

**BEFORE THE
WEST VIRGINIA PUBLIC SERVICE COMMISSION**

In Re:)
Monongahela Power Company and)
The Potomac Edison Company Application for)
Approval of its 2015 Integrated Resource)
Plan)

Docket No. 15-2002-E-IRP

01:35 PM MAY 02 2016 WC EXEC SEC DIV

**COMMENTS OF
MID-ATLANTIC RENEWABLE ENERGY COALITION**

Thank you for the opportunity to comment on the Monongahela Power Company and the Potomac Edison Power Company's ("the Companies") 2015 Integrated Resource Plan (IRP). As West Virginia only goes through this process every five years, it is important to carefully consider the proposed IRP as the decisions made will significantly impact West Virginia's future electricity portfolio.

INTRODUCTION

MAREC is a nonprofit corporation, which was formed to help enhance the opportunities for renewable energy development primarily in the region where the Regional Transmission Organization, PJM Interconnection, LLC ("PJM"), operates. MAREC's footprint includes New Jersey, Delaware, Maryland, Pennsylvania, Virginia, Ohio, West Virginia, North Carolina, and the District of Columbia. MAREC's membership consists of wind developers, wind turbine manufacturers, service companies, nonprofit organizations and a transmission company dedicated to the growth of renewable energy technologies to improve our environment, boost economic development in the region and diversify our electric generation portfolio, thereby enhancing energy security. The primary areas of focus of MAREC are to work with state regulators to develop rules and supportive policies for renewable energy; provide education and expertise on the environmental sustainability of wind energy; and offer technical expertise and advice on integrating variable wind energy resources into the electric grid. MAREC members

have developed a number of wind energy projects, totaling over 250 MW, in the state. West Virginia has 583 MW of installed wind capacity already in operation in the state.¹

We have some serious concerns with the Companies' 2015 IRP. Most concerning from our standpoint is the Companies' consideration of renewable energy, specifically wind energy.

THE COMPANIES' WIND COST PROJECTIONS ARE INCREDIBLY HIGH

The IRP shows wind as having the highest cost of energy of all sources. As the Final, Staff Joint Memorandum ("Staff Memorandum") (Dated April 27, 2016) notes, the IRP stated that the estimated cost of wind capacity would cost \$228 MWh. While this number was extraordinarily out of line with all available data, we note that the Companies subsequently through data request responses admitted its wind capacity projection to be a mistake and the correct projection should have been \$124 MWh.² Although this number is literally half the number the Companies specified in their IRP, this number too is grossly overstated and should not be acceptable for purposes of this plan.

As Staff rightly points out the other large electric utility IRP being considered by the Commission at this time is APCo, which projected wind energy capacity at \$63-\$73 per MWh. We note that the APCo numbers excluded the impact of the federal Production Tax Credit ("PTC"), which would significantly reduce their projections even further as the PTC was extended by Congress at the end of 2015. For years 2015 and 2016, the PTC would be a credit for 100% percent of the PTC value and then would be reduced to 80% of the value in 2017, 60% in 2018 and finally 40% in 2019 before being phased out in 2020. These credits would be passed through to consumers in any sort of competitive procurement process.

Even the APCo numbers are on the high side. A recent analysis from the consulting group Lazard found that, on a levelized basis, wind has the **lowest** cost of energy for either conventional or alternative sources of electricity, as shown in Figure 1.³ This graph doesn't include subsidies, such as the PTC, which was included in the Companies corrected IRP projection.

¹ American Wind Energy Fact Sheet for West Virginia; <http://awea.files.cms-plus.com/FileDownloads/pdfs/West%20Virginia.pdf>

² Companies' Response to Staff Question No. 1.10.

³ Lazard's Levelized Cost of Energy Analysis. November 2015. <https://www.lazard.com/media/2390/lazards-levelized-cost-of-energy-analysis-90.pdf>

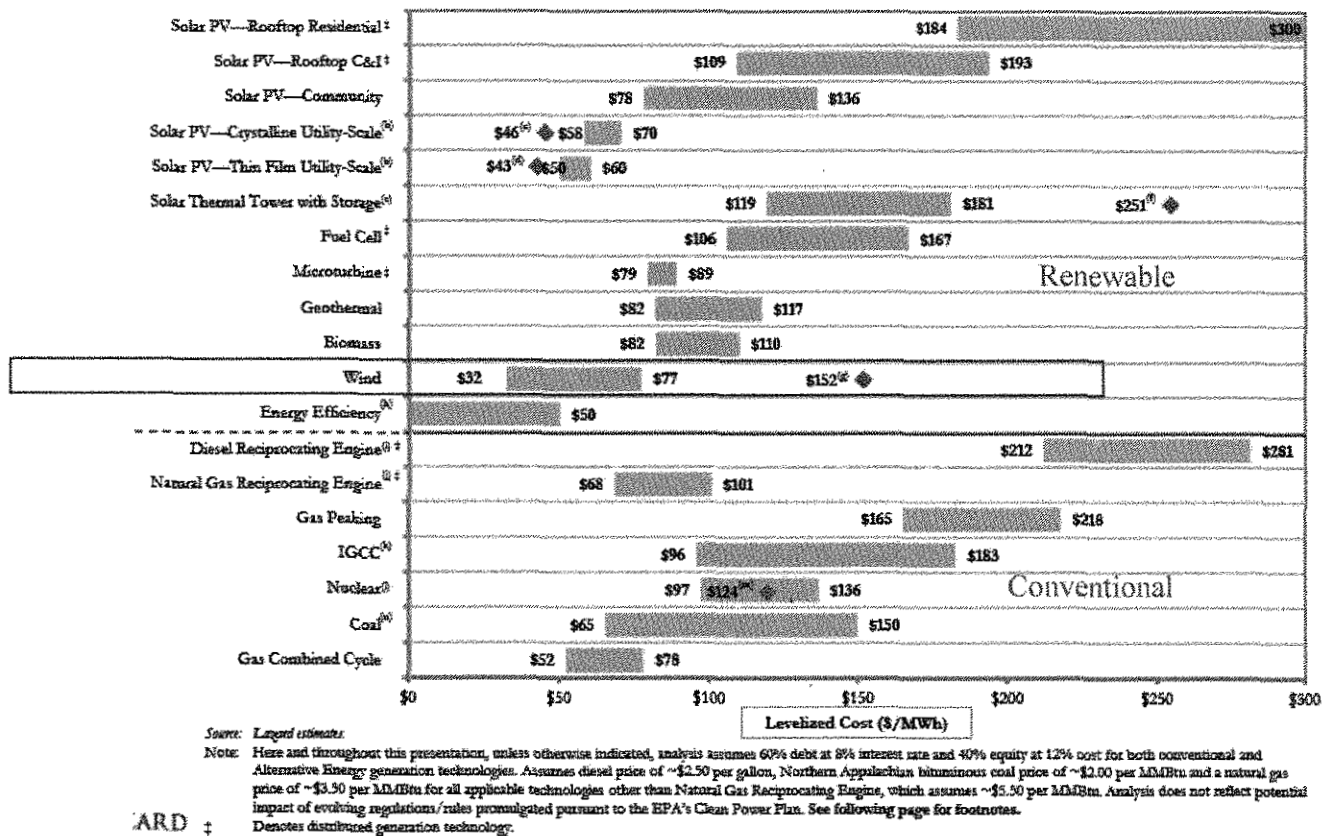


Figure 1 Unsubsidized Levelized Cost of Energy Source: Lazard's Levelized Cost of Energy Analysis 2015

As indicated the Companies' assumed cost for wind energy capacity is much higher than real-world wind costs. Data compiled by Lawrence Berkeley National Laboratory for the Department of Energy ("LBNL") in the 2014 Annual Wind Technologies Market Report, which was released in 2015, show that the national average price for wind purchase contracts signed in 2014 was \$23.43/MWh, less than 1/5th the corrected cost assumed by the Companies.⁴ The average wind price in the Great Lakes region, which includes several states in the PJM interstate grid operator footprint in which the Companies are also market participants, was \$34.31/MWh in 2014. The Great Lakes region is the geographically closest region to West Virginia for which the 2014 Annual Wind Technologies Market Report had sufficient data to report a regional average price. Wind energy produced in or delivered to the parts of the Great Lakes region were

⁴ 2014 Annual Wind Technologies Market Report; https://emp.lbl.gov/sites/all/files/lbnl-188167_1.pdf, Figure 46. Data file available at <http://emp.lbl.gov/sites/all/files/lbnl-188167%20data%20file.xls>

considered to be included in the PJM footprint for the report. We note that according to this report wind prices have dropped about 66% from 2009-2014.⁵

As part of the Companies' response to Staff Question No. 1.10, the Companies noted that they used a 28% capacity factor for wind in its calculation to determine the wind cost. We believe that capacity factor to be too low and, consequently this impacts the pricing set forth by the Companies in the IRP. Higher capacity factors would have the effect of driving the estimated cost of wind pricing downwards. Capacity factors for new wind energy projects have been on the rise as new turbine technology, higher hub heights for turbines, and longer blades have significantly improved results. Capacity factors for more recent projects (2012-2013) in the Great Lakes region have averaged a capacity factor of just over 35% according to the NBNL.⁶ Turbine technology is expected to keep improving and that should be included in the projections.

We believe the Companies' cost projections for wind energy capacity to be a serious shortcoming in the IRP. To address this concern among others, we recommend that the Companies be required to conduct a competitive procurement for renewable energy to be obtained through long-term contracts as discussed more fully below.

IN ADDITION TO PRICE, WIND ENERGY PROVIDES OTHER SIGNIFICANT BENEFITS NOT ASSESSED BY THE COMPANIES

Not only is wind energy cost-effective, but policies supporting long-term contracts for wind energy (10-20 years) can further reduce consumer rates and ensure stability by allowing projects to secure financing at more favorable rates. Long-term contracts provide a valuable long-term hedge against volatile fossil fuel prices. Wind can accommodate this because it produces electricity with no fuel cost. Figure 2 shows how long-term contracts can ensure a low price even while gas prices continue to rise.⁷

⁵ Id at Figure 47.

⁶ Id at Figure 36

⁷ Department of Energy (DOE)'s "2014 Wind Technologies Market Report" (released August 2015) at page 60. <http://emp.lbl.gov/sites/all/files/lbnl-188167.pdf>.

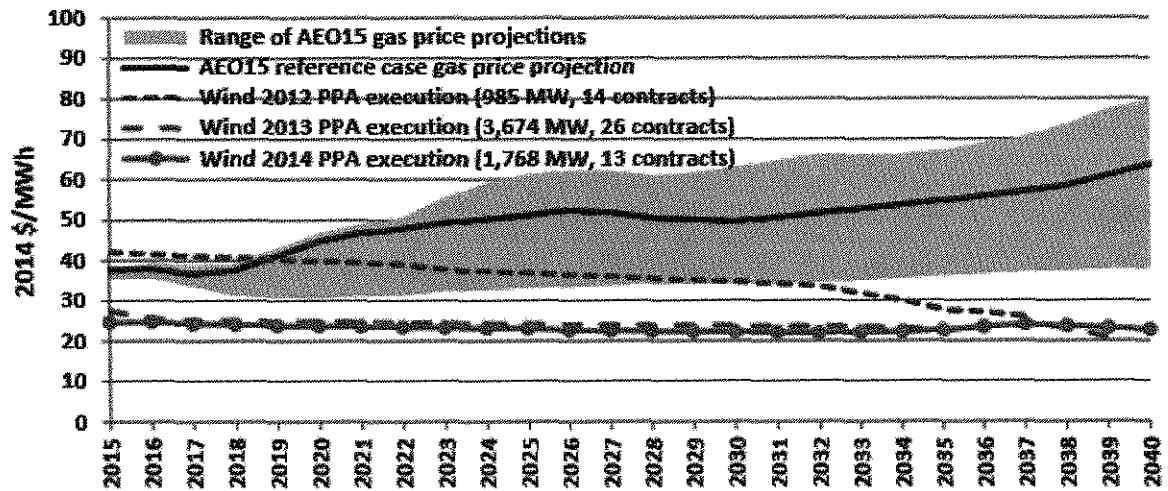


Figure 2: Effect of Long-Term Contracts on Electricity Price

As the Polar Vortex of January 2014 confirmed, natural gas prices are not immune to wide price fluctuations - - even with the increased supplies as a result of fracking technology. West Virginia’s major electric utilities can enter into long-term contracts with wind energy developers that would provide stable pricing for the entire duration of these contracts, while electric utilities resorting to fuel resource mixes heavy on fossil fuels can incur great price volatility as a result of weather occurrences, such as a cold winter, or the disruptions of a particular resource. Wind performed very well during this period and was shown to have saved ratepayers millions of dollars during the occurrence.⁸

WIND ENERGY IS A RELIABLE SOURCE OF ENERGY IN PJM AS PART OF A PORTFOLIO OF RESOURCES

While the Companies indicate that wind is not a reliable source of energy, the reality is that dozens of integration studies by grid operators and other experts, including one by the PJM grid operator that operates the power system in West Virginia, have found that large amounts of wind and solar generation can be reliably integrated. PJM’s study found no reliability challenges to accommodating wind and solar at levels that are more than 10 times higher than current levels in PJM.⁹ The ERCOT power system obtained more than 10% of its electricity from wind last year, while the main power system in Colorado obtained more than 20% of its electricity from

⁸ <http://awea.files.cms-plus.com/AWEA%20Cold%20Snap%20Report%20Final%20-%20January%202015.pdf>

⁹ <http://www.pjm.com/committees-and-groups/subcommittees/irs/pris.aspx>

wind and solar. European countries have gone even higher, with far higher (and increasing) penetration than in the U.S, while maintaining electric reliability. Wind plants are capable of providing grid reliability services such as voltage and frequency ride-through, voltage and reactive support, and active power control as well as or better than conventional power plants, thanks to the inverters and sophisticated power electronics in wind turbines.¹⁰ As part of the PJM balancing authority, the Companies would be able to integrate wind in large amounts on the grid, cost-effectively and reliably.

THE IRP FAILS TO CONSIDER THE CLEAN POWER PLAN

Because the IRP process only occurs every five years, implementation of the Clean Power Plan (“CPP”) should have been considered. While the law is currently stayed, there is still a good possibility that it will be reinstated, and if this happens the state needs to be prepared, as the first compliance deadlines will occur before or just after the next IRP, leaving no time in that one for planning. In fact, this IRP ignores the possibility that the State Implementation Plan could still be due in the fall of 2018, more than two years before the filing of the next IRP. The necessary resource mix for compliance should at least be considered in this IRP. Wind energy is a zero-emitting resource and consequently the generation of wind energy produces no carbon emissions. While it acts as a hedge against rising fossil fuel prices, because it does not produce any greenhouse gas emissions, wind energy can also act as a hedge against the potential that future federal policies would put a price on greenhouse gas emissions or restrict such emissions, thus causing higher cost for a resource.

THE COMPANY SHOULD CONDUCT A COMPETITIVE PROCUREMENT FOR RENEWABLE ENERGY

The Companies should hold a competitive solicitation for regional wind and other renewable energy resources through long-term purchase power agreements (15-20 years) in order to ascertain pricing information. Regional wind projects which are the most cost-effective resources should be included in the Companies’ procurement strategy. The Companies should consider numerous contracting structures, including financial contracts for differences to maximize wind energy’s cost-effectiveness. The Companies are part of a large regional power

¹⁰ For citations to data and sources supporting the points made in this paragraph, see <http://awea.files.cms-plus.com/AWEA%20Reliability%20White%20Paper%20-%202012-15.pdf>

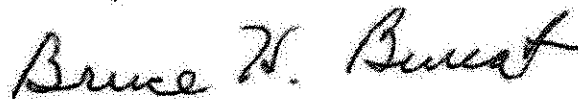
pool. One of the major advantages of this power pool is that the Companies' customers can benefit from financial hedges which do not require physical energy delivery. As such, wind energy projects do not necessarily have to be located in the Companies' service territory to provide the benefit of low-cost, long-term, fixed cost power. Moreover, the solicitation could also lead to additional wind energy projects being developed in West Virginia as the state has a good resource and proximity to the load has some advantages like the possibility of lower transmission costs and economic development benefits to the state. A competitive solicitation could also be conditioned on the Companies only accepting bids or proposals that are deemed cost-effective.

CONCLUSION

MAREC believes that the Companies' overreliance on coal technologies in this IRP can lead to a very difficult situation due to lack of energy diversity and the reliance on a single technology that could ultimately be a very serious problem if the CPP is ultimately implemented. While there is a stay of the implementation of the CPP, there is a good chance that it could begin its implementation as early as 2018 if and when the stay is lifted. If the Companies move forward with their interest to procure additional coal powered generation, then the Companies would likely face severe cost implications should the CPP survive the legal challenges. MAREC thinks that a lack of planning around the CPP is an imprudent step at this stage and a plan to diversify their energy portfolio with zero emission, no carbon emitting resources makes a great deal of sense for all of the reasons state herein.

Thank you for the opportunity to provide comments for this IRP, and we look forward to participating in any processes going forward.

Respectfully Submitted,



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