**IBRWG Report To ROS**

**September 2023**

**Chair: Mohammad Albaijat, Vice-Chair: Julia Matevosyan**

**IBRWG met on September 8th, 2023 (Webex, Open Meeting)**

**September 8th meeting summary:**

**Discussion Items:**

**Case Studies of the Stability Benefit of GFM in Energy Storage Facilities**

Presented by Nishantha Ekneligoda (AEP)

* + AEP presented a study (with EPRI) on stability benefits for Grid Forming Energy Storage Resources:
    - Case 1: 230 kV station in Oklahoma
    - Case 2: 345/138 kV station in ERCOT
    - Case 3: 138 kV GTC area in ERCOT
  + Findings are consistent with ERCOT’s preliminary study presented at IBRWG in August:
    - GFM ESR is effective in stabilizing existing wind and solar IBRs under various post-contingency “weak” grid conditions.
    - Different forms of instability can be effectively addressed.
    - Determination of optimal GFM ESR sizing, number and placement of GFMs ESRs are possible future study directions.
    - GFM device control tuning is also important.

**Florida Power and Light GFM and IEEE2800 activities**

Presented by Andrew Arana (FPL)

* + IEEE 2800 Adoption Efforts:
    - FPL adopted IEEE 2800, excluding the last two chapters on monitoring and testing (waiting on IEEE2800.2).
    - Many vendors are familiar with IEEE 2800 and have started testing their equipment.
    - The requirements are applicable to newly interconnecting IBR – with IBR capacity is currently < 19% of peak load and FPL being a part of large Eastern Interconnection, retroactive upgrades aren’t necessary.
    - For existing IBRs, FPL is focusing on tripping/active power reduction issues reported in previous NERC events, working with IBR owners on individual fixes.
  + Grid Forming Efforts
    - FPL is seeing a week grid challenge in FPL system at the end of long transmission line where several IBRs are connected.
    - It is possible to address it by adding new transmission or SynCons
    - Currently focusing on GFM BESS as a potential solution because these are already being planned in the area and FPL wants to avoid installing additional transmission assets exclusively for stability.
    - While currently the focus is on GFM BESS, the plan is to look at GFM capabilities of solar as well as explore black start capabilities with GFM technology.
    - Similarly, to AEP optimal sizing and locations of GFM BESS are subject of future studies.
    - Similarly, to ERCOT, as the next step, FPL needs to establish performance specifications very soon.

**ERCOT’s update on their activities related to Grid Forming ESR**

Yunzhi Cheng (ERCOT)

* + Following the results of preliminary stability benefits assessment from GFM ESRs that was presented at August IBRWG meeting, ERCOT issued an RFI looking for support developing interconnection requirement for grid forming batteries.
  + RFI is posted on ERCOT website <https://www.ercot.com/files/rfps/2023/08/28/Consulting-Services-for-Grid-Forming-Inverter-Based-Resources-in-ERCOT%20Region_Public.pdf>

**NOGRR 245 update**

Presented by Stephen Solis (ERCOT)

* + Stephen presented list of the latest changes made to NOGRR245 and a chart of chart about how different requirements apply based on the request from ROS meeting on 9/7/2023
  + Legacy IBRs SGIA before 2014 will be most challenged managing the requirements applied with NOGRR 245 (not impossible but challenging).
  + IBRs between with SGIA after 1/16/14 and before 6/1/23, the challenge may be RoCoF and phase jump and multiple fault ride through (MFRT) – OEMs haven’t assessed these capabilities during product development.
  + Lengthy and detailed discussion followed (details captured in meeting minutes posted on the meeting page)
  + NOGRR245 Follow-up after September IBRWG meeting:
    - On 9/14/23, ROS voted to grant NOGRR245 Urgent status; to recommend approval of NOGRR245 as amended by the 9/13/23 NextEra comments as revised by ROS.
    - ERCOT does not support approval of NOGRR245 as recommended by ROS in the 9/14/23 ROS Report as it does not address the critical reliability risk NOGRR245 intends to address.
    - On 9/27/23, TAC voted unanimously to table NOGRR245, pending ERCOT RFI results and additional discussion at ROS.

**NERC Update, Southwest Utah Disturbance**

Presented by Ryan Quint (NERC)

* + On April 10, normally cleared single-line-to-ground-fault on 345 kV transmission line resulted in non-consequential loss of 921 MW of solar production across 9 plants.
  + Most affected facilities were installed before the first Blue Cut Fire Event and all causes of tripping have been identified in the past NERC Disturbance Events, indicating that IBR performance issues are not being proactively and preemptively addressed.
  + Establishing detailed interconnection requirements is absolutely essential and should be taken very seriously across North America. Lack of industry action reinforcing need for NERC Standards efforts. Some ongoing improvement efforts include:
    - NERC Project 2023-02 to ensure proactive risk mitigation.
    - NERC Project 2020-02 to ensure comprehensive ride-through performance standard.