NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC Planning Committee Work Plan

Final Work Plan for Reliability and Security Technical Committee Transition

May 2020

RELIABILITY | RESILIENCE | SECURITY

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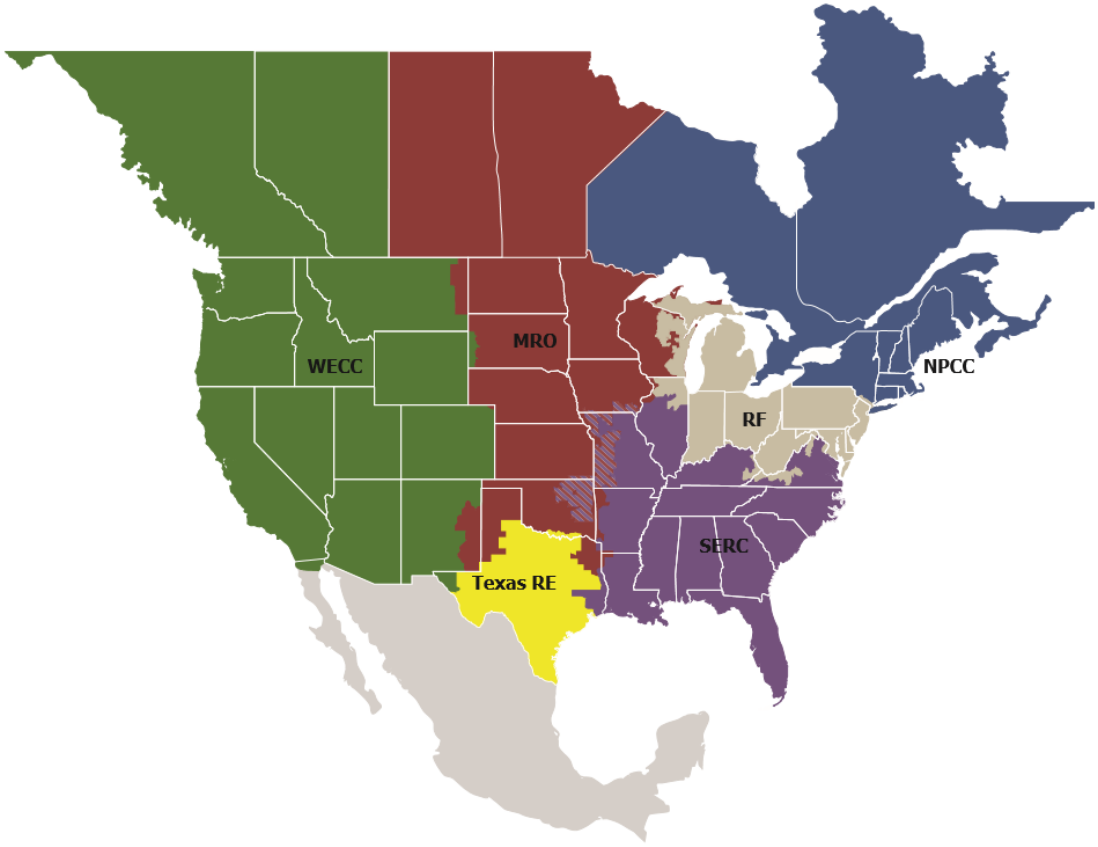
Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities (REs), is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security

Because nearly 400 million citizens in North America are counting on us

The North American BPS is divided into six RE boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Region while associated Transmission Owners/Operators participate in another.



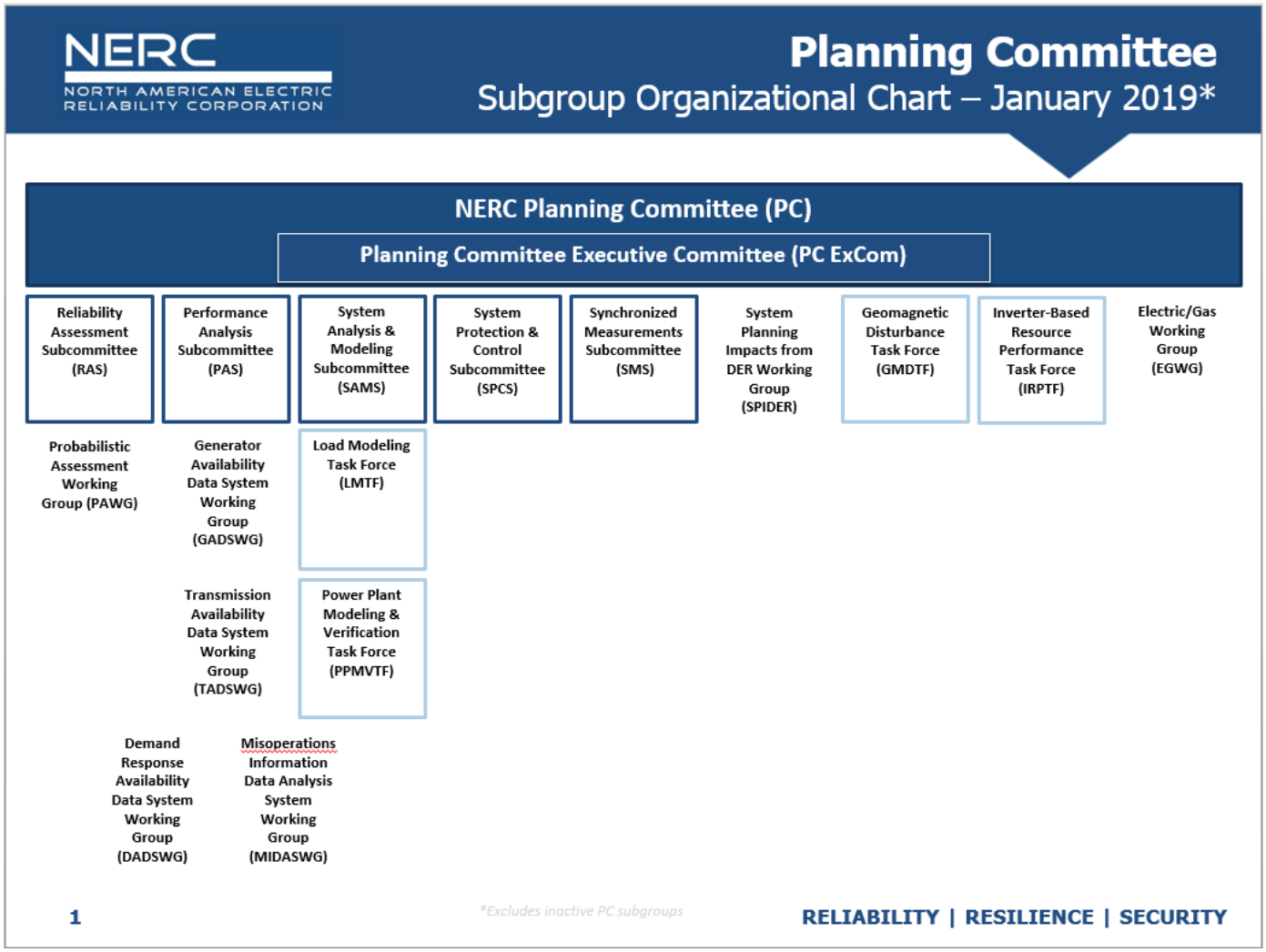
MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	Western Electricity Coordinating Council

PC Meeting Schedule

Meeting/Conference Calls	Date/Time	Objectives/Goals
PC Executive Committee Web Meeting	January 27, 2020	December meeting follow-up Planning Session for March Meeting Agenda
PC Executive Committee Web Meeting	February 14, 2020	December meeting follow-up Planning Session for March Meeting Agenda
PC Meeting – Atlanta	March 3, 2020 1:00-5:00pm (LT) March 4, 2020 8:00am-12:00pm (LT)	Final Meeting of the PC
PC Executive Committee Strategic Web Meeting	March 31, 2020	PC Work Plan Detailed Review and RSTC transition coordination
Reliability and Security Technical Committee (RSTC) Meeting	June 10-11, 2020	First Regular Meeting of the RSTC

See the NERC Calendar for a full listing of meetings.

PC Subgroup Organization Chart



PC Subgroup Work Plan

Reliability Assessment Subcommittee (RAS)

Website: RAS **Chair**: Lewis De La Rosa (12/2019) **NERC Lead**: Bill Lamanna
Hierarchy: Reports to PC **Vice-Chair**: Anna Lafoyiannis (12/2019) **Scope Update**: December 2018

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	2020 Long-Term Reliability Assessment	1, 2, 3	1, 2, 3, 4	4Q-2020	Endorse Link to Schedule	Data requested from NERC Regions. Anticipate RSTC review in September 2020.
2	2020 Summer Reliability Assessment	1, 2, 3	1, 2, 3, 4	2Q-2020	Endorse Link to Schedule	Data requested from NERC Regions. PC, OC, and RSTC reviewed in May 2020. Publication in June.
3	2020-2021 Winter Reliability Assessment	1, 2, 3	1, 2, 3, 4	4Q-2020	Endorse	Data request will be sent to regions in August 2020. Anticipate RSTC review in October 2020.
4	Review and provide input to NERC Staff (Advanced System Analytics and Modeling) on NERC Study of Resource Adequacy and Transmission Deliverability	1,3	1, 2, 3	TBD	Information	NERC Staff is studying this issue and working with RAS for industry technical input. RAS and PAWG have provided feedback to NERC on study scope. Opportunities to provide input to NERC staff on analysis and results are anticipated as study progresses.
5	Measure 6 Analysis White Paper documenting the results of screening analysis to identify areas with changes in their load patterns or their resource mix that could impact ramping and flexibility needs over time	1,3	1, 2, 3	Q2-2020	Information	RAS reviewed at April 2020 meeting. White Paper is being finalized for posting on the RAS website.

Probabilistic Assessment Working Group (PAWG)

Website: PAWG **Chair**: Andreas Klaube (1/2019) **NERC Lead**: JP Skeath
Hierarchy: Reports to RAS **Vice-Chair**: Alex Crawford (9/2019) **Scope Update**: December 2016

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Data collection approaches and recommendations technical report Develop a technical report that describes industry approaches and best practices for probabilistic	2, 3	1, 2, 3	Q3-2020	Approve	Initial draft developed. Current progress indicative of group knowledge.
2	Long-Term Reliability Assessment Enhancement Pilot Study to look at screening approaches to supplement off year probabilistic scenarios.	3	1, 2, 3	Q4 2020	Information	At end of work product, recommendations for adoption in 2021 LTRA to be made to RAS.
3	2020 Probabilistic Assessment – Base Case Develop 2020 probabilistic assessment for the LTRA.	3	1, 2, 3	Q4-2020	Information	Updated schedule was reviewed at joint PAWG-RAS meeting in April 2020. Base ProbA to be in conjunction with 2020 LTRA.
4	2020 Probabilistic Assessment – Scenario Case Develop 2020 probabilistic assessment for the LTRA	3	1, 2, 3	Q1 – 2021	Approve	Regional risk scenarios approved by RAS. Sensitivity scenarios to be complete in Q1 2021. Tracking updates on methods.
5	Perform periodic Scope Review	NA	NA	Q2 2020	Approve	RAS approved the revised scope. It contains minor updates from previous scope. NERC staff will provide to RSTC for approval.

Performance Analysis Subcommittee (PAS)

Website: PAS **Chair**: Maggie Peacock (09/2018) **NERC Lead**: Margaret Pate
Hierarchy: Reports to PC **Vice-Chair**: Brantley Tillis (09/2018) **Scope Update**: March 2019

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Support development of 2020 State of Reliability Report (SoR)	1-4 (2019)	1, 2, 5, 6	Q2 2020	Endorse	In execution
2	Review NERC Reliability Indicators webpage	3,4	1,5	Q3-2020	None	Ongoing improvements.
3	Conduct detailed assessments that integrate analytic data trend insights regarding resilience under severe weather conditions, identifying preventable aspects for BPS reliability.	2019 RISC Profile 2	1, 2, 3	TBD	Information	In execution phase. Working to identify cause codes. Sub group formed for both PAS and RAS. PAS obtained data and provided analysis in the 2019 SOR. RAS includes questions in the LTRA narrative request. In addition, updated seasonal assessments include weather-related risks.
4	Review proposed new metrics	1-4 (2019)	5	Q3 2020	Approve	In initiation phase - Pilot metric on severity of transmission outages under development.
5	Define the process for the annual metric review	1-4 (2019)	5	Q1 2021	Approve	On hold until Q3. Process to be developed.

Generating Availability Data System Working Group (GADSWG)

Website: GADSWG **Chair**: Leeth DePriest (01/2018) **NERC Lead**: Jack Norris
Hierarchy: Reports to PAS **Vice-Chair**: Steve Wenke (01/2018) **Scope Update**: September 2018

#	Task Description	Risk Profile(s)	Strategic Focus Area	Target Completion	Requested Action	Status
1	*NERC RoP* GADS Section 1600 Data Reporting to collect and analyze GADS data: • Conventional - relevant design data and enhanced event reporting • Wind - connected energy storage and event reporting • Solar - plant configuration, performance and event data as well as equipment outage detail	3, 4	1, 5	Q2 -2021	Endorse	Draft will be finalized at the end of 2020.
2	GADS Wind Data Reporting: Implement mandatory wind reporting	3, 4	1, 5	Ongoing	None	On-track for completion of phased-in mandatory reporting status in 2020.

Transmission Availability Data System Working Group (TADSWG)

Website: TADSWG **Chair**: Dan King (6/2019) **NERC Lead**: Margaret Pate
Hierarchy: Reports to PAS **Vice-Chair**: John Idzior (6/2019) **Scope Update**: September 2018

#	Task Description	Risk Profiles(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Investigation of transmission-connected reactive devices (e.g., STATCOMS / SVCs) and their impact on the system; reviewing reactive device information to be collected; likely section 1600 data request.	3,4	1,5	Q4 2020	None	Initiation phase - Engaged with the Canadian Electricity Association, CEA, to understand their data collection process.

Demand Response Availability Data System Working Group (DADSWG)

Website: DADSWG **Chair**: TBD **NERC Lead**: Donna Pratt
Hierarchy: Reports to PAS **Vice-Chair**: TBD **Scope Update**: June 2018

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Research availability of DADS data from other sources to see if there is continued unique reliability value in current collection method.	3, 4	1, 5	Q1 2021	None	Planning phase

Misoperations Information Data Analysis System Working Group (MIDASWG)

Website: **Chair**: Brian Kasmarzik (03/2020) **NERC Lead**: Rachel Rieder
Hierarchy: Reports to PAS **Vice-Chair**: Thomas Teafatiller (03/2020) **Scope Update**: June 2018

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Review approved Section 1600 data request and, if appropriate, develop revisions in accordance with NERC Rules of Procedure	4, 5	3, 6	Q4 2021	Endorse	Planning phase -MIDASWG developing subgroups to determine if changes to Section 1600 are necessary.
2	Evaluate potential need to develop new or revised defined terms to support Misoperation data reporting	4, 5	3, 6	Q1 2021	Information	Planning phase
3	Evaluate additional misoperations calculations for a more comprehensive alternative to the current Misoperation Rate calculation that is currently used.	4, 5	3, 6	Q1 2021	Information	Initiated

Electric - Gas Working Group (EGWG)

Website: EGWG **Chair**: Michelle Thiry (01/2019) **NERC Lead**: Thomas Coleman
Hierarchy: Reports to PC **Vice-Chair**: Todd Snitchler (03/2019) **Scope Update**: June 2019

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
	Development of Reliability Guideline in progress.	1	2,3	Q1 2020	Approve	Complete. Guideline approved and posted.
1	Tasks will be determined by EGWG during upcoming meetings (April – October); EGWG is developing activities to support industry outreach, measures of effectiveness, and identification of additional areas of focus.	1	2,3	TBD	TBD	Provided general outline for three future EGWG meetings during the PC meeting in March 2020.

System Analysis & Modeling Subcommittee (SAMS)

Website: SAMS **Chair**: Hari Singh (06/2018) **NERC Lead**: Jessica Harris
Hierarchy: Reports to PC **Vice-Chair**: Evan Shuvo (06/2018) **Scope Update**: December 2016

#	Task Description / *Deliverable*	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Node-Breaker Planning Model Representation *Support advancement of node-breaker representation in planning models and alignment between planning and operations cases. Perform small scale pilot projects for future implementation of wide-scale construction of planning base case with full node breaker capability.*	2, 3	8, 9	Ongoing	Information	Ongoing; multi phase effort underway. Scope document is posted on SAMS page.
2	Modeling Notifications *Developing Modeling Notifications, creating industry announcements and educational webinars on notifications*	2, 3	9	Ongoing	None	SAMS anticipating model notifications from tracked topics: • Frequency calculations in stability simulations • Generator capability data for modeling
3	NERC Acceptable Models List *Maintain and document for industry list of 'approved models' for powerflow and dynamics; periodic updates to list based on industry advancements.*	2, 3	9	Ongoing	Information	On-track; SAMS reviewed and approved the latest updates. Current version posted is October 31, 2019.
4	Generator Protection Model Implementation and Benchmarking: Implement and benchmark GP3 I new dynamic model in all commercial planning software tools per PCPMTF recommendations	2,3	8,9	Q4-2020	Information	On track; GP3 Model Implementation in Commercial Software Tools Status: PowerWorld - Implemented in Ver. 20, released Nov. 2018

#	Task Description / *Deliverable*	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
						PSLF - Implemented in Ver. 21.06, released Jan. 2019 DSATOOLS - Implemented and released in April 2019 with version 19 PSS/E - Estimated completion by Fall 2020
5	Case Creation Practices (MOD-032-1) for Interconnection-Wide Models *Review and assessment of practices (e.g., generation dispatch, demand response, firm transfers, demand levels) to identify areas for improvement or consistency.*	2, 3	8,9	Q4-2020	Information	On track. SAMS is considering what deliverable to propose to RSTC (webinar, report, other)
6	White Paper: Clarification of "Load Loss" terminology Prepare technical brief for diverse audience (regulators & industry executives) Task was assigned by PCEC following PC roundtable discussion/input from IOU sector representative at December 2017 PC meeting	2, 3	8	Q4-2020	Approve	SAMS is finalizing white paper.
7	Whitepaper: Review of Transient Voltage Recovery and Voltage Dip Criteria *Prepare a document on review of transient voltage criteria with the updated composite load model and other modeled updates.*	1-Grid Transformation (2019)	8	Q3 2021	Approve	PCEC agreed to work plan item in May 2020. SAMS to coordinate on LMTF for kick-off meeting.

Load Modeling Task Force (LMTF)

Website: LMTF **Chair**: Dmitry Kosterev **NERC Lead**: Olushola Lutalo
Hierarchy: Reports to SAMS **Vice-Chair**: **Scope Update**: December 2016

#	Task Description / *Deliverables*	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Load Model (Software) Benchmarking	2, 3	9	Ongoing	None	Phase 1 complete--all major software vendors benchmarked composite load model successfully; Additional work on track: beginning implementation and benchmarking of composite load model with DER component and single phase motors.
2	Robust (Default) Data Sets *Default datasets to support utilities seeking guidance on reasonable load model parameters (e.g., starting point or no other data available)*	2, 3	9	Complete	None	Complete.
3	System Impact Assessment *Utility members sharing experience of load modeling and studies; user forum for sharing lessons learned.*	2, 3	8, 9	Q3-2020	None	On-track; ongoing information sharing.
4	Dynamic Load Modeling in Real-Time Stability Analysis *Assessment of industry practices for use of dynamic load models for real-time or operations planning studies*	2, 3	8, 9	Q4-2020	None	Delayed due to higher priority topics; Survey released to LMTF members; follow-up and compilation is next step.
5	Progressive Protection System Modeling *Testing and studying progressive tripping, reconnection, and stalling modeling approach for improved model performance*	2, 3	9	Q4-2021	None	Require modular implementation first (task 10). longer-term goal; beta testing being performed by multiple software vendors.
6	Improved Single-Phase Motor Model	2, 3	9	Q2-2021	None	make model available to software developer for implementation (task 8 is a prerequisite)

#	Task Description / *Deliverables*	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
7	Improved Three-Phase Motor Model	2, 3	9	Q2-2021	None	On-track, make model available to software developer for implementation (task 8 is a prerequisite)
8	Efficient Data Format & Model Management *New data format to modularize dynamic load models*	2, 3	9	Q1-2021	None	Beta testing being performed by multiple software vendors. PSLF and Powerworld already capable, PSS/E will need major version release (Verion 35)
9	Modeling Notifications: Composite Load Model Benchmarking. Develop composite load model benchmarking notification to share with industry the completion and usability of the models across all major software platforms.	2, 3	9	Q1-2021	None	TBD
10	Load Composition Analysis (e.g, Buildings, end uses)	2,3	9	On-going	None	On-track; ongoing information sharing.
11	Power Electronics Load, adjustable drive (VFD, ECM) electric vehicle charger models	2,3	9	On-going	None	On-track; ongoing information sharing.
12	Load Model Data Management Tool	2,3	9	Completed	None	Complete
13	Perform Periodic Scope Review Review approved scope and revise as needed. Provide revised scope to PCEC via SAMS for approval.	PC Charter	PC Charter	Q4 2020	Approval	Not started.

Power Plant Modeling & Verification Task Force (PPMVTF)

Website: PPMVTF **Chair**: Shawn Patterson **NERC Lead**: Ryan Quint
Hierarchy: Reports to SAMS **Vice-Chair**: **Scope Update**: May 2016

#	Task Description / *Deliverable*	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Power Plant Model Review *Review NERC acceptable list of models for power plants, provide guidance to development of list*	2, 3, 4	8,9	Ongoing	No	Ongoing
2	Reliability Guideline: MOD-032-1 Generator Data Requests *Develop technical guidance material for MOD-032-1 data requests and sharing; in response to NAGF letter seeking guidance*	2,3	8,9	Q3 2020	Approve	Moved back date to Q3 2020
3	White Paper: Generator Reactive Capability – Testing, Data, and Coordination *A white paper to address the activities relating to MOD-025-2, PRC-019-2, and MOD-032-1 related to testing, coordination, and modeling generator capability; a review of the applicable standards and the effectiveness of those standards in achieving the expected reliability outcomes.*	2, 3	4, 9	Q1 2020	Approve	PC reviewers provided comments through Feb 18; PC discussion held at March PC meeting.
4	Modeling Notification: Frequency Calculations in Stability Studies	1, 2, 3	9	TBD	Information	TBD
5	Modeling Notification: Generator Capability data for Stability Studies	1, 2, 3	9	Q4 2020	Information	Tabled; seeking next steps on MOD-025 white paper first.
6	Perform Periodic Scope Review Review approved scope and revise as needed. Provide revised scope to PCEC via SAMS for approval.	PC Charter	PC Charter	Q1 2020	Approval	Complete. Revised scope approved at January PCEC meeting

System Protection & Control Subcommittee (SPCS)

Website: SPCS **Chair**: Jeff Iler (12/2019) **NERC Lead**: Jule Tate
Hierarchy: Reports to PC **Vice-Chair**: Bill Crossland (12/2019) **Scope Update**: June, 2017

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	PRC-019 Implementation Guidance	2, 3, 4	8	TBD	Endorse	PC reviewers assigned at September PC meeting. SPCS is addressing comments.
2	Standards Authorization Request (SAR): PRC-023-4 – Transmission Relay Loadability	1, 2, 4	2, 4	TBD	Endorse	Reviewers assigned at December 2018 PC Meeting. SPCS is reviewing comments and determining next steps.
3	SAR and Technical Analysis Report: PRC-019-2 – Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection.	1, 2, 4	2, 4	Q1-2020	Endorse	Complete. PC approved the white paper and endorsed the SAR at the March PC Meeting.
4	Protection System Commissioning Lessons-Learned *Errors in protection design documents and/or failure to employ effective commissioning testing practices can lead to protection system misoperations. SPCS will review and revise (as necessary) the 2014 lessons-learned document and conduct industry outreach to increase awareness of the revised lessons-learned.*	1 (2019)	8	Q4 2020	Endorse	PCEC reviewed the proposal in Feb 2020.
5	IBR Impacts to BPS Protection Systems *Transmission protection practices and systems will need to adapt to the changing nature of the grid. SPCS will develop a technical report on the impacts that BPS-connected inverter-based resources can and are having on BPS protection systems. The report will be coordinated with NERC Inverter-Based Resources Performance Task Force (IRPTF), as needed, to bring protection and inverter experts together. The intent of the technical report is to provide a framework, roadmap, and technical guidance for industry to tackle this challenge.*	1 (2019)	2	Q1 2021	Endorse	PCEC reviewed the proposal in Feb 2020.
6	PRC-024-3 Implementation Guidance *Due to changes in PRC-024-3 the Implementation Guidance will require updating to help entities demonstrate compliance with the revised standard.*	1 (2019)	8	TBD	Endorse	PCEC reviewed the proposal in Feb 2020. Technical Committee endorsement will be sought following regulatory approval of the revised standard.

System Planning Impacts of Distributed Energy Resources Working Group (SPIDERWG)

Website: SPIDERWG **Chair**: Kun Zhu (September 2019) **NERC Lead**: Ryan Quint, JP Skeath
Hierarchy: Reports to PC **Vice-Chair**: Bill Quaintance (July 2018) **Scope Approved**: December 2018

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
Modeling Subgroup *(Co-Leads: Irina Green, CAISO; Mohab Elnashar, IESO)*						
M1	**DER Modeling Survey** *Perform industry survey of SPIDERWG members regarding use of DER planning models in BPS studies, dynamic load models and DER modeling guidelines.*	1, 2	2, 3	Q3-2020	No	Survey results currently being analyzed by SPIDERWG team to develop short assessment on findings from survey. To be presented to RSTC.
M2	**Reliability Guideline: DER Data Collection for Modeling** *Guideline providing recommendations and industry practices for the mandatory and optional DER data to be collected by the Reliability Coordinator as well as on how, where, and when to gather such data.*	1, 2	2, 3	Q3 2020	Yes	Currently developing responses to industry comments. Expected completion in June 2020. *(High priority task for SPIDERWG)*

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
	• *Review the documentation of existing data collection techniques and processes that has been developed by the industry.* • *Recommendations for DER data collection technique suitable for various study types.* *Recommendations for the DER data complexity requirements based on DER penetration levels*					
Verification Subgroup *(Co-Leads: Michael Lombardi, NPCC; Mike Tabrizi, DNV-GL)*						
	Reliability Guideline: DER Performance and Model Verification *Reliability Guideline covering aggregate DER model verification, including recommended measurement practices, executing model verification activities, model benchmarking, relation to MOD-033 activities, and conversion of data sources for verification.*	1, 2	2, 3	Q4-2020	Yes	On track – draft guideline in development. Timeline moved back slightly based on prioritization of SPIDERWG. *(High priority task for SPIDERWG)*
V2	**Reliability Guideline: DER Forecasting Practices and Relationship to DER Modeling for Reliability Studies** *Guidance providing how forecasting practices are linked to DER modeling for reliability studies. DER forecasting practices are important for accurately representing the correct amount and type of DER, particularly at an aggregate level representation for BPS studies.*	1, 2	2, 3	Q1-2021	Yes	On track; early stages of development.
Studies Subgroup *(Co-Leads: Peng Wang, IESO; Mohab Elnashar, IESO)*						
S1	**Reliability Guideline: Bulk Power System Planning under Increasing Penetration of Distributed Energy Resources** *Guideline providing recommendations and industry practices for performing planning studies considering the impacts of aggregate DER behavior.* • *Review and documentation of existing study approaches currently used by industry, development of findings and recommendations from these studies incorporating DER.* • *Review and highlight of DER study practices and known DER impacts from various entities around the world.* • *Guidelines on how to incorporate and represent DER in planning studies for potential reliability issues, such as selection of study scenarios with system gen/load conditions, and different approaches to incorporate DER in different types of studies.* • *Guidelines on study assumptions and approaches considering single-phase installation of DER; consideration of co-simulation tools and techniques.* • *Guidelines on types of reliability issues encountered with high DER penetration and potential solutions to these issues.* • *Recommended practices and approaches for reporting gross load, net load, and*	1, 2	2, 3	Q4-2020	Yes	Progressing. Completion moved to Q4 2020. *(High priority task for SPIDERWG)*

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
	DER tripping/reconnection as part of simulation results.					
S2	**White Paper: Review of TPL-001 Standard for Incorporation of DER** *White paper dicussing technical review of NERC TPL-001-5, and development of any recommendations pertaining to consideration and study of DER impacts to the BPS.*	1, 2	2, 3, 4	Q2-2020	Yes	PC Reviewers provided comments in January 2020. Draft white paper was discussed at the March PC meeting. *(High priority task for SPIDERWG)*
S3	**Recommended Simulation Improvements and Techniques** *Guidance (white paper) to software vendors on tools enhancements for improved accounting and study of aggregate DER.*	1, 2	2, 3	Q3-2020	Yes	Completion date moved back – needs input from S1 and S4.
S4a	**Reliability Guideline: Recommended Approaches for Developing Underfrequency Load Shedding Programs with Increasing DER Penetration** *Guidance on how to study UFLS programs and ensure their effectiveness with increasing penetration of DER represented.*	1, 2	2, 3	Q4-2020	Yes	Split into two guideline related to specific frequency or voltage subject.
S5	**White Paper: Beyond Positive Sequence RMS Simulations for High DER Penetration Conditions** *Considerations for high penetration DER systems and the need for more advanced tools (e.g., co-simulation tools) for studying DER impacts on the BPS.*	1, 2	2, 3	Q4-2020	Yes	On track.
Coordination Subgroup *(Co-Leads: Clayton Stice, ERCOT; Jimmy Zhang, AESO)*						
C2	**Reliability Guideline: Communication and Coordination Strategies for Transmission Entities and Distribution Entities regarding Distributed Energy Resources** *Develop recommended strategies to encourage coordination between Transmission and Distribution entities on issues related to DER such as information sharing, performance requirements, DER settings, etc.*	1, 2	2, 3	Q1-2021	Yes	In early stages of development; scoping activities for relatively short/focused guideline in the works; considering breaking into near- and long-term guidance.
C3	**Educational Material to Support Information Sharing between Industry Stakeholders** *Develop material to educate industry stakeholders on practices, recommendations and technical work developed by other industry organizations.*	1, 2	2, 3	Ongoing	No	Changed to ongoing task; ongoing work in other groups needed first.
C5	**Coordination of Terminology** *Review of existing definitions and terminology and development and coordination of new terms, for consistent reference across sub-groups.*	1, 2	2, 3	Ongoing	No	Tracking use of terminology within SPIDERWG discussions.
C6	**NERC Reliability Standards Review** *White Paper reviewing NERC Reliability Standards and impacts of DER.*	1, 2	2, 3, 4	Q4-2020	Yes	On track *(High priority task for SPIDERWG)*
C7	**Tracking and Reporting DER Growth** *Coordinated review of information regarding DER growth, including types of DER, size of DER, etc. Consideration for useful tracking techniques for modeling and reliability studies.*	1, 2	2, 3	Ongoing	No	In monitoring and data collection stage.

Geomagnetic Disturbance Task Force (GMDTF)

Website: GMDTF **Chair**: Emanuel Bernabeu (12/2017) **NERC Lead**: Mark Olson
Hierarchy: Reports to PC **Vice-Chair**: Ian Grant (12/2017) **Scope Update**: December 2016

#	Task Description / *Deliverable*	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Final Report on NERC GMD Research Work Plan tasks; Upon completion of research deliverables, the task force will review, comment, and provide an assessment of the research results and outcome *Assessment Reports.* Plan includes topics listed below (1a – 1i)	3, 7	2, 8	Q1-2020	Information	FERC accepted NERC's GMD Research Work Plan in FERC Order No. 851. EPRI project addresses all GMD Research Work Plan objectives. EPRI report publications are listed below (1a-1h). Final reports for all tasks completed in April 2020. GMDTF will review and develop recommendations for ERO.
1a	Task 1: Benchmark GMD Event analysis. *The research activities under this task consist of performing further research and analysis on the use of spatial averaging in defining benchmark GMD events that entities use when conducting the GMD Vulnerability Assessments required by the TPL-007 standard.*	3, 7	2, 8	Q1-2020	Information	Technical report summarizing database of extreme GMD events released in June 2019: https://www.epri.com/#/pages/product/3002016832/ Final report of benchmark event analysis and spatial averaging in EPRI released in April 2020.
1b	Task 2: Latitude scaling analysis. *The research activities under this task include evaluating the latitude scaling factors in Reliability Standard TPL-007, including using existing models and developing new models to extrapolate, from historical data, the potential scaling of a 1-in-100 year GMD event on lower geomagnetic latitudes.*	3, 7	2, 8	Q1-2020	Information	Technical report released April 2020. Interim report released: https://www.epri.com/#/pages/product/3002016885/
1c	Task 3: Improve Earth Conductivity Models. *The research activities under this task consist of activities to improve the accuracy of existing earth conductivity models for GIC studies.*	3, 7	2, 8	Q1-2020	Information	EPRI Report published January 2019: Use of Magnetotelluric Measurement Data to Validate/Improve Existing Earth Conductivity Models Product ID# 3002014856 Additional technical reports on validation of GIC models and non-uniform geoelectric field modeling released April, 2020.
1d	Task 4: Study Geoelectric Field Orientation for Transformer Thermal Impact Assessment. *This task will develop an approach for applying the benchmark geoelectric field time series to individual transformers in thermal impact assessments. The research activities under this task will consist of: 1) evaluating the existing approach used to perform transformer thermal assessments; and 2) developing alternative methods of applying the benchmark geoelectric field time series to individual transformers to represent worst-case hot-spot heating conditions in transformer thermal impact assessments.*	3, 7	2, 8	Q1-2020	Information	Technical report released April 2020.
1e	Task 5: Analyze 75 A per Phase Criterion Used In Transformer Thermal Assessment. *Research for this task will analyze the 75A/phase TPL-007 criterion used for*	3, 7	2, 8	Q1-2020	Information	1 of 2 Reports Complete: EPRI Report Published December 2019: Transformer Thermal Impact Assessments for DC Withstand Capability: Examining the Impacts

#	Task Description / *Deliverable*	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
	transformer thermal impact assessments. The work will: • *re-examine the screening criteria and if needed, an alternative criterion will be developed; and* • *study tertiary winding harmonic heating and determine if this affects the thermal screening criteria.*					of Geomagnetically Induced Current (GIC) on Transformer Thermal Performance: 3002017708 2 of 2 Reports released April 2020.
1f	Task 6: Support NERC Section 1600 Data Request *The activities under this task consist of developing the necessary guidance, technical guidelines, and solutions to support a request for data or information under Section 1600 of the NERC Rules of Procedure for the collection of existing and new GIC data and magnetometer data. The purpose of this data collection is to respond to FERC's Order No. 830 directive to collect GMD monitoring data and to make that data publically available.*	3, 7	2, 8	Q3-2020	Information	EPRI Support ongoing. Data Reporting Program is addressed in task 2.
1g	Task 7: Calculate Ground Model Scaling Factors (Beta-factors). *The activities under this task are focused on calculating earth conductivity scaling factors (beta factors) as necessary to meet the needs of the industry. This includes the following: benchmark of electric field estimation results against available scientific and industry algorithms; production of beta factor averages over improved 1D regions; and determination of beta factor ranges from differences in magnetic field orientation, spectral content, and 3D contributions.*	3, 7	2, 8	Q1-2020	Information	EPRI Report Published January 2019: Tool Evaluation and Electric Field Estimate Benchmarking Results Product ID# 3002014853 Report with calculated Beta factors released April 2020.
1h	Task 8: Improve Harmonics Analysis Capability. *The activities under this task consist of developing harmonics analysis guidelines and tools for entities to use in performing system-wide assessment of GMD-related harmonics.*	3, 7	2, 8	Q1-2020	Information	Complete. EPRI released beta-version of a software application for wide-area GMD-related harmonics analysis in January 2019. An update was published in December 2019: 3002014854 The tool is available to the public free of charge. A report describing the tool and functionality was published in December 2019: 3002017447
2	Develop a Data Reporting Instruction for entities to collect and report GIC and magnetometer data as specified in the ROP Section 1600 Data Request	3, 7	2, 8	Q2-2020	Information	PC Review January 14 – February 14, 2020. GMDTF discussed comments at February GMDTF meeting. Response to comments and revised draft is being finalized at NERC. NERC IT staff is developing the data reporting application for implementation before year-end 2020.
3	GIC Monitoring and Magnetometer Data Collection Assessment; recommend how NERC should assess and report on the degree to which industry is following Section 1600 Data Request and guidance for GIC monitoring. (Guidance for GIC monitoring was developed by the GMD Standards Drafting Team as part of revisions to TPL-007). (Ref P. 88)	3, 7	2, 8	Q3-2020 (process)	Information	Process will be included in the DRI.

#	Task Description / *Deliverable*	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
	Plan for reviewing GIC data					
4	Analyze data from GMD events collected under the GMD Data Request and other necessary information to further understand GIC effects on BES facilities. Summarize observations, including observations on GIC modeling.	2018 RISC Profile 7	2	Q4-2020	Information	Activity is from 2018 RISC Report. Requires implementation of the Sect 1600 data request.
5	Perform Periodic Scope Review Review approved scope and revise as needed. Provide revised scope to PCEC for approval.	PC Charter	PC Charter	Q4 2020	Approval	GMDTF reviewedscope at the February 2020 meeting. Approved scope is valid through the completion of the GMD Work Plan and the establishment of the GMD Data Collection program. GMDTF and NERC Staff will develop recommendation for new scope or disbandment in Q4 2020.

Inverter-Based Resource Performance Task Force (IRPTF)

Website: IRPTF **Chair**: Al Schriver **NERC Lead**: Ryan Quint; Rich Bauer
Hierarchy: Reports to PC and OC **Vice Chair**: Jeff Billo **Scope Update**: June 2017

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
1	Modeling and Simulations Technical Report *Findings, recommendations, and experiences modeling and studying inverter-based resources; information from NERC Alert data collection; generation interconnection studies; IRPTF stability studies*	1, 2, 3	2, 3	Q2 2020	Approve	Complete. PC reviewers assigned at March PC meeting. PCEC approved in May.
2	*Canyon 2 NERC Alert Follow Up – Modeling and Simulation* *Follow up work with entities to ensure accurate and appropriate models are being used for local and interconnection-wide studies and base case creation. Engagement with MOD-032 Designees, Planning Coordinators, Transmission Planners, and Generator Owners to ensure accurate modeling. Follow up with the proposed changes and execution of those changes.*	1, 2, 3	2, 3, 6	Ongoing	None	Regular updates on industry progress to address modeling issues identified in Canyon 2 Fire disturbance NERC Alert. Coordinating with WECC SMAG.
3	*IEEE p2800 Monitoring and Support* *Monitor and support the activities of IEEE p2800, and provide technical expertise and input as requested.*	1, 2, 3	2, 3	Ongoing	None	Ongoing, as needed.
4	White Paper: Fast Frequency Response Fundamentals and BPS Reliability Needs *Short white paper to provide recommended terminology and definitions for discussing fast frequency response, low inertia systems, and other relevant concepts. In coordination with other NERC groups and CIGRE/IEEE activities.*	1, 2, 3	2, 3	Q1 2020	Approve	Complete. PC approved March 2020.
5	White Paper: Coordinated Review of NERC Reliability Standards, and Applicability and Clarity of Standards to Inverter-Based Resources *A cursory review and documentation of potential standards that could be improved or strengthened to add clarity and consistency for inverter-based resources.* *White Paper is approved. PC authorized development of SARs.*	1, 2, 3	2, 3, 4	Q1 2020	Approve	PC approved at the March 2020 PC meeting. PC authorized IRPTF to develop corresponding MOD, PRC, VAR, and FAC SARs. IRPTF will coordinate with SPIDERWG for TPL SAR.
6	**Review IRPTF Scope**	1, 2, 3	2, 3	Q4 2020	Approve	Revised scope developed and provided to NERC PC and OC for

#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested Action	Status
	Develop revised scope document that reflects current group activities					approval. PC leadership is recommending RSTC consider IRPTF scope as part of its technical committee review.
7	Technical Report: Energy Transition to Higher Penetrations of Inverter-Based Resources *Develop a technical report outlining a roadmap to ensuring BPS reliability under increasing penetration of inverter-based resources; discussion of issues and possible solutions to these issues.*	1, 2, 3	2, 3	Q4 2020	Approve	PCEC agreed with new work proposal December 2019.
8	Reliability Guideline: EMT Modeling and Studies *Positive-sequence models are utilized to represent generator resources in typical dynamic stability tools used by power system engineers in various studies. However, these models contain certain simplifications for inverter-based resources (IBRs) that may lead to erroneous results under certain system conditions (e.g., low system strength). The reliability guideline will provide guidance on when and how an entity should be performing EMT analysis. This reliability guideline will build off of the previously developed reliability guidelines by IRPTF.*	1, 2, 3	2, 3	Q4 2020	Approve	PCEC agreed with new work proposal December 2019.
11	Reliability Guideline: Battery Energy Storage and Hybrid Plant Performance and Modeling Battery storage systems are increasing in size and number. Further, use of hybrid resources is increasing. There is lack of guidance and expertise on how to model and simulate these types of new resources in interconnection studies and planning assessments. The IRPTF will develop a reliability guideline that outlines recommended practices.	1, 2, 3	2, 3	Q4 2020	Approve	PCEC agreed with new work proposal December 2019.