**IBRTF Report To ROS**

**April 2023**

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

**IBRTF last met on March 10th, 2023 (Webex)**

**It was an open meeting session.**

**Discussion Items:**

**Open meeting IBRTF Discussion**

**TMEIC**

**Presented by Jeff Roesch**

**SunGrow**

**Presented by Daniel Friberg**

**Discussion was mainly if the products comply with new requirements.**

**Requirements like Frequency, Voltage and 45 degree Phase angle Ride-through, Diable PDR and Anti-islanding, RoCoF, Instantaneous OV, Reactive injection with minimal active power reduction.**

**Comply either: Capable today, Software change needed, SW and HW update, or further study.**

**Southern Power Company**

NOGRR245 - Inverter-Based Resource (IBR) Ride-Through Requirements

**Presented by Chase Smith and Bill Shultz**

* Southern Power collected feedback from solar and wind OEMs relating to its existing IBRs’ capabilities to meet NOGRR245 requirements
  + Assumes requirements are applied at IBR unit terminals; vendor modeling / studies needed to fully assess if an IBR facility complies with requirements.
* Feedback included “yes”, “no”, and “additional studies needed”
* Additional time needed to evaluate if software or hardware upgrades are needed for existing IBR equipment to meet NOGRR245 requirements.

Existing IBR Capabilities

* Southern Power summarized current understanding of its existing IBRs technical capabilities / limitations
* Info is subject to change as Southern Power continues to review and engage with OEMs

Takeaway

* IEEE2800-2022 recognized that existing IBR equipment may have limitations in meeting the standard
* This issue is complex – additional time is needed to understand technical capabilities / limitations of existing IBRs
* Need for narrowly tailored infeasibility exemption process for existing IBRs
* Support adoption of IEEE2800-2022 to apply to new IBRs so that OEMs have sufficient notice to test / design equipment accordingly
* Issue is broader than IBR performance – need to improve transmission grid strength to mitigate impact of these grid disturbance events

**January 23 Event**

**Presented by Patrick Gravois (ERCOT)**

* + On January 23, 2023, @ 12:19 PM CST, Phase-A-to-ground fault occurred on 138 kV line in West Texas
  + Fault cleared normally in 3 cycles
  + Preliminary analysis shows approximate non-consequential loss of 298 MW of solar generation from 8 different facilities
  + Aggregate MW loss includes facilities that did not return to pre-disturbance output within 1 second
  + 7 of 8 facilities involved in Odessa events
  + ~208 MW of load reduction occurred at four different LFL sites immediately following fault
  + System frequency dropped to 59.955 Hz and recovered in 6 seconds
  + PMU/ relay event data requested from 25 surrounding solar facilities; 20 submitted PMU data
  + Wind/BESS reduction insignificant
  + RFIs sent to 8 facilities with due date of Feb. 24
  + Several facilities involved in Odessa events did not see voltage excursions large enough to test mitigation actions; others initially show an improvement in performance (less inverter tripping)

Conclusions

* Far less inverter tripping during Jan. 23 event compared to Odessa events
* Majority of inverter tripping due to overcurrent; most difficult to mitigate due to potential inverter damage and logic changes required by OEM
* Most MW loss post fault likely due to PPC/inverter interactions causing delayed recovery– investigations still ongoing
* Difficult to determine effectiveness of corrective actions implemented since Odessa events
* Additional discussion and corrective actions needed to minimize active power reduction during faults; REs need to be proactive in this analysis to improve response
* Wide range of reactive responses from facilities during fault; potential future IBRTF discussions needed
* ERCOT is using this event to validate submitted dynamic models; REs will be contacted when simulated performance does not match actual performance