

**SOUTHWEST POWER POOL
SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MEETING**

Tuesday February 7, 2023 1:00PM - 5:00PM (CPT)

Net Conference

SUMMARY OF MOTIONS AND ACTION ITEMS

MOTIONS:

- Ken Zellefrow (CUS) motioned to approve the November 8-9, 2022 SPCAG Meeting Minutes. Shawn Jacobs (OG&E) seconded the motion. The motion carried without opposition or abstention.

ACTION ITEMS:

- None

SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES
2/7/2023

MINUTES

AGENDA ITEM 1 – ADMINISTRATIVE ITEMS

SPCAG Chair Chris Angland (OPPD) called the meeting to order at 1:00 PM on 2/7/2023. John Anderson was thanked for serving as the previous Chair. Matt Boersema (WFEC) and Glenn Bryson (AEP) were welcomed as members receiving approval on 11/18/2022. David Oswald (Liberty) was welcomed as the Vice Chair for the 2023-2024 term.

William Holden (SPP) took attendance and established a meeting quorum. A record of member attendance is an attachment to these minutes.

William Holden (SPP) read the SPP Antitrust Statement.

Chair Chris Angland (OPPD) reviewed the agenda and made requested changes:

- Added review of RAS operation or failure

A record of the updated Agenda is an attachment to these minutes.

Ken Zellefrow (CUS) motioned to approve the *November 8-9, 2022 SPCAG Meeting Minutes*. Shawn Jacobs (OG&E) seconded the motion. The motion carried without opposition or abstention.

AGENDA ITEM 2 – REMEDIAL ACTION SCHEMES

THUNDERHEAD

William Holden (SPP) noted that the group was notified on 12/9/2022 that the Thunderhead RAS was initially activated on 11/21/2022. Orajit Ghoshal (Invenergy) informed the group that since that time the Thunderhead RAS has experienced an operational event and is coordinating analysis reporting of the operational performance.

RAPID CITY

William Holden (SPP) provided an update on the upcoming Rapid City RAS Retirement. Relayed that Jeremy Severson (BEPC) communicated that analysis performed by Schweitzer remains underway along with discussions with NPPD and WAPA.

GGS

Steve Wadas (NPPD) provided an overview of upcoming equipment modernization upgrades anticipated to maintain existing functionality.

REVIEW OF RAS OPERATION OR FAILURE

William Holden (SPP) provided an overview of the existing process where each RAS operation or failure should result in a preliminary and final report to the SPP RC. The NERC Standard PRC-012-2 requires a report for analysis with identified deficiencies. The group discussed whether to amend the document to align the process with the standard and only require a report for deficient operation. The group requested SPP Staff draft amendments to the process document and bring it to the next SPCAG followed by TWG, ORWG, & RCAG for recommendations prior to implementation.

AGENDA ITEM 3 – RR521 NON-STANDARD LOAD CLEANUP

Michael Ray (SPP) presented on RR521 which is intended to clarify the current market rules for exceptions where generation can be netted with load where consistent with applicable laws, rules and regulations. SPCAG feedback was sought by the ORWG on 1/5/2023. There were concerns expressed regarding potential impacts to system protection. The scope of review requested of the SPCAG is the appropriateness of 6-cycles under Market Protocols - Resource Metering section D.7.1 (c). SPCAG recommended edits are underlined below:

D.7.1 Resource Metering

Resource data must be submitted in either 5-minute or hourly intervals as indicated by market registration and must be consistent with the Resource's registration as described in Section 6.1.1. No load shall be aggregated with a registered Resource for market settlement purposes. The only exceptions to this are cases which include:

- (a) Auxiliary Load as described under Section 6.1.12 (2) and 6.1.12 (3);
- (b) Load which is being directly served by and is located at the same physical and electrically equivalent injection point to the Transmission System as a registered Resource exercising its rights under PURPA: or
- (c) Load which is being directly served by and is located at the same physical and electrically equivalent injection point to the Transmission System as a registered Resource, and configured to be physically isolated and prevented from withdrawing from the Transmission System within 6-30 cycles depending upon the stability requirements of the load and the local system of the Resource output going below the load.

Exceptions must be consistent with applicable laws, rules, and regulations.

Additional SPCAG Feedback: Potential for impacts to system protection and control from loads withdrawing from the system. Recommend a defined tolerance of acceptable duration and amount of withdrawal prior to requiring disconnection.

AGENDA ITEM 4 – SPP SYSTEM PLANNING SHORT CIRCUIT MODEL

William Holden (SPP) communicated that SPP Modeling Staff had no progress to report on the short circuit model development improvement initiative. Feedback was requested from the group.

Members requested SPP Modeling Staff provide an overview at the April '23 meeting on the status of the initiative, MDAG Focus Group meetings, improvements steps, and data requests.

AGENDA ITEM 5 – 2022 STAKEHOLDER GROUP EFFECTIVENESS SURVEY

William Holden (SPP) provided an overview of the 2022 Stakeholder Group Effectiveness Survey results with a focus on the SPCAG. Members recommended the following to achieve the greatest effectiveness: improved guidance on advisory group role, WebEx experience may depend on meeting location environment, encourage in-person attendance.

AGENDA ITEM 6 – RELIABILITY GROUPS

NERC SPCWG AND LESSONS LEARNED

Lynn Schroeder (Sunflower) provided a presentation with updates on the December 2022 NERC SPCWG meetings. Participation is open and encouraged for interested individuals. Liaison reports included IRPS on IBR events, EMT analysis, and grid forming inverter impacts to system protection. RSTC recently reviewed entire work plan. FERC Order 881 and PRC-023 draft position paper indicating no changes. PRC-019-2 implementation guide approved though SAR was not approved. SPCWG scope has been approved and posted along with a new website format. Presentation on UFLS design for low inertia situations. Draft scope document to provide industry guidance for impacts of 61850 architecture on NERC Protection System definition and related standards. SPCWG review and renew documents every 3-years. *Determination of Practical Transmission Relaying Loadability Settings* out of step blocking edits are anticipated in the coming months.

NERC lessons learned will no longer be presented along with the SPCWG update. There is a new lessons learned posted for protection *Preventing Unwanted Operations during Relay Diagnostic Restarts*. NERC website provided the following link for lessons learned organized by date issued: <https://www.nerc.com/pa/rrm/ea/Pages/Lessons-Learned.aspx>

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SPP NERC

Shannon Mickens (SPP) provided an overview of the SPIDERWG FAC-001-4 and FAC-002-4 Standard Authorization Requests (SARs), Reliability Guideline 1547-2018, and Standard Processes Manual Revisions to enhance NERC's ability to address reliability needs with appropriate agility, while maintaining an open and inclusive process.

MRO PRS MEETING

David Wheeler (SPS) communicated that the MRO meeting minutes were included in the meeting materials. Noted that Ryan Einer (OG&E) was elected as Chair and Dennis Lu (Manitoba Hydro) as Vice Chair for the term concluding on 12/31/2023.

David Oswald (Liberty) requested that MRO misoperation presentations be given at future meetings.

AGENDA ITEM 7 – PROTECTION IN YOUR SHOP

Chair Chris Angland (OPPD) led a discussion with the group confirming interest in maintaining protection in your shop as a standing agenda item. Coordination of scheduling of these topics is planned to follow the meeting:

- PRC-004 Powerbase Integration Process – Jeff Beasley (GRDA)
- MRO RAM Process Audit Experiences – Chris Angland (OPPD) or Steve Wadas (NPPD)
- Traveling Wave Relays – Michael Fleck (ITC)

AGENDA ITEM 8 – CLOSING ADMINISTRATIVE DUTIES

William Holden (SPP) reviewed new, open and closure pending action items.

Action Item 157 remained as Closure pending to allow SPCAG discussion following publication of NERC whitepaper on short circuit models. Action item 162 remains marked as In Progress with SPP Planning Modeling staff to present requested topics during SPCAG discussion of Short Circuit Models and analysis. Action item 165 remains marked as In Progress for SPCAG to explore SPP roadmap for short circuit modeling program purchase. Action item 166 remains marked as In Progress for SPCAG to create sub-group for coordination with MDAG. Action item 167 remains marked as In Progress to submit an initiative request to improve the MDAG short circuit models for use with system protection and control. A record of action items is an attachment to these minutes.

Chair Chris Angland (OPPD) led a discussion on potential topics for the April 25th – 26th, 2023 SPCAG meeting, including:

- Short Circuit Models (standing agenda item): update on initiative and MDAG Focus Group meetings
- MRO RAM Process Audit Experiences
 - David Oswald upcoming audit

The 2023 meeting schedule was discussed with updates to location. All members present anticipate travel to the in-person meetings which satisfies the SPP criteria for in-person stakeholder meetings to have an expected attendance of 10 or more people.

- April 25-26, 2023 (In-person at OPPD offices in Omaha)
- August 1-2, 2023 (In-Person at Xcel offices in Denver)
- November 7-8, 2023 (WebEx)

SPCAG Chair Chris Angland (OPPD) adjourned the SPCAG at 4:44 PM on 2/7/2023.

Respectfully Submitted,

William Holden, System Protection and Control Advisory Group, Staff Secretary

SUMMARY OF ATTACHMENTS:

SPCAG 2/7-8/2023 Agenda (pg. 8)

SPCAG 2/7-8/2023 Member Attendance (pg. 9)

SPCAG Action Item Tracking (pg. 10-11)

SPCAG Approved *November 8-9, 2022 SPCAG Meeting Minutes*

SOUTHWEST POWER POOL, INC.

SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MEETING

February 7, 2023 1:00PM - 5:00PM CDT
February 8, 2023 8:00AM - 12:00PM CDT

Net Conference

AGENDA

1. Administrative Items:
 - a. Call to Order, new members, Chair & Vice Chair..... Chris Angland
 - b. AttendanceWilliam Holden
 - c. Antitrust Statement.....William Holden
 - d. Agenda Review Chris Angland
 - e. Review minutes of November 8-9, 2022 meeting (Approval)..... Chris Angland
2. Remedial Action Schemes: https://spp.org/documents/62226/spp_prc-012-2_process_ei.pdf
 - a. Thunderhead RAS (Update) Juan Hayem (5m)
 - b. Rapid City RAS Retirement (Update)..... Jeremy Severson (5m)
 - c. NPPD GGS RAS (Update)..... Steve Wadas (5m)
 - d. Review of RAS operation or failureWilliam Holden (15m)
3. RR521 Non-Standard Load Cleanup: spp.org/Documents/68081/RR521.zip..... Michael Ray (30m)
4. SPP System Planning Short Circuit Model:
 - a. SPP Roadmap Initiative (Update)..... William Holden (5m)
5. 2022 Stakeholder Group Effectiveness Survey.....William Holden (15m)
6. Reliability Groups (Update):
 - a. NERC SPCWG and Lessons Learned Lynn Schroeder (20m)
 - b. SPP NERCShannon Mickens (30m)
 - c. MRO PRS MeetingDavid Wheeler (5m)
7. Protection in your shop (Discussion)Chris Angland (5m)
8. Closing Administrative Duties:
 - a. Review of New, Open and Closure Pending Actions.....William Holden
 - b. Discuss upcoming meeting topics and location Chris Angland
 - April 25-26, 2023 (WebEx)
 - August 1-2, 2023 (In-Person)
 - November 7-8, 2023 (In-Person)
 - c. Adjourn meeting Chris Angland

SPCAG MEMBER ATTENDANCE:

Name	Company	Role	2/7/2023
Chris Angland	Omaha Public Power District	Chair	✓
David Oswald	Liberty Utilities	Vice Chair	✓
John Anderson	Evergy, Inc	Member	✓
Jeff Beasley	Grand River Dam Authority	Member	✓
Matt Boersema	Western Farmers Electric Cooperative	Member	✓
Glenn Bryson	American Electric Power	Member	✓
Michael Fleck	ITC Great Plains	Member	✓
Shawn Jacobs	Oklahoma Gas & Electric	Member	✓
Spencer Riddle	Western Area Power Administration Upper Great Plains Region	Member	
Lynn Schroeder	Sunflower Electric Power Corp	Member	✓
Steve Wadas	Nebraska Public Power District	Member	✓
David Wheeler	Xcel Energy	Member	✓
Ken Zellefrow	City Utilities of Springfield MO	Member	✓
William Holden	Southwest Power Pool	Staff Secretary	✓

SPCAG ACTION ITEMS

Action Item	Origin Date	Action Item	Update Summary	Status	Owner	Date Closed
157	02/10/21	SPP Staff to reach out to SPCAG to determine interest in developing PSSE/ASPEN/CAPE Conversion Whitepaper.	<p>5/12/21: Trey to send list to Lynn, and resend the request for participation.</p> <p>8/11/21: There's a current NERC effort to develop a whitepaper, and the SPP action is on hold until that paper is developed.</p> <p>11/10/21: Closure pending review of NERC paper, Q2 2022.</p> <p>5/11/22: Closure pending review of NERC paper, Q2 2022.</p> <p>8/9/22: Closure pending review of NERC paper, Q4 2022.</p> <p>11/9/22: Closure pending discussion of need for additional whitepaper.</p> <p>2/7/23: Closure pending discussion of need for additional whitepaper.</p>	Closure pending	William Holden	
162	11/10/21	SPP Planning Modeling staff to present requested topics during SPCAG discussion of Short Circuit Models and analysis	<p>2/9/22: SPP solicited members for topics, survey being conducted for preferred fault model software with review of results at the May 22' meeting. Zach Sabey committed to provide updates on external Short Circuit data collection efforts.</p> <p>5/11/22: Eric Sullivan (SPP) shared MDAG survey results on short circuit model software and other preferences. The topic for discussion at the August meeting was selected to be update on short circuit build and any quality checks to be discussed.</p> <p>8/9/22: Erin Cathey (SPP) presented on the SPP Roadmap Process, Aspen presented on Short Circuit model conversion, and A/I #167 opened to submit an initiative request to improve the MDAG short circuit models for use with system protection and control</p> <p>11/9/22: Eric Sullivan (SPP) provided an update on the initiative and opportunity for feedback on the current short circuit model development.</p> <p>Lynn Schroeder (SECI) provided a summary of the NERC SPCWG Inter-</p>	In progress	Zach Sabey	

Action Item	Origin Date	Action Item	Update Summary	Status	Owner	Date Closed
			Entity Short Circuit whitepaper. Nick Stueve (Evergy) demonstrated a short circuit model comparison tool 2/7/23: SPCAG requested SPP Modeling Staff provide an overview at the April '23 meeting on the status of the initiative, MDAG Focus Group meetings, improvements steps, and data requests.			
165	05/11/22	SPCAG to explore SPP Roadmap for Short Circuit modeling program purchase.	8/10/20: Process presented to the group, A/I #167 opened to submit an initiative request to improve the MDAG short circuit models for use with system protection and control 11/9/22: Eric Sullivan (SPP) provided an update on the initiative 2/7/23: no progress to report	In progress	William Holden	
166	05/11/22	SPCAG to create sub-group for coordination with MDAG.	8/10/22: SPCAG members have been attending MDAG Focus Group meetings 11/9/22: Eric Sullivan (SPP) provided an update on opportunity for feedback on the current short circuit model development. 2/7/23: no progress to report	In progress	John Anderson	
167	08/09/22	Submit an initiative request to improve the MDAG short circuit models for use with system protection and control	11/9/22: Eric Sullivan (SPP) provided an update on the initiative 2/7/23: no progress to report	In progress	William Holden	

PRE-APPROVAL

**SOUTHWEST POWER POOL
SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MEETING**

**Tuesday November 8, 2022 1:00PM - 5:00PM (CPT)
Wednesday November 9, 2022 8:30AM - 12:00PM (CPT)**

Energy Offices, Kansas City, Missouri

SUMMARY OF MOTIONS AND ACTION ITEMS

MOTIONS:

- Steve Wadas (NPPD) motioned to approve the August 9-10, 2022 SPCAG Meeting Minutes. Lynn Schroeder (Sunflower) seconded the motion. The motion carried without opposition or abstention.

ACTION ITEMS:

- None

SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES
11/8-9/2022

MINUTES

AGENDA ITEM 1 – ADMINISTRATIVE ITEMS

SPCAG Chair John Anderson (Evergy) called the meeting to order at 1:05 PM on 11/8/2022. The meeting reconvened at 8:00 AM on 11/9/2022.

William Holden (SPP) took attendance and established a meeting quorum. A record of member attendance is an attachment to these minutes.

William Holden (SPP) read the SPP Antitrust Statement.

Chairman John Anderson (Evergy) reviewed the agenda and made requested changes:

- Removed the MRO RAM process (Update)

A record of the updated Agenda is an attachment to these minutes.

Steve Wadas (NPPD) motioned to approve the August 9-10, 2022 SPCAG Meeting Minutes. Lynn Schroeder (Sunflower) seconded the motion. The motion carried without opposition or abstention.

AGENDA ITEM 2 – REMEDIAL ACTION SCHEMES

THUNDERHEAD

William Holden (SPP) informed the group that the Thunderhead RAS is conditionally approved by the SPP Reliability Coordinator and is in the process of being activated. The group will be notified once the RAS has been initially activated which will commence the condition period for the RAS in-service not to exceed two years.

RAPID CITY

Jeremy Severson (BEPC) provided an update on the upcoming Rapid City RAS Retirement. The analysis performed by Schweitzer remains underway along with discussions with NPPD.

POLICY REVISION REQUEST

Matt Jackson (SPP) provided an update on the MOPC action item for TWG to coordinate with ORWG to develop policy paper. RR505 (<https://www.spp.org/documents/67644/rr505.zip>) was approved by the TWG and subsequently amended and approved by the ORWG with the

insertion of the sentence in the appendix “The RAS generation thresholds shall be reviewed annually to ensure they are aligned with SPP’s spinning reserve requirements.”.

With the SPCAG having transitioned from a working group to an advisory group, there were no concerns expressed with the removal of the SPCAG as the working group owner of Section 8 of the SPP Planning Criteria as part of RR505.

Glenn Bryson (AEP) stated that implementing “out-of-step” blocking is avoided when possible and often removed from previous applications. From his experience, “out-of-step” tripping has rarely been implemented.

AGENDA ITEM 3 – RATE OF CHANGE SUPERVISED UFLS

Kevin Jones (Xcel) presented on a UFLS program methodology intended to improve frequency response for system separation conditions. There were concerns expressed on the quality of Inverter Based Resource (IBR) modeling and whether the current version of the SPP UFLS plan, https://spp.org/Documents/65486/SPP_PC_UFLS_Plan_Rev_4.7.pdf, evaluated SPS separation from the Eastern Interconnection under light load conditions.

AGENDA ITEM 4 – GRAIN BELT EXPRESS PROJECT

Carlos Rodriguez (Invenergy) and Dan Kell (Hatch) provided an overview of the Grain Belt Express bi-pole high voltage direct current (HVDC) project with an initial phase of 2,500 MW increasing to 5,000 MW at the receiving end. Discussion items included: IBR short circuit current contribution values; Interconnection Agreement (IA) underutilization of reactive power capabilities on sending end; generation tripping response of design may be a Remedial Action Scheme (uncertain at this time whether the 600 MW limit from RR505 would apply); and inclusion of 4-elements of protection relays (not found in the MDAG model) within the forthcoming protection coordination study. An open offer was made for providing HVDC educational sessions.

AGENDA ITEM 5 – SPP SYSTEM PLANNING SHORT CIRCUIT MODEL

Eric Sullivan (SPP) provided an update on the initiative and opportunity for feedback on the current short circuit model development.

Lynn Schroeder (Sunflower) provided a summary of the NERC SPCWG Inter-Entity Short Circuit whitepaper. Discussion items included: challenges with updated models for NERC PRC-027; methods for model validation through comparing imbalance fault currents; and identification of IBR modeling issues when large amounts of negative sequence current are calculated.

Nick Stueve (Evergy) demonstrated a short circuit model comparison tool that requires a bus mapping as a first step.

William Holden (SPP) advised that the annual TPL assessment includes a short circuit analysis with PSS/E ASCC and ANSI calculated 3PH and SLG fault current value results posted to GlobalScape (i.e. Compliance and Advanced Studies (CEII, RSD)\CAS (Global Access)\East\TPL-001\2021\3_Analysis\2_Short_Circuit). Transmission planners should have access to the results which may be utilized for comparison with protection models.

AGENDA ITEM 6 – AMBIENT ADJUSTED RATINGS IMPLEMENTATION TASK FORCE

William Holden (SPP) provided an update on behalf of staff secretary Jack Williamson (SPP). Members discussed that relay settings prescribed in PRC-023 may require review by the NERC SPCWG particularly following details released with FERC Order 881-A. It was stated that voltage supervision is important to prevent trip on load. A concern was expressed on SPP operations implementation of an hourly variable effective limit alarm setpoints.

AGENDA ITEM 7 – THREE TERMINAL LINE WHITEPAPER

John Anderson (Evergy) provided an update that the document has been requested to be posted to the SPCAG page.

AGENDA ITEM 8 – RELIABILITY GROUPS

NERC SPCWG AND LESSONS LEARNED

Lynn Schroeder (Sunflower) provided a presentation with updates on the August and October NERC SPCWG meetings. Liaison reports included IEEE PRSC C37.117 – underfrequency task force to determine if guide should be updated and IRPS PRC-004 – SAR to address IBR issues. Project updates included FERC 881 – group looking at % margin difference with temperature ranges in sample areas and PRC-019 – Implementation Guide and expected Revision to Standards.

No new lessons learned posted since last update for protection. NERC website provided the following link for lessons learned organized by date issued:

<https://www.nerc.com/pa/rrm/ea/Pages/Lessons-Learned.aspx>

SPP NERC

Shannon Mickens (SPP) provided an overview of NERC reliability standards review and resultant white paper by the SPIDERWG for relevancy with increasing levels of Distributed Energy Resources (DER).

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MRO PRS MEETING

David Wheeler (Xcel) communicated that the MRO meeting minutes and agenda were included in the meeting materials.

AGENDA ITEM 9 – IEEE 2800-2022 RESOURCES AND EDUCATION MATERIALS

Manish Patel (Southern Company) provided a brief overview of recently published IEEE Std 2800 which establishes uniform technical minimum requirements for the interconnection, capability, and lifetime performance of inverter-based resources interconnecting with transmission and sub-transmission systems are established in this standard. Included in this standard are performance requirements for reliable integration of inverter-based resources into the bulk power system, including, but not limited to, voltage and frequency ride-through, active power control, reactive power control, dynamic active power support under abnormal frequency conditions, dynamic voltage support under abnormal voltage conditions, power quality, negative sequence current injection, and system protection. This standard also applies to isolated inverter-based resources that are interconnected to an ac transmission system via dedicated voltage source converter high-voltage direct current (VSC-HVDC) transmission facilities; in these cases, the standard applies to the combination of the isolated IBRs and the VSC-HVDC facility, and not to an isolated inverter-based resource (IBR) on its own.

AGENDA ITEM 10 – PROTECTION IN YOUR SHOP

Steve Wadas (NPPD) presented on Cooper PCB3308 internal fault and multiple trips.

AGENDA ITEM 11 – CHAIR AND VICE-CHAIR NOMINATIONS

William Holden (SPP) provided a verbal update on the status of the Chair nomination process for 2023-2024 with Chis Angland (OPPD) as nominee.

Vice-Chair nominations were discussed with a few members requesting some time for consideration. An email vote was agreed upon by the group with a 1-week voting window to commence following staff secretary email receipt of self-nominations.

AGENDA ITEM 12 – CLOSING ADMINISTRATIVE DUTIES

William Holden (SPP) reviewed new, open and closure pending action items.

Action Item 152 was closed following RC Final approval and anticipated implementation of Thunderhead RAS. Action Item 157 remained as Closure pending to allow SPCAG discussion following publication of NERC whitepaper on short circuit models. Action item 161 was closed following whitepaper posting. Action item 162 remains marked as In Progress with SPP

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Planning Modeling staff to present requested topics during SPCAG discussion of Short Circuit Models and analysis. Action item 165 remains marked as In Progress for SPCAG to explore SPP roadmap for short circuit modeling program purchase. Action item 166 remains marked as In Progress for SPCAG to create sub-group for coordination with MDAG. Action item 167 was marked as In Progress to submit an initiative request to improve the MDAG short circuit models for use with system protection and control. Action item 168 was closed following presentation by Manish Patel (Southern Company) on IEEE 2800-2022. A record of action items is an attachment to these minutes.

John Anderson (Evergy) led a discussion on potential topics for the February 8th – 9th, 2023 SPCAG meeting, including:

- Short Circuit Models (standing agenda item): update on initiative and MDAG Focus Group meetings
- MRO RAM Process Audit Experiences
 - Chris Angland
 - Steve Wadas Request for Information and responses
- Protection in your shop:
 - Automation of Wide Area Coordination, SARA (Jeff Beasley (GRDA), Q2 2023)
 - PRC-004 Powerbase Integration Process (Jeff Beasley (GRDA), Q1 2023)
 - Traveling Wave Relays (Michael Fleck (ITC), Q1 2023)
- 2023 meeting schedule
 - February 7-8, 2023 (WebEx)
 - April 25-26, 2023 (WebEx)
 - August 1-2, 2023 (In-Person) (shifted earlier, SEL conference conflict likely 8/8-9)
 - November 7-8, 2023 (In-Person)

SPCAG Chair John Anderson (Evergy) recessed the SPCAG at 5:15 PM on 11/8/2022 and adjourned the SPCAG and at 11:50 PM on 11/9/2022.

Respectfully Submitted,

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William Holden, System Protection and Control Advisory Group, Staff Secretary

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SUMMARY OF ATTACHMENTS:

SPCAG 11/8-9/2022 Agenda (pg. 9-10)

SPCAG 11/8-9/2022 Member Attendance (pg. 11)

SPCAG Action Item Tracking (pg. 12-14)

SOUTHWEST POWER POOL, INC.

SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MEETING

November 8, 2022 1:00PM - 5:00PM CDT

November 9, 2022 8:30AM - 12:00PM CDT

Evergry Offices, Kansas City, Missouri

AGENDA

1. Administrative Items:
 - a. Call to Order and new members John Anderson
 - b. AttendanceWilliam Holden
 - c. Antitrust Statement.....William Holden
 - d. Agenda Review John Anderson
 - e. Review minutes of August 9-10, 2022 meeting (Approval) John Anderson
2. Remedial Action Schemes: https://spp.org/documents/62226/spp_prc-012-2_process_ei.pdf
 - a. Thunderhead RAS (Update) William Holden (5m)
 - b. Rapid City RAS Retirement (Update)William Holden (5m)
 - c. [RR505](#): Application Criteria (Discussion) Matt Jackson (30m)
3. Rate of Change supervised UFLS (Discussion)..... Kevin Jones (45m)
4. Grain Belt Express Project (Discussion) Carlos Rodriguez (60m)
5. SPP System Planning Short Circuit Model:
 - a. SPP Roadmap Initiative (Update).....Eric Sullivan (30m)
 - b. NERC Short-Circuit Model Technical Report (Discussion)..... Lynn Schroeder (30m)
6. FERC 881 ([AARITE](#)) Impacts on Protection (Discussion).....William Holden (30m)
7. Three Terminal Line Whitepaper (Update).....John Anderson (5m)
8. Reliability Groups (Update):
 - a. NERC SPCWG and Lessons Learned Lynn Schroeder (20m)
 - b. SPP NERCShannon Mickens (30m)
 - c. MRO PRS MeetingDavid Wheeler (5m)
9. IEEE 2800-2022 Resources and Education Materials (Discussion)Manish Patel (60m)
10. Protection in your shop (Discussion)John Anderson (5m)
 - a. Cooper PCB3308 Internal Fault and Multiple Trips.....Steve Wadas (30m)
11. Chair and Vice-Chair nominations John Anderson (10m)

12. Closing Administrative Duties:

- a. Review of New, Open and Closure Pending Actions.....William Holden
- b. Discuss upcoming meeting topics and location John Anderson
 - 2023 schedule
- c. Adjourn meeting John Anderson

SPCAG MEMBER ATTENDANCE:

Name	Company	Role	11/8/2022	11/9/2022
John Anderson	Evergy, Inc	Chair	✓	✓
Chris Angland	Omaha Public Power District	Vice Chair	✓	✓
Jeff Beasley	Grand River Dam Authority	Member	✓	✓
Michael Fleck	ITC Great Plains	Member	✓	✓
Shawn Jacobs	Oklahoma Gas & Electric	Member	✓	✓
David Oswald	Liberty Utilities	Member	✓	✓
Spencer Riddle	Western Area Power Administration Upper Great Plains Region	Member	✓	✓
Lynn Schroeder	Sunflower Electric Power Corp	Member	✓	✓
Steve Wadas	Nebraska Public Power District	Member	✓	✓
David Wheeler	Xcel Energy	Member	✓	✓
Ken Zellefrow	City Utilities of Springfield MO	Member	✓	✓
William Holden	Southwest Power Pool	Staff Secretary	✓	✓

SPCAG ACTION ITEMS

Action Item	Origin Date	Action Item	Update Summary	Status	Owner	Date Closed
152	07/22/20	Zachary Sharp to collect additionally requested material from Invenergy concerning the Thunderhead RAS (relay settings and control schematics), and provide to the SPCWG members for review. Zachary Sharp will set up an ad-hoc meeting for the SPCWG to discuss the material and comments from the ORWG and TWG prior to the scheduled October meeting.	<p>The ORWG delayed taking action on the Thunderhead RAS, negating the need for an ad-hoc meeting.</p> <p>10/14/20: Tom Kay gave an update to the group. Tom is going to research the open protection response time of the DC supply at the Thunderhead station and clarify what the response will be.</p> <p>5/12/21: Trey to send out relay settings to the SPCAG as soon as received. New motion approved 5/11.</p> <p>8/11/21: Thunderhead RAS approved by MOPC in July 2021. Still waiting on relay settings from Invenergy.</p> <p>8/25/21: Relay settings shared with SPCAG.</p> <p>2/9/22: Closure pending implementation of RAS</p> <p>5/11/22: Closure pending implementation of RAS</p> <p>8/10/22: Closure pending implementation of RAS</p> <p>11/9/22: Closed</p>	Closed	William Holden	11/09/22
157	02/10/21	SPP Staff to reach out to SPCAG to determine interest in developing PSSE/ASPEN/CAPE Conversion Whitepaper.	<p>5/12/21: Trey to send list to Lynn, and resend the request for participation.</p> <p>8/11/21: There's a current NERC effort to develop a whitepaper, and the SPP action is on hold until that paper is developed.</p> <p>11/10/21: Closure pending review of NERC paper, Q2 2022.</p> <p>5/11/22: Closure pending review of NERC paper, Q2 2022.</p> <p>8/9/22: Closure pending review of NERC paper, Q4 2022.</p> <p>11/9/22: Closure pending discussion of need for additional whitepaper.</p>	Closure pending	William Holden	

Action Item	Origin Date	Action Item	Update Summary	Status	Owner	Date Closed
161	08/11/21	SPCAG to replace the Recommendation section at the end of the Three Terminal Line Whitepaper with a SPCAG Position section, and post to spp.org.	<p>11/9/21: No progress to report</p> <p>2/9/22: SPP to revise draft whitepaper and pursue posting.</p> <p>5/11/22: Chair and Secretary to revise draft whitepaper and pursue posting.</p> <p>8/10/22: Chair and Secretary to revise draft whitepaper and pursue posting.</p> <p>11/9/22: Closed</p>	Closed	Jeff Beasley Lynn Schroeder Chris Angland William Holden John Anderson	11/09/22
162	11/10/21	SPP Planning Modeling staff to present requested topics during SPCAG discussion of Short Circuit Models and analysis	<p>2/9/22: SPP solicited members for topics, survey being conducted for preferred fault model software with review of results at the May 22' meeting. Zach Sabey committed to provide updates on external Short Circuit data collection efforts.</p> <p>5/11/22: Eric Sullivan (SPP) shared MDAG survey results on short circuit model software and other preferences. The topic for discussion at the August meeting was selected to be update on short circuit build and any quality checks to be discussed.</p> <p>8/9/22: Erin Cathey (SPP) presented on the SPP Roadmap Process, Aspen presented on Short Circuit model conversion, and A/I #167 opened to submit an initiative request to improve the MDAG short circuit models for use with system protection and control</p> <p>11/9/22: Eric Sullivan (SPP) provided an update on the initiative and opportunity for feedback on the current short circuit model development.</p> <p>Lynn Schroeder (SECI) provided a summary of the NERC SPCWG Inter-Entity Short Circuit whitepaper. Nick Stueve (Evergy) demonstrated a short circuit model comparison tool</p>	In progress	Zach Sabey	

Action Item	Origin Date	Action Item	Update Summary	Status	Owner	Date Closed
165	05/11/22	SPCAG to explore SPP Roadmap for Short Circuit modeling program purchase.	8/10/20: Process presented to the group, A/I #167 opened to submit an initiative request to improve the MDAG short circuit models for use with system protection and control 11/9/22: Eric Sullivan (SPP) provided an update on the initiative	In progress	William Holden	
166	05/11/22	SPCAG to create sub-group for coordination with MDAG.	8/10/22: SPCAG members have been attending MDAG Focus Group meetings 11/9/22: Eric Sullivan (SPP) provided an update on opportunity for feedback on the current short circuit model development.	In progress	John Anderson	
167	08/09/22	Submit an initiative request to improve the MDAG short circuit models for use with system protection and control	11/9/22: Eric Sullivan (SPP) provided an update on the initiative	In progress	William Holden	
168	08/10/22	Share available resources and education materials on IEEE 2800-2022 (i.e. NATF webinars)	11/9/22: Closed - Manish Patel (Southern Company) provided a brief overview of recently published IEEE Std 2800	Closed	Lynn Schroeder	11/09/22