

Date: September 9, 2019

To: Indiana Utility Regulatory Commission (IURC) Staff
From: Indianapolis Power & Light Company (IPL)

RE: IPL Comments to IURC Study as part of HEA 1278

IPL appreciates the opportunity to comment on the IURC Study Scenario & Sensitivity Framework presented by Mr. Dale Thomas on August 22, 2019 at the IURC Study Stakeholder Meeting. IPL is currently modeling and analyzing its 2019 Integrated Resource Plan (IRP) and utilizes many variables and sensitivities discussed and referenced in Mr. Thomas' presentation.

IPL's comments are articulated in each section below.

Scenario Variables:

- **System demand growth rate:** IPL supports a collaborative effort between the Indiana utilities and the State Utility Forecasting Group (SUFG) to prepare a sales forecast for this Study. It is appropriate for the SUFG to use each utilities' estimates of the future potential for Energy Efficiency (EE) and Demand Response (DR) and adjust the sales forecast accordingly to reflect these amounts.

New Resource Portfolio Mix

- **Optimized Portfolios:** the SUFG indicated that potential state energy portfolios will not be selected via optimized capacity expansion due to time and modeling constraints. IPL encourages the SUFG and IURC to consider resource mix changes that line up with MISO scenarios for the RIIA and MTEP studies. MISO effectively "hard codes" resources changes, including retirements and additions, using pre-determined methodology. IPL recommends using the MISO MTEP and RIIA resource changes and siting methodology as a guideline for selecting new resources in the scenario analysis.
- **Impacts of a Changing Resource Mix:** IPL understands that the scope of the analysis, the time allotted to complete the study, and the modeling tools are fixed for this study. However, IPL recommends considering the following items quantitatively in modeling or qualitatively in the analysis:
 - *Dynamic wind and solar capacity credit:* MISO has published work on how the MISO system will be impacted with increasing penetration of renewables. One important topic related to Resource Adequacy is the capacity credit for wind and solar through time. IPL recommends leveraging work done by MISO in the RIIA study to evaluate ICAP and UCAP resource needs for the different portfolios and changes in transition timing.
 - *Hourly Net Load Shapes:* for the same reasons the capacity credit for renewables changes with increased penetration, the hourly net load shapes change. This dynamic can be seen in CAISO with the solar duck curve, and in other markets like ERCOT and SPP

with higher penetration levels of wind. The hourly load and price dynamics that emerge in scenarios with more renewables can significantly change the dispatch of the system, including how existing units operate and which future resource types are needed to fill the ramp and energy needs of the system. IPL recommends modeling with hourly chronological dispatch and publishing hourly price or net load shapes for the duration of the study.

- *Storage Modeling:* IPL recommends incorporating battery storage in this analysis. Storage cost declines and technology improvements are making storage an attractive resource in areas with high renewable penetration. If storage modeling in Aurora is not ready for this analysis, IPL recommends including at least one scenario with storage using a spreadsheet model to simulate the potential for storage to meet future resource adequacy needs. NREL recently conducted an analytic exercise¹ to estimate the potential for energy storage in different regions of the U.S. An exercise similar in nature to this could add value to this study to see how storage could play a role in the state's capacity mix.

Transmission Congestion/Project Siting

- Transmission Modeling: Transmission modeling should be more comprehensive in this study. New resource characteristics, including technology, primary fuel type, and location impact the cost and value of that project. Generic new project siting should account for the location of projects within the state, and where applicable, account for potential deliverability costs. In MISO and PJM, this is reflected in the Locational Marginal Prices (LMPs) that individual locations receive. If the modeling is intended to be run using a zonal model for the entire state, efforts should be made to reflect locational impacts of different state resource mixes.

Conclusion

IPL thanks the Commission for the opportunity to provide suggestions and feedback and looks forward to additional conversations and the exchange of ideas as the HEA 1278 Study proceeds.

¹ <https://www.nrel.gov/docs/fy19osti/74184.pdf>