Comments of Indiana Michigan Power Company
on
IURC Generation Resource Study

Indiana Michigan Power Company ("I&M" of "the Company") appreciates the opportunity to provide comments to the Indiana Utility Regulatory Commission ("Commission") regarding the Commission's study of the statewide impacts of transitions in fuel sources and other electric generation resources, as well as the impacts of new and emerging technologies impacting electric generation and distribution infrastructure ("the Study"). I&M respects the Commission's transparent approach to this study and its openness to stakeholder input. I&M would like to highlight that many of the topics on which the Commission is seeking comment are covered in depth in the Company's most recent Integrated Resource Plan ("IRP"), filed with the Commission on July 1, 2019.

Regarding the Commission's recent request for comments on scenarios and sensitivities to consider in the State Utility Forecasting Group's ("SUFG") modeling as part of the Study, I&M submits the following comments.

Key Scenario Variables

System Demand Growth Rate

I&M supports the inclusion of multiple load growth scenarios in the modeling. Scenarios studied should include the SUFG demand growth scenario, but also flat and even declining load growth in future years, essentially "Base", "High" and "Low" economic scenarios that correspondingly impact energy and demand growth.

Demand growth forecasts should rely not only upon data from agencies like the Energy Information Administration ("EIA"), but should also take into account input from the regional transmission organizations ("RTOs") that operate within the state of Indiana. PJM interconnection, LLC ("PJM") and the Midwest Independent System Operator ("MISO") perform planning to maintain reserve margins in their service territories, and if possible, their input should be considered given their role in planning for the availability of capacity and energy in their respective markets.

The results of the SUFG model would be made more robust if Indiana were modeled as part of the larger eastern interconnection, considering the low-cost resources that may be available in markets that would not be reflected in a study specific only to the State of Indiana. Utilities' participation in RTO markets is designed to achieve cost reductions that may not be possible with only company or state-level resource availability. In addition, overall regional economic conditions may affect Indiana's fuel, technology, and commodity costs, as well as demand growth.

To the extent these RTOs can provide Indiana-specific information, their market perspective should be reflected in the forecasts that will be utilized. Additionally, and if possible, market availability of energy and capacity resources outside the state should be considered as an available option as Indiana plans for future resources.

With respect to Energy Efficiency ("EE") and Demand Response ("DR"), these resources should be incorporated into the SUFG modeling. While a future with high renewable penetration and low energy prices may lessen the economic value of EE, the Company anticipates that DR may become more valuable to control and reduce peak loads. Technologies like Volt-Var Optimization ("VVO") should also be considered as having the potential for future cost reductions across the grid. Inclusion of such resource options is consistent with the Company's most recent IRP.

The SUFG model should also reflect the reliability and resiliency needs that will arise from increased penetration of intermittent renewable resources to the extent they are forecasted. Increases in renewable supply will necessitate the addition of dispatchable technology that can ramp quickly and respond to fluctuations in generation and consumption. Such dispatchable technology may rely on communication, software, or storage, among other possibilities. The impact on reliability and economics of these dispatchable resources should be accounted for in the SUFG model.

Transition Timing

Regarding transition timing, I&M supports the development of scenarios that allow the Aurora model to develop future portfolios that test the impact of moving retirement dates forward and backward from current IRP plans after considering all costs and circumstances. Of course, the timing of the transition to new generating assets must be considered in the context of reliability and resiliency as central requirements, which should be determined based on results from specific model inputs.

New Resource Portfolio Mix

The IURC and SUFG should begin the resource portfolio mix by considering the current IRPs filed with the IURC. Additionally, forecasts of future resource mixes by both MISO and PJM should be considered as guideposts for Indiana.

Resource portfolio mixes must be balanced with what is realistic to permit and build in a given period. Obviously, it should not be assumed that the capacity and energy provided by a large central station generation asset could be completely replaced with renewable resources over a short period, and modeling must take this into account. The planning periods for RTOs in the state must be recognized as well, with existing units being committed to generate years into the future, and the possible need for significant transmission upgrades to be able to retire units and maintain reliable operation of the grid.

Continued adoption of distributed generation, particularly rooftop solar, should be taken into consideration as well. This area alone could constitute multiple scenarios, such as falling technology costs accelerating adoption, because the assumptions could affect the need for other resource additions.

Key Sensitivity Levers

Fuel Prices

I&M agrees the Energy Information Agency ("EIA") published fuel forecasts are reasonable, and for the most part supports the SUFG's use of those forecasts. I&M would note, however, that in no EIA fuel forecast is a cost of carbon dioxide ("carbon") emissions included. Moreover, with no consideration of future carbon pricing and the resulting impact that would ripple through energy prices and thus fuel prices, the EIA fuel forecasts are not fully integrated with the imposition of a carbon price in future years.

I&M supports the use of various fuel price scenarios, to ensure potential future variability in price is sufficiently studied. EIA forecasts are reasonable to use and reflect numerous scenarios such as high or low oil prices, and high or low economic growth. These types of scenarios should certainly be used when developing a potential range of future impacts, and this practice is consistent with the Company's most recent IRP filed with the Commission.

Environmental Costs

I&M recommends that the Commission assess scenarios with a price placed on carbon emissions starting some time in or around 2028, consistent with the Company's most recent IRP. A future cost imposed on carbon is a potential, although the likelihood of such an action in the near term seems unlikely. Additionally, the SUFG could consider a range of potential carbon costs, but must consider a realistic price. The assumption of a very high carbon price may greatly skew modeling results, and could have a very low probability of occurring.

In a scenario with a carbon cost, however, a fully integrated commodity forecast should be used to ensure modeling results are as reasonable as possible. As described previously, a fuel forecast that exists independently of carbon price assumptions may lead to unrealistic conclusions. In I&M's IRPs, a fuel forecast is developed consistently with the rest of the assumptions, including a cost for carbon. Such an approach should be used by the SUFG as well.

New Resource Investment Cost Curves

When estimating prices for these future resources, the SUFG could consider Indiana utility IRPs, as well as outside sources. The National Renewable Energy Laboratory, Bloomberg New Energy Finance, and EIA are reputable sources of information – although some may be more recent than others. The SUFG should take as many of these resources into account as possible, including recently completed projects in Indiana, to ensure realistic pricing assumptions for all technologies.

Once again, I&M thanks the Commission for the opportunity to participate in this process and to provide input at this early stage. If you have any additional questions or require more information, please contact Marc Lewis at melewis@aep.com or (260) 408-3456.

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