

## Meeting Minutes

### June 7, 2018 MDMS2 Face-To-Face Meeting

The meeting was attended in person by 11 Working Group members with 6 members called in remotely (see attendance sheet at the end of the minutes). Mike Razanousky, NYSERDA Project Manager for MDMS2 project, opened the meeting. This was followed by a roll call of the attendees.

The meeting covered the following main topics (See attached meeting agenda):

- A brief review of the project objectives, statement of work, and status
- A summary review of the key observations of the previous study reports
- The main considerations in implementing a wide-area protection and control system (WAPCS)
- Progress made in system modeling and simulation work for Task 2.2, and
- Discussion of next step work for Task 2.2
- George Smith and George Loehr gave brief presentations to provide the group with a historical perspective on their thoughts just after the 2003 blackout

The key discussion points and the action items (underlined) are summarized below:

1. Regarding the importance of having the appropriate simulation and testing environment, such as the Real Time Digital Simulator (RTDS), for future major disturbance mitigation studies and wide-area protection and control system testing, George Smith of NYSRC recommended Quanta to include the relevant information (not the tools but the approach) as part of the technology transfer of this project. – Quanta will include this information as part of the technology transfer.
2. Regarding generator tripping, Dan Taft of ConEd commented that other than generator protections, generators may also trip due to problems with generator auxiliary equipment as the recent incidents in ISO-NE system have shown. These types of trips are not modeled in current NYISO PSS/E cases. – Dan will provide the information related to such tripping for Quanta to assess whether it is possible to model such issues in PSS/E cases.
3. Visibility for major disturbance events in neighboring systems is important for taking preventive and corrective controls. NYISO already have access to PMU and ICCP data from neighboring systems. – Quanta will check with NYISO to understand what PMU and SCADA data are available to NYCA. Access to such data by stakeholders will need coordination with NYISO.
4. A question was asked by Pramila Nirbhavane of NYISO whether the implementation of NYCA WAPCS will be based on PMU measurement data only? – It was clarified that the PMU data will be the main source of the data but will not be the only type of the data to be used. Additional data, such as breaker status, relay data, etc., will also be used as needed and where accessible.
5. Given that several known incidents analyzed by NERC show that only utility scale inverter-based solar resources were affected, George Smith of NYSRC asked whether Behind the Meter (BTM) Solar interactions will also be modeled in this project. – Consider NERC may not have the data for BTM solar as it has no jurisdiction to such generation resources, the BTM solar will be modeled as planned to evaluate if they will be affected.
6. NYISO stated that there are 1,100 MW of BTM solar registered within the NYCA while only 40MW are not registered as BTM solar within NYCA.

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7. Mike Razanousky of NYSERDA mentioned that the NYSERDA data has shown another 1,000MW BTM solar is in the queue which is forecasted to cause the double hump demand curve (due to the total amount of BTM solar). – Mike will send the link for the information to Quanta and MDMS2 WG.
8. A question was asked whether offshore wind will be modeled in 2022 Base Case? – This will depend on if information for such projects can be made available in time for it to be considered.
9. Quanta is using information in the NYISO published Gold Book for planned base case modifications. NYISO mentioned that 2018 Gold Book has been published. – Quanta will check to make sure the information used is from the recently published 2018 Gold Book.
10. Quanta is running some contingency cases on the base case from NYISO. There is a need to verify if Quanta is getting the same results as NYISO. – Quanta will check on this with NYISO directly.
11. A question was asked whether MDMS1 detection algorithm will be tested in the new simulation cases? – We are reviewing the received MDMS1 cases. Porting Python code of the MDMS1 algorithm from MDMS1 cases to new simulation cases involves using different versions of PSS/E and Python.
12. George Loehr of NYSRC provided a brief presentation on his thoughts on using HVDC to separate Northeast US region including NYS from the Eastern Interconnection to isolate NYS from major external events **before** their occurrence. He noted that he originally proposed this concept before the 2003 blackout. He also shared his experience and insights from the review of NY blackouts on, (a) beyond planning criteria events, (b) losses of source, (c) big generator loss during light load conditions, (d) impact of Geomagnetic Disturbance on HVDC systems, (e) delay in clearing faults in PJM system, and (f) delay in clearing faults in ISO-NE system.
13. George Smith of NYSRC provided a brief presentation regarding thoughts on protection measures associated with controlled system separation **after** the major disturbance event. He reviewed thoughts arrived at just after the 2003 blackout and provided updates to thinking in this area arrived at as a result of the CSSS and MDMS1 projects. This included the use of PMU's to monitor angular behavior of the grid during a disturbance. Dan Taft indicated preference for a concept whereby local protection could somehow be involved in an overall scheme to provide added security.
14. Due to lack of time, the list of the proposed MDMS2 additional contingencies was not discussed. – The review and discussion of the list was postponed to future meetings/conference calls.

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### AGENDA

#### Wide-Area Protection Study Project Face-to-Face Meeting (NYSERDA Agreement No. 118219)

**NYISO Office, Albany, NY  
June 7, 2018**

Item #	Description	Time	Lead
1	Arrival and check in	09:30 – 10:00	All
2	NYSERDA PM opening remark	10:00 – 10:05	Mike
3	Roundtable introductions	10:05 – 10:15	All
4	MDMS2 project scope and status overview	10:15 – 10:30	Yi
5	MDMS2 WAPCS Main Considerations	10:30 – 10:45	Yi
6	MDMS2 Task 2.2 progress review <ul style="list-style-type: none"> <li>• IBR modeling approach</li> <li>• Base case modifications</li> <li>• Initial contingencies simulated</li> <li>• Preliminary simulation results review</li> </ul>	10:45 – 11:45	Yi/Ehsan
7	MDMS2 Task 2.2 Next Steps		
7.1	“Isolation after the event” simulations <ul style="list-style-type: none"> <li>• NYS &amp; NPCC efforts prior to MDMS2</li> <li>• MDMS1 cases review</li> </ul>	11:45 – 12:15	<ul style="list-style-type: none"> <li>• George S.</li> <li>• Yi/Tony</li> </ul>
	Lunch break	12:15 – 13:00	All
7.2	“Isolation before the event” simulations <ul style="list-style-type: none"> <li>• NPCC Interconnection concept</li> <li>• NPCC Interconnection simulation plan</li> </ul>	13:00 – 13:30	<ul style="list-style-type: none"> <li>• George L.</li> <li>• Yi/Syed</li> </ul>
7.3	MDMS2 Additional Contingencies	13:30 – 13:50	All
8	Wrap up	13:50 – 14:00	All
	Meeting Adjourn	14:00	

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**Meeting Attendance**

<b>First Name</b>	<b>Last Name</b>	<b>Affiliation</b>	<b>In-person or remote</b>
Dan	Taft	ConEd	In person
Hibourahima	Camara	ConEd	In person
David	Mahlmann	NYISO	In person
Pramila	Nirbhavane	NYISO	In person
Robert	Golen	NYISO	In person
Wesley	Yeomans	NYISO	In person
Eric	Anderson	NYPA	Remote
Michael	Razanousky	NYSERDA	In person
George	Loehr	NYSRC	In person
George	Smith	NYSRC	In person
Amrit	Singh	PSEG	Remote
Lijia	Ye	PSEG	Remote
Michael	Heyer	PSEG	Remote
Ehsan	Raoufat	Quanta	Remote
Syed	Ahmed	Quanta	In person
Tony	Jiang	Quanta	Remote
Yi	Hu	Quanta	In person