**IBRTF Report To ROS**

**July 2023**

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

**IBRTF met on May 12th and June 9th, 2023 (Webex)**

**These were open meeting sessions.**

**May 12th meeting summary:**

**Discussion Items:**

**IBR Ride-Through Requirements NOGRR 245 Update**

Presented by Stephen Solis (ERCOT)

The presentation covered alternative proposal for NOGRR 245:

* + Alternative framework proposes to move forward with the IEEE 2800 frequency ride through requirements for all IBRs by 12/31/25 – seems that these changes are feasible
  + ERCOT introduced 3 tiers of IBRs depending on SGIA date (prior to 2014, 2014-2023, after 2023)
  + Depending on the tier, the proposal defines applicability VRT curves and applicability of “new specificity” from NOGRR 245 as well as timelines for when these requirements will apply differ.
  + ERCOT is in the process of drafting comments to NOGRR 245 to reflect the alternative proposal and will bring this draft to the June meeting.

**OEM Presentation SMA (inverter manufacturer)**

Presented by A. Montanari (SMA)

The presentation covered capabilities of new and existing SMA inverters to comply with originally-proposed NOGRR245 requirements.

* + New SC(S)-UP-US SMA inverters, SMA can meet the requirements of the NOGRR 245 with proper parametrization of control settings and some hardware configuration changes (as detailed below).
    - FRT, VRT and phase jump withstand requirements are within SMA inverter ride through capabilities.
    - Inverters can comply with Transient High Voltage Ride Through requirement, with the selection of the TrOV Auxiliary Power Supply hardware (configurable option)
    - Dynamic voltage support requirements can be met with customizable parameters.
    - Inverters can meet consecutive ride-through requirement with the selection of the larger buffer hardware.
    - RoCoF requirement can be met with appropriate parameter settings.
  + For existing SMA inverters in operation in ERCOT, can partially meet NOGRR 245 requirements (As detailed below).
    - SC/SCS (UP) series: need to implement hardware and software upgrades in the converters. Hardware changes include the TrOV upgrade kits as well as the larger buffer. Long lead time to obtain the components.
    - CP series and the HE series: still under investigation

**March 10th Event Update**

Presented by Julia Hariharan (ERCOT)

* + Phase-to-ground fault in West Valley area on 3/10/23 at 4:48 am on high side of thermal generator’s main power transformer (MPT), a minute later followed by phase-to-ground fault on the high side of another MPT at the same site. The plant was not generating at the time.
  + The event resulted in a loss of ~295 MW of wind generation
  + Frequency dropped to 59.957 Hz and returned to 60 Hz within 37s
  + Sub-synchronous oscillations observed in the Laredo area (due to the first fault isolating the circuit where the oscillations originated)
  + RFIs sent out to REs of 7 facilities (consisting of 13 units lost)
  + NERC Brief Report is completed and submitted to Texas RE
  + Next steps follow up with REs and TSPs and determine mitigations

**Industry Update**

Presented by Julia Matevosyan (ESIG)

* + NERC Industry Webinar Series Inverter-Based Resources: to provide an overview from a fundamentals of IBR technology to tackling emerging risk issues. June 6 – July 13, 2023 | 4:00 – 5:00 pm ET
  + NERC IRPS has developed a whitepaper “Grid Forming Functional Specifications for BPS-Connected BESS”, defining functional requirements and simulation tests to verify grid forming capability of BESS. The paper also provides information on implementation of grid forming resources internationally and benefits for BPS reliability.

**June 9th meeting summary:**

**Discussion Items:**

**IBR Ride-Through Requirements NOGRR 245 Update**

Presented by Stephen Solis (ERCOT)

* + ERCOT has drafted language for ERCOT comments that aligns with the alternative framework proposal presented by ERCOT during the May IBRTF meeting.
  + Language is undergoing additional ERCOT review and will be posted within two weeks.

**IBRWG Scope Review**

Presented by Freddy Garcia (ERCOT)

IBR event analysis and implementation of mitigation measures is continously ongoing. Additionally, there are also ongoing protocol and operating guide enhancements to address the gaps with IEEE2800 standard. It is therefore proposed to convert IBRTF into a WG. Freddy presented IBRWG scope document.

**Industry Update**

Presented by Julia Matevosyan (ESIG)

* + Australian electricity system and market operator AEMO published “Voluntary Specifications for Grid Forming Inverters” to provide guidance to stakeholders while the regulatory environment develops.
  + On 05/18/2023 FERC issued an Order approving the NERC’s work plan and timeline to identify and register IBRs that fall outside the BES definition. This includes IBRs ≤ 75 MVA and ≥ 20 MVA connected at ≥ 100 kV. NERC will also work to update the Reliability Standards to include these IBRs.
  + ESIG webinar on EMT Model Intake and Quality Assurance