

CLEAN GRID ALLIANCE'S COMMENTS on the HEA 1278 STUDY METHODOLOGIES

Clean Grid Alliance (“CGA”) appreciates the opportunity to provide comments on the energy study methodologies consultants have prepared for the IURC’s HEA 1278 Energy Study. CGA’s general concern is that the information in the SUFG paper is so high level that CGA cannot conclude that the modeling results would be reasonable. In addition to the suggestions below, CGA suggests a followup paper be issued that includes details about the inputs used for each scenario.

I. SUFG Paper

1. Details About the Inputs Used in the Eight Scenarios

The SUFG whitepaper provides written descriptions of the scenarios it proposes, but it would be useful for stakeholders to review and provide comment on the significant inputs it uses for each scenario. The material could be presented in a manner similar to other Indiana utility IRPs. MISO also prepares a well-structured overview of its transmission expansion plan (i.e., MTEP) inputs and is a good example of how modeling inputs/information could be shared with stakeholders.¹

The overnight capital costs SUFG proposes to use for solar is high and would lead to inaccurate results. SUFG intends to use wind and solar capital costs from the Energy Information Administration (“EIA”) coupled with forward looking cost curves from National Renewable Energy Laboratory. [EIAs overnight capital cost](#) for solar in 2022 is \$1,304/kW (2019\$) for the PJM portion of Indiana and \$1,355/kW for the MISO portion of Indiana² – those are high. In comparison, NREL-ATB for 2019 uses a mid-level overnight capital cost for solar of \$1,019/kW (2019\$) in 2022 and that translates into a levelized cost of approximately \$37/MWh in 2022 (for Kansas City). That

¹ MISO, MTEP19 EGEAS Assumptions Document, 12-35; *available at* <https://cdn.misoenergy.org//MTEP19%20Appendix%20E-Futures%20Assumptions382958.pdf>.

² U.S. Energy Information Administration – Cost and Performance Characteristics of New Generating Technologies, Table 2, Regions 4 and 11 (PJM) (January 2020).

LCOE is in the range of prices that NIPSCO received in its 2019 request for proposals. If SUFG uses EIAs data, the PPA prices/LCOE the model would generate will be much higher than what is being bid in the market. Consequently, the model will select less solar than would be selected in the market. SUFG should use an overnight capital cost for solar that is closer to the NREL-ATB data than EIA data.

To ensure the cost data being input into the model correctly reflects what would be offered in the wholesale market, SUFG should compare the LCOE values its model generates to actual PPA prices from wind and solar in Indiana.

2. There is no Discussion of Transmission Expansion in the SUFG Study Methodology Paper

In its [August 2019 presentation](#)³, SUFG explained that it does not model the transmission system in Indiana but uses a simple representation of energy flow among Indiana utilities. Not analyzing transmission expansion potentially inflates the cost impact of the study. Adding and retiring generation changes the flow of electricity in the system and creates new and potentially more system congestion. System congestion increases the adjusted production cost of electricity, and that cost is passed along to ratepayers. If new transmission is not going to be accounted for in the modeling, that should be clearly stated in the study methodology document and in the final document.

Another reason it is important to model transmission is that Indiana is part of 2 RTOs – Midcontinent ISO (“MISO”) and PJM. The generation in those RTOs and the Indiana’s interconnectedness to those systems shapes Indiana’s adjusted production cost of electricity. The SUFG model does not evaluate PJM and MISO and their productions costs – it evaluates Indiana as a self-contained system. That modeling choice leads to inaccuracies in overall energy production cost in Indiana.

The final document should explain the cost impact of adding new generation without accounting for improvements in transmission, and should explain the cost impact of not modeling the PJM and MISO markets. The final report should also mention that MISO and PJM both

³ SUFG Indiana Forecasting Modeling System, at 28 (August 22, 2019).

manage transmission expansion planning over parts of Indiana with the purpose of planning transmission additions that will cost effectively and reliably deliver new generation to Indiana ratepayers.

3. There is no Discussion of Storage Additions in the SUFG Study Methodology Paper

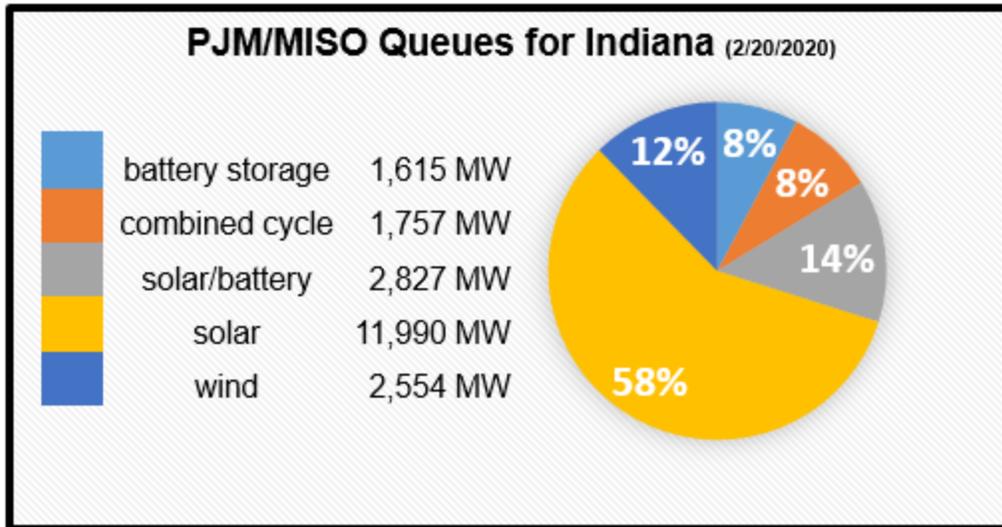
The PJM and MISO generation interconnection queues have approximately 3,600 MW of battery storage and solar+storage looking to be built in Indiana. SUFG's presentation in August 2019 stated that their model has the capability to model storage but SUFG has not yet attempted to incorporate the functionality of storage in to their production cost modeling.⁴ SUFG's paper provides no further expansion on its comments from August 2019, and is completely silent regarding modeling of storage and solar+storage resources. If these resources are being considered, information around how they will be modeled would be appreciated.

It is important that the study properly consider these resources. The PJM and MISO generation interconnection queues indicate that it is inevitable that storage and hybrid resources will be built, the question is the volume and location. If they aren't currently being considered in the model then the results will be missing a key dynamic affecting Indiana's electric generating fleet. While one option is to evaluate storage and hybrid systems as sensitivities, CGA would encourage further discussion regarding how SUFG could best account for these resources in its study.

4. Generation Expansion From Independent Power Producers

Not all generation built in Indiana will be owned and operated by Indiana utilities. A large portion of new generation will be owned and operated by independent power producers. The pie chart below indicates the types of resources interested in building in Indiana and their nameplate capacity. The vast majority of the wind, solar and storage in the queue is owned by independent power producers and that accounts for 84% of the generation in the MISO and PJM queues:

⁴ SUFG Indiana Forecasting Modeling System, at 26 and 29.



Some of these plants will sell their plants to an Indiana utility, some will own the plant and sell their electricity to Indiana utilities or utilities in neighboring states, while some will sell into the wholesale market. Generating plants owned by independent power producers will impact the wholesale price of electricity in Indiana. SUFG should explain how it intends to forecast generation expansion by independent power producers whose power production is not driven by the load forecast in Indiana but sells its electricity into the wholesale market or outside of Indiana.

INDIANA UNIVERSITY PAPER

1. Property Taxes and Leases

The economic analysis of Replacement Generation does not account for a generating plants owned by an independent power producer. Wind, solar, and storage generating facilities owned by independent power producers (“IPP”) are installed on leased land. The IPP will pay property taxes, lease payments to landowners, and in most instances will pay economic development payments to the community in which the project resides. These payments are new investments into the Indiana economy and could be allocated toward government services, fire/police/emergency services, schools, libraries or other specific county needs. The economic benefits provided by independent power producers should be accounted for in the Indiana University paper.

2. Hybrid and Storage Facilities

As discussed above (*supra* §1.3.), there is a substantial number of storage and solar+storage projects proposing to be built in Indiana. The Indiana University paper should include these types of resources in its list of Replacement Generation and account for their economic impact to Indiana. Plants owned by independent power producers are new investments into Indiana, and are not replacing generating plants an Indiana utility is retiring.

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