











## Southeast EEM Benefits and Non-Centralized Costs

### Southeast EEM Overview

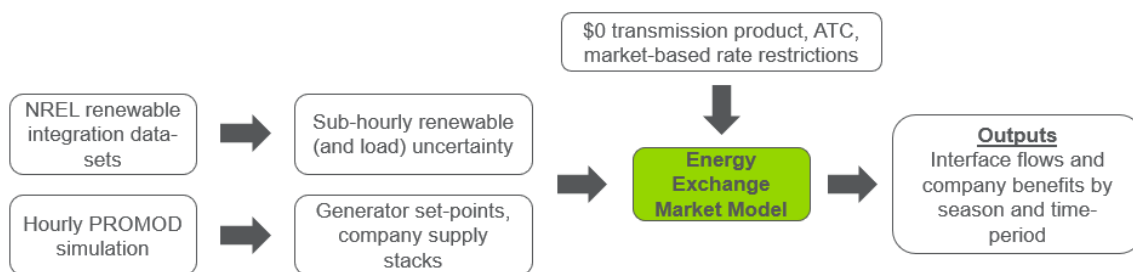
Under the proposed Southeast EEM, there will be 15-minute intra-hour trading across Southeast EEM participant interfaces, making use of any remaining non-firm ATC, with bids and offers matched through a platform to be developed by a third-party vendor with access provided to each of the Southeast EEM participants for supplying their input information.

In the Southeast EEM, there will be a new \$0/MWh transmission product which can only be procured in the intra-hour market for any remaining non-firm ATC and represents the lowest level priority of non-firm transmission service. All resulting Southeast EEM transactions are between two parties, with the point of sale for each transaction at the buyer’s BA interface. Southeast EEM trade prices are calculated using a bilateral “split savings” approach between the matched bid and offer. Each Balancing Authority (“BA”) would be responsible for continuing to ensure adequate resource plans for meeting reserve requirements and would continue to oversee its generation and load balancing.

### Modeling Approach

A combination of production cost modeling and linear programming optimization was used to estimate Southeast EEM benefits. Guidehouse uses PROMOD, a commercially available software, to develop its wholesale energy market price and plant performance forecasts.<sup>3</sup> In this study, PROMOD is first used to simulate regional system operations under status quo conditions, including the daily and hourly bilateral trading that takes place today. The hourly PROMOD data (e.g., output of each generating unit in the footprint) is then pulled into the Southeast EEM Model to analyze whether additional economic intra-hour trades can be made among Southeast EEM participants. This sub-hourly model incorporates load and renewable generation uncertainty, ATC, and the \$0/MWh non-firm transmission product.<sup>4</sup> The modeling process is illustrated in Figure 1

Figure 1. Southeast EEM Modeling Flow Diagram



One Southeast EEM objective is to assist utilities in the Southeast with lowering energy cost for customers and renewable integration. With solar capacity representing the predominant renewable technology in the Southeast, the largest sub-hourly imbalances are observed during “solar hours” (hours ending 8:00 am to 7:00 pm). A distribution of the aggregated 15-minute renewable imbalances during solar hours for the Southeast EEM participants is shown in Figure 2 for 2022 and 2037. As shown, in approximately 16% of these 15-minute periods during solar hours, imbalances exceed +/- 130 MW for the participating BAs, with certain 15-minute periods having much larger imbalances.

<sup>3</sup> PROMOD is a detailed energy production cost model used to simulate hourly chronological operation of generation and transmission resources on a nodal basis.

<sup>4</sup> As discussed in Section 1.3.2, any market-based rate restrictions for sales within BAs that were identified in discussions with Southeast EEM participants are incorporated in the sub-hourly bilateral trade modeling. Financial transmission losses are considered in the model.



























































