



# ERCOT IBR MODEL VALIDATION AND VERIFICATION

RLC Engineering excels in providing modeling services to ensure strict compliance with the ERCOT Planning Guide and Dynamics Working Group Procedure Manual, including PSSE load flow model, Dynamic model development, EMT model tests and other modeling services. Our expertise lies in meticulous verification and validation of the IBR models, guaranteeing accuracy and adherence to regulatory requirements, by offering comprehensive modeling services.

- **PSSE Loadflow and Dynamic Model:**

- Development or verification of loadflow model and evaluation of dynamic model parameters and control settings.

- **PSSE Model Quality Testing (MQT):**

- Ensures that models perform as expected under various conditions.
- Detailed testing validates the response to both small and large magnitude disturbances of frequency and voltage.

- **Tests include:**

- o Flatstart
- o POI Voltage Step Down 3%
- o POI Voltage Step Up 3%
- o HVRT Leading and Lagging
- o LVRT Leading and Lagging
- o Frequency Step Down 0.03 Hz
- o No Headroom Assumption (default)
- o Frequency Step Down 0.03 Hz
- o With Headroom Assumption
- o Frequency Step Up 0.03 Hz
- o Short Circuit Ratio

- **PSCAD Model Quality Testing (MQT):**

- PSCAD models are validated according to ERCOT's UDM Guideline and PSCAD Guideline Checksheet including phase jump testing.

- **Verification Report:**

- Includes a detail description of the verification process, i.e. control panel readings, photographs
- Comparison table which lists model parameters versus actual equipment settings

- **Accompanying submissions include:**

- o Dynamic template of the current PSSE model
- o MQT report for any updates
- o Relevant simulation files
- o PSCAD model along with a guideline checksheet, for inverter-based resources

- **NERC MOD Test:**

- Modeling services to ensure strict compliance with the NERC MOD standards, including MOD-025-2, MOD-026-1, MOD-027-1, and MOD-032-1.



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