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COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

131030134

PREFILED STAFF TESTIMONY

APPALACHIAN POWER COMPANY

**FOR CERTIFICATES OF PUBLIC CONVENIENCE
AND NECESSITY TO CONVERT UNITS 1 AND 2
OF THE CLINCH RIVER PLANT TO USE NATURAL
GAS RATHER THAN COAL AS FUEL**

Case No. PUE-2013-00057

October 11, 2013

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Walker

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PART A

**PREFILED TESTIMONY
OF
CODY D. WALKER**

**APPLICATION OF
APPALACHIAN POWER COMPANY
CASE NO. PUE-2013-00057**

1 **Q1. PLEASE STATE YOUR NAME AND POSITION WITH THE**
2 **COMMISSION.**

3 **A1.** My name is Cody D. Walker. I am an Assistant Director in the Commission's
4 Division of Energy Regulation.

5 **Q2. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
6 **PROCEEDING?**

7 **A2.** My testimony will address Appalachian Power Company's ("APCo" or
8 "Company") application requesting approval of the conversion of two of its
9 generating units, Clinch River Units 1 and 2, to use natural gas rather than
10 coal (the "Clinch River Conversion"). My testimony will:

- 11 • provide an overview of the proposed conversion;
- 12 • discuss the Company's need for capacity;
- 13 • describe alternative resources to the proposed conversion; and,
- discuss whether the conversion is consistent with the public interest.

14 It should be noted that APCo is part of the American Electric Power ("AEP")
15 system. AEP is in turn a member of the PJM Interconnection, L.L.C.
16 ("PJM") and must plan its system in accordance with its PJM obligations.

PROPOSED CONVERSION

Q3. PLEASE DESCRIBE THE PROPOSED CONVERSION.

A3. APCo’s Clinch River generating plant is located in Russell County, Virginia and began commercial operation in 1958 with the completion of Units 1 and 2. Unit 3 was added in 1961. The plant has a total nominal net generating capacity of 705 MW. The Company maintains that the units are not equipped with emissions controls necessary to comply with recently issued and anticipated environmental regulations. Consequently, APCo plans to convert Units 1 and 2 to use natural gas and to retire Unit 3. Upon conversion, Units 1 and 2 are expected to each have a nominal capacity of 242 MW, a total capacity of 484 MW.

APCo notes that Units 1 and 2 share many common systems and that Unit 3 essentially operates as a “stand-alone” unit. The use of these common systems will help to minimize the overall project costs as compared to the costs of converting Unit 3.¹ The Company indicates that Unit 3 is not needed to meet anticipated load levels.

The estimated cost of the proposed project excluding AFUDC and the cost of the associated natural gas lateral is \$64.8 million, or \$133.88 per kW. The natural gas pipeline would be constructed by a third party and APCo anticipates entering into a transportation service agreement for delivering gas supplies to the plant.

CAPACITY NEEDS

Q4. PLEASE DESCRIBE APCO’S CAPACITY NEEDS.

A4. Historically, APCo has been a party to an Interconnection Agreement with its affiliated companies in the AEP East system that also owned generation facilities: Ohio Power, Indiana Michigan Power Company and Kentucky Power Company (collectively with APCo, the “Pool Members”).

Pursuant to the Interconnection Agreement, the Pool Members planned and operated their power supply facilities on an integrated basis and allocated generation-related costs and benefits among the Pool Members. Thus as a group, the Pool Members jointly satisfied their combined needs for capacity and energy. For a number of years, APCo has been a capacity deficit Pool Member and has, pursuant to the Interconnection Agreement, made cost-based payments for capacity from Pool Members with surplus capacity.

Changes within the electric utility industry have led the Pool Members to conclude that long-term reliance on the Interconnection Agreement was not viable. Consequently, the Pool Members have taken action to terminate the Interconnection Agreement effective on January 1, 2014. As such, APCo plans to acquire additional capacity to meet its “stand-alone” requirements.

APCo’s forecasted capacity requirements are set forth in Schedule 1 of Company Witness John F. Torpey’s prefiled testimony. These projections

¹ Company response to Interrogatory OAG 02-015.

1 reflect expected capacity values in accordance with PJM's unforced capacity²
 2 requirements and expected load service obligations.³ The Company's
 3 expected available capacity, capacity obligations, and capacity position with
 4 and without the proposed conversion are as follows:

Year	Available Capacity	Capacity Obligation	Capacity Position	Clinch River Conversion UCAP	Capacity Position with Conversion
	MW	MW	MW	MW	MW
2014	8,391	6,964	1,428	0	1,428
2015	6,975	7,130	-155	425	270
2016	6,886	7,117	-231	436	205
2017	6,954	7,149	-196	435	240
2018	6,973	7,198	-225	435	210
2019	7,022	7,242	-220	435	215
2020	7,042	7,278	-236	435	199
2021	7,058	7,349	-292	435	144
2022	7,070	7,404	-335	436	101
2023	7,088	7,433	-345	437	92
2024	7,100	7,477	-377	437	60

5 As can be seen from this table, APCo expects to have a capacity deficit for
 6 the foreseeable future without the Clinch River Conversion. Conversion of
 7 Clinch River Units 1 and 2 would meet or exceed the Company's expected
 8 deficits. It should be noted that the above projections assume incorporation
 9 of the Wheeling Power load and the acquisition of additional capacity
 10 associated with Amos Unit 3 and the Mitchell Units as originally proposed in
 11 Case No. PUE-2012-00141.

² PJM derates capacity values for each generating facility to reflect forced outage rates. The resulting capacity values are referred to as unforced capacity ("UCAP")

³ PJM adjusts unit capacities to exclude capacity associated with forced outages.

1 By Order dated July 31, 2013 in Case No. PUE-2012-00141, the
 2 Commission approved the Wheeling Merger and the acquisition of additional
 3 capacity associated with Amos Unit 3 and rejected the acquisition of the
 4 Mitchell capacity. The Company’s expected capacity positions adjusted to
 5 remove the Mitchell capacity is as follows:

Year	Available Capacity MW	Capacity Obligation MW	Capacity Position MW	Clinch River Conversion UCAP MW	Capacity Position with Conversion MW
2014	7,682	6,964	718	0	718
2015	6,260	7,130	-870	425	-446
2016	6,164	7,117	-953	436	-517
2017	6,231	7,149	-918	435	-483
2018	6,250	7,198	-948	435	-512
2019	6,300	7,242	-942	435	-507
2020	6,320	7,278	-958	435	-523
2021	6,335	7,349	-1,014	435	-579
2022	6,347	7,404	-1,057	436	-621
2023	6,365	7,433	-1,068	437	-631
2024	6,378	7,477	-1,099	437	-662

6 As can be seen, APCo’s capacity deficit is significantly greater without the
 7 Mitchell acquisition. The proposed Clinch River Conversion would only
 8 partially offset the Company’s expected capacity deficits.

9 It should be noted that APCo continues to pursue the Wheeling
 10 merger and the acquisition of additional capacity associated with Amos Unit
 11 3 and the Mitchell Units with the West Virginia Public Service Commission.
 12 It is not clear how the Company would reconcile differing rulings in Virginia
 13 and West Virginia should it gain the sought after approvals in West Virginia.
 14 The Staff believes that one possible scenario for reconciling differing

1 regulatory decisions could include the dedication of the Mitchell capacity to
 2 the Wheeling load. The Company’s capacity position excluding the Wheeling
 3 load and the Mitchell capacity is as follows:

Year	Available Capacity	Capacity Obligation	Capacity Position	Clinch River Conversion UCAP	Capacity Position with Conversion
	MW	MW	MW	MW	MW
2014	7,682	6,489	1,193	0	1,193
2015	6,260	6,652	-392	425	32
2016	6,164	6,638	-474	436	-38
2017	6,231	6,668	-437	435	-2
2018	6,250	6,716	-466	435	-30
2019	6,300	6,760	-460	435	-25
2020	6,320	6,797	-477	435	-42
2021	6,335	6,865	-530	435	-95
2022	6,347	6,919	-572	436	-136
2023	6,365	6,946	-581	437	-144
2024	6,378	6,989	-611	437	-174

4 As can be seen from the above table, the Clinch River Conversion would be
 5 expected to either eliminate or minimize APCo’s expected capacity deficit if
 6 the Mitchell capacity is dedicated to serving the Wheeling load.

7 Irrespective of the potential outcomes associated with the Company’s
 8 acquisition of capacity from the Amos and Mitchell units and the merger of
 9 the Wheeling load, it appears that APCo will have a need for additional
 10 capacity that either approximates or exceeds the amount of capacity
 11 associated with the Clinch River Conversion.

ALTERNATIVE RESOURCES

1
2 **Q5. PLEASE DESCRIBE ANY POTENTIAL ALTERNATIVES TO THE**
3 **CLINCH RIVER CONVERSION.**

4 **A5.** The dissolution of the Interconnection Agreement has resulted in a short
5 turnaround time for obtaining new capacity. This gives rise to a unique
6 situation where the Company's near term capacity needs cannot be met
7 through conventional alternatives. Given the lead times associated with
8 siting and constructing new units, APCo's immediate needs must be satisfied
9 through the acquisition of existing resources, short term purchases, or other
10 projects like the Clinch River Conversion which have shorter lead times. The
11 Clinch River Conversion is also unique in that the planned remaining life of
12 the units after conversion is only 10 years.

13 As such, market based purchases represent the only viable readily
14 available near-term alternative to the proposed conversion. The Company's
15 Strategist® optimization modeling runs compare the Clinch River
16 Conversion against two other alternatives that feature reliance on purchases
17 from PJM markets in the early years of the analysis with unit additions in the
18 latter years. It should be noted that these scenarios were artificially
19 constrained in that APCo specified the initial unit additions rather than
20 allowing the model to determine the optimal timing and nature of the initial
21 unit additions. APCo's Scenario 2 reflects the construction of a 384 MW CC
22 in 2018 with an optimized expansion plan thereafter. Scenario 3 assumes
23 reliance on PJM purchases until 2025 with an optimized expansion plan from

1 that point forward. The Company’s modeling scenarios indicate that the
2 Clinch River Conversion will produce savings when compared to either of
3 these alternatives. It should be noted that the Company’s modeling assumes
4 the addition of the Mitchell units as well as the addition of the Wheeling load.

5 APCO also projects PJM capacity (“ICAP”) prices that are
6 substantially higher than recent PJM RPM clearing prices and that are higher
7 than the Company’s updated forecasts contained in its recent integrated
8 resource plan filing. The Company did, however, perform “lower band”
9 modeling scenarios which assumed lower energy prices and lower ICAP
10 prices. The Clinch River Conversion was the lowest cost scenario under the
11 “lower band” pricing scenarios as well.

12 **Q6. DOES STAFF HAVE ANY COMMENTS REGARDING THE**
13 **COMPANY’S MODELING?**

14 **A6.** Yes. There are several aspects of the Company’s Strategist® optimization
15 modeling runs that warrant additional scrutiny. As noted earlier, APCo’s
16 modeling assumes the acquisition of the Mitchell units. Obviously,
17 elimination of this acquisition would impact the outcome of the various
18 scenarios. Further, the Company’s scenarios were not fully optimized on an
19 unconstrained basis. In other words, each of the scenarios examined by the
20 Company had specified constraints on the addition of new units. While the
21 ICAP prices used in the Company’s “lower band” scenarios were lower, those
22 prices are higher than those used in the Company’s recent IRP filing.

1 Finally, the Company's assumed construction costs and heat rates for
 2 combined cycle ("CC") units and combustion turbine ("CT") units seem high
 3 in comparison to recent U.S. Energy Information Administration estimates.⁴
 4 The following table compares the Company's cost and heat rate assumptions
 5 for the new gas fired generation and the proposed conversion to the EIA
 6 estimates for an Advanced CC unit and an Advanced CT unit.

	Heat Rate btu/kWh	Overnight Construction Cost \$/kW
Company CT assumptions	12,130	801
EIA CT estimates	9,750	676
Company CC assumptions	6,910	1,319
EIA CC estimates	6,430	1,023
Clinch River Conversion	10,160	133.88

7 After some discussion with the Staff, the Company ran some
 8 additional modeling scenarios that address some of the above issues.
 9 Specifically, the Company developed new scenarios that eliminated the
 10 Mitchell acquisition and the constraints on new unit additions. These revised
 11 results are summarized on Attachment CDW-1. As can be seen from these
 12 results the proposed conversion continues to be part of a least- cost expansion
 13 plan under these new scenarios. These revised results continue to reflect
 14 ICAP pricing assumptions that are higher than those in the Company's recent
 15 IRP analysis. Consequently, the Staff developed adjustments to the
 16 Company's results to reflect the lower ICAP assumptions used in the IRP

⁴ EIA's "Updated Capital Cost Estimates for Utility Scale Electricity Generating Plants", April, 2013

1 filing. These adjusted results are shown at the bottom of Attachment CDW-
2 1.⁵ These adjusted results continue to indicate that the Clinch River
3 Conversion would be part of a least-cost expansion plan.

4 In response to a Staff data request, the Company developed
5 additional optimization modeling results that incorporated the EIA heat rate
6 and unit cost assumptions for natural gas fired generating referenced earlier.
7 These revised results are shown on Attachment CDW-2 and further support
8 the Clinch River Conversion as a least cost alternative. Attachment CDW-2
9 also includes Staff's adjustments to reflect lower ICAP assumptions.

10 **Q7. DID APCO CONSIDER MARKET BASED PURCHASES FROM**
11 **THIRD PARTIES AS AN ALTERNATIVE TO THE PROPOSED**
12 **FACILITY?**

13 **A7.** No. While APCo considered purchases from the PJM markets in its various
14 modeling scenarios, the Company did not seek out or analyze third party
15 alternatives. The Company did, however, conduct a "break-even" analysis to
16 determine what it would be willing to pay a third party for an asset that would
17 have similar operating characteristics as the Clinch River Conversion and
18 concluded that the resulting price was below that of recent transactions that
19 were publically available. APCo further noted that it was not aware of any
20 natural gas fired assets that would be available at its "break-even" price.

21 _____
⁵ The Staff's ICAP adjustments assume that the optimal expansion plans would not change as a result of the lower ICAP assumptions. Such assumptions could potentially result in minor changes to such plans if the model was re-run with lower assumptions. Staff would expect such changes to be minimal and believes that they would not materially change the relative results.

1 **PUBLIC INTEREST CONSIDERATIONS**

2 **Q8. WHAT ARE THE PUBLIC INTEREST IMPLICATIONS OF THE**
3 **PROPOSED CLINCH RIVER CONVERSION?**

4 **A8.** The Staff believes that the public interest considerations associated with the
5 Clinch River Conversion include, among other things, determinations of
6 whether: additional capacity is needed to ensure reliability or an economic
7 supply of power; and, whether the conversion represents the optimal choice
8 of alternatives given the Company's existing resources, potential alternative
9 resources and future capacity and energy requirements.

10 With respect to the need for additional capacity to maintain reliability,
11 the Staff believes that APCo does have a need for additional capacity that
12 approximates or exceeds the capacity of the converted units. The Clinch
13 River Conversion also appears to be a least cost alternative under the
14 Company's original Strategist® results as well as the additional optimization
15 studies performed in response to Staff data requests.

16 **Q9. DOES THIS CONCLUDE YOUR TESTIMONY IN THIS**
17 **PROCEEDING?**

18 **A9.** Yes, it does.

Case No. PUE-2013-00057
Appalachian Power Company

Revised Clinch River Modeling Scenarios
(Company's CC CT Assumptions)

	Base Analysis		Lower Band Analysis	
	<u>Scenario 1</u>	<u>Scenario 2</u>	<u>Scenario 1</u>	<u>Scenario 2</u>
	Gas Conversion Build Option by 2025	Retire & Replace Build Option by 2018	Gas Conversion Build Option by 2025	Retire & Replace Build Option by 2018
2011-2013				
2014	867 MW AM3	867 MW AM3	867 MW AM3	867 MW AM3
2015		CR1&2 Retire	867 MW AM3	867 MW AM3
2016	CR1&2 Gas Convert			CR1&2 Retire
2017	2- 384 MW CC,	3- 384 MW CC,	CR1&2 Gas Convert	
2018			8 -85 MW CT's,	3- 384 MW CC,
2019				
2020				
2021				
2022				
2023				
2024				
2025		1- 384 MW CC,		
2026	1- 384 MW CC,		4 -85 MW CT's,	1- 384 MW CC,
2027	1- 384 MW CC,			
2028			4 -85 MW CT's,	
2029				
2030			4 -85 MW CT's,	
2031				
2032	1- 384 MW CC,	1- 384 MW CC,		
2033				1- 384 MW CC,
2034				
2035				
2036			4 -85 MW CT's,	
2037				
2038				
2039				
2040				
	(\$000)			
CPW (2011-2040)	\$26,616,156	\$26,740,817	\$21,494,687	\$21,667,496
ICAP Revenue	<u>\$147,776</u>	<u>\$143,595</u>	<u>\$3,556,072</u>	<u>\$3,556,072</u>
Total	\$26,468,380	\$26,597,222	\$25,050,759	\$25,223,568
Staff ICAP Adj	<u>-\$36,233</u>	<u>-\$35,581</u>	<u>-\$17,415</u>	<u>-\$23,528</u>
Staff Adj Total	\$26,432,148	\$26,561,640	\$25,033,343	\$25,200,040

Revised Clinch River Modeling Scenarios
(EIA CC CT Assumptions)

	Base Analysis		Lower Band Analysis	
	<u>Scenario 1</u> Gas Conversion	<u>Scenario 2</u> Retire & Replace Build Option by 2017	<u>Scenario 1</u> Gas Conversion	<u>Scenario 2</u> Retire & Replace Build Option by 2017
2011-2013				
2014	867 MW AM3	867 MW AM3	867 MW AM3	867 MW AM3
2015		CR1&2 Retire		CR1&2 Retire
2016	CR1&2 Gas Convert		CR1&2 Gas Convert	
2017	2- 400 MW CC,	3- 400 MW CC,	2- 400 MW CC,	3- 400 MW CC,
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				
2026	1- 400 MW CC,	1- 400 MW CC,	1- 400 MW CC,	1- 400 MW CC,
2027	1- 400 MW CC,		1- 400 MW CC,	
2028				
2029				
2030				
2031				
2032				
2033	1- 400 MW CC,	1- 400 MW CC,	1- 400 MW CC,	1- 400 MW CC,
2034				
2035				
2036				
2037				
2038				
2039				
2040				
FT-CSAPR ICAP Pricing				
	(\$000)			
CPW (2011-2040)	\$26,130,719	\$26,157,703	\$24,707,763	\$24,774,777
ICAP Revenue	<u>177,594</u>	<u>164,130</u>	<u>181,306</u>	<u>149,537</u>
Total	\$25,953,125	\$25,993,573	\$24,546,457	\$24,625,241
Staff ICAP Adj	<u>-\$42,598</u>	<u>-\$38,663</u>	<u>-\$27,314</u>	<u>-\$25,006</u>
Staff Adj Total	\$25,910,527	\$25,954,909	\$24,519,142	\$24,600,234

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Eichenlaub

PART B

**PREFILED TESTIMONY
OF
DAVID R. EICHENLAUB**

**APPLICATION OF
APPALACHIAN POWER COMPANY
CASE NO. PUE-2013-00057**

1 **Q1. PLEASE STATE YOUR NAME AND POSITION WITH THE COMMISSION.**

2 **A1.** My name is David R. Eichenlaub and I am an Assistant Director in the Commission's
3 Division of Energy Regulation.

4 **Q2. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

5 **A2.** My testimony will address the application of Appalachian Power Company (“APCo” or
6 the “Company”) filed on May 29, 2013, for the granting of certificates of public
7 convenience and necessity under §§ 56-580 D and 56-46.1 of the Code of Virginia, to
8 convert Units 1 and 2 of the Clinch River Plant to use natural gas rather than coal as its
9 fuel source (the “Clinch River Conversion”).

10 I will address APCo’s application with respect to the Company’s forecasting
11 methodologies and its need for generation capacity by evaluating its load and
12 commodity price forecasts.

13 **Q3. WHAT ARE STAFF’S INITIAL OBSERVATIONS REGARDING APCO’S
14 LOAD AND COMMODITY PRICE FORECASTS IN THIS APPLICATION?**

15 **A3.** Staff observed that much of the data used in the Strategist® model by the Company in
16 this application was the same as the data relied upon in APCo’s recent Assets Transfer

1 Case.¹ The Company confirmed Staff's observations except for a delay of the in-
2 service dates for Clinch River Units 1 and 2 of about one year in the current application.
3 Since such forecast assumptions were recently evaluated, the following discussion
4 contained in questions, Q4 through Q7, and answers, A4 through A7, repeats much of
5 my pre-filed testimony in the Assets Transfer Case.

6 **Q4. GENERALLY, WHAT IS YOUR OVERALL ASSESSMENT OF THE**
7 **COMPANY'S FORECASTING METHODOLOGIES?**

8 **A4.** As in previous Commission proceedings, the Staff has reviewed the Company's models
9 and procedures used to forecast energy sales, electricity demand, and various
10 commodity prices. Time series and structural econometric models are used to forecast
11 energy sales by customer class and peak demand for APCo. Forecasts of the U. S.
12 economy prepared by reputable sources are used to provide the macroeconomic drivers
13 required to solve the in-house forecasting models. Likewise, reputable sources of
14 economic data for the coal, oil and natural gas industries are employed to provide inputs
15 for its fuel prices forecasts.

16 AEPSC develops the fuel and emissions data forecasts used as input to the
17 AURORAxmp® computer model, a power marketing tool by EPIS, Inc., to forecast
18 short-term, intermediate and long-term wholesale energy prices, which in turn, are used
19 as inputs to the Strategist® computer model developed by Ventyx. The load forecast
20 consisting of the projected demand and energy sales is developed by the AEP Economic
21 Forecasting organization. The long-term commodity price forecast is developed by the

¹ *Application of Appalachian Power Company, For approval of transactions to acquire interests in the Amos and Mitchell generating plants and to merge with Wheeling Power Company, Case No. PUE-2012-00141, Doc. Con. Ctr. No. 130730256, Order (July 31, 2013).*

1 AEP Fundamental Analysis group. The capital costs and attendant operating costs for
2 new-build generating assets, environmental retrofits, and replacement capacity-build
3 options are developed by the AEP Engineering Projects and Field Services group.
4 Together, these various forecasts and assumptions determine the input values to the
5 Strategist® model which is used to simulate the operation of an electric utility power
6 system for integrated resource planning.

7 Strategist® incorporates a variety of expansion planning assumptions including
8 characteristics of resource addition alternatives available to meet future capacity needs,
9 operating parameters of existing and new units, fuel prices, prices of external market
10 energy, capacity and emission allowances, reliability constraints and emission limits
11 and environmental compliance options. Strategist® uses several modules that work in
12 unison to simulate the operation of the generating system, including new resource
13 additions that may be needed to meet future demand growth. Staff is familiar with the
14 model and its internal processes and supports APCo’s use of Strategist® and its results
15 as a reasonable proxy of future system operations, given the reasonableness of the
16 model’s input assumptions.

17 **Q5. WHAT IS YOUR EVALUATION OF THE REASONABLENESS OF THE LOAD**
18 **FORECAST USED IN THE APPLICATION?**

19 **A5.** APCo uses several econometric models with an end-use orientation to forecast the
20 energy sales by customer class, and seasonal peak demand in its service territory.
21 Customer classes include residential, commercial, industrial, public street lighting and
22 highway lighting. Explanatory variables include items such as: state and local

1 employment and income levels, APCo electric rates, service area appliance saturation
2 and usage rates, Gross State Product, new housing starts, commercial and industrial
3 output, and weather variables to represent the economic and customer activity in the
4 Commonwealth during the forecast period. Economic variables required to drive these
5 models are obtained from commercially available forecasts provided by reputable
6 vendors. This process reflects standard modeling practices and appears reasonable.

7 The load forecast is a crucial component to the Company's application, not only
8 indicating the amount of additional resources needed to meet expected load, but also the
9 timing of such need, which in turn drives the availability and type of resources to best
10 meet the need.

11 APCo's base PJM summer peak demand², including 475 MW of load for
12 Wheeling in 2014, is forecasted to modestly increase at a compound annual growth rate
13 ("CAGR") of approximately 0.38% for the period 2015-2030. The corresponding
14 energy requirements are forecasted to increase at a CAGR of 0.47% for the same
15 period.

16 APCo's peak demand forecast is lower than the 1.15% CAGR actually
17 experienced over the last ten years. This slower expected growth rate is generally
18 consistent with other industry forecasts reflecting slow economic recovery being
19 experienced in most parts of the country and appears reasonable. Despite the projected
20 low level of demand growth, APCo has a need for additional capacity as discussed by
21 Staff Witness Walker.

² Calculations based on data provided in the Company's responses to the Interrogatories OAG-2-020 and OAG 8-125.

1 Q6. WHAT IS YOUR EVALUATION OF THE REASONABLENESS OF THE
2 FORECASTED ENERGY COSTS?

3 A6. Fuel prices are forecasted using a comprehensive forecasting procedure that has been
4 developed over a period of years and reviewed by Staff on numerous occasions. The
5 fuel forecast is determined in part by the forecasts of the regional economy based on
6 national economic forecasts. Informed judgment is used to produce the forecasts, and
7 models are not used in a strictly mechanical manner. Thus, Staff is of the opinion that
8 the methodologies employed to prepare the forecasts are generally sound and
9 appropriate.

10 As established in the Assets Transfer Case, the fuel prices forecast used in this
11 application are the same as those used to produce the 2012 IRP Update, implying that
12 such forecast was completed in late 2011 or early 2012. Such prices would tend to
13 differ from more recent market outlooks. Moreover, APCo's resource portfolios move
14 natural gas, coal, and energy market prices in step with each other. Recent market
15 estimates indicate that the spreads between natural gas and coal prices will narrow.
16 Such market estimates reflect lower natural gas prices resulting from the increasing U.S.
17 production of shale gas, which in turn lowers the energy market prices, while at the
18 same time reflect increasing coal prices due to expected increases in production costs to
19 access coal reserves that are more costly to mine.³ Current price estimates in APCo's
20 evaluations would likely have only a minimal effect on the claimed benefits of the
21 proposed Clinch River Conversion. Lower natural gas prices would reduce the cost of
22 peaking energy and tend to put downward pressure on the cost of market purchases.

³ As reported in the U.S. Energy Information Administration's Annual Energy Outlook 2013 Early Release issued on December 5, 2012.

1 **Q7. WHAT IS YOUR ASSESSMENT OF THE REASONABLENESS OF THE**
2 **FORECASTED MARKET PRICES?**

3 **A7.** APCo utilized its projected fuel prices in conjunction with forward price curves for
4 emissions allowance prices, projected regional loads, and available regional generation
5 to project market prices for electricity. The continuing effects of a business cycle
6 downturn, corresponding reductions in electricity demand, and lower natural gas prices
7 have also led to a decline in wholesale electric power costs, at least in the short-term.
8 As noted earlier, the Company's fuel price forecasts were developed over a year ago
9 and differ from current prevailing prices. Varying price movements may impact
10 generation costs in different directions and affect the Company's operating costs as well
11 as market prices for electricity. Since the objective of the proposed Clinch River
12 Conversion is to retain capacity and to maintain reliability, lower natural gas prices
13 could marginally improve the value of the resultant gas-fired peaking energy, as well as
14 apply downward pressure on the cost of market purchases.

15 **Q8. DO YOU WISH TO COMMENT ON ANY CHANGES IN THE FORECASTS OF**
16 **APCO SINCE THE ASSETS TRANSFER CASE?**

17 **A8.** Yes. As previously mentioned, this application was filed on May 29, 2013,
18 incorporating the same data assumptions in the Company's Strategist® model runs as
19 used in the Assets Transfer Case. On July 31, 2013, the Commission issued its Order
20 approving the acquisition of the remaining interest in Unit Number 3 of the Amos
21 generating plant and the merger with Wheeling Power Company but denied approval
22 for APCo to acquire an interest in the Mitchell generating plant. As development of the

1 Company's 2013 Integrated Resource Plan ("IRP") was nearing completion at the time
2 of the July 31, 2013 Order, APCo submitted its 2013 IRP on August 30, 2013⁴, using
3 revised load and commodity prices forecast assumptions, but still reflecting the assumed
4 acquisition of the Mitchell generating plant.

5 A cursory review of APCo's 2013 IRP indicates that the current load forecast is
6 about 2% lower than that used in this application while it retains a similar compound
7 annual growth rate of about 0.5%. Delivered fuel prices for coal appear to be 2-3%
8 lower in the early years and then about 2% higher in the latter years of the study period
9 than those reflected in this application. Additionally, natural gas prices appear higher in
10 2014 and 2015, then about 2% lower in years 2016–2021, and slightly higher in 2022-
11 2026 compared to those of the instant application. Staff does not believe these slight
12 differences would significantly alter the results addressed by Witness Walker.

13 On October 3, 2013, the Commission issued an Order directing APCo to file a
14 revised, updated IRP incorporating the effects of the West Virginia Public Service
15 Commission and this Commission's decision regarding the Assets Transfer. Although
16 it appears that APCo has recently somewhat lowered its current forecasts of load and
17 commodity prices, it is premature to reach any conclusive opinion pending further
18 revised data within the next several months.

19 **Q9. WHAT ARE YOUR CONCLUSIONS?**

20 **A9.** APCo's forecasting methodologies appear reasonable. The Company's forecasts of
21 load, fuel and energy market prices in the instant application appear higher than that

⁴ *Appalachian Power Company's Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq.*, Case No. PUE-2013-00097, Doc. Con. Ctr. No. 131010098, Order (October 3, 2013).

1 expected of an updated and current long-term outlook. However, Staff believes the
2 relative differences in forecasts would only marginally affect the results presented by
3 the Company. In light of the Commission's decision to not allow APCo's acquisition of
4 the Mitchell Plant, and of arguably a lower forecast of natural gas prices, converting
5 Units 1 and 2 appears to be a reasonable alternative to maintain APCo's capacity
6 position in the short-term.

7 **Q10. DOES THIS CONCLUDE YOUR TESTIMONY?**

8 **A10. Yes.**

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PART C

CART

PRE-FILED TESTIMONY

OF

PATRICK W. CARR

**APPALACHIAN POWER COMPANY
CASE NO. PUE-2013-00057
OCTOBER 11, 2013**

1 **Q1. PLEASE STATE YOUR NAME AND POSITION YOU HOLD WITH THE**
2 **VIRGINIA STATE CORPORATION COMMISSION ("COMMISSION").**

3 **A1. My name is Patrick W. Carr, and I am a Manager with the Division of Utility**
4 **Accounting and Finance.**

5 **Q2. PLEASE EXPLAIN THE PURPOSE OF YOUR TESTIMONY.**

6 **A2. Appalachian Power Company ("APCo" or "Company") has proposed to convert**
7 **two of the units at its Clinch River Plant to use natural gas rather than coal. The**
8 **proposed conversion has an expected cost of \$64.8 million (excluding any**
9 **pipeline costs). The application seeks a Certificate of Public Convenience and**
10 **Necessity. Company witness Bosta states that APCo "will seek recovery of the**
11 **carrying costs of the investment in a future regulatory proceeding."**¹ **My**
12 **testimony will address this future cost recovery.**

13 **Q3. HAS THE COMPANY IDENTIFIED THE RATE MECHANISM(S) IT**
14 **EXPECTS TO EMPLOY FOR FUTURE RECOVERY OF THE**
15 **PROJECT'S NON-FUEL COSTS?**

¹ May 29, 2013 Direct Testimony of William A. Bosta, p. 4.

1 **A3.** Yes, it has. In response to a Staff Interrogatory, it stated that "[a]t this time, the
2 Company expects to seek recovery of the carrying costs of the proposed
3 conversion, including the post-refueling non-fuel costs of operating and
4 maintaining the generating units, through base rates."²

5 **Q4. DOES THIS CONCLUDE YOUR TESTIMONY?**

6 **A4.** Yes, it does.

² See response to Staff Interrogatory No. 1-010, attached to my testimony as an Appendix.

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION
APPLICATION OF APPALACHIAN POWER
SCC CASE NO. PUE-2013-00057
Interrogatories and Requests for the Production
of Documents by the Staff of the
State Corporation Commission (First Set)
To Appalachian Power Company

Interrogatory Staff 1-010:

Please explain whether APCo plans to recover the costs of refueling Clinch River and its post-refueling non-fuel costs through a rate adjustment clause or clauses, base rates, or a combination of base rates and rate adjustment clause(s).

Response Staff 1-010:

At this time, the Company expects to seek recovery of the carrying costs of the proposed conversion, including the post-refueling non-fuel costs of operating and maintaining the generating units, through base rates.

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