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May 20, 2021

BY ELECTRONIC MAIL

The Honorable Connie Graley, Executive Secretary
THE WEST VIRGINIA PUBLIC SERVICE COMMISSION
201 Brooks Street
Charleston, West Virginia 25323
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RE: ***Appalachian Power Company & Wheeling Power Company***

Application for the issuance of a Certificate of Public Convenience and Necessity for internal modifications at coal fired generating plants necessary to comply with federal environmental regulations

Case No. 20-1040-E-CN

Dear Ms. Graley,

Please find enclosed for filing in the above-captioned case the Rebuttal Testimony of Rachel Wilson on behalf of the Sierra Club. Should you have any questions regarding this filing, please do not hesitate to contact me directly.

Thank you,

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Enclosure

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PUBLIC SERVICE COMMISSION

OF WEST VIRGINIA

CHARLESTON

APPALACHIAN POWER COMPANY & WHEELING POWER COMPANY	**Case No. 20-1040-E-CN**
Application for the issuance of a Certificate of Public Convenience and Necessity for internal modifications at coal fired generating plants necessary to comply with federal environmental regulations	

REBUTTAL TESTIMONY OF RACHEL WILSON

ON BEHALF OF THE SIERRA CLUB

May 20, 2021

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1. INTRODUCTION AND QUALIFICATIONS

Q. Are you the same Rachel Wilson that submitted Direct Testimony in this docket on May 6, 2021?

A. Yes.

Q. What is the purpose of your rebuttal testimony in this proceeding?

A. The purpose of my rebuttal testimony is to respond to the direct testimonies of West Virginia Coal Association Witnesses Todd A. Myers and Dr. John Deskins and Consumer Advocate Division Witness Emily S. Medine.

2. RESPONSE TO COAL ASSOCIATION WITNESS MYERS

Q. What are the conclusions presented in the Direct Testimony of Witness Todd A. Myers?

A. Witness Myers presents several conclusions in his Direct Testimony to which I respond. First, he states that WPCo has undervalued Mitchell in its analysis, arguing that Mitchell provides a unique physical energy hedge,[1] and that the Mitchell plant would be particularly valuable in the case of an extreme weather event like that which occurred in ERCOT in February 2021.[2] Second, he argues that other coal plant retirements in PJM increase the value of Mitchell. Lastly,

1 Myers Direct Testimony at 4:19–4:21.

2 *Id.* at 4:22–5:4.

Witness Myers asserts that WPCo will not be able to meet the required PJM reserve margin if Mitchell is retired.

Q. According to Witness Myers, how does Mitchell provide a unique physical energy hedge?

A. Witness Myers quotes a discovery response in a parallel docket before the Kentucky Public Service Commission. In that response, the Companies state that Mitchell's ability to keep fuel on-site and generate power at a known cost represents a physical hedge and that if WPCo were to retire Mitchell, it would need to acquire energy in the PJM market in far more hours than it would if it were to retain Mitchell.[3]

Q. Does the Mitchell plant provide a unique physical energy hedge?

A. No. WPCo purchases all of its hourly load requirements from the PJM market, paying the locational marginal price (LMP) for energy (also called the market clearing price) in all hours. For this reason, the Company will always be subject to market volatility, when energy prices increase or decrease. However, WPCo can also sell generation into the PJM market, receiving the same market clearing price for all the megawatt-hours it is able to sell. The Company will then only earn revenue from the Mitchell plant if its energy sales exceed the cost of market purchases. The statement reproduced by Witness Myers indicates that WPCo can

3 *Id.* at 9:21–9:23.

rely on the generation from Mitchell to meet some or all of its own load requirements rather than relying on the market. This is simply not correct.

Q. Would Mitchell's capacity be more valuable during cold-weather events?

A. No. Mitchell's capacity might actually be more *vulnerable* during a cold-weather event. WPCo's fifty percent share of the Mitchell plant is the only generating resource the Company owns. If it were to be offline or trip during a cold-weather event, WPCo would not have any generation to sell into the PJM market during that event. Much of the U.S. coal fleet is older and receives less investment from their utility owners—both factors that generally increase the probability of forced outages. PJM has also stated that it is typical for forced outages to be more frequent than normal during periods of extreme cold temperatures,[4] as the complexity of machinery, stressed ambient conditions, and elongated periods of operation cause units to trip for a variety of reasons.[5] ERCOT has just over 13,500 MW of installed coal capacity,[6] and on February 16, 2021, more than 5,000 MW of that capacity was on outage.[7]

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4 PJM Interconnection, *Cold Weather Operations Summary: January 28-31, 2019* (February 5, 2019), available at https://www.pjm.com/-/media/committees-groups/committees/oc/20190305/20190305-oc-cold-weather-ops-january-28-31-info-only.ashx.

5 PJM Interconnection, *PJM Cold Snap Performance: Dec. 28, 2017 to Jan. 7, 2018* (February 26, 2018), available at https://www.pjm.com/-/media/library/reports-notices/weather-related/20180226-january-2018-cold-weather-event-report.ashx.

6 Electric Reliability Council of Texas, *Report on the Capacity, Demand and Reserves (CDR) in the ERCOT Region, 2021-2030* (December 16, 2020), available at

Q. How could WPCo best protect against outages due to extreme weather?

A. The first and best way is through continued participation in PJM and reliance on the dependable transmission interconnections in that market. ERCOT operates its own electric grid as an island, and, unlike PJM, it lacks AC transmission ties[8] that cross state lines. PJM, by contrast, manages a wholesale electricity market that covers 13 states and the District of Columbia. The PJM market also plans for resource adequacy, using its capacity market to ensure a sufficient reserve margin to meet extreme weather events. ERCOT does not have a capacity market and relies instead on market pricing signals to induce construction of new resources.

The second way to protect against weather outages is through a diverse resource portfolio that includes energy efficiency, renewable technologies like wind and solar, battery storage, and development of additional complementary clean technologies.

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http://www.ercot.com/content/wcm/lists/197379/CapacityDemandandReservesReport_Dec2020.pdf.

7 ELECTRIC RELIABILITY COUNCIL OF TEXAS, *Review of February 2021 Extreme Cold Weather Event – ERCOT Presentation* (February 24, 2021), available at http://www.ercot.com/content/wcm/key_documents_lists/225373/2.2_REVISED_ERCOT_Presentation.pdf.

8 ERCOT has two Direct Current (DC) asynchronous transmission ties of minimal capacity to the Southwest Power Pool, and three smaller DC ties to Mexico.

Q. How do you respond to Witness Myers's argument that Mitchell will become more valuable as other coal plants in PJM retire?

A. Witness Myers presents no evidence for that assertion. Cleaner and less expensive substitutes for Mitchell's capacity and energy output will still be cleaner and less expensive than Mitchell after other coal plants retire, and the robust, interconnected transmission network that already exists now will allow for delivery of substitute energy and capacity. Also, the retirement of other coal plants in the region will accelerate the transition to alternative resources, potentially decreasing the costs of alternative options due to increasing economy of the set of supply substitutes.

Q. Will WPCo meet PJM's reserve margin if Mitchell retires?

A. Yes, it is a requirement. All of the modeling presented in this docket, whether by the Companies or other parties, replaces Mitchell's capacity with sufficient capacity to meet the required reserve margin under a scenario in which the plant retires at the end of 2028. Alternative resources can substitute for the capacity currently provided by Mitchell, as the relevant PJM requirement is not plant-specific.

3. RESPONSE TO COAL ASSOCIATION WITNESS DESKINS

Q. What conclusions does Dr. John Deskins present in his Direct Testimony?

A. Dr. Deskins presents estimates of the overall economic impact of coal production and coal-fired generation in West Virginia, as well as specific estimates for the

Mitchell plant. For Mitchell specifically, he estimates that the plant directly employed 185 workers, with a secondary employment impact of 476 jobs, representing nearly $6 million in employee compensation. He also estimates that Mitchell generates nearly $9 million in select state and local tax revenue.[9]

Q. What is your critique of Dr. Deskins analysis?

A. Dr. Deskins presents an incomplete analysis in his testimony. He analyzes the macroeconomics impacts of the operation of the Mitchell plant, but he does not compare those with the impacts of replacing the capacity and generation from Mitchell with anything else. In its Application for approval of the CCR and ELG investments, WPCo presents two scenarios for comparison—one in which Mitchell continues to operate until 2040 and one in which Mitchell is retired in 2028 and replaced with a portfolio of new resources. Dr. Deskins does not present an analysis of the impacts of replacing Mitchell in 2028,[10] which would produce jobs through the construction and operation of renewable and storage resources, energy efficiency deployment, and any required transmission upgrades.

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9 Deskins Direct Testimony at 7:15-7:20.

10 If Mitchell were retired in 2028, alternative resource investments with incremental macroeconomic benefit such as energy efficiency or storage installations could commence and bring associated benefits to the region earlier than 2028.

Q. Is anything else missing from Dr. Deskins analysis?

A. Yes. Dr. Deskins did not analyze the impacts of the rate increase associated with the CCR and ELG investments at Mitchell on WPCo customers. If customers are paying higher utility bills, they have less income to spend elsewhere in the economy, countering the "multiplier effect" Dr. Deskins describes.[11]

Q. Are all economic benefits necessarily societal benefits?

A. No. Measures of economic activity like gross domestic product or GDP count "bads" as well as "goods." For example, if a coal miner gets sick as a result of his profession, the money spent on his care is a positive economic benefit, even though getting sick has not made the miner better off. Macroeconomic indicators like the kind presented by Dr. Deskins can be useful in certain circumstances, but they are not a reliable measure of actual, overall benefits.

4. RESPONSE TO CONSUMER ADVOCATE WITNESS MEDINE

Q. What are the conclusions presented in the Direct Testimony of Witness Medine to which you respond?

A. I want to respond to two conclusions Witness Medine draws in her Direct Testimony. First, Witness Medine theorizes that Pennsylvania's participation in the Regional Greenhouse Gas Initiative (RGGI) will lead to "leakage," causing

11 Deskins Direct Testimony at 3:8–3:15.

the utilization of the Mitchell plant to increase in response to a price on CO_2 emissions from generators in Pennsylvania. Second, Witness Medine states that the Companies did not properly reflect the costs and risks of replacement resources in their analysis.

Q. What does witness Medine mean when she refers to "leakage" that could result from Pennsylvania's participation in RGGI?

A. RGGI is a cap-and-trade program designed to reduce emissions of CO_2 from electric power plants by applying a price to those emissions. There are currently eleven member states, and Pennsylvania plans to join RGGI in 2022. Like APCo and WPCo, Pennsylvania also operates within the PJM market. Emissions "leakage" would occur when there is an additional cost of operation (in this case, a CO_2 price) imposed on some generators within a market but not others, leading to a decrease in emissions at the generators operating with an emissions cost, but an increase in emissions at the generators without such a cost. Witness Medine asserts that such leakage would lead to an increase in generation at the Mitchell plant, making it more valuable than is shown by WPCo's analysis.

Q. Is this leakage real?

A. Leakage does occur and is always a concern when implementing emissions-reduction policies that apply to some generators but not others. However, there are a number of policies that might be put in place to address leakage concerns. PJM has put a task force in place to study this specific issue and "investigate any process and rule changes necessary to integrate regional or sub-regional carbon pricing mechanisms."[12] Pennsylvania lawmakers could, for example, include emissions associated with imported power under its carbon cap.[13]

In addition, policies not explicitly intended to address leakage could have a complementary effect. An analysis done by Resources for the Future (RFF) showed that if Pennsylvania were to spend its RGGI auction revenue to incentivize clean energy technologies, and also increased its Alternative Energy Portfolio Standard,[14] the state could actually see *negative leakage*.[15]

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12 PJM INTERCONNECTION, *Carbon Pricing Senior Task Force* (accessed May 18, 2021), available at https://www.pjm.com/committees-and-groups/task-forces/cpstf.aspx.

13 MJ BRADLEY & ASSOCIATES, *Electric Sector Modeling Summary of Results* (October 2019), available at https://www.pjm.com/-/media/committees-groups/task-forces/cpstf/20191024/20191024-item-06-carbon-pricing-modeling.ashx.

14 The current Standard requires 8 percent generation from Tier 1 resources, which include solar PV, solar thermal, wind, low-impact hydro, geothermal, biomass, wood products, biogas, coal-mine methane, and fuel cells by 2020–2021.

15 Dallas Burtraw *et al.*, *Options for Issuing Emissions Allowances in a Pennsylvania Carbon Pricing Policy*, RESOURCES FOR THE FUTURE (October 2019), available at https://media.rff.org/documents/IB_19-08_5.pdf.

Q. If leakage were to remain unaddressed by policy change, would it be sufficient to change the economics at the Mitchell plant?

A. No evidence of that has been presented in this docket. Mitchell's operation is supposed to be a function of PJM energy market prices,[16] which are directly related to the fuel and other variable operating costs (including emissions costs) of all the generators in the region. If the operating costs of coal- and gas-fired generators in PJM were to increase as a result of an additional cost on emissions, we might expect output from these generators to decrease somewhat, while the output from other, *lower-cost* thermal generators increases to make up the difference, *all else being equal*. First, Witness Medine has presented no evidence—nor is there any evidence in the Pennsylvania or PJM RGGI modeling cited in her Direct Testimony—that Mitchell is a lower-cost generator than other existing gas and coal generators in PJM. There is thus no evidence that Pennsylvania leakage would increase generation at Mitchell specifically. Second, the analyses that Witness Medine references compare scenarios in which Pennsylvania joins RGGI to a scenario in which it does not, holding renewable generation and fuel prices constant between the different scenarios. These analyses do not take into account if and how the capacity mix in Pennsylvania—

16 Generally, lower PJM energy prices lead to reduced operation of Mitchell; higher prices lead to increased operation.

or, for that matter, other parts of PJM—might change in response to the state's membership in RGGI.

Q. Would the effect on Mitchell differ in the short-term versus the long-term?

A. Yes. If we assume for the sake of argument that Pennsylvania leakage does affect the operation of Mitchell, that effect is likely to be short-lived and unlikely to substantially change the long-term economics because markets will respond to this kind of change. Owners of existing generation—utilities and independent power producers—will respond to the increase in costs to Pennsylvania generators by keeping existing units online or building new units with low or no fuel costs.

According to the RFF analysis cited above[17]—which notes that a key dynamic of PJM is that it has more supply than it needs and that many generators have similar operating costs and thus sell power at similarly low prices—"a modest carbon price could spur existing natural gas plants to run more, renewable energy developers to build new wind and solar, and nuclear plants to stay online."[18] Any short-term increase in generation at Mitchell is not likely to continue as the market recalibrates. Given that Mitchell could avoid ELG investments and still operate until December 31, 2028, it would be unreasonable to believe that

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17 *See supra* note 15.

18 Laura Legere, *If Pa. puts a cap on carbon emissions, what happens to electricity prices?*, PITTSBURGH POST-GAZETTE (October 24, 2019), available at https://www.post-gazette.com/business/powersource/2019/10/24/RGGI-Pennsylvania-electricity-prices-carbon-greenhouse-gas/stories/201910230146.

Pennsylvania's membership in RGGI would have a long-term, positive benefit on Mitchell's operations.

Q. Witness Medine criticizes the Companies' use of combustion turbines as replacement resources for Mitchell in the scenario in which the plant retires in 2028. How do you respond?

A. Witness Medine's criticism is two-fold: First, she states that combustion turbines (CTs) are not energy resources and WPCo could suffer if energy costs are above forecast levels.[19] I agree with her on this point; however, she neglects to consider other replacement resources, like wind and solar, that could provide energy to WPCo. Second, Witness Medine points out that WPCo's modeling does not consider the shortened book-lives for CTs that might result from a net-zero carbon plan. She notes President Biden's goal of net-zero carbon emissions from the power sector by 2035, but neglects to analyze how Mitchell's book-life might be shortened by a net-zero carbon plan were it to move forward with the ELG investments. Witness Medine points to the very real risk of shortened lives for fossil resources, but she fails to consider how this will translate to an increased cost for West Virginia ratepayers if WPCo installs ELG controls but still has to retire the plant prior to 2040.

19 Medine Direct Testimony at 20:1–20:5.

Q. Does this conclude your rebuttal testimony?

A. Yes.

CERTIFICATE OF SERVICE

I certify that on May 20, 2021, I sent an accurate copy of the foregoing by electronic mail—along with an invitation to request a hardcopy by First-Class United States Mail—to:

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