

Renewable Plant Model Validation with Synchrophasor Data

NASPI-NREL
**SYNCHROPHASOR TECHNOLOGY AND
RENEWABLES INTEGRATION WORKSHOP**

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Denver, CO



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Objectives of Presentation

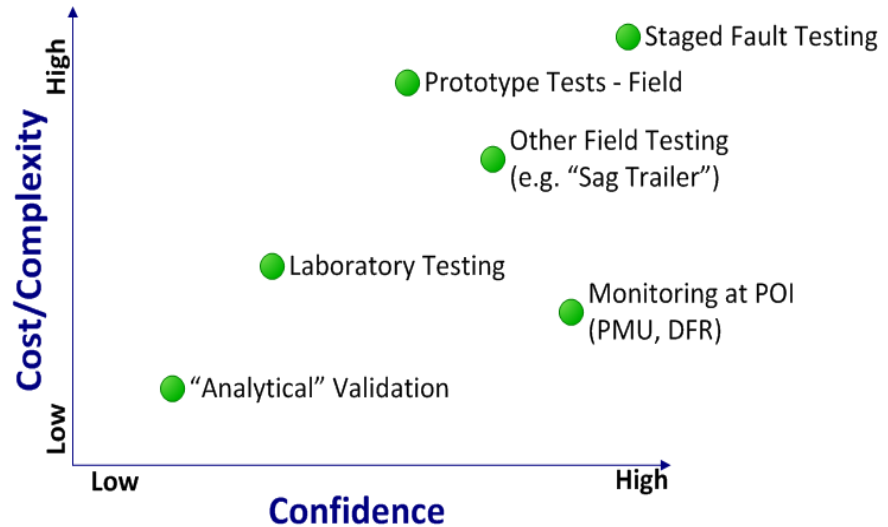
- ❑ Apprise PC of some ongoing activities related to development of planning models for bulk wind plants
- ❑ Convey progress and status regarding model validation
- ❑ Solicit input and advice from PC

Why?

- ❑ >50 GW of bulk wind and PV installed
- ❑ Increasing emphasis on validation of models for BES
- ❑ Novel generation technologies for wind and solar pose new challenges
- ❑ Model needs for bulk renewable plants
 - Planning: PSS/E, PSLF; ~ 10 Hz bandwidth; utilized for stability and other dynamic studies (has received most of the attention to date)
 - Operating: On-line security assessment; “look-ahead” simulations that may include dynamic or pseudo-dynamic behavior

How?

- ❑ Validation of as-built plant using recorded disturbance data at POI is likely the best route
 - Validation may be required for each plant
 - Other methods more complicated, expensive
- ❑ Requires monitoring at POI for each facility
- ❑ Most existing renewable plants do not have disturbance monitoring at present



Questions/Issues/Challenges

- ❑ Measurement requirements
- ❑ Monitor deployment
- ❑ Clerical and analytical burden
 - Managing data
 - Identifying appropriate disturbances for validation
 - Performing analysis, adjusting models
- ❑ Are there existing processes for validating models on an ongoing basis?
- ❑ How will NERC Mod 26 and 27 be implemented by REs?