

Amos Ang, Southern California Edison Recommendations to the Committee on the Future of the Electric Power in the United States

Recommendations for Model Improvement

Recommendation #1: Software/Modeling tools that translate the generator / non-wire resources to appropriate models for power flow, transient, short circuit, and electromagnetic transient

This first recommendation is related to the data issue that is becoming more and more prevalent with the proliferation of inverter based resources. These resources are electronically programmed and have a multitude of settings and control algorithms. To accurately model these resource/plant controllers, it takes time and effort from both plant owners / utility engineers to translate these settings accurately. It is not only one or two plants per year that are being commissioned to be interconnected to the electric grid but tens to hundreds. There needs to be a more streamline way to convert the resource/plant controller settings into model parameters that the utility can use.

Recommendation #2: Interoperability of transmission planning models or Hybrid models

The second recommendation is related on how each model that is being used to simulate the electric grid is a standalone model. These are related to the other models but are not exactly useable for another purpose. The issues are related to how each model is used but has an impact to another model.

An example of this is related to inverter based resources. A transient stability model for these resources are detail enough to know its characteristics but this has be translated to a short circuit duty model to be used by a protection engineer for breaker and relay detection adequacy. At the moment it would take a monumental task to consolidate the two models into one but having a way to get the relevant information from the transient stability model into the short circuit model would be a good compromise.

Recommendation #3: Better software tools to process and verify the models of the transmission system

The third recommendation is to have better tools to analyze and verify the output of the models. Models are only as good as the data that it has and how well it matches reality. The whole goal of models is to verify that the electric grid can be operated reliably. Tools that can capture, process, and modify the models accordingly to recorded events so that the utility can get better concurrence in the simulations so that the grid can be operated predictably and reliably.