IEEE 2800-2022 WORKSHOP
SUMMARY & ACTION PLAN

September 16, 2022

NYISO, Rensselaer, NY & WEBEX

Roger Clayton, NYSRC Executive Committee

IEEE 2800-2022 IBR WORKSHOP

Workshop Objective – To introduce NYSRC's Proposed Reliability Requirement for Interconnection of Inverter Based Resources to NYCA's BPS based on IEEE 2800-2022

• Introduction	(Roger Clayton - NYSRC)
• IEEE 2800-2022 Standard Review	(Andy Hoke - NREL)
• Review of Proposed Requirements for IBR Interconnection	
• in NYCA	Reigh Walling – WES Consulting)
○ Scope	
○ Settings	
○ Verification requirements for models, data & compliance	
• Break	
• Regional Application Experience	
○ NPCC	(Shayan Rizvi - NPCC)
○ ISO-NE	(Brad Marszalowki - ISO-NE)
• Stakeholder Considerations	
○ NYISO Implementation	(Thinh Nguyen – NYISO)
○ Transmission Owner	(Anie Philip – LIPA/PSEGLI
○ OEM/Developer	(Sid Pant – GE Renewable Energy)
○ Coordination with DER IEEE 1547-2018	(Jason Pause – NY DPS)
• Next Steps	

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Workshop Summary

- Need for IEEE 2800-2022 Standard
  - Unacceptable IBR field performance to date (California & Texas Major Disturbances)
  - Public Policy mandates (CLCPA)
  - Market demand (~95 GW of IBR in NYISO 7/31/22 Interconnection Queue)
- IEEE 2800-2022 Standard (Approved April 2022)
  - Implementation required by the Authority Governing Interconnection Requirements (NYSRC is AGIR in New York)
  - Defines comprehensive & consistent minimum interconnection performance requirements that shall be observed
  - Plant based requirements at POI/POM (not unit based like IEEE 1547)
  - Defines model verification methods & schedule
  - Verification requirements include unit type tests, design & as-built evaluation, commissioning tests, post-commissioning model validation & monitoring, periodic tests & material change verification
- IEEE 2800.2 (Approval expected in 2024)
  - Will specify verification test & evaluation procedures including pass/fail criteria that may be observed

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Workshop Summary (Continued)

- Plant Model Verification
  - Need for EMT models and data for performance testing of individual IBR units
  - Need for Positive Sequence 60Hz models for verification testing of EMT models of individual IBR units
  - Need for Plant Model (all individual IBR units, plant controller & protection systems) for use in Positive Sequence 60Hz interconnection & planning studies
  - Noted that the availability of EMT models, EMT modeling & verification analyses are resource limited
  - Model verification by self-certification by OEM/Developer
    - Concern over self-certification prior to IEEE 2800.2
    - OEM noted a 3-4 year new product cycle that may be required to comply with IEEE 2800.2
    - OEM noted that some IEEE 2800 requirements can be presently met (Which ones?)
- Initial Application for NYISO IBR Interconnections
  - Adoption of critical individual IEEE 2800 minimum requirements should not wait until IEEE 2800.2 is approved (Which ones are critical? Should additional requirements be adopted for NYCA?)
  - Adoption of IEEE 2800 as a whole should be via an evolutionary process
  - Will apply to NYISO interconnection studies at any stage once approved by NYSRC (Note: Class Year 2021 studies in progress – 8/29/22)
  - Will need to define demarcation between projects in the NYISO interconnection queue subject to IEEE 2800 & those subject to IEEE 1547
  - Will need to resolve the issue of grandfathering of existing IBR plants

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Action Plan

- **Objective – Develop an IBR Interconnection Rule for critical IEEE 2800-2022 NYCA requirements before NYISO Class Year 2023**

- Convene ad-hoc working group reporting to NYSRC Reliability Rules Subcommittee
  - NYSRC
  - Subject matter experts
  - OEM/Developer
  - NYISO
  - TO
- Define application
  - All projects in the NYISO interconnection queue as starting point
  - Exclusions based on voltage level, project rating, location, topology
  - Grandfathering of existing IBR interconnections
  - Partial or full adoption of IEEE-2800
  - Need for additional, modified or clarified NYCA interconnection requirements

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Action Plan

- **Objective – Develop an IBR Interconnection Rule for critical IEEE 2800-2022 NYCA requirements before NYISO Class Year 2023**

- Define critical IEEE 2800-2022 & NYCA performance requirements for immediate adoption
  - Reactive power-voltage control (Clause 5)
  - Active power-frequency (Clause 6)
  - Ride-through (Clause 7)
  - Protection (Clause 9)
- Define critical IEEE 2800-2022 & NYCA validation requirements for immediate adoption
  - Modeling Data (Clause 10)
  - Performance monitoring & validation (Clause 11)
  - Test & verification (Clause 12)