**IBRWG Meeting Minutes**

**July 2025**

**Chair: Julia Matevosyan, Vice-Chair: Miguel Cova Acosta**

**IBRWG met on July 18th (Webex, Open Meeting).**

The agenda and the presentation slides are available [here](https://www.ercot.com/calendar/07182025-IBRWG-Meeting-_-Webex)

106+ people attended the meeting (at meeting adjournment)

**IBRWG Main Meeting**

**Primary Frequency Control Issues after Ride-Through Events**

Patrick Gravois, ERCOT

* Provided some background on IBR units that have been reducing output during voltage ride-through events due to high frequency calculations or PPC interactions during fault conditions. These events were detected because of a voltage ride-through event, but after receiving high-resolution data, it was found that some of the wind and solar sites are following the voltage ride-through standard. However, after the fault, they are reducing output due to a perceived frequency event or using a new setpoint based on reduced output during LVRT.
* This behavior was first observed in the Panhandle during an event in March 2022. [NERC report here](https://www.nerc.com/pa/rrm/ea/Documents/Panhandle_Wind_Disturbance_Report.pdf)
* Root causes:
  + Some root causes are still pending. For some events, this process takes many months of follow-up.
  + The site’s calculation of the local frequency is coinciding with the time of fault, so it is producing frequency spikes that are not seen across ERCOT, nor is it indicative of system frequency.
  + For one facility, the PPC is gave a command for the turbines to go to zero active power. OEM is still investigating why.
  + Unexpected interaction between turbine level voltage ride through and the park controller level frequency droop response functions.
  + PPC assigned new setpoint to inverters by looking at current output, which was during the low active power output during LVRT.
* Katie Rich (Vistra): Have these results been shared with PDCWG?
  + Patrick: No, it hasn’t been presented there. We can take this topic to PDCWG as well.
* Bob Wittmeyer (Longhorn Power): Any differences between ESRs and PV/Wind in data you are seeing? Are ESRs having the same issues?
  + Patrick: Not seeing this yet in ESRs. Could just be due to ESRs being near 0 MW a lot of time, so we aren’t detecting large drops.
* Alex Shattuck (ESIG): Are we considering a requirement on frequency filtering? There was a previous NERC IBR alert related to this.
  + Patrick: Yes, so we are aligning here.
  + Alex: There appears to be a small gap in ERCOTs MQT right now. Many are disabling frequency protections due to those instantaneous spikes, so this takes away the ability to see this before getting to the field. Seems like some clarity in this area could be useful, including what to prioritize.
* Poria Astero: What was the PSCAD model behavior? Have you tested the response of the PSCAD models to the given frequency drop?
  + Patrick: This falls on the REs. ERCOT does not have the resources to do PSCAD model validation for every one of these events. We did test one response in PSSE and did not see the same performance in simulation that occurred during the actual event.
* Miguel A. Cova Acosta (Vestas): Does ERCOT want for there to be a frequency filter? There is some overlap here with TRE requirement.
  + Patrick: Not sure how this plays into the BAL standards, but this is the issue we’re seeing. The setpoint is getting pulled during fault response.
  + Nitika: When you design your response for PFR, are you also baking in performance measures? Droop performance should be evaluated based on proportionally responding to a correct frequency measurement.
  + Miguel: The plant should perform to ERCOT standard. I agree, they should all be able to coexist at the same time.
* Kevin Hanson (Invenergy): Are any of the resources associated with the example shown currently compliant with NOGRR 245. The reason I ask is that it is possible that most of these types of events will be reduced substantially once all IBRs are maximizing their capabilities.
  + Patrick: I wouldn’t expect this behavior to be picked up in NOGRR245. They are probably not aware this issue may exist.
* Further discussion is needed with SMEs and OEMs to present on frequency measurement and calculations.
* ERCOT will continue working with REs and OEMs to develop acceptable corrective action plans.

**Recent Renewable Records**

Ava Moore, ERCOT

* Provided some background on the Renewable record that was set on June 21, 2025. Wind and Solar generation was 46,966 MW at 13:00.
* At the time of the record, wind and solar penetration was 64% and wind/solar curtailment was 8,422 MW.
* System inertia was high throughout the day. Minimum inertia occurred at 09:30 at 215 GW\*s.
* The system performed well:
  + CPS1 was high
  + Regulation was never exhausted
  + PRC remained high
  + No IROL exceedances
  + Max net-load ramps were all manageable and well under historical max ramps
* No questions from the group.

**Reactive Capability at Zero MW, Follow-up Discussion**

Miguel Cova Acosta, Vestas

* This topic was discussed at June IBRWG and the slides and detailed minutes of the discussion are posted on the 6/20/25 [meeting page](https://www.ercot.com/calendar/06202025-IBRWG-Meeting-_-Webex).
* As a next step, IBRWG chair plans to schedule a meeting with ERCOT staff and stakeholders who have expressed interest in the topic to identify if any clarifying changes to ERCOT rules are appropriate.
* Reach out to the IBRWG Chair or Vice Chair if you want to participate in the discussions outside of IBRWG.
* Updates will be presented at August or September IBRWG.

**NERC Updates**

Mark Henry, TRE

* FERC Order 901
  + Milestone 2: No decision announced
  + Milestone 3: Second posting expected late July/August. Definitions of “verification” in Project 2020-06 passed final ballot in July, but not the Standard requirements.
    - Project 2020-06 - Model Validation and Model Verification Definitions.
    - Project 2021-01 – System Model Validation with IBRs
      * MOD-033-3 Steady-State and Dynamic System Model Validation
    - Project 2022-02 - Uniform Modeling Framework for IBR
      * MOD-032-2 – Data for Power System Modeling and Analysis
      * IRO-010-6 – Reliability Coordinator Data and information Specification and Collection
      * TOP-003-8 – Trans. Oper and Bal. Auth. Data & Information Specification & Collection Implementation
  + Milestone 4: SARs were reviewed by NERC RSTC and with go to the SC in the fall for public comment.
* Other Medium Priority Projects Involving IBRs:
  + Project 2022-04 EMT Modeling: Posting for initial ballot and comments tentatively July 28-Sept 11.
    - FAC-001-4 Interconnection Requirements
    - FAC-002-4 Interconnection Coordination
  + Project 2023-01 –drafting team met twice in July and has six more meetings scheduled before the end of August
    - EOP-004 IBR Event Reporting
* NERC issued Essential Actions to Industry: Inverter-Based Resource Performance and Modeling on May 20. Question responses are due midnight, August 18, 2025, covering these essential actions:

1. Each TO and TP, in coordination with their PC, should enhance existing criteria and policies in their generator interconnection and planning activities, respectively, with additional technical details and IBR specific performance criteria.
2. Each TP and PC should enhance their modeling and study practices to ensure sufficient study work and model quality verification are performed and documented to reflect models that are representative of equipment.
3. TOs, TPs, or PCs, where applicable, should perform a detailed review of currently operating IBRs on their system to understand the extent of condition of both real-world performance and accuracy of their models.
4. Each GO should create and implement processes to help ensure models used for the evaluation of their design and submitted to TPs and PCs for use in generator interconnection and planning processes are—to the extent possible based on the available information—accurate and high fidelity representations.

* Category 2 registration of IBR’s connected at >60kV transmission and nameplate >20 MVA, delayed, likely starts in August in batches of five entities.
  + Reliability Standards will be applicable to IBR meeting the new registration criteria after May 2026, details TBD.
  + NERC’s April note on GO compliance dates lists 44 Standards needing revision, only 6 of which are approved or in development with Milestone 2 and 3 projects. It also lists 8 that should not need update.
* RSTC reviewed and approved two EMT whitepapers in June, public posting expected in the near future.
  + Case Study on Adoption of EMT Modeling and Studies in Interconnection and Planning Studies for BPS–connected IBR (a Survey)
  + EMT Analysis in Operations