

**Virginia State Corporation Commission
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Case Number (if already assigned) PUR-2020-00117

Case Name (if known) Establishing the rates, terms and conditions of a universal fee to be paid by the retail customers of Appalachian Power Company

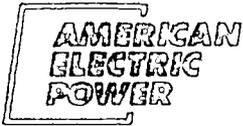
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July 21, 2020

By Electronic Filing

The Honorable Joel H. Peck, Clerk
State Corporation Commission
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**Re: Establishing the rates, terms and conditions of
a universal fee to be paid by the retail customers of
Appalachian Power Company
Case No. PUR-2020-00117**

Dear Mr. Peck:

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

Sincerely,

Noelle J. Coates

Attachment

cc: Raymond L. Doggett, Jr., Esq.
Andrea B. Macgill, Esq.
C. Meade Browder, Jr., Esq.

APCo Exhibit No. _____
Witness: WKC

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**DIRECT TESTIMONY OF
WILLIAM K. CASTLE
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2020-00117**

SUMMARY OF DIRECT TESTIMONY OF WILLIAM K. CASTLE

My direct testimony calculates the initial, first year, non-bypassable Universal Service Fee for Appalachian Power using a series of estimates in lieu of information and rules that will ultimately be provided by the Virginia Department of Housing and Community Development and the Virginia Department of Social Services.

I support an initial Universal Service Fee of \$0.00119/kWh, which is two-thirds of the value calculated as the steady state rate to account for a ramp up in participation in the first year. This equates to a charge of \$1.19 per month for a residential customer who consumes 1000 kWh/month.

I describe the assumptions made for administrative costs and the weatherization component of the PIPP program.

I describe the assumptions that had to be made, in lieu of eligibility criteria approved by the General Assembly, and program experience in the Commonwealth, in order to develop the initial Universal Service Fee.

Finally, I offer some rate design considerations for the Commission.

**DIRECT TESTIMONY OF
WILLIAM K. CASTLE
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2020-00117**

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

2 A. My name is William K. Castle. I am the Director of Regulatory Services-VA/TN for
3 Appalachian Power Company (APCo or the Company), and my business address is 1051
4 East Cary St., Suite 1100, Richmond, Va. 23219.

5 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
6 **BUSINESS EXPERIENCE.**

7 A. I earned a Bachelor of Science degree in Mechanical Engineering from Tulane University
8 in 1988, and a Masters of Business Administration degree from the University of Texas –
9 Austin in 1998. I hold the Chartered Financial Analyst (CFA) designation. I served in
10 the U.S. Navy from 1988-1996. I have worked in the utility industry since 1998,
11 beginning with the Columbia Energy Group, Herndon, Virginia, where I held positions in
12 financial planning and corporate finance. Subsequent to the acquisition of Columbia
13 Energy Group by Merrillville, Indiana-based NiSource in 2000, I performed financial
14 planning and analysis functions. In 2004 I was employed by American Electric Power
15 Service Corporation (AEPSC) in the Resource Planning group. In 2014, I accepted my
16 current position.

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1 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY AS A WITNESS**
2 **BEFORE ANY REGULATORY COMMISSION?**

3 A. Yes. I have presented testimony on behalf of APCo before the Virginia State
4 Corporation Commission in several proceedings, most recently in Case No. PUR-2020-
5 00015. I have also presented testimony for Indiana Michigan Power Company, Public
6 Service Company of Oklahoma, Ohio Power Company, Columbus Southern Power
7 Company, and Southwestern Electric Power Company. I have testified in the states of
8 Ohio, Oklahoma, Indiana, West Virginia, Arkansas, and Virginia.

9 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

10 A. The purpose of my testimony is to:

- 11 • Develop the Company's non-bypassable Universal Service Fee (USF) designed to
12 reimburse the Company for costs associated with the Percentage of Income Payment
13 Program, referred to as PIPP.
- 14 • Detail the Company's assumptions in developing this initial rate.
- 15 • Discuss the utility's role in these programs and the hand-offs with State Agencies
16 charged with administering these programs, particularly around the establishment of
17 terms and conditions.
- 18 • Discuss other costs that the utility may incur that have not been quantified or may not
19 be appropriate to include in the USF.

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

21 A. Yes.

- 22 • Exhibit WKC-1 details the assumptions and calculations used to arrive at the non-
23 administrative costs of the PIPP program.
- 24 • Exhibit WKC-2 calculates the first year revenue requirement and Universal Service
25 Fee rate.

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1 **Q. PLEASE PROVIDE A SUMMARY OF THE PIPP AS YOU UNDERSTAND IT.**

2 A. The PIPP program was established in the Virginia Clean Economy Act, which became
3 effective July 1, 2020. Its stated objectives are to limit the energy burden of eligible
4 participants by limiting electric bill payments directly to no more than six percent of the
5 eligible participant's annual income if the household's heating source is anything other
6 than electricity, and to no more than ten percent of an eligible participant's annual
7 household income on electricity costs if the household's heating source is electricity. To
8 effect this, the utility bills the qualified participant a predetermined amount while an
9 agency of the state pays the utility the difference between the actual bill and the
10 predetermined amount. The USF is designed to collect, from all customers, funds
11 sufficient to pay the utility that difference as well as costs required to administer the
12 program. Second, participants are to reduce the amount of energy used through
13 participation in weatherization or energy efficiency programs and energy conservation
14 education programs.

15 **Q. HAVE THE RULES AROUND ELIGIBILITY AND PROGRAM**
16 **IMPLEMENTATION BEEN DEVELOPED?**

17 A. The Virginia Department of Housing and Community Development and the Virginia
18 Department of Social Services are two state agencies charged with developing
19 recommendations regarding the implementation of the PIPP, and those recommendations
20 are due to the Chairs of House Committee on Labor and Commerce and the Senate
21 Committee on Commerce and Labor by December 1, 2020. Thus, many of the criteria

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1 and parameters necessary for developing an accurate initial estimate are not yet known,
2 including costs for agency administered weatherization programs.

3 **Q. DESPITE THE LACK OF INFORMATION, HAS THE COMPANY DEVELOPED**
4 **AN INITIAL RATE FOR THE NON-BYPASSABLE UNIVERSAL SERVICE**
5 **FEE?**

6 A. Yes. The Company has calculated an annual revenue requirement of \$23.2 million to
7 fund PIPP in its retail service territory. This is comprised of \$17.8 million for benefits
8 for participants, plus administrative costs of the Agencies administering the program,
9 incremental costs expected to be incurred by the Company, the initial funding of an
10 reserve balance, the purpose of which I will describe later in my testimony, as well as to
11 fund the Agency administered weatherization programs. These amounts equate to
12 estimated annual participation of 18,900 electric heating customers and 12,600 non-
13 electric heating customers with an annual benefit of \$530 and \$620, respectively.
14 Collecting this fee from all customers through an energy charge comes to
15 \$0.001674/kWh. Because the program is starting from zero, it may be the case that a
16 ramp-up in participation will occur. Accounting for a ramp-up in participation, the
17 Company proposes to limit the first year revenue requirement to two-thirds of the long-
18 term, steady state participation rate, or \$0.001116/kWh, or \$1.12 a month for a customer
19 using 1000kWh/month. I discuss other rate design proposals and considerations further
20 in my testimony.

1 approximately \$0.1178/kWh,¹ on average, or 15% higher than APCo's current rates,
2 which contributes to the higher average benefit.

3 **Q. HOW DID THE COMPANY ARRIVE AT AN ESTIMATE FOR THE BENEFITS**
4 **PAID TO PARTICIPANTS?**

5 A. The estimate is built on assumptions. The number of eligible customers must first be
6 estimated. Because the eligibility criteria has not yet been established, the Company had
7 to assume that eligibility would be similar to eligibility for a low income program for
8 which data is available to the Company in order to construct an estimate. The Company
9 used data from the Supplemental Nutrition Assistance Program (SNAP) to gauge the
10 number of customers in its service territory who would likely meet PIPP program
11 eligibility once the criteria are established. It is estimated that approximately 14% of
12 households in APCo's Virginia service territory are eligible for SNAP. The median
13 household income for that cohort is approximately \$11,000 annually. This compares to
14 an average household income of \$11,250 for participants in the AEP Ohio PIPP. Second,
15 the Company assumed PIPP participation would be proportionate to participation in AEP
16 Ohio, or approximately 7.0% of customers. This equates to approximately 50% of the
17 customers estimated to be eligible for PIPP or about 31,500 customers. The Company
18 then estimated the number of participating eligible electric heating customers and their
19 typical annual consumption and the number of participating eligible non-electric

¹ <https://www.energybot.com/ohio-energy.html#:~:text=Last%20updated%20June%202020&text=The%20average%20Ohio%20residential%20electricity,lower%20than%20the%20national%20average>).

1 customers and their typical annual consumption. The Company used its average electric
2 heating and non-electric consumption values of 14,984 kWh/year and 11,566 kWh/year,
3 respectively as an estimate of PIPP participant consumption. The Company used the mix
4 of its electric heating and non-electric heating customers, as determined by heat source
5 information contained in its customer information system for customers who receive
6 payment assistance of any kind. These assumptions and calculations are included in
7 Exhibit WKC-1.

8 **Q. WHAT ADDITIONAL PROGRAM COSTS WERE ESTIMATED OR ASSUMED**
9 **TO COME UP WITH A TOTAL REVENUE REQUIREMENT?**

10 A. The Company had to assume an amount of funding for agency administered
11 weatherization programs. In lieu of an actual program and funding levels to be
12 determined, presumably, by the General Assembly, the Company assumed its share of a
13 statewide program would be \$1.2 million.²

14 **Q. DID THE COMPANY INCLUDE AN ESTIMATE OF ADMINISTRATIVE**
15 **COSTS?**

16 A. Yes. Using the same methodology to scale administrative costs in Ohio to APCo's
17 Virginia service territory, a Agency administrative cost of \$571 thousand was included in
18 determining its USF rate.³

² Ohio's most recent PIPP filing (see Case No. 19-1270-EL-USF Opinion and Order) included approximately \$11.5 million in weatherization and consumer education. Scaling costs based on energy consumption, APCo's proportionate share of a similar weatherization program equates to \$1.2 million annually.

³ Ohio agency administrative costs of \$5.4 million were authorized (Case No. 19-1270-EL-USF Opinion and Order).

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1 **Q. DID THE COMPANY ASSUME ANY COSTS TO ADMINISTER AND**
2 **IMPLEMENT THE PROGRAM?**

3 A. The Company expects to incur incremental costs to manage its portion of the program.
4 Under a scenario where the Agencies fully administer the program, these costs are limited
5 to approximately one FTE to perform analysis, interface with Agency representatives,
6 and account for the PIPP program. Additional call center employees or contractors will
7 be necessary to handle increased call volumes related to PIPP as it is a complex program.
8 At AEP Ohio, there were 92,088 calls during the first 26 weeks of 2020 related to PIPP.
9 At five minutes per call, this equates to an annual cost of \$340,000. Scaling for the
10 number of estimated participants, this equates to approximately \$100,000 annually.
11 Finally, the Company's customer information system will likely need extensive
12 programing changes to accommodate the new program. The Company proposes, for the
13 purposes of establishing a placeholder value, including an annual cost of \$200,000 to
14 cover incremental costs to administer PIPP.

15 **Q. WHAT IS THE PURPOSE OF A RESERVE ACCOUNT?**

16 A. Because the Agency administering PIPP must reimburse the Company for the portion of
17 the bill not paid, but not the responsibility of the eligible participant, it has been found to
18 be prudent⁴ have an amount in reserve to act as a cushion if that reimbursement amount is
19 greater than what it is recovering in revenues that month. In subsequent months, the
20 reserve account is funded if reimbursements are less than revenues. But, initially,

⁴ See discussion of reserve balance in Ohio Case No. 19-1270-EL-USF Opinion and Order, paragraph 17.

1 establishing that reserve account requires additional revenue. The Company assumed the
2 establishment of an reserve account equal to 15% of the first year revenue requirement.

3 **Q. DOES THAT CONCLUDE THE DISCUSSION OF COSTS USED TO**
4 **DETERMINE THE INITIAL USF?**

5 A. Yes. From the assumptions and elements described, the annual revenue requirement and
6 USF rate can be determined. The calculations are included as Exhibit WKC-2.

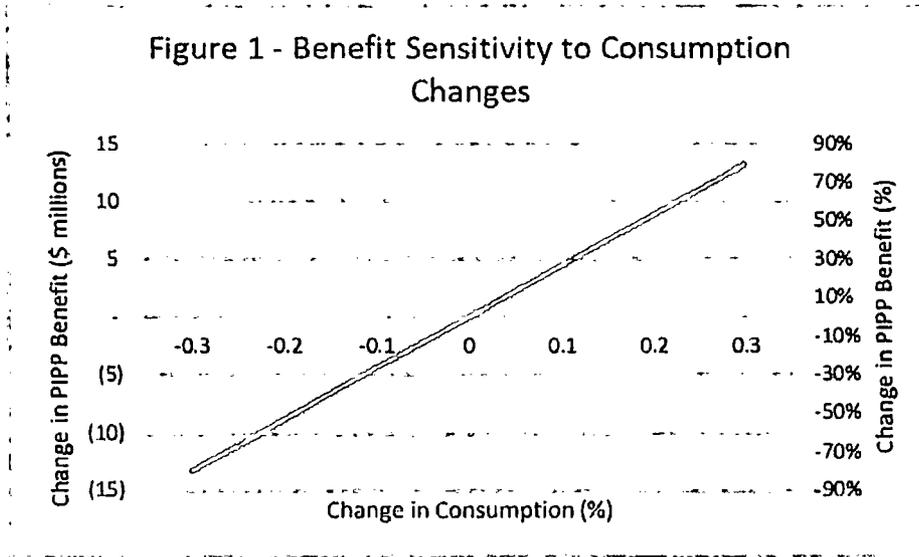
7 **Q. PLEASE DESCRIBE THE VARIABLES THAT CAN MAKE THE PIPP**
8 **EXPENSES MORE OR LESS THAN THE COMPANY'S ESTIMATE?**

9 A. The actual program costs will vary, potentially significantly so, from the Company's
10 estimate for any and all of the following reasons:

11 1. Weather. Colder than normal weather in the winter (and warmer than normal weather
12 in the summer) will cause consumption to increase above what was assumed. This can
13 have a dramatic impact on the accuracy of the estimate. To demonstrate this, I performed a
14 sensitivity analysis. [Figure 1 shows [s1]PIPP benefit amounts as a function of changes in
15 consumption, in both absolute and percentage terms. As can be seen, large swings in

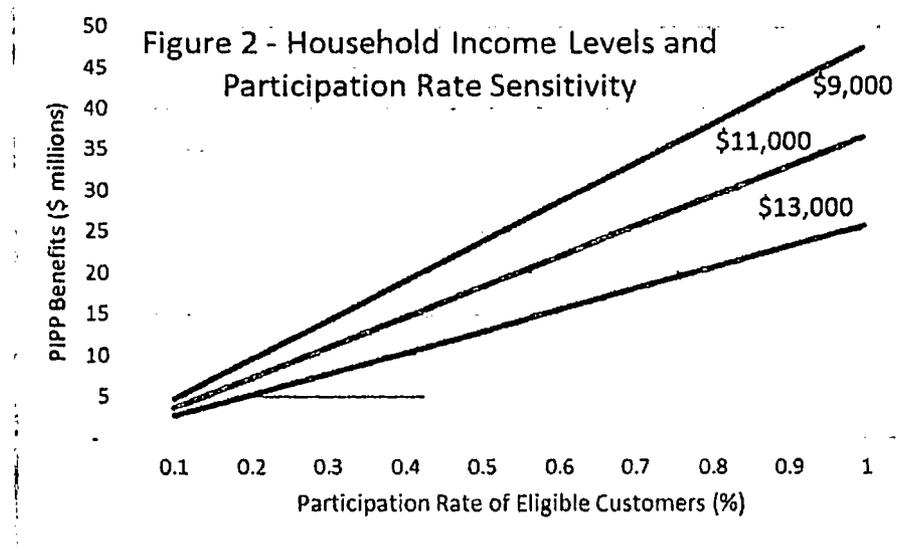
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1 benefit costs can result from normal variations in weather-related consumption.



2

3 2. Income levels and participation vary from what is assumed. To show a range of
4 possible program costs, I varied the assumed income levels and participation rates. Figure
5 2 shows that is participant incomes are less than assumed, program costs will be
6 higher.[s2]



7

1 3. The administrative costs and those collected to fund the weatherization program are
2 more or less than assumed.

3 **Q. WILL THE ESTIMATE LIKELY BECOME MORE RELIABLE WITH TIME?**

4 A. Yes, as participation levels stabilize and become more predictable. Weather will become
5 the main cause of variance between the estimate and the experienced actual costs.

6 **Q. ARE THERE OTHER COSTS THE COMPANY IS LIKELY TO ENCOUNTER
7 THAT HAVE NOT BEEN ESTIMATED?**

8 A. Yes. Depending upon the rules that are ultimately recommended by the stakeholder
9 group and subsequently approved by the General Assembly, the Company may have to
10 make significant modifications to its customer billing system, which may take as long as
11 18 months.

12 **Q. WHAT HAS THE COMPANY ASSUMED RELATED TO THE RECOVERY OF
13 ARREARAGES?**

14 A. The Company assumed that the level of bad debt expense will not vary materially with its
15 experience in base rates and did not factor additional bad debt expense into the USF
16 calculation. Of course, with experience, this assumption may be modified.

17 **Q. HOW DOES THE COMPANY EXPECT THE OBJECTIVE OF REDUCING
18 ENERGY CONSUMPTION THROUGH WEATHERIZATION, ENERGY
19 EFFICIENCY AND CONSERVATION TO BE MET?**

20 A. Although the regulations guiding implementation of PIPP are yet to be written, the
21 Company assumes that this aspect of the program will be implemented and led by the

1 appropriate state agency using funds collected through the USF. This treatment would be
2 consistent with how the program is administered in Ohio.

3 **Q. WILL ALLOWING PIPP PARTICIPANTS TO PARTICIPATE IN CURRENT**
4 **COMPANY SPONSORED LOW INCOME WEATHERIZATION PROGRAMS**
5 **REDUCE PIPP PROGRAM COSTS?**

6 A. Again, this aspect of program design must be decided by the General Assembly, but
7 generally, there would likely be overlap in Agency-administered programs and
8 weatherization programs administered by the Company and recovered through its EE-
9 RAC.

10 **Q. HOW WILL PIPP ELIGIBILITY BE DETERMINED AND MONITORED?**

11 A. Again, absent laws guiding the implementation of the PIPP in Virginia, the Company
12 asserts that these functions are appropriately performed by state agencies. The Company
13 will rely on the appropriate agency to provide the Company with updated files
14 periodically, likely monthly, to ensure its customer billing system reflects accurate
15 information.

16 **Q. ARE PROGRAM PARTICIPANTS EXEMPT FROM PAYING THE USF?**

17 A. Again, absent laws guiding the implementation of the PIPP in Virginia, the Company
18 asserts that participants should pay the fee and that the law does not preclude that.
19 Because eligible participants are capped at a percentage of income, the fee becomes, as a
20 practical matter, a cost of the program. Note, the total calculated expense is grossed up
21 by the amount of assumed eligible participation levels to reflect that. See the difference
22 in Line 8 and Line 6 in Exhibit WKC-2. Excluding eligible participating customers from

1 the USF is also problematic, if not practically impossible, from a customer billing system
2 perspective.

3 **Q. ARE THERE RATE DESIGN CONSIDERATIONS FOR THE COMMISSION TO**
4 **CONSIDER?**

5 A. Yes. The Commission may wish to consider a declining block structure that limits the
6 exposure of energy intensive industries to PIPP costs. For instance, Ohio currently has a
7 secondary rate applicable to consumption over 833,000 kWh.

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

9 A. Yes.

Assumptions

[A]	Average Eligible Household Income	\$11,000
[B]	Average Household Electric Heating Consumption (kWh)	14,984
[C]	Average Household Non-Electric Heating Consumption (kWh)	11,566
[D]	Number of Eligible Customers	64,521
[E]	Percentage of Eligible Customers who Participate	0.49
[F]	Percentage of Eligible Customers with Electric Heat	0.5997

Calculations

	Estimated Average Annual Participant Bill	
[G] = [B] x [P] + 12 x [Q]	Electric Heating	1,630
[H] = [C] x [P] + 12 x [Q]	Non-electric Heating	1,280
	Estimated Average Annual Participant Responsibility	
[I] = 10% x [G]	Electric Heating	1,100
[J] = 6% x [H]	Non-electric Heating	660
	Estimated Average Annual PIPP Cost/Participant	
[K] = [G] - [I]	Electric Heating	530
[L] = [H] - [J]	Non-electric Heating	620
	Estimated Total PIPP Cost	
[M] = [D] x [E] x [F] x [K]	Electric Heating	10,021,197
[N] = [D] x [E] x [1-F] x [L]	Non-electric Heating	7,822,253
[O] = [M] + [N]	Total	<u>17,843,451</u>

Current Residential Rates (Subject to Change)

[P]	Energy Charge (\$/kWh)	0.10244
[Q]	Customer Charge (\$/month)	7.96

Line	Source	Revenue Requirement Elements	Amount
1	From Exhibit 1 [O]	Annual PIPP Customer Benefit	\$ 17,843,451
2	Assumption	APCo Administrative Expenses	\$ 200,000
3	Assumption	Establishment of Escrow	\$ 2,676,518
4	Assumption	APCo Share of Agency Administrative Expenses	\$ 570,904
5	Assumption	APCo Share of Weatherization Costs	\$ 1,222,593
6		Revenue Requirement	\$ 22,513,465
	PIPP kWh/Annual Billing kWh x Revenue Requirement	PIPP not collected from Participants	\$ 696,532
7			
8		Total Billed Amount	\$ 23,209,997

Billing Determinants

9	2022 Assumed Billed kWh	Annual Billing kWh	13,863,060,400
10	Exhibit 1 [[B] + [C]] x 12	PIPP kWh	428,902,048
11		Non-PIPP kWh	13,434,158,352
	Total Billed Amount/Annual Billing kWh	Universal Service Fee (\$/kWh)	\$ 0.001674
12		Initial Universal Service Fee (\$/kWh)	\$ 0.001116
13	2/3 Ramp-up Assumption		

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CERTIFICATE OF SERVICE

I hereby certify that on this 21st day of July 2020 a true copy of the foregoing was delivered by electronic mail to the following:

Raymond L. Doggett, Jr., Esq.
Andrea B. Macgill, Esq.
Office of General Counsel
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A handwritten signature in black ink, appearing to read "C. Meade Browder, Jr.", is written over a horizontal line.