Minutes
Essential Reliability Services Working Group

December 14, 2016 | 12:00 – 5:00 p.m. Eastern Time
December 15, 2016 | 8:00 a.m. – 12:00 p.m. Eastern Time

Meeting Location:
Ritz-Carlton Buckhead
Atlanta, GA 30326

Remote Participation:
ReadyTalk: NERC ERSWG MEETING URL | Access Code: 5000783 | Password: 2017
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NERC Antitrust Compliance Guidelines and Public Announcement

Agenda Items
December 14, 2016

1. **Lunch –** Provided

2. **Co-chairs' remarks –** Todd Lucas, Brian Evans-Mongeon. Co-chairs summarized what was presented at the PC and OC meetings, approvals for the ERSWG Sufficiency Guidelines whitepaper and the DERTF report on Connection Modeling and Reliability Considerations. The next step is to receive final board approval for these documents before they are published. The Operating Committee had terminated the DERTF. The PC has not made a decision to end the responsibilities of the task force at this time but expects the action items to be recombined into the ERSWG. Both ERSWG and DERTF need to outline the work plan for 2017.

3. **ERSWG Scope Outline –** All

   a. Outline the 2017 activities for ERSWG Final Sufficiency Guidelines Report.

      i. Brian Evans-Mongeon requested to go through each of the measures outlined in the report and to provide a status update on the data collection (who?, what?, how?), feedback and reporting activities (who?, where?), and possible enhancements or further steps on the measures (what? why?) which will be need to be completed by June 2017 in order to write the final report by September 2017 for the December 2017 deadlines.

      ii. John Moura said the focus of the ERSWG needs to include forward looking reporting on the metrics in addition to the already measured and reported data collected by the Resources Subcommittee. John also mentioned that there may be a need to enhance Measure 4, Frequency Response at Interconnection Level, and the ERS should look into this item. John also pointed out that there has been a reliance on single persons and outside vendors to do work for the group. This is a concern, as a result NERC will learn how to collect and filter the data, get appropriate historian software, and start to compute these metrics in 2017. The goal is to be able to compile the required reports internally for ERS measures (M1, M2,

M3, M4, and M6.). Troy Blalock has volunteered to assist NERC with the transition as NERC will work in tandem with the vendor unit the process is complete and vetted.

iii. Each measure from the framework report is discussed with current status and future status as follows:

- M1 – Interconnection Level Synchronous Inertial Response

Current Status – Since June 2016 data from each entity (MISO, Peak RC, Hydro Québec, and ERCOT) to Julia Matevosjana. Julia does the analysis and combines the results for all 4 areas into 1 report. Julia mentioned she knows the systems for HQ and ERCOT better than for MISO and WECC. There needs to be a representative from WECC at meetings or available for contact on a consistent basis.

  o *Action item – Steve to get WECC attendee to most of the ERS meetings.*

Future Status – To get a future outlook on M1, Julia has been developing methodologies and using ERCOT data. This analysis needs to be vetted, it is difficult to do because the planning studies need their resource mix examined. There is a need to establish a way to do future looking studies on M1 so that periodic reporting can be performed. It was suggested to use the MMWG cases as a starting point and use LTRA data for inertia (H) studies. H can be established for 1,5,10 year study periods. This provides the group with vetted cases for the analysis and the resource mix is known.

  o *Action item – Ryan Quint to do preliminary analysis on H using the LTRA data and report findings to NERC for use of this method for forward looking M1.*

  o *Action item – Nicole to meet Julia and discuss next steps to alleviate and automate some of these tasks.*

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

Current Status – Troy stated that RoCoF has been calculated using UTK frequency data. Julia has vetted and approved the method used to calculate the UTK analysis. Brad Gordon stated the report is compiled by the Resources Subcommittee (RS) using UTK data and it is publicly available via the Resource Subcommittee meeting minutes.

Future Status – Bob Cummings mentioned that currently data from Fnet comes to Warren Wu for every event that has occurred back to 2013. So far they have trended 3 years of historical events. The goal is to use this data to move forward and to add this data to a toolset. Julia wants to add H to system or an offset to predict future H and future RoCoF. It is noted that if we do M4 then automatically the data for M2 will be available since M4 is an expansion of M2 events.

  o *Action item – Figure out M4 forward looking studies so that M2 forward looking can be done.*

- M3 – BA Synchronous Inertial Response

Current Status – data is collected and reports generated with an outside vendor called EPG.

Future Status – Troy and John presented that when NERC gets historian up and running in 2017 the BA's will send their data stream to NERC. Only BA's with changes in the resource mix and problems that cannot be explained by the data alone will need further investigation. Troy mentioned that some BA's have future looking cases and the group needs to get out and talk with them to figure out how they do their analysis. Charlie Smith mentioned that some manufactures are including H as an output of their systems. Side note - John Simonelli mentioned that H from rooftop solar is missing and it is missing in the interconnection queues. The issue with BA data is that NERC collects MMWG and LTRA data isn't broken up by BA's it is broken into assessment areas.

Action item – NERC staff to meet with Troy to discuss transition of process from vendor to internal, additional task is to determine acceptable grouping of areas to create BA boundaries.

- M4 – Interconnection Level Frequency Response

Current Status – Brad stated that results from this measure go into the State of Reliability Report and the Frequency Working Group (FWG) selects events. The FWG is currently developing documentation on how the event selection process is performed. Warren and Bob vett the 10 samples/sec data from Fnet and this is done via the FRAT tool and IFR master file.

Action item – The event selection criteria and process used to calculate M4 performance need to be documented for 2017.

Future Status – Analysis for high speed injections is still being formulated and Bob needs to discuss further with Nick about the transfer functions. Bob stated that UTK has been trying to improve their data quality and statistical analysis on the data so that seasonal, time of day and other correlations can be identified. John Simonelli stated System Analysis and Modeling Subcommittee (SAMS) would be a good group to assist with forward looking measures and suggests that ERS get in on the work plan of the SAMS group.

Action item – ERS to talk to SAMS about M4 and their work plan, Bob to talk to Svetlana (NERC) about statistical analysis of UTK data.

- M6 – BA Level Net Demand Ramping Variability (Ramping)

Current Status – Troy mentioned we get the data from the vendor EPG. EPG gets 1 min ACE data for all BA's. They then obtain the current frequency bias and calculate CPS1's for the quarterly report. The quarterly report goes to the Resource Subcommittee.

Action item – NERC to take over M6 reporting once historian in place. In additional to CPS1 the CPS1 time trends (up/down/flat) will be monitored. Other time intervals will be examined and new data points created for trending.

Future Status – Todd Lukas reminded us that the goal of M6 is not CPS1, it specifically looks to 3hr and 1hr ramping trends for all the BA's and project future max ramp and min ramp needed. ERS needs to determine what value is the non-dispatchable resource value and how it is being determined. Todd asks – should the 3 & 1 hour methodology presented in the framework report be abandoned and solely look to CPS1 data to come up with a new planning method for ramping? Bob said don't abandon the framework but use CPS1 data to find the level of penetration of non-dispatchable resources, and the exceedance of a ramp doesn't necessarily correlate to M6.

Action item – Reach out to the BA's identified by their CPS1 performance and inquire about their dispatch and net variable loads. Resources are needed to get with Julia to do forward looking ramp studies. Get BA's to provide feedback to ERS, possibly develop a watch list for BA's that consistently lean on other areas and report the list to RAS for further studies. Ask for members of Resource Adequacy Subcommittee (Phil Fedora and Co-chair) to attend February ERS meeting to discuss what is needed for RAS to do the future trending. Possibly create some test cases to verify future looking ramp study methodology before getting RAS involved. Troy and Julia input is needed.

- M7 – Reactive Capability on the System

Current Status – SAMS evaluates Performance Analysis Subcommittee data and provides and interim report.

Action item – In Q1 2017 the SAMS is putting out a report to ERS on the effectiveness of M7. From the report ERS will determine whether M7 gives the desired result. The ERS will give the OC & PC recommendation as to whether to remove M7 and use the Reactive Power Guidelines or to keep using both.

Future Status – Use M7 or do something else, will be determined in Q1 2017.

Action item – It was suggested to do more outreach including workshops to explain to planners and operators about the guidelines and how they are useful.

- M9 – Overall System Reactive Performance *(Not Discussed)*
- M10 – Short Circuit System Strength *(Not Discussed)*

4. **DERTF Scope Outline** – All

   a. Outline the 2017 activities for DER work under the ERSWG

      i. Brian Evans-Mongeon asked Ryan Quint and Load Modeling Task Force about the Dynamic Model. Ryan stated that the Pmax value along with Pgen and Qgen is needed for DER studies. John Simonelli reminded ERS that system operators consider only the worst cases for DER, when there is either maximum amount of DER on the system (i.e. it is all on) or when no DER is on the system. It is important to focus on what is needed by the system planners and to ask them what they need to see for their studies. It is also recommended to talk to the DP's about what data is available. Others also stated that more work needs to be done to evolve the definition to include demand side management and pointed to the FERC NOPR on Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators.

      Action item – Determine the appropriate level of data collection for planners, find out the right audience for the guidelines (transmission, distribution, operators, planners, owners) and get the right expertise to write the guidelines.

5. **Next Meeting**

   a. February 22, 2017, 12:00PM – 5:00PM and February 23, 2017 8:00AM -12:00PM, (30-40 people)
   Location: **TBD**- Atlanta, GA (NERC), Tampa, FL (FRCC), or Austin, TX (TRE)

   b. Still need to pick dates for March/April 2017, following OC and PC meeting

6. **Parking lot Issues**

   a. DER visibility and control to system operators

      i. Charlie Smith mentioned Hawaii is doing an estimation of rooftop solar in operations.

      Possible Action item – Charlie Smith to invite Hawaii TP to ERS to present on this topic.

   b. How DER is considered during system restoration?

      Possible Action item – IEEE literature survey on current distribution system restoration methods with rooftop solar.

   c. Possibly involve Probabilistic Assessments Working Group for meteorological and DER penetration studies.

      Possible Action item – Ask Dr. Noha Abdel-Karim to discuss what probabilistic studies have been done already for future looking impacts of DER on the system.

7. **Reminders**

   a. The roster is out-of-date. 2016 rosters will be circulated via email, please fill out missing information and add persons to the list that have been omitted erroneously.

8. **Close Meeting**