



MEMORANDUM

To: Interested Parties
From: Roger Clayton, NYSRC
Date: May 22, 2018
Re: Draft Scope for Distributed Energy Resources Workshop

NYSRC's overall concern with DER is its potential impact on NYCA reliability. NYSRC acknowledges the market activities that are being undertaken to implement DER but this workshop will concentrate on DER's potential reliability impact on NYCA Planning and Operations.

The objectives of the workshop are to provide a forum for discussion among the NYSRC, the NYISO and the NYTOs regarding the potential impact of DER on system reliability and to inform the NYSRC regarding the possible need for new reliability rules to address the impact of DER on New York's bulk power system.

We understand that:

- NYISO is developing procedures for the integration of DER into the wholesale market with the DER Roadmap and DER Pilot Program.
- The Joint Utilities, a group representing the New York Transmission Owners, is actively working with all interested parties, including the NYISO, on plans to integrate significantly increased amounts of DER into NYCA's transmission and distribution systems.

The NYISO's and Joint Utilities' experience and expertise will be very useful in developing the workshop materials. In addition, attention will be given to the New York PSC's programs to significantly increase the amount of DER in New York State as a matter of public policy.

Initially, the workshop will concentrate on Photo-Voltaic DER since it is likely to have the most significant immediate impact on NYCA planning and operations. However, the scope of the workshop could be expanded to include Electric Vehicles (EV), wind and storage DER, as required.

DER Workshop Scope (concentrating on PV initially)

1. DER Penetration into NYCA (current and future)

- a. Behind the meter (retail)
- b. Before the meter (wholesale)
- c. NYISO interconnection queue/Gold Book
- d. Coordination with distribution level DER interconnection queues
- e. SCR & EDRP

2. Regulatory Initiatives

- a. FERC/National Labs/IEEE
 - i. Electric Storage & DER aggregation NOPR RM18-9-000
 - ii. "FERC Notice of Technical Conference – DER Technical Considerations for the BPS", April 10 & 11, 2018
 - iii. "DER Technical Considerations for the BPS", FERC Staff Report, February 2018
 - iv. "Impact of Distributed Energy Resources on the Bulk Power System", Argonne National Laboratory, 2017
 - v. "IEEE Standard for Interconnection and Interoperability of DER with Associated Electric Power Systems Interfaces", IEEE Standard 1547 revision (in progress), Q2/Q3 2018
 - vi. ?
- b. NERC
 - i. "Distributed Energy Resources - Connection Modeling & Reliability Considerations", NERC, February, 2017
 - ii. "Technical Brief on Data Collection Recommendations for DER", DER Task Force
 - iii. "DER Task Force Scope", January 2016
 - iv. "Inverter Base Resources Connected to the BPS", WEBINAR, May 2, 2018
 - v. ?
- c. NPCC
 - i. Summary of "DER Technical Considerations for the BPS", FERC Staff Report, February 2018
 - ii. "RSC Discussion – Approaches to Address DER Risks to BES", March 2, 2018
 - iii. ?
- d. NYISO/NY PSC/Joint Utilities
 - i. "DER Roadmap for NY's Wholesale Electricity Market", NYISO, January 2017
 - ii. "NYISO Market Initiatives – DER Roadmap & Pilot Program", NYISO presentation to ICAP Subcommittee, February 27, 2018
 - iii. "Supplemental Distributed System Implementation Plan", Joint Utilities, November 1, 2016
 - iv. "PETITION FOR AN ORDER ESTABLISHING A SEPARATE PROCEEDING TO ADVANCE NEW YORK'S ELECTRIC VEHICLE MARKET", Petition to NY PSC on REV proceeding, 2/21/18

- v. “Proposed Tariff Revisions Addressing Provision of Synchronized Reserves by Inverter-Based Energy Storage Resources; Docket No. ER18-____-000”, NYISO’s proposed OATT revisions, 3/29/18
- vi. ?

3. Technical Study Considerations

- a. Data & validated models (PV, Wind, energy storage/EV)
- b. Load & generation forecasting (dispatchable)
- c. Ramping & variability
- d. Reactive power
- e. Frequency & voltage ride-through
- f. Steady state, dynamic and short-circuit analyses
Simulation tools (MARS, PSS/E, PSLF, ?)

4. Implementation Panel Discussion

- a. Planning & Operating requirements
- b. Restoration
- c. Protection
- d. Coordination between DSO, TO, NYISO, DER Aggregator
- e. Communications & control
- f. Interconnection criteria
- g. Reliability Standards & Guidelines
- h. Schedule