



## MEMORANDUM

**Date:** September 11, 2015

**To:** OPSI Commissioners and Staff

**From:** Paul M. Sotkiewicz, Ph.D., Senior Economic Policy Advisor  
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**Subject:** Clean Power Plan Analysis Discussion

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While PJM is still in the process of digesting all the details of the finalized Clean Power Plan and the proposed Federal Plan as well as the EPA technical documents, we would like to seek OPSI input as to what types of scenarios as well as modeling enhancements would be valuable to you as you contemplate state plans under the final rule.

PJM intends to employ the same modeling philosophy as we did for the work on the proposed rule: production cost and dispatch modeling using PROMOD in the same manner as we use it in market efficiency analyses. As was the case before, the big questions will be about modeling assumptions.

Some observations PJM staff have made since we commenced our modeling effort about fuel prices forecasts and changes in the final rule are discussed below.

- 1) Forecast natural gas prices and the forward curve for gas has shifted to a much lower price trajectory than PJM had used in the work on the proposed rule. While the EIA forecast gas prices into the 2020s are above \$5/mmBtu, the forward curve and other forecasts have prices remaining below \$4/mmBtu. The use of the lower gas price would certainly lead to different results than were published in March.
- 2) Energy Efficiency was taken out of the building blocks, but still remains a compliance option. We will again use varying amounts of Energy Efficiencies as part of the analysis.
- 3) As PJM did previously, PJM could run scenarios comparing rate-based approaches to mass-based approaches under various scenario assumptions.
  - a) For the final rule, EPA has ruled out the use of new combined cycle gas resources to meet the emissions rate targets should a state opt into a rate-based approach



- b) For the final rule, EPA has introduced a "leakage" concept under a mass-based approach by which new combined cycle resources could be included in a mass approach with dated mass targets or reduced mass targets but leaving new combined cycle resources out.
  
- 4) One critique we received on the previous modeling work was assuming certain levels of new entry of renewables and new combined cycle gas resources without testing to see if they would have entered the market on their own. The same is true about identifying generation at risk for retirement without necessarily taking it out of the model. One modeling enhancement that would be worth exploring is to determine entry and exit of resources within the model to provide a more "realistic sense" of such dynamics under the Clean Power Plan.
  
- 5) The time period under which initial compliance takes place has been shortened to 8 years, so PJM is considering running multiple model years during the interim compliance period and potentially during the first final compliance period.

PJM hopes this initial set of modeling questions will encourage an early robust dialogue between OPSI staff and PJM staff so that modeling results can be available as soon as possible to help states develop their initial thinking on state plans.