Agenda for July 19, 2023
Minutes from meeting highlighted in Yellow

Joint Meeting of the Wind and Solar Power Plant Interconnection and Design Subcommittee and Plant Interconnection Working Group
of
IEEE PES Energy Development and Power Generation Committee

Date: Wednesday July 19, 1:00 pm – 3:00 pm (Eastern time zone)
Location: Orlando Conference Center, Bay Hill 17 and via **WebEx**

Leadership: Main SC- Chair: Tom Key, VC: Jens Boemer, Sec: Nath Venkit
Interconnection WG- Chair: J. Boemer, VC: N. Venkit, Sec: D. Chandrashekhara
Design WG- Chair: Loren Powers, VC: Mohsen Zadeh, Sec: Rob Schaerer

1. 1:00 pm - Welcome and Introductions Tom Key, EPRI

2. Acceptance of minutes from Summer 2022 meeting (covers interconnection WG and the subcommittee meeting together), Nath Venkit, GE

   Nath Venkit moved the motion
   Divya KC Seconded.
   Hearing no objections the minutes are approved

3. 1:15 pm - Working Group Activity Reports
   - Wind and Solar Plant Design WG – Chair Loren Powers, Doug Price covering – 10 min
     - Update on WG activities

       About 10 papers being published. Good attendance in WG meeting and good interest in papers. Discussion around blowing of Surge arresters during L-G faults in Wind plants.

       No current panels planned for the Seattle at this time, but still under discussion.

       WG expects to meet quarterly in virtual meetings and at least once per year in person.

       DC coupled storage will get focus.

     - Task Force on Wind and Solar Plant Grounding Activities
       - IEEE 2760-2020 IEEE Guide for **Wind** Power Plant Grounding System Design for Personnel Safety
       - IEEE 2778-2020 IEEE Guide for **Solar** Power Plant Grounding for Personnel Protection
     - Attendance of WG meeting(s) earlier this week
     - Hot Topics on Design

- Looking ahead, other WG Activities/Plans 2024

- Wind and Solar Plant Interconnection WG – Nath Venkit
  - ***Distribution-Connected*** Inverter Based Resources (DER)
    - P1547 Revision Update – Mamadou Diong (Dominion), via WebEx – 10 min

      Incorporate learning since the standard was implemented in 2018. Not a full scale revision but incremental changes.

      Drivers – consolidate previous errata, amendents and incorporate lessons, fixes from UL 1741 SB reviwions, fixes for V2G commissioning, promote selected P1547.X guidance, Add recommended DER settings file format, and remove barriers for GFM.

      Lot of support from the industry.

      Initial focus of this revision towards IEEE 1547-2025 but may extend into 2026.

      Subgroup and task force structure defined and meeting bi-weekly.

      Volunteers are welcome. Not required to be a WG member can be an observer. Contact Mamadou at mamadou.diong@ieee.org

      Next WG meeting in Wilsonville, OR Oct 2-5 2023. Three meeting dates and locations for 2024 proposed.

      Will be working closely with Mike Ropp on 1547.4

      1547 standards have 5 of 6 different sponsor sub-committees. Working towards maintaining co-ordination with those sub-committees.

    - P1547.2 Application Guide, Wayne Stec via WebEx – 5 min

      Provides technical background and application details, tips, techniques and common practices.

      Contents – General interconnection tech specs and performance requirements, reactive power capability and voltage control, response to abnormal conditions, Power quality, Islanding, secondary network, Interoperability, field verification requirements, DER High penetration effects.

      Currently in 2nd ballot – closes July 24th, 95% approval at this time.

      Targeting September 2023 Revcom submission.

      Question on interconnection voltages – Answer, distribution voltages up to 34.5kV in the US and upto 50kV in Canada.

      Question – does 1547.2 cover utility protection – Answers it has language that conveys that utility protection should take into account ride-through.

    - P1547.3 Cyber – Janette Sandberg, PGE, Wayne Stec to cover – 5 min

      Wayne covered for Janette.

Not much on Cybersecurity in existing standard. Cybersecurity is intended to be more end to end and cover more than the standard 1547 boundary

Covers Need, risk, network engineering, access control, data security and other key topics.

Expected to be published 3Q 2023

- P1547.10**:** Utility Infrastructure DER Gateway (***1547.10***) – Daniel Freeman (Schneider Electric) or Abrez Mondal (EPRI) - 10 min

  Daniel Freeman – Secretary for 1547.10

  Defines DER gateway and provides guidance and differentiates between gateways and things like plant controllers. Consolidates definitions.

  Recommended practice for DER Gateways and does not cover interconnection requirements.

  Completion goal is December 2024.

  Subgroups defined and good participation meeting once a month. Welcome more participation. Reach out to Daniel at Daniel.Freeman@se.com

  WG meetings co-ordination with IEEE 1547

- Topical Presentation on Interconnection, Open DER Model, Yiwei Ma (EPRI) – 10 min

  Vision is to have a open source DER model harmonizing understanding of the standard among all stakeholders.
  Model specifications released.
  Python based model software released
  Model user group open to stakeholders for feedback. Meeting every two weeks. Contact yma@epri.com for participation.
  No EMT or wind model yet. Just solar and storage
  Offers grid support functions and ride through performance
  Question – has open DER tools been used with open DSS. Answer – Yes.

4. 2:15 pm
   - EDPG Interconnection WG Activities Reports, Continued
     - ***Bulk System-Connected*** Inverter-Based Resources Activities
       - 2800-2022 Update and adoption status update – Jens Boemer (EPRI) – 10 min

         Andy Hoke covered for Jens.

         Published April 2022 on Earth day with >94% approval

IEEE 2800 is only for IBRs while IEEE 1547 is for all DER. IEEE 2800 is for transmission connected IBRs, while IEEE 1547 is for distribution connected DERs.

Adoption of IEEE 2800 is not contingent on publication/adoption of IEEE 2800.2.

IEEE 2800 is at the plant level, UL certification at unit level unlikely.

Possible IEEE 2800 adoption methods – general reference, detailed reference and full specification

FERC order on IBR registration RD22-4-001. Goal is to identify unregistered IBRs over 20MVA connected to interconnection greater than 60kV.

Question – Will NERC update PRC 024 to co-ordinate with IEEE 2800 requirements? Answer – Yes, NERC has a revision coming up for PRC 024

- P2800.2 IBR Plant Test and Verification – Andy Hoke (NREL) – 10 min

  Recommended practice for test and Verification procedures

  Includes Type tests, design evaluation using verified plant model, As built evaluation and commissioning tests, Post commissioning model validation and verifications.

  Motivation for IEEE 2800.2 – Details of verification methods not included in IEEE 2800

  5 Subgroups and a Power quality task force. Welcome members to join sub groups

  Target publication Q1-Q2 2025

  Next WG meeting – Virtual August 29-31 2023

  Question: Why is there no IEEE 2800.1? Answer: IEEE 2800.1 is a proposed entity guide for testing and the WG felt that there should be an individual based recommended practice.

- Topical Presentation on IBR Standards Revision update, Alex Shattuck (NERC) – 15 min

  Disturbance still happening. Need IBR standards to prevent

  FERC NOPR RM22-12-000 – Develop modified Reliability standards that address reliability gaps related to IBRs

  Currently around 85% of IBRs are covered by NERC standards. FERC order on IBR registration RD22-4-001 will increase that to 96.5%

  NERC Standards process – SAR, drafting team, draft language, balloting, approval by NERC board of trustees followed by FERC approval.

Project 2020-04 is a new effort to retire PRC 024-3 and replace with a standard for IBR ride-through

Project 2020-0 – Verification of Models

Project 2021-01- Modifications to Mod 25 and PRC 019

Project 2021-02 – Volt VAR response and ERS updates

Project 2021-04 – PRC 002 Phase II disturbance reporting

Project 2022-02 – Modifications to TPL-001 and MOD-032

Project 2022-04 – EMT modeling (affects many standards)

Project 2023-01 IBR Event reporting

Project 2023-02 – Performance of IBRs PRC-004

NERC is promoting the adoption of IEEE 2800

Comments – Models cannot be validated without a good grid model

Discussion on should there be technology specific requirements. Also, how to you handle Hybrid plants – mixed synchronous with IBRs? Discussion on how do you separate the response at the POI. NERC comment is that all this should be addressed within the individual standards.

- Global Power Systems Transformation Consortium –Jason MacDowell – 5 min

  Product of ESIG with CEO buy-in from System operators and OEMs

  Foundational set of pillars driving change. GPST is the implementation arm

  Goal – Operate a 100% IBR transmission system by 2025 or other regional goals.

  Enablers defined and implement via 6 different top projects

  Key GFM implementation council Initiatives – Purpose Break the chicken-egg cycle through deployment and commercialization of GFM technologies.

  Welcome involvement

5. Coordination Reports

- IEEE P2882, Guide for Validation of Software Models of Renewable and Conventional Generators for Power System Studies, Rajesh Nighot (GH)
- PES Renewable Systems Integration Coordinating Committee, Sudipta Dutta (EPRI)
- PES T&D Distributed Resources Integration WG, Ben York (EPRI)
- IEEE P1729, Recommended Practice for Electric Power Distribution System Analysis, Tom McDermott (PNNL)

- Other Coordination

No discussion due to lack of time

6. Any Old Business?
   - Questions on the scope of Gateway, P1547.10.
   - Report on SC sponsored Panels or Papers at 2023 Orlando GM
   - Webmaster http://sites.ieee.org/pes-edpgcom-wsppidsc/

No discussion due to lack of time

7. Future Meetings and Session Plans (T&D, PES GM, etc.)
   - 2024 Tutorials
     - EDPG-sponsored IEEE 2800 Tutorial—Understanding origin and specifications of technical minimum capability and performance requirements (joint with PSRC and EMC)
   - 2024 Panels
     - EDPG supported panel on Requirements for fault ride through behavior from future IBRs and protection equipment (sponsored by PSRC)
   - 2024 Papers
     - EDPG supported paper on IEEE 1547/.2 Application Guidance for Distribution and Bulk System Protection Engineers (sponsored by SC21)

No discussion due to lack of time

8. Other Action items?
   No discussion due to lack of time

9. 3:00 pm Adjourn