
3 EE programs that offer electric versions of similar measures to those
4 offered by Piedmont's programs report a NTG ratio of less than 1.0.
5 Given these reservations, it is appropriate to find other EM&V data
6 that could serve as a proxy for the Company conducting its own
7 battery of NTG-related surveys. For example, EM&V of similar EE
8 programs offered by the electric IOUs or comparable natural gas
9 utility programs could provide an initial estimate of NTG until the
10 Company conducts its own EM&V, or, alternatively, be incorporated
11 into the Company's EM&V if the participant data is shown to be
12 comparable. The Public Staff has agreed with the use by electric
13 membership cooperatives of EE savings and inputs from the EM&V
14 of similar electric IOU EE programs to comply with N.C. Gen. Stat. §
15 62-133.8. Such proxy data suggest that overall program level NTG
16 ratios range from 0.65-0.75.³

17 The second concern is with the application and determination of
18 avoided cost benefits in the model. The Public Staff has significant
19 experience with the establishment of the avoided cost benefits to be
20 utilized in an EE program's cost benefit analysis. Over the last ten
21 years, the electric IOUs have used avoided cost benefits in their cost

³ See EM&V for the Residential and Non-Residential Smart Saver Programs, Docket No. E-7, Sub 1230, Evans Exhibit E. This EM&V report was performed by Nexant.

1 effectiveness evaluations that were based on their integrated
2 resource planning and PURPA⁴-related avoided cost proceedings.
3 However, the natural gas utilities do not have a similar proceeding to
4 establish avoided costs, including appropriate calculation
5 methodologies.

6 For this proceeding, the Company developed avoided gas
7 commodity and avoided capacity benefits and inputs that were used
8 to calculate the cost-effectiveness of the EE programs. The Public
9 Staff continues to evaluate these inputs and the methodology
10 associated with avoided cost benefits. However, for purposes of this
11 proceeding and approving the programs as pilots, the Public Staff
12 does not object to the Company's inputs and calculations. In future
13 proceedings involving cost effectiveness for natural gas EE
14 programs, the Public Staff recommends that the Commission require
15 the Company to file testimony that explains the reasonableness of
16 all proposed avoided costs that are included in its analysis.

17 **Q. BASED ON YOUR CONCERNS WITH THE INPUTS TO THE COST**
18 **EFFECTIVENESS MODEL, WHAT IS YOUR RECOMMENDATION**
19 **AS TO APPROVAL OF THE COMPANY'S PORTFOLIO OF**
20 **PROGRAMS?**

⁴ Public Utility Regulatory Policies Act (PURPA, Pub. L. 95-617, 92 Stat. 3117, enacted November 9, 1978).

1 A. The Public Staff has promoted, and will continue to promote, cost
2 effective EE that can be offered to customers through utility-
3 sponsored programs. However, before the Public Staff can agree on
4 a utility's portfolio of programs, it must ensure that the inputs being
5 used to model cost effectiveness incorporate sound assumptions
6 based on relevant and contemporaneous data applicable to the
7 Company's service territory. Additionally, since avoided costs are the
8 primary determinant of benefits for a program, the justification behind
9 the sourcing of those benefits is a critical element to the review of
10 whether a program should be considered cost effective.

11 Based on our conclusion that the Company's approach to modeling
12 the programs is sound, but the inputs need to be updated to reflect
13 more accurate data, the Public Staff recommends approval of the
14 Company's entire portfolio of programs (those included in this filing
15 as well as the Residential Low-Income and School Conservation
16 Education programs) as pilot programs for a three-year period.
17 Operating the programs as pilots will allow the Company time to
18 conduct EM&V and use the information gathered from that effort to
19 refine its inputs, assumptions, and calculations of cost effectiveness.

20 During this three-year period, the Company should work to evaluate
21 and broaden its efforts to market and educate its customers about
22 EE, increase participation in the programs, and evaluate the

1 performance of the programs. The Public Staff also encourages the
2 Company to seek approval as a full program before the end of the
3 three-year period if participation and performance suggest that it is
4 cost effective. Alternatively, with the exception of low-income
5 programs, if the program is underperforming and cannot be
6 remediated, the Company should seek to terminate the program. In
7 other words, if the data provide a strong basis for action, the
8 Company should not wait until the end of the three-year period to
9 address performance and cost effectiveness.

10 Additionally, the Public Staff strongly encourages the Company to
11 pursue ways to address and enhance its delivery of EE measures to
12 residential low income customers.

13 Evaluation, Measurement, and Verification

14 **Q. PLEASE DESCRIBE THE COMPANY'S PAST EFFORTS IN THE**
15 **AREAS OF EM&V.**

16 A. As stated earlier in our testimony, the Company currently files an
17 annual report that provides a description of the program, summary
18 of the measures involved along with the applicable measure
19 efficiency standards, the number of participants for each measure,
20 program expenditures, and therm savings. While these reports have
21 met past Commission requirements, the Public Staff believes that as

1 the Company expands its offerings and seeks annual recovery
2 through a rider, the Company should increase the level of rigor in its
3 examination of program performance.

4 **Q. WHAT EM&V IS THE COMPANY PROPOSING FOR THESE NEW**
5 **OR MODIFIED PROGRAMS?**

6 A. In response to Public Staff discovery, the Company provided the
7 following response regarding its EM&V plans for the programs:

8 Piedmont has not yet put together an EM&V plan that
9 would be utilized for the modified and new programs
10 under Docket No. G-9, Sub 786. Piedmont has
11 discussed with Nexant some potential options for
12 developing a comprehensive EM&V plan. The
13 objectives of the plan would try to encompass the
14 following:

- 15 • Verification of natural gas savings for the installed
16 measures based on program planning specific
17 data; where practicable and available.
- 18 • Process and market evaluation to assess
19 program implementation, customer satisfaction,
20 contractor/builders/partners feedback and
21 determine action items that would benefit and
22 improve the programs.

23 Some of the data sources that would be utilized during
24 the EM&V evaluation could include, but are not limited
25 to, the following:

- 26 • Program participation records, including customer
27 applications and program tracking system data.
- 28 • Primary data collection from participating
29 customers, including analysis of billing
30 information and participant surveys.

- 1 • Secondary data collection of Piedmont-specific
2 metrics, including weather station data in
3 Piedmont's service territory and other population
4 data specific to Piedmont's territory.

5 For the EM&V plan of the 5-year term of the program
6 cycle, Piedmont has discussed some options for the
7 scheduling of the impact and process evaluation, but
8 the specific frequency and timing of these evaluation
9 activities has not yet been determined.

10 (Response to Public Staff Data Request 90-6.f.)

11 **Q. DOES THE PUBLIC STAFF AGREE WITH THE COMPANY'S**
12 **APPROACH TO EM&V?**

13 A. In the context of gas utility regulation, EM&V has not been as critical
14 as it has for regulated electric utilities and unregulated utilities subject
15 to N.C. Gen. Stat. § 62-133.8. The natural gas utilities do not receive
16 an incentive as provided to the electric IOUs that is based on the
17 savings achieved by their EE programs as determined through
18 EM&V.

19 When the natural gas EE programs were initially approved in Docket
20 No. G-9, Sub 550, there was little mention of how the EE programs
21 should be evaluated. The Sub 550A Order discusses evaluation of
22 EE programs in more detail:

23 Piedmont pointed out that the amount of incentives
24 proposed under Piedmont's conservation proposals
25 total only \$1.275 million a year in spending. Piedmont
26 argued that if it were to commit the same dollars to the
27 evaluation of its programs as Duke, there likely would
28 be no money left to actually implement the programs.

1 This is an argument that cannot be ignored. Testing
2 and monitoring are not free. At the same time, there is
3 clearly a need to ensure that money is being effectively
4 spent. The Commission notes that the Public Staff also
5 commented on the assumptions made by Piedmont
6 and questioned the relevance of the Utility Cost Tests
7 presented by Piedmont. However, the Public Staff
8 stated that it did not oppose the implementation of
9 these programs because of their societal benefit.
10 Likewise, the Attorney General did not oppose the
11 implementation of the programs as revised.

12 (Sub 550A Order at 8.)

13 The Commission agrees with Piedmont's argument
14 that the questions on cost-effectiveness tests raised by
15 Duke are beyond the scope of this proceeding.
16 Piedmont expressed a willingness to participate in a
17 proceeding to explore the possibility of adopting
18 generic standards for testing protocols for gas and
19 electric conservation programs, provided that all
20 matters relevant to gas and electric conservation
21 programs were open to discussion and analysis.
22 Although the methodology of Piedmont's cost-
23 effectiveness tests and implementation plans was
24 questioned, no party specifically opposed the
25 implementation of these programs. The Commission
26 concludes that Piedmont's conservation programs, as
27 revised, should be approved.

28 (Sub 550A Order at 9.)

29 This highlights the fact that evaluation of the natural gas EE
30 programs beyond the initial efforts to estimate the program savings
31 and cost-effectiveness of those programs was less rigorous than that
32 required for the electric IOUs' EE programs. Since the passage of
33 N.C. Gen. Stat. §§ 62-133.8 and 62-133.9 in 2007, the Public Staff
34 has become more experienced in reviewing and evaluating the
35 performance of EE programs. The lessons learned from that

1 experience strongly support the need for a greater level of rigor in
2 the evaluation of gas EE programs to appropriately verify savings
3 and cost effectiveness.

4 The Public Staff supports the Company's path toward EM&V
5 planning and is committed to working with the Company to refine the
6 process to ensure that it is able to determine "net" program savings
7 for each program. The fact that the Company has not fully developed
8 its evaluation plans provides further support for the Public Staff's
9 recommendation that the programs be approved as pilots.

10 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

11 **A. Yes.**

1 JAMES M. SINGER

2 I am a graduate of Penn State University with a Bachelor of Science
3 degree in Mechanical Engineering. Upon graduation, I worked as a Station
4 Engineer at FirstEnergy Corp., responsible for maintaining, troubleshooting,
5 and optimizing unit equipment and operations. I also held positions as a
6 Project Engineer and as an Analyst in FirstEnergy's Commodity Operations
7 group, where I performed benefit-cost analysis for projects throughout the
8 company.

9 In 2008, I accepted a position with Progress Energy as a Boiler
10 Engineer, responsible for operational and reliability issues for two top-tier
11 boilers and the performance of boiler inspections across the Progress
12 Energy fleet. After Progress Energy's merger with Duke Energy, I
13 transitioned to a Project Manager role, focusing on gas turbine overhaul and
14 generator repair projects.

15 In 2020, I worked as Consulting Engineer with Novo Nordisk in
16 Clayton, NC, on the DAPI-US project - the largest pharmaceutical
17 manufacturing project in the world. I was responsible for reviewing turnover
18 documentation from the general contractor and troubleshooting operating
19 systems.

20 I joined the Public Staff Energy Division in March of 2021.

1 **QUALIFICATIONS AND EXPERIENCE**

2 DAVID M. WILLIAMSON

3 I am a 2014 graduate of North Carolina State University with a
4 Bachelor of Science Degree in Electrical Engineering. I began my
5 employment with the Public Staff's Electric Division in March of 2015. In
6 August of 2020, the Electric Division merged with the Natural Gas Division
7 to form the Energy Division, where I am a part of the Electric Section –
8 Rates and Energy Services. My current responsibilities include reviewing
9 applications, making recommendations for certificates of public
10 convenience and necessity of small power producers, master meters, and
11 resale of electric service, and interpreting and applying utility service rules
12 and regulations. Additionally, I am currently serving as a co-chairman of the
13 National Association of State Utility and Consumer Advocates' (NASUCA)
14 DER and EE Committee.

15 My primary responsibility within the Public Staff is reviewing and
16 making recommendations on DSM/EE filings for initial program approval,
17 program modifications, EM&V evaluations, and ongoing program
18 performance of DEC, DEP, and DENC's portfolio of programs. I have filed
19 testimony in various DEC, DEP, and DENC DSM/EE rider proceedings, as
20 well as recent general rate case proceedings.