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American Electric Power

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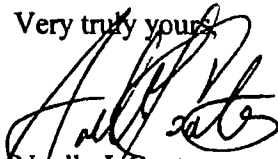
PUC - 2016 - 00051

**PETITION OF
APPALACHIAN POWER COMPANY
For approval of an 100% renewable energy rider
pursuant to § 56-577.A.5 of the Code of Virginia**

Dear Mr. Peck:

Please find enclosed for filing the petition of Appalachian Power Company for the approval of the State Corporation Commission pursuant to Section 56-577.A.5 of the Virginia Code for a voluntary rider to its Tariff pursuant to which its customers can purchase electric energy provided 100 percent from renewable energy (Rider REO).

Very truly yours,


Noelle J. Coates

cc: D. Mathias Roussy, Jr., Esq.
C. Meade Browder, Jr., Esq.
Mr. William K. Castle

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

PETITION OF
APPALACHIAN POWER COMPANY

Case No. PUE-2016-00⁰⁵¹

for approval of an 100% renewable energy rider
pursuant to § 56-577.A.5 of the Code of Virginia

PETITION OF APPALACHIAN POWER COMPANY

Appalachian Power Company (“Appalachian” or the “Company”) requests the approval of the State Corporation Commission pursuant to Section 56-577.A.5 of the Virginia Code of a voluntary rider to its Tariff pursuant to which its customers can purchase “electric energy provided 100 percent from renewable energy” (“Rider REO”). Rider REO bundles together the energy output of multiple renewable generators in order to provide around-the-clock, carbon-free generation to meet fully the energy needs of participating customers.

In support of its Petition, the Company states as follows.

I. PETITIONER AND WITNESSES IN SUPPORT OF PETITION

Appalachian is a Virginia public service corporation serving approximately 525,000 customers in Virginia and maintaining an office at 1051 East Cary Street, Suite 1100, Richmond, Virginia 23219. The Company is an incumbent electric utility as defined in the Virginia Electric Utility Regulation Act. The contact information for Appalachian’s attorneys is stated at the end of the Petition.

The following witnesses submit testimony in support of the Petition:

- *William K. Castle*, Appalachian’s Director of Regulatory Services VA/TN. Mr. Castle supports the design of proposed Rider REO and describes how resources will be aggregated into a renewable portfolio, providing participating customers renewable energy to meet their needs in all seasons, and at all times during the day. Mr. Castle also describes the periodic adjustments to portfolio composition and pricing.

- *Alex Vaughan*, Manager-Regulated Pricing and Analysis, American Electric Power Service Corporation. Mr. Vaughan supports Rider REO's pricing and describes the proposed cost recovery and rate credits intended to maintain neutrality for the Company and customers that do not participate in Rider REO.

II. BACKGROUND

Over the past several years, Appalachian has taken several steps to diversify its generation portfolio and increase the amount of energy generated from renewable resources that is used to serve its customers, to encourage the development of renewable facilities, and to develop programs that allow customers to meet their energy needs with renewable energy (including the proposed "Rider RGP").¹

The proposed Rider REO is another component to this overall strategy. Unlike other offerings of the Company, such as the proposed Rider RGP, Rider REO will enable Appalachian's customers to meet all of their energy needs from energy generated exclusively from renewable resources and will, with continued and robust participation, encourage the development of renewable resources. Appalachian is well situated to offer Rider REO, as it is a large utility with the sophistication and buying power to assemble a portfolio of renewable energy resources that can meet the statutory standard. Moreover, Rider REO will be a valuable tool for the Company to encourage economic development in its service territory.

III. STATUTORY STANDARD

Section 56-577.A.5 establishes the right of an incumbent electric utility serving its exclusive service territory to offer a "tariff for electric energy provided 100 percent from renewable energy," but does not define "100 percent renewable energy," nor does it establish guidelines for the Commission's consideration of a Petition such as this one. The Virginia

¹ *Application of Appalachian Power Company for approval of an experimental rider for the purchase of non-dispatchable renewable energy*, Case No. PUE-2015-00040.

Supreme Court has held that, “where the General Assembly has not placed an express limitation in a statutory grant of authority, it intended for the Commission, as an expert body, to exercise its sound discretion.”² Thus, it is within the Commission’s expert discretion and jurisdiction to interpret and apply the phrase “100 percent renewable energy.” The Commission’s interpretation of the phrase must “carry into effect the object sought to be accomplished by the statute.” The interpretation cannot “defeat, or tend to defeat, the manifest intent of the legislature.”³ Accordingly, the Commission’s interpretation must make it possible for a customer to satisfy its needs with 100% renewable energy, as the General Assembly made clear, and the interpretation cannot result in an impossibly onerous standard that no proposal could ever meet.

In earlier orders on proposals made pursuant to Section 56-577.A.5, the Commission clarified that renewable energy certificates were not “renewable energy.”⁴ But the Commission has not explicitly ruled if, for example, the customer must be guaranteed electric energy generated from 100% renewable resources on the average throughout the year or if the Company must guarantee that the electric energy provided to the participating customer must actually be generated from renewable energy each hour or each day of the year.

In developing Rider REO, the Company gleaned guidance from one license that the Commission has granted to a competitive service provider (“CSP”) to provide 100 percent renewable energy in Appalachian’s service territory. By order of October 2012, the Commission

² *Virginia Electric and Power Co. v. State Corp. Comm’n*, 284 Va. 726, 741 (2012).

³ *Commonwealth v. Jones*, 194 Va. 727, 731 (1953)

⁴ *Application of Appalachian Power Company For approval of its Renewable Power Rider*, Case No. PUE-2008-00057, Order Approving Tariff, 2008 S.C.C. Ann. Rept. 557-60 (Dec. 3, 2008) and *Application of Virginia Electric and Power: Company d/b/a Dominion Virginia Power for approval of its Renewable Energy Tariff*, Case No. PUE-2008-00044, Order Approving Tariff, 2008 S.C.C. Ann. Rept. 539-43, (Dec. 3, 2008).

granted Collegiate Clean Energy, LLC (“Collegiate”) a license to provide electricity as a CSP in Appalachian’s service territory, subject to the “provisions of the Retail Access Rules, [the] Order, and other applicable law.”⁵ Under the terms of its license and pursuant to applicable law, Collegiate can provide two types of retail electric service in Appalachian’s service territory: electric service to certain commercial and industrial customers or 100% renewable electric service to such customers.⁶ In April 2014, Collegiate began to provide retail electric service to customers in Appalachian’s service territory using energy generated from landfill gas.⁷

According to assertions made before the Commission⁸ and to Appalachian,⁹ Collegiate does not provide 100% renewable energy to its customers in every hour of every day of the year. Given the Commission’s awareness that Collegiate does not provide “100% renewable energy” in every hour of every day of the year, the Company assumes that the Commission has concluded that providing 100% renewable energy *on the average* throughout the year or some other discrete period complies with the statutory standard in Section 56-577.A.5. Nevertheless, the Company is not aware that the Commission has explicitly ruled on this question.

⁵ Order Granting License, *Application of Collegiate Clean Energy, LLC for a license to conduct business as a competitive service provider for electricity in the Commonwealth of Virginia*, Case No. PUE-2012-00102 (Oct. 19, 2012). License No. E-28 (Oct. 19, 2012)

⁶ License No. E-28 (Oct. 19, 2012), Va. Code §56-577.A.3, .4, and .5.

⁷ See *Annual Report of Collegiate Clean Energy, LLC and Report to the State Corporation Commission on Fuel Mix and Emissions Data for 2014*, Case No. PUE-2012-00102 (March 31, 2016).

⁸ Direct Testimony of Charles J. Packard on behalf of Collegiate Clean Energy, LLC, *Application of Virginia Electric and Power Company for Approval to Establish a Renewable Generation Pilot Program*, Case No. PUE-2012-00142 (March 19, 2013) at 8-12 (testifying, for example, that an interpretation of Section 56-577.A.5 that requires “100% renewable supply ... 100% of the time ... cannot be squared with reasonable and practical considerations that appear to me to be more consistent with the General Assembly’s intent;” that a “supplier needs to have the capability to meet the customer load at all times, subject perhaps to certain exceptions;” and that supply and consumption should be balanced “over a reasonably practical time frame.”) See also Post Hearing Brief of Collegiate Clean Energy, LLC, Case No. PUE-2012-00142 (June 18, 2013).

⁹ See Attachment A to this Petition, Affidavit of Charles J. Packard on behalf of Collegiate Clean Energy, LLC (attesting that Collegiate will provide electric service to customers in accordance with the interpretation of “100% renewable” set out in Mr. Packard’s testimony in Case No. PUE-2012-00142).

Accordingly, if the Commission concludes that Rider REO does not meet the statutory standard, the Company requests that the Commission clarify how a proposal could comply with Section 56.577.A.5.

IV. DESCRIPTION OF RIDER REO

A. The Composition of Rider REO

In order to provide participating customers with energy generated from 100% renewable resources, and as explained in more detail by Company witness Castle, the Company bundled the energy output of multiple renewable generators. This bundling of different types of generation creates a portfolio effect that provides renewable energy at all hours of the day, in all seasons, to the participating customers. Initially, the Company will assign to Rider REO the output of its renewable generators that are currently under long-term Purchased Power Agreements (the “Renewable PPAs”): the Summerville hydro-electric facility, and the Camp Grove, Fowler Ridge, Beech Ridge, and Grand Ridge wind facilities. These renewable resources have a combined nameplate capacity of 423 MW. As the Company adds additional renewable resources, such as solar, to its generation portfolio, the subscribed portion of those resources will be assigned to Rider REO.

B. Rider REO Pricing and Accounting

Appalachian designed the pricing for Rider REO to reflect, as accurately as possible, the price of providing service to participating customers pursuant to the Rider so that non-participating customers and the Company will be in the same position they would have been without Rider REO.

As Company Vaughan explains, the proposed pricing for Rider REO is largely based on the weighted average cost of the Renewable PPAs, which is currently greater than the lower cost blend of APCo’s overall generation portfolio. Appalachian will apply revenues above those that

would have been collected under the participating customers' standard schedules as a credit to its fuel factor and the rate adjustment clauses that the participating customers no longer pay to avoid harming nonparticipating customers. Mr. Vaughan explains how this rate credit will be calculated and allocated. By applying the credit to the fuel factor, for example, Appalachian's nonparticipating customers should, all things equal, see the benefit of reduced fuel factor, especially as more participants elect to take service under Rider REO. With the possibility of robust participation in the Rider and increased prices of energy, revenues produced by Rider REO might not always produce a credit. Thus, the Company proposes to return to the Commission annually to report on sales made in the previous year pursuant to the Rider and to update Rider REO pricing for the next year.

C. Rider REO and the Rest of the Company's Rates, RACs and Programs

In order to ensure that they will only pay for and receive renewable energy, participating customers will not be subject to the following:

- The fuel factor surcharge, which largely collects the price of coal and natural gas used at the Company's fossil fuel-fired generating facilities.
- The generation rate adjustment clause, which collects costs associated with the Company's natural gas-fueled Dresden facility.
- The generation function of base rates, which recovers the cost of the Company's other generation facilities.
- The demand response rate adjustment clause, if approved by the Commission,¹⁰ as demand response is a PJM capacity resource and the participating customers are purchasing generation through Rider REO.

The participating customer will be responsible for the following:

- The transmission rate adjustment clause, as the Company will still provide the participating customer transmission service.

¹⁰ *Application of Appalachian Power Company For approval of demand response programs and for approval of a rate adjustment clause pursuant to 56-585.1 A 5 of the Code of Virginia, Case No. PUE-2015-00118.*

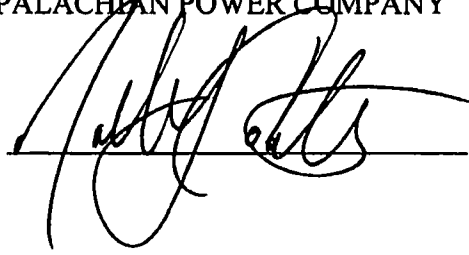
- The energy efficiency rate adjustment clause, as the participating customer will still be eligible to participate in the Company’s energy efficiency program.
- The transmission and distribution function of base rates, as the Company will still provide the participating customer with transmission and distribution services.
- The rate adjustment clause that recovers the costs of the Company’s participation in the Commonwealth’s Renewable Portfolio Standard program, unless otherwise exempt pursuant to Va. Code § 56-585.2.

WHEREFORE Appalachian Power Company respectfully requests that the Commission approve Rider REO as an option to provide Appalachian’s customers “electric energy provided 100 percent from renewable energy.”

Respectfully submitted,

APPALACHIAN POWER COMPANY

By:



April 28, 2016

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Counsel for Appalachian Power Company


160430174

**AFFIDAVIT OF CHARLES J. PACKARD
ON BEHALF OF COLLEGIATE CLEAN ENERGY, LLC**

Before me, a Notary Public in and for the jurisdiction listed below, appeared Charles J. Packard, who, being duly sworn, declared and stated as follows:

1. I am a Manager of Collegiate Clean Energy, LLC ("CCE"). I am authorized to make this sworn affidavit on behalf of CCE, and I am knowledgeable about the factual matters set forth in this affidavit.
2. CCE on October 19, 2012 was granted a license by the State Corporation Commission of the Commonwealth of Virginia ("SCC") to conduct business as a competitive service provider ("CSP") to serve commercial and industrial customers in the Virginia service territory of Appalachian Power Company ("APCo").
3. Until June 1, 2016, all the customers receiving CSP services from CCE in APCo's service territory will be provided electric supply service provided 100 percent from renewable energy in accordance with Va. Code §§ 56-576 and 56-577 A 5 and in accordance with the position set forth at pages 9 through 12 of the direct testimony of Charles J. Packard filed on behalf of CCE on March 19, 2013 in SCC proceeding PUE-2012-00142 with respect to the appropriate interpretation of the "100 percent from renewable energy" standard of Va. Code § 56-577 A 5.
4. On and after June 1, 2016, all the customers receiving CSP services from CCE in APCo's service territory will, with regard to electric supply service, be served under subsection a., b., or c. below. CCE will inform APCo as to which of these subsections a customer is being served under:
 - a. Electricity customers whose demand during the most recent calendar year exceeded five megawatts but did not exceed one percent of APCo's peak load during the most recent calendar year (unless such customer had non-coincident peak demand in excess of 90 megawatts in calendar year 2006 or any year thereafter).
 - b. Two or more individual nonresidential retail customers that aggregate demand to exceed five megawatts to become qualified to purchase electric energy competitively and that petition and receive from the SCC approval to combine or aggregate their demands.
 - c. The Electricity Supply service shall be provided 100 percent from renewable energy in accordance with Va. Code §§ 56-576 and 56-577 A 5.

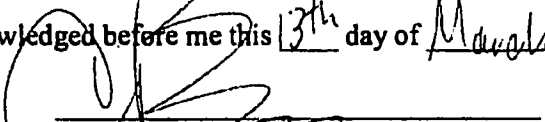
FURTHER AFFIANT SAYETH NOT.



Charles J. Packard

COMMONWEALTH OF VIRGINIA
COUNTY/CITY/TOWN OF Chesterfield

Sworn, subscribed to, and acknowledged before me this 13th day of March, 2014.



Notary Public

My Commission Expires: February 28, 2015

160430179

CERTIFICATE OF SERVICE

I hereby certify that on this 28th day of April 2016 a true copy of the foregoing Petition of Appalachian Power Company was delivered by hand or mailed, first-class, postage prepaid, to the following:

D. Mathias Roussy, Jr., Esq.
Office of General Counsel
State Corporation Commission
1300 East Main Street
Richmond, VA 23219

C. Meade Browder, Jr., Esq.
Division of Consumer Counsel
Office of Attorney General
900 E. Main Street, 2nd Floor
Richmond, Virginia 23219



APCo Exhibit No. _____
Witness: WKC

160433174

**DIRECT TESTIMONY OF
WILLIAM K. CASTLE
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUE-2016-00_____**

APCo Exhibit No. _____
Witness: WKC

SUMMARY OF DIRECT TESTIMONY OF WILLIAM K. CASTLE

My direct testimony supports the design of proposed Rider REO (Renewable Energy Only), a 100% renewable offering. It describes how resources will be aggregated into a renewable portfolio, providing participating customers renewable energy to meet their needs in all seasons, and at all times during the day. Further, I describe the periodic adjustments to portfolio composition and pricing.

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**DIRECT TESTIMONY OF
WILLIAM K. CASTLE
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUE-2016-00__**

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

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

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 have
10 worked in the utility industry since 1998, beginning with the Columbia Energy Group,
11 Herndon, Virginia, where I held positions in financial planning and corporate finance.
12 Subsequent to the acquisition of Columbia Energy Group by Merrillville, Indiana based
13 NiSource in 2000, I performed financial planning and analysis functions. In 2004, I was
14 employed by American Electric Power Service Corporation (AEPSC) in the Corporate
15 Planning and Budgeting Department. Assignments included resource planning and
16 demand-side management (DSM) analysis which encompasses Energy Efficiency and
17 Demand Response (EE/DR). In 2014, I accepted my current position.

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

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A. Yes. I presented testimony on behalf of APCo before the Virginia State Corporation Commission in Case Nos. PUE-2009-00023, PUE-2014-00026, PUE-2014-00039, PUE-2015-00034, and PUE-2015-00040. I have also presented testimony for other American Electric Power operating companies including Indiana Michigan Power Company, Public Service Company of Oklahoma, Ohio Power Company, Columbus Southern Power Company, and Southwestern Electric Power Company. I have testified in the states of Ohio, Oklahoma, Indiana, West Virginia, Arkansas, and Virginia.

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

- A. The purpose of my testimony is to:
- 1. Describe the Company’s proposed Rider REO (Renewable Energy Only).
 - 2. Discuss the Company’s proposed recovery mechanism.

Q. DESCRIBE PROPOSED RIDER REO.

A. Proposed Rider REO is a voluntary rider that is designed to allow participating customers the ability to purchase their full requirements from renewable energy generators, as defined in § 56.577 of the Virginia Code. As such, it qualifies as a “100% Renewable” offering further defined in § 56.577. Rider REO bundles together the energy output of multiple renewable generators in order to provide around-the-clock generation to meet the needs of participating customers.

Q. WHY IS IT BENEFICIAL TO AGGREGATE MULTIPLE RENEWABLE RESOURCES INTO A RENEWABLE PORTFOLIO?

A. Most renewable generators are “intermittent” non-dispatchable resources. Because the sun does not shine all days of the year, and never at night; the wind does not always

1 blow; and rivers are not always high enough to generate electricity, most individual
2 renewable resources are incapable of providing around-the-clock generation. Moreover,
3 they typically only produce power at a fraction of their rated capacity in any given hour.
4 By combining disparate types of intermittent renewable generation, the resultant
5 “portfolio effect” ensures that renewable energy is available at all hours of the day, in all
6 seasons.

7 **Q. DESCRIBE THE RENEWABLE RESOURCES THE COMPANY WILL USE TO**
8 **PRODUCE THE ENERGY FOR RIDER REO.**

9 A. Initially, the Company proposes to assign to Rider REO the output of its renewable
10 generators that are currently under long-term Purchased Power Agreements (the
11 Renewable PPAs):the Summerville hydro-electric facility, and the Camp Grove, Fowler
12 Ridge, Beech Ridge, and Grand Ridge wind facilities. These renewable resources have a
13 combined nameplate capacity of 423 MW. As the Company adds additional renewable
14 resources, such as solar, to its generation portfolio, the subscribed portion of those
15 resources will also be assigned to Rider REO.

16 **Q. DESCRIBE THE HISTORICAL AVAILABILITY OF THE RENEWABLE**
17 **PORTFOLIO.**

18 A. In the period 2011-2015, the portfolio consisting of the current wind and hydro assets
19 produced power during 99.6% of the hours. At least 10 megawatts of power were
20 produced in 96.4% of the hours. Figure 1 demonstrates how combining the resources
21 into a portfolio improves the availability at all hours.
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	Beech Ridge	Grand Ridge 2 & 3	Camp Grove	Fowler Ridge	Summersville Hydro	Portfolio
Capacity (MW)	100	100	75	100	49	424
Capacity Factor	26.3%	29.4%	31.7%	28.5%	27.3%	28.6%
MW Hours of Renewable Gen (annual avg)	230,942	257,789	208,617	249,700	117,394	1,064,442
% Availability >0 MW	83.3%	84.7%	82.9%	81.0%	70.4%	99.6%
% Availability >10 MW	58.1%	64.3%	62.9%	63.7%	50.4%	96.4%

Q. HOW WOULD ADDING INCREMENTAL RENEWABLE RESOURCES AFFECT THE AVAILABILITY OF THE PORTFOLIO?

A. Adding any additional intermittent renewable resource will improve the availability of the portfolio.

Q. CAN THE COMPANY MATCH THE HOURLY OUTPUT OF THE GENERATORS TO THE HOURLY LOAD OF THE PARTICIPATING CUSTOMERS?

A. No. Matching the hourly output of the renewable generators to the hourly load of participating customers is not practical. It would require additional metering for many potential customers, as well as an after-the-fact analysis. The Company can plan to meet, within certain criteria, expected load with a high degree of certainty, as demonstrated using historical data. However, customer load, particularly hourly customer load, is simply not predictable as it can vary significantly due to weather and unique customer circumstances. Using the Company's actual 2011-2015 load, scaled to a peak demand of 10 MW, the proposed portfolio met the hourly load in 98.6% of the hours.

Q. IF LOAD AND PRODUCTION OF THE PROPOSED PORTFOLIO ARE COMPARED ON A DAILY, NOT HOURLY BASIS, WHAT IS THE AVAILABILITY?

A. For the same 10 MW customer load, the proposed portfolio met the energy requirements for 1,825 of the 1,826 days in the sample (99.95%).

1 **Q. ON THE BASIS OF ANNUAL ENERGY, HOW MUCH LOAD COULD THE**
2 **PROPOSED PORTFOLIO MEET?**

3 A. Using the same historical load shapes, and the data in Figure 1, the proposed portfolio
4 could supply enough energy to meet approximately 320 MW of load. Said another way,
5 when looking at a time period greater than an hour, such as a day, week, month or a year,
6 the proposed portfolio can supply renewable energy to a significant number of potential
7 customers with virtual certainty.

8 **Q. IS ACHIEVING 100% AVAILABILITY, MEASURED BY THE HOUR,**
9 **POSSIBLE WITH INTERMITTENT RESOURCES?**

10 A. As demonstrated, a portfolio can be assembled that achieves 100% availability, for a
11 certain output for discrete time periods, but there is always a chance that all resources
12 will be simultaneously unproductive or that load will be abnormally high for short
13 periods of time.

14 **Q. HOW WILL RESOURCES BE ALLOCATED TO RIDER REO?**

15 A. In order to provide 100% renewable energy, the Company's current and prospective
16 resources must be assigned to Rider REO in proportions that produce around-the-clock
17 generation, while, to the extent possible, proportionately represent the Company's
18 renewable generation mix. Initially, the Company proposes to allocate the output of the
19 Renewable PPAs by the historical energy generation of the resources. These portfolio
20 weightings will evolve over time as historical generation changes and as resources are
21 added to the portfolio, and thus will require periodic adjustment.

22 **Q. IF THE COMMISSION SETS AVAILABILITY CRITERIA, HOW WILL THE**
23 **COMPANY ADDRESS THIS?**

1 A. If the Commission sets availability criteria that the Company's proposed Rider REO does
2 not meet in its current form, the Company may procure additional resources that
3 maximize the availability. Additionally, the proportion of resources included in Rider
4 REO may be adjusted to over-weight certain resources to meet the criteria.

5 **Q. WHAT COSTS WILL RIDER REO PARTICIPANTS BE SUBJECT TO?**

6 A. Rider REO participants will pay for the delivered cost of around-the-clock renewable
7 energy. That includes the cost of generating the renewable energy (the Renewable PPA
8 costs), the transmission and distribution of that energy, and the costs associated with
9 being an APCo Transmission and Distribution customer. The Company proposes that
10 Rider REO participants will not charged for costs associated with the Company's
11 generation fleet, including its generation cost of service, G-RAC, and proposed DR-RAC
12 (currently pending before the Commission in Case No. PUE-2015-00118). The Rider
13 REO participant will still be subject to, if applicable, the Company's EE-RAC and RPS-
14 RAC.

15 **Q. HOW DOES THE RIDER REO FIT IN WITH THE COMPANY'S RENEWABLE**
16 **PORTFOLIO STANDARD (RPS) PROGRAM?**

17 A. The Company proposes to segregate sales made under Rider REO from the achievement
18 of voluntary RPS goals, similar to how sales from the Company's Green Tariff offering
19 are handled. Renewable energy sold through Rider REO will not be included in the
20 calculations to determine achievement of RPS goals. Through a proposed rate credit
21 mechanism, the RPS-RAC will not not be affected by participation in Rider REO. The
22 portions of RPS-approved resources sold under proposed Rider REO could be replaced
23 for RPS purposes by purchasing Virginia-eligible RECs using the rate credits. This

1 provision is described in detail by Company witness Vaughan. Additionally, depending
2 upon Rider REO participation levels, some renewable resources may be specifically
3 acquired to augment the 100% renewable portfolio, ensuring around-the-clock renewable
4 generation is available for Rider REO participants. Rider REO participation will increase
5 the amount of renewable energy the Company sells, above what is required in the
6 voluntary RPS goals.

7 **Q. HOW OFTEN WILL THE PRICING FOR RIDER REO BE ADJUSTED?**

8 A. The Company proposes to adjust the rates in Rider REO annually to reflect the current
9 mix of the renewable portfolio and the Renewable PPA rates associated with the
10 component resources that will be in effect during that year.

11 **Q. WILL RIDER REO COLLECT THE EXACT COSTS ASSOCIATED WITH THE**
12 **RENEWABLE PORTFOLIO?**

13 A. No. Because the output of the renewable resources is variable and unpredictable, the
14 revenues collected through Rider REO will not match, exactly, the actual costs associated
15 with the renewable portfolio. Any variability in the costs incurred, and revenues
16 collected will be manifest in the fuel factor. Similarly, if customer demand warrants it,
17 additional resources may be acquired prior to a periodic adjustment of the rates. The
18 timing of the addition and the size of incremental renewable resources will not comport
19 precisely with customer participation. The Company proposes not to “true up” any
20 differences.

1 **Q. WILL RIDER REO ENCOURAGE DEVELOPMENT OF RENEWABLE**
2 **RESOURCES IN THE COMMONWEALTH?**

3 A. Yes. Rider REO provides customers with an easy way to have renewable energy, at a
4 delivered cost that is competitive with standard service. The ability to deliver 100%
5 renewable energy also has economic development benefits, as potential commercial
6 customers may have that requirement. As customer participation grows, APCo is
7 committed to procuring additional renewable resources to meet customer demand.

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

9 A. Yes, it does.

APCo Exhibit No. _____
Witness: AEV

160430174

**DIRECT TESTIMONY OF
ALEX E. VAUGHAN
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUE-2016-000__**

APCo Exhibit No. _____
Witness: AEV

SUMMARY OF DIRECT TESTIMONY OF ALEX E. VAUGHAN

My direct testimony supports the pricing of the Company's proposed 100% Renewable optional rate schedule Rider REO. It also describes the proposed cost recovery and rate credits intended to maintain neutrality for the Company and customers that do not participate in Rider REO (non-participating customers).

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**DIRECT TESTIMONY OF
ALEX E. VAUGHAN
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUE-2016-000__**

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND PRESENT**
3 **POSITION.**

4 A. My name is Alex E. Vaughan. I am employed by American Electric Power Service
5 Corporation (AEPSC) as Manager-Regulated Pricing and Analysis. My business address
6 is 1 Riverside Plaza, Columbus, Ohio 43215. AEPSC is a wholly-owned subsidiary of
7 American Electric Power Company Inc. (AEP), the parent Company of Appalachian
8 Power Company (the Company or APCo).

9 **Q. PLEASE DESCRIBE YOUR CURRENT RESPONSIBILITIES.**

10 A. My responsibilities include the oversight of cost of service analyses, rate design and
11 special contracts for the AEP System operating companies. I am directly responsible for
12 assisting APCo in its regulatory filings in the Virginia jurisdiction.

13 **Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE AND**
14 **EDUCATIONAL BACKGROUND.**

15 A. I graduated from Bowling Green State University with a Bachelor of Science degree in
16 Finance in 2005. Prior to joining AEP I worked for a retail bank and a holding company
17 where I held various underwriting, finance and accounting positions. In 2007 I joined
18 AEPSC as a Settlement Analyst in the Regional Transmission Organization Settlements
19 Group. I later became the PJM Settlements Lead Analyst where I was responsible for
20 reconciling AEP's settlement of its activities in the PJM market with the monthly PJM
21 invoices and for resolving issues with PJM. In 2010 I transferred to Regulatory Services

1 as a Regulatory Analyst and was later promoted to the position of Regulatory Consultant.

2 My responsibilities included supporting regulatory filings across AEP's eleven state
3 jurisdictions and at the Federal Energy Regulatory Commission. I also performed
4 financial analyses related to AEP's generation resources and loads, power pools and PJM.
5 In September of 2012, I was promoted to my current position.

6 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY PROCEEDINGS?**

7 A. Yes. I submitted direct testimony to the Indiana Utility Regulatory Commission in Cause
8 No. 43774-PJM-3 on behalf of Indiana Michigan Power Company and the Kentucky
9 Public Service Commission in Case Numbers 2013-00197 and 2014-00396 both are
10 APCo affiliates. I have submitted testimony to the Public Service Commission of West
11 Virginia and testified in Case No. 14-1152-E-42T on behalf of APCo. Furthermore, I
12 have submitted testimony to this Commission on behalf of APCo in Case Nos. PUE-
13 2012-00094 (RPS-RAC), PUE-2013-00111 (T-RAC), PUE-2013-00009 (G-RAC), PUE-
14 2014-00007 (2014 RPS-RAC), and PUE-2014-00026 (Biennial Review).

15 **II. PURPOSE OF TESTIMONY**

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

17 A. The purpose of my testimony is to describe and provide support for the following:
18 • The pricing of the Company's proposed Rider REO; and
19 • The cost recovery and proposed rate credits are designed to leave the Company
20 and customers that do not participate in Rider REO (non-participating customers)
21 in the same position that they would have been absent Rider REO.

22
23 **Q. WHAT EXHIBITS ARE YOU SPONSORING IN THIS PROCEEDING?**

24 A. I am sponsoring the following exhibits:
25 • APCo Exhibit No. ____ (AEV) Schedule 1 – Proposed Rider REO Tariff Sheets

- APCo Exhibit No.____(AEV) Schedule 2 – Rider REO Revenue Allocation and Rate Credit Example

III. RIDER REO SUMMARY

Q. WHAT RENEWABLE RESOURCES IS APCO INCLUDING IN ITS PROPOSED RIDER REO?

A. The Company is initially proposing to include its Camp Grove, Fowler Ridge, Beech Ridge and Grand Ridge wind farm PPAs (collectively, the Wind PPAs) along with its Summersville hydroelectric PPA (Summersville) (collectively, with the Wind PPAs, “the Renewable PPAs”). These Renewable PPAs constitute the renewable power supply (kWh and kW) that will serve customers that opt to take service under the Company’s proposed Rider REO. Thus, under the Company’s proposed Rider REO, customers will have the opportunity to purchase their full requirements electric service from the Renewable PPA resources. This proposal gives customers the opportunity to purchase their entire electric supply from carbon free, 100% renewable resources.

Q. DO THE RENEWABLE PPAS ALREADY SERVE APCO’S VIRGINIA CUSTOMERS?

A. Yes. The costs of the Wind PPAs and Summersville currently are included, in part or in whole, in the Company’s total fuel costs that are recovered through the Fuel Factor surcharge. In addition, the incremental costs of the Camp Grove and Fowler Ridge PPAs are recovered through the Company’s rate adjustment clause associated with its participation in the Commonwealth’s Renewable Portfolio Standard Program (RPS-RAC).

Q. HOW MANY MEGAWATTS (MW) OF PJM CAPACITY DO THE RENEWABLE PPAS CURRENTLY REPRESENT?

1 A. Currently, the Renewable PPAs represent about 45 MW¹ of PJM UCAP capacity
2 available to support any Virginia retail jurisdiction Rider REO capacity obligations.

3 **Q. HOW MANY ANNUAL MEGAWATTS HOURS (MWH) OF RENEWABLE**
4 **GENERATION DO THE RENEWABLE PPAS CURRENTLY PRODUCE?**

5 A. In 2015 the Renewable PPAs produced roughly 516,000 MWh² of renewable energy on a
6 Virginia retail jurisdictional basis. This is equivalent to about 59 MW of renewable
7 generation every hour of the year on average.

8 **IV. RIDER REO PRICING**

9 **Q. PLEASE DESCRIBE THE BASIS OF THE RIDER REO PRICING.**

10 A. The proposed pricing is largely based on the anticipated weighted average \$/MWh cost of
11 the Renewable PPAs during the rate year.³ In addition, because Rider REO customers
12 purchase the associated renewable energy credits (RECs) attached to the renewable
13 PPAs, Rider REO pricing includes the opportunity cost of retaining or retiring those
14 RECs. Proposed Rider REO pricing also includes an average net amount of PJM
15 transmission congestion and losses charges.

16 **Q. WHAT IS THE OPPORTUNITY COST ASSOCIATED WITH THE**
17 **RENEWABLE PPA RECS?**

18 A. Currently the Company optimizes the RECs associated with Camp Grove, Fowler Ridge
19 and Summersville by selling them for a premium and buying back lower cost RECs. This

¹ Currently 126 MW on a total APCo basis. Summersville is reduced by 40% to recognize that the Company only receives 60% of the RECs from the Summersville generation it purchases. This will change June 1, 2020 due to PJM's capacity performance rules.

² In 2015, 1,147,404 MWh on a total APCo basis. Summersville is reduced by 40% to recognize that the Company only receives 60% of the RECs from the Summersville generation it purchases.

³ The rate year for purposes of this filing is assumed to be calendar year 2017.

practice results in a net rate credit that is included in the Company's RPS-RAC. The RECs associated with Grand Ridge and Beech Ridge, which are not part of the Company's RPS Program, are sold to offset the Company's unrecovered incremental costs. All of the RECs associated with sales under the proposed Rider REO would need to be retained or retired or else the energy purchased under Rider REO would not be considered "renewable" energy. When the RECs are retained or retired on behalf of the customer rather than optimized or sold by the Company, the Company and its customers that are subject to the RPS-RAC would be harmed by the loss of the net sales or optimization proceeds. To avoid this harm to the Company and non-participating customers, the proposed Rider REO pricing includes a pricing component for the opportunity cost of not selling or optimizing the RECs associated with the Renewable PPAs. I will discuss this in more detail later in my testimony when I describe the proposed Rider REO cost recovery and associated rate credits.

Q. WHAT IS THE PROPOSED INITIAL AVERAGE COST OF THE COMPANY'S RIDER REO?

A. The proposed initial cost is \$89.61/MWh based largely on the historic generation MWh from the Renewable PPAs priced at the estimated rate year contract prices.

Q. WILL CUSTOMERS WHO CHOOSE TO TAKE SERVICE UNDER THE COMPANY'S PROPOSED RIDER REO ALSO BE SUBJECT TO THE COMPANY'S BASE RATES?

A. Yes, but only the transmission and distribution portions of base rates. The generation portion of base rates is replaced by Rider REO.

Q. WHAT RACS AND SURCHARGES ARE APPLICABLE TO CUSTOMERS WHO CHOOSE TO TAKE SERVICE UNDER THE COMPANY'S PROPOSED RIDER REO?

A. Besides the base transmission and distribution rates, Rider REO customers will also be subject to the following:

- Transmission rate adjustment clause (T-RAC)
- Energy efficiency rate adjustment clause (EE-RAC)
- RPS-RAC

Rider REO customers will not be subject to the following:

- Fuel factor surcharge (Fuel Factor)
- Generation rate adjustment clause (G-RAC)
- Generation function base rates
- Proposed demand response rate adjustment clause (DR-RAC)

Q. WHY ARE CUSTOMERS WHO CHOOSE TO TAKE SERVICE UNDER THE COMPANY'S PROPOSED RIDER REO NOT SUBJECT TO ALL OF THE COMPANY'S SURCHARGES AND RACS?

A. For a customer to truly be 100% renewable, they cannot be taking service under the Company's base generation rates, the Fuel Factor or the G-RAC because these charges include coal and natural gas resources. But it is still appropriate for customers to be subject to their respective transmission, distribution and other non-fossil fuel related surcharges.

V. RIDER REO REVENUE ALLOCATION AND RATE CREDITS

1 **Q. UNDER THE COMPANY'S PROPOSAL, WOULD THE METHOD OF COST**
2 **RECOVERY CHANGE FOR ANY OF THE RENEWABLE PPAS?**

3 A. No. The allowed incremental and non-incremental costs of the Renewable PPAs would
4 continue to be recovered from all customers through the Fuel Factor and the RPS-RAC,
5 same as they are today.

6 **Q. UNDER THE COMPANY'S PROPOSAL, WOULD NON-PARTICIPATING**
7 **CUSTOMERS PAY LESS FOR ANY OF THE RENEWABLE PPAS THAN THEY**
8 **DO TODAY?**

9 A. Yes. Assuming customers choose to take service under proposed Rider REO, non-
10 participating customers would actually begin to pay less for the Renewable PPAs. The
11 higher rate that participating customers pay to take all of their service pursuant to Rider
12 REO will fund a rate credit that the Company will apply to the over/under calculations
13 for the Fuel Factor and G-RAC that are paid by non-participating customers.

14 **Q. PLEASE DESCRIBE THE ABOVE-MENTIONED RATE CREDITS.**

15 A. Customers that choose to take service under the proposed Rider REO will initially pay
16 more for their full requirements service than non-participating customers because they
17 are choosing to take service solely from renewable resources, which today are, on
18 average, higher cost resources than the Company's entire generating fleet is on average.
19 A portion of the higher rates paid by participating customers, if any, will be credited to
20 the RACs and surcharges that the participating customers no longer pay to avoid harming
21 non-participating customers and the Company.

22 **Q. PLEASE PROVIDE AN EXAMPLE OF HOW THE RATE CREDITS WOULD**
23 **WORK.**

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1 A. In this simplified example, I use a residential customer using 1,200 kWh per month on
 2 average that has chosen to take service under Rider REO. As shown below and in APCo
 3 Exhibit No.____(AEV) Schedule 2, the customer’s monthly bill for full requirements
 4 service under the Company’s Rider REO is \$160.

Residential Customer Example		
Proposed Rider REO		
		\$/kWh
Rider REO	\$	0.08961
Distribution kWh	\$	0.01814
Total T-RAC	\$	0.01871
RPS-RAC	\$	(0.00084)
EE-RAC	\$	0.00043
Service Charge Per Month	\$	8.35
 Bill @ 1200 kWh	 \$	 160

5
 6 The \$160 total monthly bill resulting from taking service under Rider REO would be
 7 divided into the following components:

Revenue Allocation and Rate Credit Calculations @ 1200 kWh			
Total Monthly Bill on Rider REO	\$	160	
Base G	\$ 0.04349	\$ 52	Remains Rider REO Revenue
Distribution kWh Charges	\$ 0.01814	\$ 22	Base Rate Distribution Revenue
Basic Service Charge	\$ 8.35	\$ 8	Base Rate Distribution Revenue
T-RAC	\$ 0.01871	\$ 22	T-RAC (Base & RAC) Revenue
Credit for G-RAC	\$ 0.00247	\$ 3	Credited to G-RAC over/under
EE-RAC	\$ 0.00043	\$ 1	EE-RAC Revenue
REC Opportunity Cost Component	\$ 0.01500	\$ 18	Credited to RPS-RAC in part, remains rider REO revenue in part
Fuel Factor Credit	\$	33	Credited to Fuel Factor over/under

8
 9 **Q. PLEASE EXPLAIN WHICH COMPONENTS OF RIDER REO REVENUES**
 10 **WILL BE RETAINED AS RIDER REO REVENUES BY THE COMPANY.**

1 A. The portion of Rider REO revenues equal to the Company's base generation rate, base
2 distribution rate and the basic service charge will be Rider REO revenues that will not be
3 credited to other RACs or the Fuel Factor. Additionally, a portion of the REC
4 opportunity cost component of Rider REO would remain as Rider REO revenue as
5 explained later in my testimony. The portion of Rider REO revenues not credited to
6 other RACs or the Fuel Factor ensure that the Company is not financially harmed by the
7 voluntary energy supply choices of customers taking service under rider REO.

8 **Q. PLEASE EXPLAIN THE G-RAC RATE CREDIT.**

9 A. The G-RAC rate credit is equal to the amount that a Rider REO customer would have
10 paid if it were taking standard service which would have included in the Company's G-
11 RAC. In the above example, that amount is \$3. That \$3 G-RAC rate credit would be
12 included in the over/under G-RAC accounting as a credit to the cost of service. This rate
13 credit mechanism ensures that non-participating customers are not financially harmed by
14 the voluntary energy supply choices of customers taking service under Rider REO.

15 **Q. PLEASE EXPLAIN HOW THE REC OPPORTUNITY COST COMPONENT OF**
16 **THE RIDER REO REVENUES WOULD BE ALLOCATED.**

17 A. The RPS-RAC rate credit is equal to the REC opportunity cost component of Rider REO
18 times the MWh of Camp Grove, Fowler Ridge and Summersville that were supplied to
19 Rider REO. The portion of the REC opportunity cost component of Rider REO revenues
20 related to Grand Ridge and Beech Ridge will not be credited to the RPS-RAC, it will be
21 retained by the Company so that it can continue to offset the un-recovered incremental
22 portion of the Grand Ridge and Beech Ridge PPAs.

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1 For the sake of this example, assume that Rider REO was supplied 50% from
2 Camp Grove, Fowler Ridge and Summersville, and 50% from Grand Ridge and Beech
3 Ridge. The \$18 REC opportunity cost component of Rider REO revenues from the
4 above example would be split 50/50 so that \$9 would be included in the over/under RPS-
5 RAC accounting as a credit and the other \$9 would be retained by the Company. The
6 above example is for illustrative purposes, the actual RECs retained or retired for Rider
7 REO sales will track the energy supplied from the Renewable PPAs as will the revenue
8 allocation and rate credits. This proposed revenue allocation and rate credit mechanism
9 ensures that non-participating customers and the Company are not financially harmed by
10 the voluntary energy supply choices of customers taking service under Rider REO.

11 **Q. IS THERE ANY SPECIAL TREATMENT NEEDED REGARDING THE T-RAC**
12 **OR EE-RAC REVENUES?**

13 A. No. Rider REO customers will still benefit from the transmission service and EE
14 programs provided by the Company. Thus, customers taking service under Rider REO
15 will also be subject to the EE-RAC and the total T-RAC, including the portion embedded
16 in the Company's base rates and the portion of the rate included in the T-RAC tariff
17 sheets.

18 **Q. PLEASE EXPLAIN THE FUEL FACTOR RATE CREDIT.**

19 A. The Fuel Factor rate credit is a residual calculation that begins with the total Rider REO
20 revenues, then subtracts the revenue allocations and rate credits discussed above. The
21 amount left after the revenue allocations and other RAC rate credits is the credit that
22 APCo will apply to the Fuel Factor over/under accounting calculation, which in the
23 above example is \$33. In this example, if the Rider REO customer were paying the Fuel

1 Factor rate rather than taking service under Rider REO, that customer would have only
2 paid \$28 (.02301 x 1,200 kWh = \$27.61). The higher Fuel Factor credit under Rider
3 REO is due to the customer purchasing the higher cost Renewable PPAs rather than the
4 lower cost blend of APCo's generation portfolio in total. Under this construct non-
5 participating customers will actually benefit from lower average fuel rates (all other
6 things being equal) as customers choose to take service under Rider REO.

7 **Q. DOES THE COMPANY REALIZE ANY ADDITIONAL EARNINGS WHEN A**
8 **CUSTOMER CHOOSES TO TAKE SERVICE UNDER RIDER REO RATHER**
9 **THAN UNDER A STANDARD RATE SCHEDULE?**

10 A. No. Because the amount of Rider REO revenue retained by the Company is equal to its
11 standard rate schedule base generation and distribution charges along with the portion of
12 the REC opportunity cost associated with Grand Ridge and Beech Ridge, the Company is
13 financially indifferent as to whether a customer takes service under a standard rate
14 schedule or proposed Rider REO.

15 **Q. ARE NON-PARTICIPATING CUSTOMERS HARMED FINANCIALLY WHEN**
16 **A CUSTOMER CHOSSES TO TAKE SERVICE UNDER RIDER REO RATHER**
17 **THAN UNDER A STANDARD RATE SCHEDULE?**

18 A. No, as explained above, non-participating customers could actually benefit through lower
19 average Fuel Factor costs (all other things being equal) as other customers choose to take
20 service under Rider REO.

21 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

22 A. Yes it does.

APPALACHIAN POWER COMPANY

Sheet No. XX

VA. S.C.C. TARIFF NO. XX

**OPTIONAL RIDER REO
(Renewable Energy Only)**

AVAILABILITY OF SERVICE

Available for electric service to customers taking Standard Service from the Company under a metered rate schedule. This optional rider is not available to OAD customers.

AVAILABILITY OF RENEWABLE RESOURCES

Renewable resources for providing service under this optional rider are limited by the availability to the Company of renewable power associated with the Virginia-allocated output purchased by the Company from the Summersville Hydro project, Camp Grove wind farm, Fowler Ridge wind farm, Grand Ridge wind farm, Beech Ridge wind farm, and other renewable power resources as may be incorporated in the future.

CONDITIONS OF SERVICE

Customers who wish to support the development of electricity generated by renewable energy resources agree to purchase renewable energy from the Company to satisfy their monthly energy and capacity requirements. Renewable energy shall be defined in accordance with § 56-577 of the Code of Virginia.

Renewable energy certificates (RECs) associated with sales made under Rider REO will be retained or retired by the Company to recognize the customer's consumption of renewable energy.

BASE RATES AND RACS

Monthly charges under the otherwise applicable standard rate schedules and rate adjustment clauses (RACs) shall apply to customer's participating in Rider REO as follows:

Rate/Surcharge	Applicable	Not-Applicable
Base Generation Rates		X
Base Transmission Rates	X	
Base Distribution Rates	X	
Rider S.U.T.	X	
Rider E.R.C.R.S.		X
Rider F.F.R.		X
Rider T-R.A.C.	X	
Rider E-R.A.C.		X
Rider R.P.S.-R.A.C.	X	
Rider G-R.A.C.		X
Rider B.R.C.R.	X	
Rider E.E.-R.A.C.	X	

APPALACHIAN POWER COMPANY

Sheet No. XX

VA. S.C.C. TARIFF NO. XX

**OPTIONAL RIDER REO
(Renewable Energy Only)**

MONTHLY RATE

In addition to the monthly charges from the applicable base rates and RACs listed above, customers taking service under optional Rider REO shall pay \$0.08961/kWh consumed for renewable power.

TERM

Customers eligible for this Rider may participate by notifying the Company. Initial term of service under this rider is no less than 12 months. After the initial term, customers may terminate service under this Rider by notifying the Company with at least thirty days prior notice.

SPECIAL TERMS AND CONDITIONS

This Rider is subject to the Company's Standard Terms and Conditions of Service.

APCo Exhibit No.____(AEV) Schedule 2 - Rider REO Revenue Allocation and Rate Credit Example

Residential Customer Example

Proposed Rider REO	
	\$/kWh
Rider REO	\$ 0.08961
Distribution kWh	\$ 0.01814
Total T-RAC	\$ 0.01871
RPS-RAC	\$ (0.00084)
EE-RAC	\$ 0.00043
Service Charge Per Month	\$ 8.35
Bill @ 1200 kWh	\$ 160

Standard Residential Tariff	
	\$/kWh
Base G	\$ 0.04349
G-RAC	\$ 0.00247
Distribution kWh	\$ 0.01814
Total T-RAC	\$ 0.01871
EE-RAC	\$ 0.00043
RPS-RAC	\$ (0.00084)
Fuel	\$ 0.02301
Service Charge Per Month	8.35
Bill @ 1200 kWh	\$ 135

Revenue Allocation and Rate Credit Calculations @ 1200 kWh			
Total Monthly Bill on Rider REO		\$ 160	
Base G	\$ 0.04349	\$ 52	Remains Rider REO Revenue
Distribution kWh Charges	\$ 0.01814	\$ 22	Base Rate Distribution Revenue
Basic Service Charge	\$ 8.35	\$ 8	Base Rate Distribution Revenue
T-RAC	\$ 0.01871	\$ 22	T-RAC (Base & RAC) Revenue
Credit for G-RAC	\$ 0.00247	\$ 3	Credited to G-RAC over/under
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