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February 4, 2022

**VIA ELECTRONIC FILING**

Ms. Antonia Dunston  
Chief Clerk  
North Carolina Utilities Commission  
430 N. Salisbury Street, Dobbs Building  
Raleigh, North Carolina 27603

**Re: Docket No. G-9, Sub 781**  
**Docket No. G-9, Sub 786**  
**Docket No. G-9, Sub 722**

Dear Ms. Dunston:

Pursuant to Paragraph No. III.AA.1.a. of the Stipulation of Partial Settlement filed in the above-referenced dockets on September 7, 2021, and approved by the Commission's January 6, 2022 *Order Approving Stipulation, Granting Rate Increase, and Requiring Customer Notice*, Piedmont Natural Gas Company, Inc. ("Piedmont" or the "Company") submits cost-effectiveness calculations for its Residential Low-Income Program and the School Conservation Education Program, attached hereto as Attachment 1 and Attachment 2, respectively. To be consistent with the methodology used in the Company's rate case, Piedmont worked with the same outside consultant, Nexant-Resource Innovations, to provide the energy efficiency benefit/cost analysis for its Residential Low-Income Program and the School Conservation Education Program.

Thank you for your assistance with this matter. If you have any questions regarding this filing, you may reach me at the number shown above.

Sincerely,

/s/ James H. Jeffries IV  
James H. Jeffries IV

JHJ/rkg

Enclosure

cc: Lucy Edmondson  
Elizabeth Culpepper  
Bruce Barkley  
Pia Powers  
Parties of Record

**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a copy of the attached is being served this date upon all of the parties to this docket electronically or by depositing a copy of the same in the United States Mail, First Class Postage Prepaid, at the addresses contained in the official service list in this proceeding.

This the 4th day of February, 2022.

/s/ Richard K. Goley  
Richard K. Goley

# ATTACHMENT 1

## RESIDENTIAL LOW-INCOME PROGRAM COST-EFFECTIVENESS CALCULATIONS

Per the September 7, 2021, Stipulation of Partial Settlement with the Public Staff, Piedmont performed a cost-effectiveness analysis for the Residential Low-Income Program. To be consistent with the methodology used in the Rate Case, Piedmont worked with the same consultant, Nexant-Resource Innovations, to provide the energy efficiency benefit/cost analysis for this Program. Below is the cost-effectiveness results and the assumptions used by Nexant-Resource Innovations.

COST EFFECTIVENESS TESTS - LOW INCOME (5 Years)								
MEASURE	Total Resource Cost (TRC)		Participant Test (PCT)		Utility Cost Test (UCT)		Ratepayer Impact Measure Test (RIM)	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C
R-IQ - Whole Home Savings	-\$327,212	0.1	\$132,373	1.3	-\$327,212	0.1	-\$459,585	0.1
Program Costs	-\$608,338	0.0	\$0	N/A	-\$608,338	0.0	-\$608,338	0.0
<b>Totals</b>	<b>-\$935,550</b>	<b>0.1</b>	<b>\$132,373</b>	<b>1.3</b>	<b>-\$935,550</b>	<b>0.1</b>	<b>-\$1,067,923</b>	<b>0.0</b>

### Assumptions:

To represent savings for Piedmont's Residential Low-Income program, average savings impacts from the DOE Weatherization Assistance Program (WAP) were applied to estimated space heating consumption data for Piedmont's customers, as follows:

- 18% annual heating consumption savings from DOE WAP Fact Sheet ([https://www.energy.gov/sites/default/files/2021/01/f82/WAP-fact-sheet\\_2021\\_0.pdf](https://www.energy.gov/sites/default/files/2021/01/f82/WAP-fact-sheet_2021_0.pdf))
- Estimated participation level of 35 homes per year
- Average Piedmont customer consumption estimate – 580 therms
- Average end-use consumption for natural gas space heating – 64.4%<sup>1</sup>
- Savings estimate: 67.2 therms/home

Just like the DOE's WAP, Piedmont knows that low-income customers benefit from this program, not only from a better comfort and healthy environment perspective, but also from an energy savings perspective. This societal program, although not "cost-effective" from an analysis perspective, continues to provide low-income customers with energy efficiency improvements that help them save energy and thus enable them to spend less money on their utility bills. The program also helps create a more energy efficient and comfortable environment for the low-income homeowner.

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<sup>1</sup> 2015 U.S. Energy Information Administration Residential Energy Consumption Survey – Table CE4.4 Annual household end-use consumption by fuel in the South (based on data for South Atlantic census division): <https://www.eia.gov/consumption/residential/data/2015/c&e/ce4.4.xlsx>.

# ATTACHMENT 2

## SCHOOL CONSERVATION EDUCATION PROGRAM COST-EFFECTIVENESS CALCULATIONS

Per the September 7, 2021, Stipulation of Partial Settlement with the Public Staff, Piedmont performed a cost-effectiveness analysis for the School Conservation Education Program. To be consistent with the methodology used in the Rate Case, Piedmont worked with the same consultant, Nexant-Resource Innovations, to provide the energy efficiency benefit/cost analysis for this Program. Below is the cost-effectiveness results and the assumptions used by Nexant-Resource Innovations.

COST EFFECTIVENESS TESTS - SCHOOL EDUCATION PROGRAM (5 Years)								
MEASURE	Total Resource Cost (TRC)		Participant Test (PCT)		Utility Cost Test (UCT)		Ratepayer Impact Measure Test (RIM)	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C
R-Conservation Education - Behavioral changes in home	\$106,518	99.9	\$277,211	99.9	\$106,518	99.9	-\$170,693	0.4
Program Costs	-\$656,480	0.0	\$0	N/A	-\$656,480	0.0	-\$656,480	0.0
<b>Totals</b>	<b>-\$549,962</b>	<b>0.2</b>	<b>\$277,211</b>	<b>99.9</b>	<b>-\$549,962</b>	<b>0.2</b>	<b>-\$827,173</b>	<b>0.1</b>

### Assumptions:

- Based on historic Piedmont program performance and annual budgets for the continuing program, the National Theatre for Children estimates performances will continue to reach up to 25,000 students annually.
- To represent savings achieved through Piedmont's School Conservation Education Program, the savings impacts approach from a similar education program offered in North Carolina, was reviewed and applied. Public Service Company of North Carolina ("PSNC") offers a very similar program, run by the same third-party implementer for schools in their service territory. Based on a review of PSNC's 2020 Annual Report, (<https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=0ba2f8d3-2f21-4e1a-b045-39171f556dc7>), the program current estimates approximately 16 therms per participant, while assuming participation based on:
  - two-thirds of students who saw the education program would relay the information to an adult,
  - conservatively estimating 50% of the households reached would have natural gas service, and
  - 10% of those households would set back their thermostat two degrees in order to reduce their gas consumption.

Because the impacts of behavior-based education programs are difficult to measure and costly to validate, Piedmont has historically not attempted to project potential energy savings or conduct cost-effectiveness testing for the program. Measuring cost effectiveness for behavior-based programs is significantly more complex and the results are less reliable than for measure-based programs because they must rely on a range of assumptions regarding energy savings attributes (level, reliability, and persistence). Piedmont anticipates that its school-based natural gas education program, although not

“cost-effective” from an analysis perspective, does have some impact on energy use behaviors and choices among the students and their families, as well as teachers and the broader community.