## IEEE P2800.2 Working Group Meeting Minutes, 02/17/2022

## IEEE P2800.2 Recommended Practice for Test and Verification Procedures for Inverter-Based Resources Interconnecting with Bulk Power Systems

Chair: Andy Hoke
Secretary: Manish Patel
Vice-Chairs: Jens Boemer, Bob Cummings, Divya Chandrashekhara, Julia Matevosyan, Mahesh Morjaria, Steve Wurmlinger

Meeting Date/Time/Location**:** February 17, 2022, 11 am – 1 pm ET, Virtual Meeting

Andy Hoke kicked-off the meeting with a brief introduction. This meeting was the second meeting of the IEEE P2800.2 Working Group. The meeting was held virtually. In lieu of a roll call, Andy Hoke requested attendees to put their name and affiliation in the chat window. Attendees were also asked to record attendance at https://imat.ieee.org/attendance. Attendees interested in joining the P2800.2 WG were asked to send a request to Manish Patel (mpatel@southernco.com) with a copy to Andy Hoke (Andy.Hoke@nrel.gov).

Jens Boemer provided a brief status update on the IEEE 2800. The standard is now approved by the IEEE SASB. Link to the IEEE 2800-2022 Draft 6.3 that was recirculated in December last year is available at https://ieeexplore.ieee.org/document/9641506.

Quorum was achieved. Andy Hoke presented the agenda. Ed Ruck moved to approve the agenda. Bob Cummings seconded. No discussion, objection or abstentions were noted. Agenda was approved.

Jens Boemer moved to approve meeting minutes for the kick-off meeting. Steve Wurmlinger seconded. No discussion, objection or abstentions were noted. Meeting minutes were approved.

Malia Zaman presented IEEE SA Patents & Copyright policies as well as participants behavior expectations.

Andy Hoke briefly discussed scope and objective of the IEEE P2800.2. Ratan Das and Pouyan Pourbeik asked clarifying questions. Andy concluded that some of these details to be worked out and respective sub-groups (SGs) should discuss and inform the WG.

Paradigm Shift – Andy recognizes that this may not be an easy process.

Pouyan asked if what is included in this recommended practice is the only way to show compliance. There may be other ways to show compliance and hence there should be some flexibility. Andy noted that P2800.2 is a recommended practice. Roberto Favela agreed that flexibility should be provided.

Andy presented SG structure. The only change since kick-off meeting is that the Power Quality Task Force (PQTF) is introduced. Harish Sharma and Eugen Starschich to lead the PQTF. Both briefly introduced themselves. Key strategic questions to be discussed within SGs were also presented.

Vice-chairs/SG chairs briefly presented scope for their respective SGs. The discussion was limited in respect of time. Andy encouraged that detailed discussion should occur at the SG level.

Andy Hoke presented scope of SG1 responsible for general requirements which includes compilation of normative and informative references, definitions, introductory material, and general requirements, etc. Some key strategic questions were also presented, which will be discussed further at the SG level. Manish Patel to help Andy Hoke with SG1 activities.

Steve Wurmlinger to lead SG2 (type tests). Michael Ropp and Pramod Ghimire to serve as SG Chairs. This SG is responsible for developing type test methods that determine IBR unit's ability to comply with performance requirements outlined in IEEE 2800-2022 Table 20, Verification Methods Matrix. Key questions outlined are as following:

- What other standards exists that may be applicable – start a list
- If different methods or criteria are needed for different technologies
- Outline of the type test clause (such as shown below)
    - Type test is described in IEEE 2800-2022 clause 12.2.2
- Identification and specification of the quantities to be measured for characterizing the performance of the IBR unit
- Measurement procedures for quantifying the performance
- Criteria for assessing compliance

It was recognized that IBR unit type needs to be considered and that coordination with IBR design evaluation SG (#3) is of importance.

Jens Boemer briefly presented scope for SG3 (Design Evaluations). Andrew Isaacs and Alex Shattuck to serve as SG Chairs. The test and verification framework as well as related IEEE SA activities (P2882) were presented. The chair of P2882 WG was present and appreciated efforts of P2800.2 and agreed that both WGs should coordinate. Related NERC and IEC activities were also reviewed. The SG to consider following key questions:

- "Easier" questions:
    - What are the quality requirements for models?
    - What is the process of testing plant models?
    - Extent of external grid representation?
- "Thornier" questions:
    - What is benchmark for success for inverter-level model validation?
    - Should OEM-specific EMT models be required?
    - Should HIL be required?

Divya Kurthakoti briefly presented scope for SG4 (As-built evaluation and commissioning test). Chris Milan and David Narang to serve as SG Chairs. The SG is responsible for developing test and verification procedures for as-built installation evaluation and commissioning tests. Discussion was limited due to time constraints, but it was recognized that type of IBR plant matters and that coordination with other SGs is necessary. The SG would also review existing literature including any regulatory standards and develop from there.

Julia Matevosyan briefly presented scope for SG5 (post commissioning IBR plant level verification). Jason MacDowell and Brad Marszalkowski to serve as SG Chairs. The SG to focus on post-commissioning model validation and monitoring as well as periodic test and verification. Following to be considered: trigger for

test/validation, test (and type) for IBR units and/or IBR plant etc., measurements/data from tests to conduct validation/verification etc. The SG would also review existing literature including any regulatory standards and develop from there.

Pouyan Pourbeik asked: Is it necessary to show compliance with IEEE 2800 using test and verification procedures outlined in P2800.2? What if a different approach is necessary for some unique scenarios? Andy emphasized that P2800.2 is a recommended practice, i.e., will use 'should' language and not 'shall' language. Based on brief discussion, there is consensus that 'flexibility' is of importance.

The IEEE P2800.2 is expected to focus on plant-level conformance and not so much on device level type tests. Also, IEEE P2800.2 is expected to be less prescriptive. It was also noted that the IEEE P2800 can be adopted before P2800.2 is published using existing verification methods.

Manish Patel briefly presented an outline of an initial draft of P2800.2. Manish to further discuss with WG officers and continue to work on it.

Manish Patel noted that listservs for all SGs and Power Quality TF have been set up and requested all to join SGs of interest soon. Instructions to join to be sent out in few days. It was noted that one does not have to be a member of the WG to join SG(s).

Andy Hoke reviewed next steps and tentative timeline.

Meeting adjourned at 1:02 pm ET.