**IBRWG Update**

**October 2024**

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

**IBRWG met on September 16th (Webex, Open Meeting).**

The agenda and the presentation slides are available [here](https://www.ercot.com/calendar/09162024-IBRWG-Meeting-_-Webex)

**IBRWG Main Meeting**

**DWG Procedure Manual Update**

Sun Wook Kang (ERCOT)

* + DWG Procedure Manual - All comments were addressed.
  + A “draft” manual is posted on the ROS and DWG websites.
  + As the PUCT decision on NOGRR245 is anticipated in September, the potential effective date for NOGRR 245 could be October 1st.
  + Considering this timeline, DWG leadership will request ROS approval at the October 3rd ROS meeting.
  + Until then, the updated DWG manual will be posted as a "DRAFT" on the DWG website to allow for familiarization.
  + PMVIEW and DMVIEW tools have been updated for the latest NOGRR-245 test proposals. Links to the tools are in the ERCOT Model Quality Guide.

**NERC Standards Update (FERC Order 901)**

Mark Henry (TRE)

* + Provided a refresher on FERC Order 901 and NERC’s Work Plan with regard to the directives from the Order.
  + NERC is currently working on Milestone 2 of the Work Plan, that involves filing several new standards addressing performance requirements and post-performance validation for Registered IBRs.
  + [PRC-028](https://www.nerc.com/pa/Stand/Pages/Project-2021-04-Modifications-to-PRC-002-2.aspx) Disturbance Monitoring and Reporting Requirements for Inverter-Based Resources reach consensus in August ballot and currently under final ballot, after a small modification.
  + [PRC-029](https://www.nerc.com/pa/Stand/Pages/Project_2020-02_Transmission-connected_Resources.aspx) Frequency and Voltage Ride-through Requirements for Inverter-based Resources **did not** reach consensus in the final ballot in August, primarily due to the proposed frequency ride through requirement beyond IEEE 2800-2022, while being applied retroactively (no exemptions as per proposed implementation plan). NERC held Technical Conference on 9/4-9/5 in Washinton, where the stakeholders had a chance to provide their input. NERC Standards Committee worked on updated draft PRC-029 as a follow up.
  + [PRC-030](https://www.nerc.com/pa/Stand/Pages/Project-2023-02-Performance-of-IBRs.aspx) Unexpected Inverter-Based Resource Event Mitigation reached consensus in September ballot

**Draft Proposal for Advanced Grid Support Energy Storage Resource**

Fred Huang (ERCOT)

* + Fred presented 3 documents (all posted on the meeting page):
    - Advanced Grid Support Energy Storage Resource (AGS-ESR) Functional Specification and Test Framework for the ERCOT Grid, Version 1.0, September 2024 – outlines background and need for AGS-ESR as well as the proposed set of tests to evaluate capability of an ESR to provide AGS
    - XXXNOGR-01 Advanced Grid Support Requirements for IBRs Draft v9\_11\_24 – adds AGS-ESR model quality testing requirements to the Nodal Operating Guide, Section 2.14 (new)
    - XXXPGRR-01 Related to NOGRRXXX, Advanced Grid Support Requirements for Inter-Based Resources (IBRs) Draft v9\_11\_24 – adds AGS-ESR modeling requirements to Nodal Planning Guide, Section 6.2, Dynamic Model Development.
  + NOGRR will be posted for formal stakeholder review at the latest in early October. Stakeholders are invited to comment prior to that (the drafts are posted on September IBRWG meeting page) by reaching out to Fred [Shun-Hsien.Huang@ercot.com](mailto:Shun-Hsien.Huang@ercot.com)
  + IBRWG/DWG will host a 1.5-2-hour work session during October IBRWG meeting, where ERCOT staff will share proposed AGS-ESR MQT.

**PFR from IBRs under “Deep” Curtailment**

Luis Hinojosa (ERCOT), Miguel Cova Acosta (Vestas)

* + ERCOT is noticing that IBRs under deep (including down to zero) curtailment are failing BAL TRE-001 evaluation.
  + Additionally, there is NERC SAR to BAL-TRE-001 in works that is looking to include ESRs (not previously included in the standard), allow widening of deadband to 34 mHz for resources not participating in Ancillary Services. And could potentially include exemption for IBRs under deep curtailment. The latter is not ideal solution for ERCOT, and they are trying to understand capabilities and limitations of various technologies providing PFR under deep curtailment.
  + The concern is not just with PFR performance of IBRs after the events but also with accuracy of PRC that ERCOT is tracking in real-time.
  + PFR performance limitation at overfrequency also may exist when IBRs are at low output.
  + These limitations in general are not captured by IBR models.
  + Vestas proposed some solutions, but we need to hear from other OEM (including solar) on their limitations and capabilities to develop general solutions.
  + ERCOT also needs to understand how frequency is measured/calculated to provide frequency response by IBR. ERCOT doesn’t specify, but it may result in different performance from resources.

**NOGRR 245 Update**

Stephen Solis (ERCOT) – no slide discussion.

* + On 8/20/2024 ERCOT BOD:  (1) recommended approval of NOGRR245 as recommended by TAC in the 6/7/24 TAC Report as amended by the 8/16/24 ERCOT comments with a recommended priority of 2025 and rank of 3515, and (2) designate a subsequent NOGRR as a Board Priority Revision Request to address the remaining details of the exemption process and to have the NOGRR at the ERCOT Board’s February 2025 meetings for consideration, with instruction to TAC leadership to provide detailed reports on this subsequent NOGRR at the ERCOT Board’s October and December 2024 meetings.
  + Next Group is PUCT, one of the commissioners would like to evaluate how NERC Standards efforts (in conjunction with FERC Order 901, discussed earlier today) will be affecting NOGRR245 implementation.

**RoCoF and Phase Jump Measurement Discussion,**

Stephen Solis (ERCOT), Miguel Cova Acosta (Vestas) – no slide discussion.

* + Stephen briefly introduced the issue, see slides from August IBRWG.
  + Coming back to the frequency question, how it is measured matters:
* PLL
* Fourier transformation
* Use of 0 crossing
  + Depending on the method used, different frequency may result. RoCoF calculation from the measured/calculated frequency may also differ between devices.
  + It will be impractical to achieve the same frequency measurement/ calculation method is used in all equipment. But ERCOT would like to understand how it’s measured on the plant-side before coming up with system-wide solution
  + This issue requires further discussion with OEMs and others to come up with workable solutions.