

DER Report

7/12/19

NERC/EPRI Conference

- **Modeling and Studying the Impact of DER on Bulk Power System -Deepak Ramasubramanian**
 - EPRI Paper-Three free pillars of accurate modeling of DER for transmission planning studies-accurate model specification, accurate model integration and accurate model parameters. The parameters section includes feeder aggregation and equivalent impedances. First cut at Development of generalized parameters cents for DER_A.
- **Coordination Across the T-D Interface**
 - SPIDER member of coordination subgroup -Discusses the need for coordination between transmission and distribution and Notes that some ISO/RTO's have implemented processes for supporting coordination and collection of some DVR data but indicates much work is still needed.
- **Electric Delivery Modeling and Operational Impact of Energy Storage as DER**
- **Solar PV Plants Model Verification: FS Experience**
 - Paper by First Solar – compares results of stability simulations of solar plants with actual test results recorded in the field. The models are the W ECC second-generation generic models REGC, REEC ans REPC. Note-these plant models currently available in PSS/E. the paper provides some suggestions for creating models:
 - GOs must work closely with OEM and developers
 - GOs should request data from OEM like as built inverter settings and actual settings
 - Ask OEM for field test versus model performance verification
 - System planners can use an event data as a stimulant to test model to verify the model performance during a great disturbance
 - Planners should be trained to identify the key parameters and locate values from equipment settings
- **Voltage Droop Control in Power Flow Solutions**
- **Investigation of Inverter-Based Resource Abnormal Behavior -Operation Monitoring Experiences**
- **IEEE P2800 Update**
 - Voluntary standard for gap between NERC and distribution DER < 20 MVA
 - Specify functional capabilities and settings
 - Modeling and measurement data for performance monitoring and validation
 - Specify required tests and validation
 - Publication of P2800 May 2021
 - P2800.1 in 2022
- **EMT Modeling Fundamentals for Inverter-Based Resources**

- **PSSE –PSCAD Comparison Case Study**
 - AEP paper—an interesting paper with lots of plots comparing results of PSS/e 3 phase simulations with PSCAD single phase simulations. No universal conclusions can be drawn but more case studies are planned to further compare the two platforms.
- **Use of PSS/e and PSCAD for Subsynchronous Control Interaction (SSCI) Screening**
- **Harmonics Studies using EMT Tools**
- **Inverter-Based Resource Modeling for Short-Circuit Studies**
- **Industry Experience w/ Node-Breaker Representation**
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- **Node-Breaker Models for System Planning**
- **NERC SAMS Node-Breaker Modeling Group Activities**
- **Application of Cloud Computing for Planning Studies**
- **Developing Power Flow Cases for Reliability Assessments**
 - EPRI paper – discusses a statistical approach to consider load and renewable output variability in planning studies. Uses hey scenario builder tool. Considers such things as weather history load shapes for areas within a footprint Wind and Hydro profiles and solar information for the study area.
- **Resilience Studies using Cascading Trees in Both Planning and Operations Timeframes**
 - PJM paper – an interesting paper describing a tool developed in-house by PJM using PSS/E and Python to protect the probability of cascading outages. Lots of beautiful pictures!
- **ISO-NE’s Implementation of Online Cascading Analysis (OCA)**
 - **Paper by ISO-NE – hey cascading analysis integrated with their EMS system that runs every 3 to 5 minutes 24/7. Looks at various scenarios that result in cascading including models protection relay race you FLS and you’ve BLS under an over frequency relays for generators and so on. Includes transient stability analysis. The stated benefits include advanced situational awareness, the practical way to reduce risk of blackouts and improvement in Interconnection Reliability Operating Limit analysis and compliance.**
- **Resilient System Investment Framework**
- **NERC Standards Update**
 - TPL-001-5 pending NERC approval
 - FAC-015-1 proposed new standard under draft
 - PRC-024-3 under industry revision and industry comment

SPIDER - Next Meeting confirmed at COMED in Chicago, Oct 8 and 9. Limit 60 attendees in person.

NPCC

Next meeting of the DER subgroup scheduled for Aug 8 in Toronto in conjunction with the RSC meeting on the previous day.

NEW YORK

New York ITWG - Meeting 6/26/19 - see NYITWG website for agenda and details. Some items:

- Interconnection Application and Study Process Determination - A draft document that guides the study process depending on market and size. "This information is solely intended to provide general guidance to assist interconnection customers/developers in determining the applicable interconnection process in New York for its proposed project Developers should contact the NYISO, New York State PSC Jurisdictional Electric Utilities, or the Department of Public Service (DPS) with any specific questions concerning the appropriate process for its proposed interconnection." The document provides a matrix of guidance information.
- Joint Utilities ESS Roadmap Prioritization
- Discussion of Straw Proposal on Coordination of Inclusion Rules for Interconnection Queues
- A presentation - Smart Inverters & Advanced / Mitigation Functionality by Daroga Power – An approximately 1 MW Solar PV project in Brooklyn
- A paper by EPRI on DER settings – some experience and survey results
- And more