

Minutes

Essential Reliability Services Working Group Leadership Meeting (Invite Only)

February 22, 2017 | 12:00 – 5:00 p.m. EST

February 23, 2017 | 8:00 a.m. – 12:00 p.m. EST

Meeting Location:

NERC Offices
3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326

Remote Participation: **Please register with WebEx each day to receive conference information**

Teleconference: | Access Code: | Password: all information is provided via email (individual passwords)

WebEx URL: all information is provided via email (individual passwords)

NERC On-Site Contact: Nicole Segal (404)-446-2563

Agenda Items

Wednesday, February 22, 2017 (Lunch Provided)

12:00 – 1:00 PM Working Lunch - Provided

1:00 – 2:00 PM

1. Administrative

- a. Welcome and Introductions – *Tom Coleman, NERC Staff*
 - i. *Tom and Mark Lauby provided some opening remarks regarding the importance of the working group and the substantial progress that has been made over the past two years.*
- b. [NERC Antitrust Compliance Guidelines](#) – *Nicole Segal, NERC Staff*
- c. Facilities & Safety Briefing – *NERC Staff*
- d. Chairs Reports– *Brian Evans-Mongeon, Todd Lucas ERSWG Co-Chairs*
 - i. *Brian introduced the intent of the meeting; to review the 2017 plans that have been drafted together to develop the forward looking measures that were originally outlined by the Essential Reliability Services Task Force.*
 - ii. *Review December Meeting Minutes –*
 - (1) *Meeting minutes were approved with no changes*

- iii. *Review latest roster*
 - (1) *The roster was opened up for requested changes; no requests for changes to the roster were made.*
- iv. *Report on Feb 2017 NERC Board actions*
- v. *Review Agenda*
 - (1) *Change in terminology made from “sufficiency guidelines” to “sufficiency assessments”; the intent of the group is to provide guidance, but also allow for continual improvement to assessing the sufficiency of essential reliability services. The current agenda is designed to provide discussions and suggestions for how to assess these measures including designations for the subgroups, working groups, etc. that should continue to develop or refine these forward looking measures.*
 - (2) *Nicole Segal reviewed the minor changes to the working group scope documentation to highlight this direction. Additional discussion focused on what action items should be stressed along with the overall direction of the working group to allow for long-term solutions to develop overtime; includes providing technical briefs, direction, etc. towards policy makers and regulators to give them the tools they need to adequately assess these measures as we move forward.*
 - (3) *The group will have to continue to identify that a push for insight and/or data with the DER would not need to include all DER’s overall but only those that are impacting the T-D interface due to jurisdictional restrictions.*
 - (4) *Additional request that aggregated impacts on the BPS are also important to understand in addition to the localized impacts on the TDI; essentially the accuracy to integrate known DER generation into load forecasts are needed to mitigate ERS deficiencies.*
- vi. *Next meeting confirmation/Future Meetings – **March 8th half day, 12-5 PM EST, Atlanta Offices***
 - (1) *March meeting will not meet the 2nd half day as usual. There may be a need to continue the current schedule into 2018 should the working group require additional time to finalize the measures and documentation.*
 - (2) *May 17th-18th meeting will be two face to face half day meetings in Atlanta.*
- vii. *Review ERSWG 2017 Schedule*
 - (1) *Schedule was reviewed and accepted with place holders for additional meetings*
- viii. *Review ERSWG 2017-2018 Reference Document*
 - (2) *The “work plan” was changed to a reference document.*
- ix. *Provide update on the monitoring of RS, RAS, PAS, ERS group meetings*

2:00 – 3:00 PM

2. M1 - Interconnection Level Synchronous Inertial Response

- a. Discuss future looking M1 measure – *Mohammed Osman and Ryan Quint, NERC Staff*
 - i. All of the interconnection wide models are currently available and would allow the working group to analyze a light-load scenario case to study a minimum synchronous inertial response for the system. This would be a straightforward calculation as analysts would be able to pull the inertial constants out of the base case.
 - ii. Question: “how would we be able to take the results of this analysis and translate this into describing the issues and potential mitigation approaches to policy makers and regulators?” Answer – “this can be better addressed when discussing M2 as the interaction of other data is important to understanding the bigger picture and having the ability to present conclusions/recommendations.”
 - iii. The idea is to trend the data; should there be drastic differences between different sources of data, this would allow for advancing the discussion and developing potential paths forward. Examining these base cases would allow us some additional insight on the overall trends of the system; this provides more of an overall picture of system characteristics and allow us the independence from highly granular/demanding data requests.
 - iv. Question: “if the assumption is that we cannot trust the accuracy of the base cases then we would need to be careful on getting into the bullet of performing scenario analyses with varying generation resource mix.” Answer – “The point can be taken forward to potentially remove the scenario (or sensitivity) analysis. It should also be noted that any scenario analysis will inherently have some degree of assumptions and uncertainty.”
 - v. There should also be some drive to enhance the base cases and fix the known errors within the models.
 - vi. There is some concern on the proposed parameters for assessing the future sufficiency of inertia on the system.
 - vii. ERCOT creates a dynamics-ready case based on economic dispatch representative of low synchronous inertia conditions. Quebec also creates a case that is representative of its restricted operating conditions around primary frequency response and inertia concerns. The Western and Eastern Interconnections generate interconnection-wide cases that should be reflective of a reasonable dispatch for the operating conditions under study (e.g., spring light load). These are the cases that will be used for analysis.
 - viii. Once NERC acquires the cases, modifications to the cases will be performed (e.g., modifying commitment and dispatch, demand levels, etc.). The “off-the-shelf” cases as provided by the MOD-032 Designees will be used to perform the analysis.
 - ix. The goal for future looking cases is to capture the inertia trend.

- x. The group could be amenable to using different data sets per interconnection for the proposed cases to be used to satisfy this measure; this would allow the group to maintain a consistent approach but using the most appropriate or applicable data set. This would be important for the differences between the ERCOT and Eastern Interconnections for instance. Hydro-Québec will need to be brought into the discussion to verify the approach that would be needed for the Québec Interconnection.
 - xi. If there is direction/effort to enhance modeling and “fix” some of the known issues within the planning cases, than that would only improve our ability and accuracy in trending moving forward.
 - xii. Action Item: ERSWG will need to identify individuals from each interconnection who will be lead on running the cases and providing the results of these Measures to the ERSWG. These individuals will need to coordinate with the MOD 32 designees in order to clarify/validate/improve the cases.
- b. Report on M1, specific reporting deadlines, data needs, historical reporting and predictive approaches – *Respective Sub-group*

3:00 – 4:00 PM

3. M3 - BA Synchronous Inertial Response

- a. Discuss future looking studies on M3, RAS Efforts & Area Numbers – *David Calderon, NERC Staff*
- i. *Question: “if the assessment area mapping study is performed, what additional value would be obtained from just satisfying the M1 – Interconnection-wide study? Historically, the measure was created as a stepping stone to getting this measure to an interconnection wide level. If we are getting to the interconnection-wide level measure, than do we need the M3 measure?”*
 - ii. *The next step for assessing the assessment areas on this level would be to bring the discussion to the RAS and potentially report results within Reliability Assessments reports. There is the ability to go to the RAS for some additional data points that would allow this measure to be calculated at an assessment area level.*
 - iii. *This measure may also provide some insight on the individual and separate importance of both frequency response and inertial response.*
 - iv. *While M1 may have been the target of these interconnecting measures, there is still some value to analyze a more granular set of information (at BA or assessment area level) when attempting to identify localized issues or other previously undiscussed focuses of study.*
 - v. *The group highly recommends finalizing the M1 approach prior to moving forward with expectations for the M3 measure.*
- b. Report on M3, specific reporting deadlines, data needs, historical reporting and predictive approaches – *Respective Sub-group*

4:00 – 5:00 PM

4. M2 - Initial Frequency Deviation following single largest contingency (RoCoF)

- a. Discuss Future M2 using Future M4– *Mohamed Osman & Ryan Quint, NERC Staff*
 - i. *For calculating the forward looking RoCoF; the group would be able to take a future case with a specific set of historic M4 contingencies and calculate RoCoF within the first half second. These results would be benchmarked to actual values to see how the slope of the frequency response would change from the contingencies and between historic and future cases. This allows you to see exactly where we've been with past events and compare to a future/planned cases with varied generation mix changes.*
 - ii. Action Item: Bob Cummings to ask for FNET data RoCoF calculation to have time included in report (e.g. half sec)
- b. Report on M2, specific reporting deadlines, data needs, historical reporting and predictive approaches – *Respective Sub-group*

Thursday, February 23, 2017 (Breakfast)

8:00 – 9:00 AM

5. M4 - Interconnection Level Frequency Response (Discussed on Wednesday)

- a. Discuss Future looking M4 – *Ryan Quint & Ganesh Velummylum, NERC Staff*
 - i. *Questions: "What would be the granularity for examining M4 and establishing benchmarks?" Establishing a median frequency would be the preferred target for what to relate against. This study will not look at multiple frequency measurement points.*
 - ii. Action Item: Tom to coordinate internally on the work with Ryan for M1 – M4 and to create a 1 page document of work, persons/groups performing work and ERSWG review periods.
- b. Report on M4, specific reporting deadlines, data needs, historical reporting and predictive approaches – *Respective Sub-group*

9:00 AM – 10:00 PM

6. Other Measures and their Action Items

- a. M6 BA Level Net Demand Ramping Variability (Ramping): *pending EPRI discussions – Nicole - NERC Staff*
 - i. *Nicole provided an overview of the proposal for Measure 6 which included leveraging the Long-Term Reliability Assessment data that is collected by the RAS. This data are proposed to be used in the calculation of a VER+DER threshold (as a percentage of Total Internal Demand). The intent is to provide all assessment areas a benchmark for where a large*

- amount of renewable resources would potentially introduce some ramping concerns. Once an area is designated as surpassing this threshold and potentially introducing ramping issues, additional information on current study work in the area would be requested; if not current studies are done in the area than a more granular analysis would be performed/requested.*
- ii. Question: “Why was the direction to move away from the EPRI study and integrate that approach into the development of this measure?” Answer – “The EPRI approach is still on the table.” Additional considerations must be given towards a long time commitment from a resource perspective on moving forward with viable options. There are other options for performing the initial, high-level screening test; the overall approach to performing a screening study, following up with additional study work requests, and finally performing a more granular analysis where applicable.*
 - iii. Changing the methodology for the screening study from using “VER+DER” to evaluation of “non-dispatchable” resources as proposed in the 2016 ERSWG report would allow for a technology-neutral calculation to maintain focus on all resource/load impacts on the load within the study period.*
 - iv. The ability to accurately forecast the load during operations in areas such as CAISO are heavily complicated by unmetered/non-dispatchable resources and devices; especially when including VER, DER, plug-in cars, etc. The impacts of weather on load forecast are diminishing as these other issues and devices are complicating the ability to accurately forecast.*
 - v. If the higher-level screening would not be available for an individual BA/assessment area due to some reasons than there should be some documentation requested to explain why such a screening study is not applicable for the area. For those areas that the level of complexity would prevent this more simplistic, deterministic study than perhaps the Probabilistic Assessment Working Group could provide a more detailed study.*
 - vi. Group consensus that the proposed M6 measure will be pushed back to the M6 subgroup and request that another proposal for advancing this forward looking measure.*
 - vii. Action Item: Nicole to make 1 page document from 2016 sufficiency guideline report on M6 and send to the subgroup.*
- b. Report on M6, specific reporting deadlines, data needs, historical reporting and predictive approaches – *Respective Sub-group**
 - c. M7 Reactive Capability on the System: SAMS report to be delivered Q1 – *Ryan Quint, NERC Staff**
 - i. PAS collected M7 data, they were tasked to analyze the data, and determine future steps. SAMS recommendations are to follow the conclusions and recommendation in the Reactive Power Guideline ([link](#)) that was recently approved. Many of these recommendations are not currently captured within the M7 measure and are considerably more thorough.*

Furthermore, the recommendation would be to retire the current M7 “as-is” and replace it with the recommendations as provided within the reactive power guideline document.

- ii. *Webinars on M7 and or reactive guidelines will be created by SAMS. The webinars may begin at the end of March 2017, dates are still to be determined.*
- a. Action Item: The ERS will give the OC & PC recommendation as to whether to remove M7 and use the Reactive Power Guidelines. Q1 delivery of SAMS report on M7 will be used to make this decision.

10:00 AM – 12:00 PM

7. DER Recommendations from Final Report

- a. Discussion on Board actions on how to proceed
 - i. Mod-32 discussion of possible DER gap – *Ryan Quint, NERC Staff*
 - (1) *Ryan reported that SAMS would like to coordinate with ERSWG on a joint effort to address the Standard requiring aggregated load as opposed to detailed load modeling. If detailed models are needed, then industry action is needed to address this modeling request.*
 - (2) Action Item: Brian will contact NERC standards to discuss the concerns of the ERSWG.
 - ii. The subgroup for T-D interface, determine topics for supplemental guidelines/technical reference documents (in reference to existing DER documentation) for BPS is required
 - (1) *There is a request for presentations from distribution experts on how DERs are currently managed and planned for. Continual membership from such experts from various parts of the BPS would be encouraged.*
 - (2) Action Item: The DER subgroup will review the recent DER report recommendations and develop a path forwards with prioritized topics for supplemental guidelines. Such as “How do you incorporate DER into real-time contingency analysis?”
 - iii. Discussion on establishing guidance on definition for data gathering and modeling
 - (1) *Guidance for a DER definition should be provided by the group to allow for other groups/reports would be able to utilize a similar definition that would be in some alignment. This would be in contrast to defined NERC term that would be put into the NERC Glossary of Terms.*
 - (2) *There is strong support for a more standardized definition that would go into the NERC Glossary of Terms to more firmly align any definition rather than provide only a set of guidelines for what should be considered as DER.*
 - (3) *Considerations must be given as aggregated generation in the distribution system, similar to DSM or those providing ancillary services that are participating in markets that are currently not subjected to NERC Standards or regulation. While DER’s continue*

to expand and influence the BPS, there must be some level of consideration for aligning this terminology so that the industry can be on the same page when continuing to discuss these resources and their impacts.

b. Action Item: ERSWG to create a DER subgroup

- i. *The subgroup was established with Rich Hydzik to chair. The group should also encourage members from different industry perspectives (planning/operations/protection). This cross representation is necessary to evolve this discussion and provide a more holistic guidance for how best the working group should move forward. The original DERTF membership can be retained for this effort.*

8. Other Measures and their Action Items

- a. Round table and parking lot discussion
b. Reminder Next meeting confirmation

9. Additional Presentations

a. Rich B

- i. *Rich B provided an update on a line fault in California that led to an additional 1,200MW of solar resources going offline across 26 different solar facilities and which included many different manufactures. This initially indicated a potential system issue and not an issue related to a specific type of solar unit or inverter. Further study will be done to determine what this issue may have been that attributed to the line fault. Current speculation is pointing to misinterpreting measurements of frequency by the solar inverters that caused them to stop injecting current during the transient period following the fault. A meeting will be held next week and pass the discovered information onto a future PC/OC task force. There is future potential to try and enhance models to be able to simulate events that would capture this very fast transient response.*

b. Olushola

- ii. *Olushola provided an update on the frequency response study that System Analysis has been developing. MMWG provided a case to SA that was not frequency responsive and updated it so that it was able to respond. The study uses this updated case as a base case and applies known contingencies to generation varied, future cases and identify the frequency response capabilities of the cases.*
- iii. *There may be some potential overlap between this effort and the ERSWG measures. ERSWG leadership will take this back to coordinate both efforts to discuss removing any potential duplicative scope of work; this could include modifying the range of times studied.*
- iv. Action Item: Tom to coordinate internally on the work to ensure efforts are not duplicated.
- v. Action Item: Olushola to give a presentation on his work, during the March 8th half day meeting.

12:00 PM

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