

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

February 13, 2024 1:00PM - 5:00PM (CPT)  
February 14, 2024 8:00AM - 11:00PM (CPT)

Teleconference

## SUMMARY OF MOTIONS AND ACTION ITEMS

### MOTIONS:

- Steve Wadas (NPPD) motioned to approve the *November 7-8, 2023 SPCAG Meeting Minutes*. David Oswald (Liberty) seconded the motion. The motion carried without opposition or abstention.
- Steve Wadas (NPPD) motioned to approve the *January 3, 2024 SPCAG Meeting Minutes*. John Anderson (Evergy) seconded the motion. The motion carried without opposition or abstention.
- David Oswald (Liberty) motioned to approve the *SPP 2024 PRC-006-5 Under-Frequency Load Shed (UFLS) Design Assessment scope* as presented. Steve Wadas (NPPD) seconded the motion. The motion carried without opposition or abstention.

### ACTION ITEMS:

- Email notification to the SPCAG Exploder following implementation of the Judson RAS.
- Share materials for PMU, FERC Order 881, 9785 checkback, and Interconnection and Protection Practices experience.

**SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES**  
2/13-14/2024

**MINUTES**

**AGENDA ITEM 1 – ADMINISTRATIVE ITEMS**

SPCAG Chair Chris Angland (OPPD) called the meeting to order at 1:00 PM on 2/13/2024. The meeting reconvened at 9:00 AM on 2/14/2024.

SPCAG Staff Secretary 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.

Chris Angland (OPPD) reviewed the agenda. A record of the agenda is an attachment to these minutes.

**Steve Wadas (NPPD) motioned to approve the *November 7-8, 2023 SPCAG Meeting Minutes*. David Oswald (Liberty) seconded the motion. The motion carried without opposition or abstention.**

**Steve Wadas (NPPD) motioned to approve the *January 3, 2024 SPCAG Meeting Minutes*. John Anderson (Evergy) seconded the motion. The motion carried without opposition or abstention.**

**AGENDA ITEM 2 – REMEDIAL ACTION SCHEMES**

*THUNDERHEAD*

Tom Kay (Invenergy) provided an update on the Thunderhead RAS retirement with recommendation approved at the prior SPCAG followed by TWG, ORWG, and MOPC. The SPP Reliability Coordinator approval is in progress. Working on steps through the next few quarters. Coordination with NPPD and WAPA remains ongoing to implement the relay changes needed for the open-breaker configuration within an operating guide. Changes include an upgrade to replace microwave communications channels between Grand Island and Holt stations.

*RAPID CITY*

Philip Westby (BEPC) provided an update on the upcoming Rapid City RAS retirement. Analysis performed by Schweitzer and further discussions with NPPD and WAPA are completed. Submission of the request will be made soon to the SPP Reliability Coordinator.

*Antitrust: SPP strictly prohibits use of participation in SPP activities as a forum for engaging in practices or communications that violate the antitrust laws. Please avoid discussion of topics or behavior that would result in anti-competitive behavior, including but not limited to, agreements between or among competitors regarding prices, bid and offer practices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that might unreasonably restrain competition.*

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES 2/13-14/2024

### *JUDSON TEMPORARY RAS*

Philip Westby (BEPC) provided an update that the Judson temporary RAS has been approved by the SPP Reliability Coordinator. Testing and implementation work is ongoing.

Steve Wadas (NPPD) inquired into the timeline of stakeholder reviews and approvals. In response Philip Westby (BEPC) provided the January 2024 dates of each approval from the TWG, SPCAG, ORWG, and MOPC followed by the SPP Reliability coordinator approval on February 9, 2024.

Jackson King (Roscommon Analytics) inquired into the timeframe for the Judson RAS implementation. In response Philip Westby (BEPC) stated the estimate is in the range of a week to weeks.

**Email notification was requested to be provided to the SPCAG Exploder following implementation of the Judson RAS.**

### *PLANNING COORDINATOR RAS REVIEWS*

Scott Jordan (SPP) presented, during an executive session, an update on the NERC Standard PRC-012 Planning Coordinator evaluations of RAS within the SPP planning area. Results of the WAPA Eastern Garrison Generation Dropping Scheme (GGDS) RAS evaluation were discussed.

### **AGENDA ITEM 3 – SPP SYSTEM PLANNING SHORT CIRCUIT MODEL**

Eddie Watson (SPP) provided an update that short circuit model software (i.e. Aspen or CAPE) and consultant to perform the model building tasks was not included in the 2024 budget. Working with Tony Green (SPP) on identifying required resources. 2025 budget will be developed in the March-April timeframe and finalized in the June-July timeframe.

Eric Sullivan (SPP) agreed to setup the previously requested sub-group meeting in about a month. Chris Angland (OPPD) requested the sub-group be opened up again with notification to SPCAG members once scheduled. Zachary Johnston (OPPD) requested the week of February 26<sup>th</sup> be avoided due to attendance at a conference. Planning software (i.e. PSS/E) to short circuit vendor software (i.e. Aspen or CAPE) model conversion issues and errors is a challenge that each member currently performs. A centralized effort by SPP would provide a uniform or consistent model for the region.

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES 2/13-14/2024

### AGENDA ITEM 4 – IBR

Mostafa Sedighizadeh (SPP) presented on IEEE-2800 standard adoption and the IIRRG progress on the effort. Updates were provided for clauses 4 interconnection, 11 measurement, and 12 testing. Clause 11 review identified a gap related to SCADA and PMU. Clauses 4 & 12 recommendation is to include the addition of SPP for instances of TP.

Jeff Beasley (GRDA) inquired into language describing what happens if the IBR system changes and the IBR entities responsibility to update and correct the models presented as well as need to retest and validate.

### AGENDA ITEM 5 – SPP 2024 UFLS DESIGN ASSESSMENT SCOPE

Scott Jordan (SPP) presented on *SPP 2024 PRC-006-5 Under-Frequency Load Shed (UFLS) Design Assessment* scope document. The scope of the ad-hoc meeting tentatively scheduled for December 5, 2023 was performed internally with evaluation for budget impacts, vendor availability, case conditions compared with TPL sensitivity case, UFLS entity data request, and UFLS data request updates. Light load case was considered and excluded from the scope due to concerns identified with barriers to implementation. To reduce potential for adverse schedule impacts while conducting the review, the assessment will be performed separately (out-of-cycle) and on a later schedule with results, once available, to be considered for inclusion.

**David Oswald (Liberty) motioned to approve the *SPP 2024 PRC-006-5 Under-Frequency Load Shed (UFLS) Design Assessment* scope as presented. Steve Wadas (NPPD) seconded the motion. The motion carried without opposition or abstention.**

### AGENDA ITEM 6 – SYNCHROPHASORS (PMU)

Tom Miller (ITC) provided a brief verbal summary of SPP's PMU requirements following RR340 (FERC Docket ER19-2845) implementation in GIAs effective November 20, 2019.

Chris Angland (OPPD) mentioned that this group has been interested in PMUs and has requested presentations on various topics at prior meetings. Staff confirmed that SPP implementation doesn't meet the 15 minute threshold for NERC CIP requirements. Members requested that SPCAG be informed at the initial stages when this changes.

Mike Nugent (SPP) presented an overview of the SPP requirements and preferred communication method. Willing to coordinate a panel, deep dives, or specific topics at future meetings. **Presentation requested to be shared following the meeting.**

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES 2/13-14/2024

### AGENDA ITEM 7 – FERC ORDER 881

William Holden (SPP) provided an update on the SPP implementation of FERC Order 881.

Steve Wadas (NPPD) protection only needs to know highest potential ratings. Background is beneficial and prepares for last minute changes. MRO suggested early compliance with seasonal ratings requirements.

**Presentation requested to be shared following the meeting.**

### AGENDA ITEM 8 – GEOMAGNETIC DISTURBANCE PROGRAM

Chris Colson (WAPA) presented on awareness and defense against Geomagnetically-induced current (GIC) from Geomagnetic disturbances (GMD) from space weather.

### AGENDA ITEM 9 – RELIABILITY GROUPS

#### *NERC SPCWG*

Travis Hancock (Sunflower) provided an update on the February 2, 2024 NERC SPCWG meeting. Topics included: PRC-024 requesting reviews for voltage compliance at each IBR unit, Reliability Guideline revised to new format and reviewed as relevant reference, 61850 architects for NERC protection, and TPL-001 writing assignments to standards drafting team.

#### *NERC STANDARDS*

Shannon Mickens (SPP) provided an overview of upcoming updates to NERC Standards and Rules of Procedures. Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness and Coordination drafting team has made revisions to EOP-012. NERC Standards Prioritization has categorized each project with work primarily proceeding on High Priority items. Rules of Procedures revisions with the addition of special authority became effective in November.

#### *MRO PRS MEETING*

Members in attendance did not share any noteworthy updates from the December 6, 2023 MRO PRS meeting.

Glenn Bryson (AEP) mentioned the next MRO PRS meeting is coming up on March 12, 2024. Agreed to provide an update at the May meeting.

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES 2/13-14/2024

### AGENDA ITEM 10 – PROTECTION IN YOUR SHOP

Steve Wadas (NPPD) presented on Interconnection and Protection Practices experience from a fault that resulted in circuit lockout instead of being cleared by a customer's protection equipment. **Presentation requested to be shared following the meeting.**

Steve Wadas (NPPD) requested feedback on removing the Low power test for RFL-9785 checkback DCBs relying solely on High-power test. Louis Guidry (CLECO) commented that they don't disable for low power fail, just alarm for it. Tom Miller (ITC) commented they use RFL and UPLC with high and low power tests. Zachary Johnston (OPPD) commented they have 5 161kV DCB lines remaining performing both low and high power tests, but only alarming, not automatically disabling the scheme. They can be manually disabled after seeing the alarms come in. **Email requested to be shared following the meeting.**

Steve Wadas (NPPD) shared a slow close experience, asked for feedback on mitigating for older oil based breakers.

Chris Angland (OPPD) requested a volunteer for next meeting. David Oswald volunteered.

### AGENDA ITEM 11 – CLOSING ADMINISTRATIVE DUTIES

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

Action Item 157 remained as Closure pending to evaluate NERC whitepaper on short circuit models integration into the MDAG process. 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 Closure Pending to allow SIR544 prioritization to be agreeable to the SPCAG. Action item 166 remains marked as In Progress with SPCAG members invited to participate in the MDAG model process. Action item 167 remains marked as In Progress with SIR544 submitted for prioritization and consultation with SPP management. Action item 169 remains marked as Not Started for SPCAG members to be engaged in TWG and MDAG to appropriately prioritize SIR544. Action item 170 was marked as Closure Pending for SPCAG to review and approve the SPP 2024 UFLS Design Assessment Scope in consideration of Light Load evaluation A record of action items is an attachment to these minutes.

The 2024 meeting schedule and locations were discussed.

- May 14-15, 2024 (In-person, Evergy facilities in Kansas City)

**SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES**  
**2/13-14/2024**

- August 13-14, 2024 (In-person, TBD)
- November 12-13, 2024 (Teleconference)

Chris Angland (OPPD) informed the group that Jeff Beasley (GRDA) is resigning from the SPCAG following the meeting and thanked him for his contributions.

Chris Angland (OPPD) recessed the SPCAG at 4:30 PM on 2/13/2024 and adjourned the SPCAG at 11:11 AM on 2/14/2024.

Respectfully Submitted,

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

**SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES**  
2/13-14/2024

**SUMMARY OF ATTACHMENTS:**

SPCAG 2/13-14/2024 Agenda (pg. 9-10)

SPCAG 2/13-14/2024 Member Attendance (pg. 11)

SPCAG Action Item Tracking (pg. 12-14)

SPCAG Approved *November 7-8, 2023 SPCAG Meeting Minutes*

SPCAG Approved *January 3, 2024 SPCAG Meeting Minutes*



SOUTHWEST POWER POOL, INC.

SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MEETING

February 13, 2024 1:00PM - 5:00PM CPT  
 February 14, 2024 8:00AM - 12:00PM CPT

Net Conference

**AGENDA**

1. Administrative Items:
  - a. Call to Order..... Chris Angland
  - b. Attendance .....William Holden
  - c. Antitrust Statement.....William Holden
  - d. Agenda Review ..... Chris Angland
  - e. Review minutes of November 7-8, 2023 meeting (Approval)..... Chris Angland
  - f. Review minutes of January 3, 2024 meeting (Approval)..... Chris Angland
2. Remedial Action Schemes: [spp.org/Documents/62226/SPP\\_RC\\_PRC-012-2\\_0820EXT00137.pdf](http://spp.org/Documents/62226/SPP_RC_PRC-012-2_0820EXT00137.pdf)
  - a. Thunderhead RAS Retirement (Update)..... Tom Kay
  - b. Rapid City RAS Retirement (Update) ..... Philip Westby
  - c. Judson Temporary RAS (Update) ..... Philip Westby
  - d. Planning Coordinator RAS Reviews (Update – Executive Session)..... Scott Jordan (4:30pm)
3. SPP System Planning Short Circuit Model: [SIR544](#) (Update) .....Eric Sullivan
4. Inverter Based Resources (IBR):
  - a. SPP Adoption of IEEE-2800 (Update) .....Mostafa Sedighizadeh
5. SPP 2024 UFLS Design Assessment Scope (Approval) ..... Scott Jordan
6. PMU (Update) ..... Tom Miller
7. FERC Order 881 (Update) .....William Holden
8. Geomagnetic Disturbance Program ..... Chris Colson
9. Reliability Groups (Update):
  - a. [NERC SPCWG](#)..... Lynn Schroeder
  - b. [NERC Standards](#).....Shannon Mickens
  - c. [MRO PRS](#) ..... TBD
10. Protection in your shop:
  - a. Interconnection and Protection Practices.....Steve Wadas

11. Closing Administrative Duties:

- a. Review of New, Open and Closure Pending Actions.....William Holden
- b. Discuss upcoming meeting schedule, topics, and location ..... Chris Angland
  - i. May 14-15, 2024 (In-person, Evergy facilities in Kansas City)
  - ii. August 13-14, 2024 (In-person)
  - iii. November 12-13, 2024 (Teleconference)
- c. Adjourn meeting ..... Chris Angland

PRE-APPROVAL

## SPCAG MEMBER ATTENDANCE:

Name	Company	Role	2/13/2024	2/14/2024
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	✓	Unavailable
Matt Boersema Neudahl	Western Farmers Electric Cooperative	Member	✓	✓
Glenn Bryson	American Electric Power	Member	✓	✓
Tom Miller as proxy for 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 or Travis Hancock as proxy	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	Unavailable	✓
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> <p>4/25/23: Closure pending evaluation of NERC paper incorporation into MDAG process</p> <p>11/8/23: Closure pending MDAG process validations being evaluated and updated to include NERC paper recommendations, Chris Angland will investigate further to achieve closure</p> <p>2/14/24: No progress to update this meeting</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>	In progress	Zach Sabey	

Action Item	Origin Date	Action Item	Update Summary	Status	Owner	Date Closed
			<p>11/9/22: Eric Sullivan (SPP) provided an update on the initiative and opportunity for feedback on the current short circuit model development. 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> <p>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.</p> <p>4/25/23: SPP Modeling Staff deferred detailed update to the next meeting in August.</p> <p>11/8/23: Sub-group to form and update initiative language</p> <p>2/14/24: Eric Sullivan to schedule meeting.</p>			
165	05/11/22	SPCAG to explore SPP Roadmap for Short Circuit modeling program purchase.	<p>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</p> <p>11/9/22: Eric Sullivan (SPP) provided an update on the initiative</p> <p>2/7/23: no progress to report</p> <p>4/25/23: Closure pending SIR544 prioritization agreeable by SPCAG</p> <p>11/8/23: Closure pending SIR544 prioritization agreeable by SPCAG</p> <p>2/14/24: Closure pending SIR544 prioritization agreeable by SPCAG</p>	Closure pending	William Holden	
166	05/11/22	SPCAG to create sub-group for coordination with MDAG.	<p>8/10/22: SPCAG members have been attending MDAG Focus Group meetings</p> <p>11/9/22: Eric Sullivan (SPP) provided an update on opportunity for feedback on the current short circuit model development.</p> <p>2/7/23: no progress to report</p> <p>4/25/23: SPP Modeling staff invited SPCAG members to participate in MDAG model process</p> <p>11/8/23: Sub-group to form and update initiative language</p> <p>2/14/24: Eric Sullivan to schedule meeting</p>	In progress	John Anderson	

Action Item	Origin Date	Action Item	Update Summary	Status	Owner	Date Closed
167	08/09/22	Submit an initiative request to improve the MDAG short circuit models for use with system protection and control	<p>11/9/22: Eric Sullivan (SPP) provided an update on the initiative</p> <p>2/7/23: no progress to report</p> <p>4/25/23: SIR544 submitted, in-process for prioritization by working groups (e.g. TWG)</p> <p>8/1/23: Eric Sullivan (SPP) provided an update on the initiative. Will consult with SPP management then provide an update by email.</p> <p>11/8/23: Sub-group to form and update initiative language</p> <p>2/14/24: Eric Sullivan to schedule meeting, to be discussed in this sub-group</p>	In progress	William Holden	
169	04/25/23	SPCAG to be engaged in TWG and MDAG to appropriately prioritize SIR544	<p>11/8/23: Sub-group to form and update initiative language</p> <p>2/14/24: Eric Sullivan to schedule meeting, to be discussed in this sub-group</p>	Not Started	William Holden	
170	11/08/23	Review and approve the SPP 2024 UFLS Design Assessment Scope in consideration of Light Load evaluation	<p>11/8/23: ad-hoc meeting to evaluate and approve: budget impacts, vendor availability, case conditions compared with TPL sensitivity case, UFLS entity data request, and UFLS data request updates.</p> <p>2/14/24: Completed with out-of-cycle commitment for Light Load</p>	Closure pending	William Holden	

PRE-ANNOUNCEMENT

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

November 7, 2023 1:00PM - 5:00PM (CPT)  
November 8, 2023 8:00AM - 11:00PM (CPT)

Teleconference

## SUMMARY OF MOTIONS AND ACTION ITEMS

### MOTIONS:

- Ken Zellefrow (CUS) motioned to approve the *August 1-2, 2023 SPCAG Meeting Minutes*. Shawn Jacobs (OG&E) seconded the motion. The motion carried without opposition or abstention.
- Ken Zellefrow (CUS) motioned to approve the *October 10, 2023 SPCAG Meeting Minutes*. David Wheeler (SPS) seconded the motion. The motion carried without opposition or abstention.
- David Wheeler (SPS) motioned to approve the Thunderhead RAS retirement recommendation. Shawn Jacobs (OKGE) seconded the motion. The motion carried without opposition. Abstention by WAPA-UGP.

### ACTION ITEMS:

- 170: Review and approve the SPP 2024 UFLS Design Assessment Scope in consideration of Light Load evaluation
- Eric Sullivan (SPP) will coordinate with Chris Angland (OPPD) and William on follow-up for SIR544 prioritization efforts
- An additional SPCAG ad-hoc meeting may be scheduled to provide an additional focus session on protection for SPP adoption of IEEE-2800
- Chris Angland (OPPD) and William Holden (SPP) to coordinate on drafting volunteers for Protection in Your Shop presentations

**SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES**  
11/7-8/2023

**MINUTES**

**AGENDA ITEM 1 – ADMINISTRATIVE ITEMS**

SPCAG Chair Chris Angland (OPPD) called the meeting to order at 1:00 PM on 11/7/2023. The meeting reconvened at 8:30 AM on 11/8/2023.

SPCAG Staff Secretary 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.

Chris Angland (OPPD) reviewed the agenda. Added discussion of protection in your shop. A record of the agenda is an attachment to these minutes.

**Ken Zellefrow (CUS) motioned to approve the *August 1-2, 2023 SPCAG Meeting Minutes*. Shawn Jacobs (OKGE) seconded the motion. The motion carried without opposition or abstention.**

**Ken Zellefrow (CUS) motioned to approve the *October 10, 2023 SPCAG Meeting Minutes*. David Wheeler (SPS) seconded the motion. The motion carried without opposition or abstention.**

**AGENDA ITEM 2 – REMEDIAL ACTION SCHEMES**

*THUNDERHEAD*

Tom Kay (Invenergy) provided an overview of the Thunderhead RAS retirement and requested the SPCAG recommendation to the SPP Reliability Coordinator. Steve Wadas (NPPD) commented that the MRO confirmed that the alternate mitigation with Direct Transfer Trip would not be subject to the NERC Standard PRC-012.

**David Wheeler (SPS) motioned to recommend approval of the Thunderhead RAS retirement. Shawn Jacobs (OKGE) seconded the motion. The motion carried without opposition. Abstention by WAPA-UGP.**



## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES 11/7-8/2023

### *RAPID CITY*

Philip Westby (BEPC) provided an update on the upcoming Rapid City RAS retirement that analysis performed by Schweitzer remains underway to be followed by further discussions with NPPD and WAPA.

### *JUDSON TEMPORARY RAS*

Philip Westby (BEPC) informed the group to expect a Judson temporary RAS submission review at a subsequent meeting. The RAS is an additional operator tool to provide mitigation for SPP flowgate 5717 CHAWATCHAPAT which monitors Charlie Creek to Watford City 230 kV for contingency of Charlie Creek to Patent Gate 345 kV.

### *PROCESS DOCUMENT*

William Holden (SPP) provided an update on the proposed revisions to the *Reliability Coordinator and Planning Coordinator NERC Reliability Standard PRC-012-2 Process Document for the Eastern Interconnection*. The SPP Reliability Coordinator will proceed with the document revisions and will send notice when posted.

## AGENDA ITEM 3 – SPP SYSTEM PLANNING SHORT CIRCUIT MODEL

Chris Angland (OPPD) informed the group that no updates have been prepared. Agenda item retained for discussion opportunity.

Lynn Schroeder (Sunflower) reminded the group that the NERC whitepaper included a recommendation for published models in short circuit software format. Eric Sullivan (SPP) commented that SIR544 is not included in SPP's 2024 budget with prioritization on winter weather initiatives.

Members inquired into the initiative schedule. A SPCAG sub-group meeting with Lynn Schroeder (Sunflower), Zach Johnston (OPPD), and others invited was decided upon to update initiative language. Additionally, members were encouraged to communicate the importance of this initiative to their TWG representatives. Initiative prioritization at the TWG was anticipated to begin in January 2024 with materials due 12/21/2023 for meeting on 1/2/2024.

**Eric Sullivan (SPP) will coordinate with Chris Angland (OPPD) and William on follow-up.**

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES 11/7-8/2023

### AGENDA ITEM 4 – IBR

Doug Bowman (SPP) presented on IEEE-2800 standard adoption and the IIRRG progress on the effort. Comments were requested for the gap analysis on protection Clause 9. Collaboration is ongoing with NERC and EPRI on RTO adoption of IEEE-2800 with each ISO/RTO entity pursuing similar implementation efforts and processes. External tutorial sessions are anticipated to be scheduled for late Spring 2024 to deliver a three-part training syllabus on IBR fundamentals.

**An additional SPCAG ad-hoc meeting may be scheduled to provide an additional focus session on protection.**

### AGENDA ITEM 5 – SPP 2024 UFLS DESIGN ASSESSMENT SCOPE

Scott Jordan (SPP) presented on *SPP 2024 PRC-006-5 Under-Frequency Load Shed (UFLS) Design Assessment* scope document. Light load case was considered, concerns were identified with barriers to implementation.

Kevin Jones (SPS) expressed concerns with a sub-island within SPP footprint, summer peak is not adequate. Suggested that appropriate analysis would be performed using a spring shoulder season or light load high wind case with synchronous units offline resulting in only about 10% of the system inertia.

Jonathan Hayes (SPP) communicated that the powerflow model is currently available however UFLS data is not included and would require further model development. UFLS data request for additional case, plan change, reviews, and approvals would be required.

SPCAG approval was deferred until following an ad-hoc meeting tentatively scheduled for December 5, 2023. The scope of the meeting is to evaluate and approve budget impacts, vendor availability, case conditions compared with TPL sensitivity case, UFLS entity data request, and UFLS data request updates.

### AGENDA ITEM 6 – SERIES COMPENSATION

David Plenert (Evergy) presented on an ongoing experience with evaluating system protection impacts from a proposed series capacitor along a generator lead.

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES 11/7-8/2023

### AGENDA ITEM 7 – CIP-014 DELAYED REMOTE CLEARING

Steve Wadas (NPPD) led discussion with the group on concerns with clarity on scope of the NERC CIP-014 standard. Chris Angland (OPPD) commented on the purpose of CIP-014 being to bridge the gap between planning and protections.

### AGENDA ITEM 8 – RELIABILITY GROUPS

#### *NERC SPCWG*

Lynn Schroeder (Sunflower) provided an update on the October 2023 NERC SPCWG meeting. PRC-024 IBR Whitepaper – being finalized for RSTC approval in late '23. Technical reference for Ethernet based P&C document is being populated and planned completion in '24. SPIDERWG provided feedback on PRC-006 SAR regarding tripping generation when expecting load and TPL-001 SAR footnote 13 redundancy in protection. Next meeting scheduled for December 14, 2023 as a WebEx, anticipating two face-to-face meetings next year. Noted accomplishment of 881-A position paper, PRC-023 IBR Whitepaper, *Determination of Practical Transmission Relaying Loadability Settings* has been posted at:

[https://www.nerc.com/comm/RSTC Reliability Guidelines/Order 881 881-A Position Paper%20Final.pdf](https://www.nerc.com/comm/RSTC%20Reliability%20Guidelines/Order%20881%20881-A%20Position%20Paper%20Final.pdf).

It was commented that PRC-023 includes an option of criteria 1 with 150% of highest seasonal rating which is an approximation for the next criteria 2 option for 115% of the 15-minute rating. Would not recommend specifying a (i.e. 115%) margin in SPP requirements due to associated variables (i.e. voltage magnitude and angle).

Steve Wadas (NPPD) & Greg Hill (NPPD), representative for MRO, commented that HEROS provided assurance on interpretation with reference to exemption in PRC-012-2 standard regarding RAS designation for Thunderhead. Inquired on sending a similar request for interpretation on relay settings. It was recommended that it would be good to include in the implementation process coordination between protection and AAR groups.

The group was reminded that a subset of facilities, generally 200 kV and above, are subject to NERC standard PRC-023 whereas additional facilities are subject to the AAR requirement from FERC Order 881.

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES 11/7-8/2023

### NERC STANDARDS

Shannon Mickens (SPP) provided an overview of upcoming updates to NERC Standards. Project 2022-02 includes modifications to TPL-001 and MOD-032. FERC Order 881-A (PRC-023) as discussed in the whitepaper.

### MRO PRS MEETING

Members in attendance provided an update on the September 2023 MRO PRS meeting.

Lynn Schroeder (Sunflower) commented on the Commissioning Lessons learned on relay contact and expressed interest in the presentation by Chris Colson (WAPA) on their Geomagnetic Disturbance (GMD) Project.

### AGENDA ITEM 9 – PROTECTION IN YOUR SHOP

David Oswald (Liberty) deferred sharing Liberty's experiences with the MRO RAM Process Audit.

Chris Angland (OPPD) requested members to present on their PRC-027 program. Steve Wadas (NPPD) UFLS alarm in EMS is an example of learning from others and implementing process improvements. **Chris Angland (OPPD) and William Holden (SPP) to coordinate on drafting volunteers.**

### AGENDA ITEM 10 – CLOSING ADMINISTRATIVE DUTIES

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

Action Item 157 remained as Closure pending to evaluate NERC whitepaper on short circuit models integration into the MDAG process. 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 Closure Pending to allow SIR544 prioritization to be agreeable to the SPCAG. Action item 166 remains marked as In Progress with SPCAG members invited to participate in the MDAG model process. Action item 167 remains marked as In Progress with SIR544 submitted for prioritization and consultation with SPP management. Action item 169 remains marked as Not Started for SPCAG members to be engaged in TWG and MDAG to appropriately prioritize SIR544. Action item 170 was added for SPCAG to review and approve the SPP 2024 UFLS Design Assessment Scope in consideration of Light Load evaluation A record of action items is an attachment to these minutes.

Chris Angland (OPPD) led a discussion on potential topics for upcoming meetings.

*Antitrust: SPP strictly prohibits use of participation in SPP activities as a forum for engaging in practices or communications that violate the antitrust laws. Please avoid discussion of topics or behavior that would result in anti-competitive behavior, including but not limited to, agreements between or among competitors regarding prices, bid and offer practices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that might unreasonably restrain competition.*

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES 11/7-8/2023

Spencer Riddle (WAPA) agreed to request Chris Colson (WAPA) present on their GMD Program.

Steve Wadas (NPPD) suggested FERC Order 881 implementation for seasonal ratings and discussion on how AARs are being determined such as PSLCAD or other tools and consulting groups. Chris Angland (OPPD) requested an SPP presentation on their implementation plan.

Additional topics mentioned included Enterprise data management and coordination as well as MPLS and fiber transformation from older technologies.

The 2024 meeting schedule and locations were discussed.

- February 13-14, 2024 (Teleconference)
- May 14-15, 2024 (In-person, Evergy facilities in Kansas City)
- August 13-14, 2024 (In-person)
- November 12-13, 2024 (Teleconference)

Chris Angland (OPPD) recessed the SPCAG at 4:34 PM on 11/7/2023 and adjourned the SPCAG at 10:47 AM on 11/8/2023.

Respectfully Submitted,

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

**SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES  
11/7-8/2023**

**SUMMARY OF ATTACHMENTS:**

SPCAG 11/7-8/2023 Agenda (pg. 9-10)

SPCAG 11/7-8/2023 Member Attendance (pg. 11)

SPCAG Action Item Tracking (pg. 12-14)

SOUTHWEST POWER POOL, INC.

SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MEETING

November 7, 2023 1:00PM - 5:00PM CPT  
 November 8, 2023 8:00AM - 12:00PM CPT

Net Conference

**AGENDA**

1. Administrative Items:
  - a. Call to Order..... Chris Angland
  - b. Attendance .....William Holden
  - c. Antitrust Statement.....William Holden
  - d. Agenda Review ..... Chris Angland
  - e. Review minutes of August 1-2, 2023 meeting (Approval)..... Chris Angland
  - f. Review minutes of October 10, 2023 meeting (Approval) ..... Chris Angland
2. Remedial Action Schemes: [https://spp.org/documents/62226/spp\\_prc-012-2\\_process\\_ei.pdf](https://spp.org/documents/62226/spp_prc-012-2_process_ei.pdf)
  - a. Thunderhead RAS Retirement (Approval) ..... Tom Kay
  - b. Rapid City RAS Retirement (Update) ..... Philip Westby
  - c. Judson Temporary RAS (Update) ..... Philip Westby
  - d. EI PRC-012-2 Process Document Revisions (Update) .....William Holden
3. SPP System Planning Short Circuit Model: [SIR544](#) (Update) .....Eric Sullivan
4. Inverter Based Resources (IBR):
  - a. SPP Adoption of IEEE-2800 (Update) .....Doug Bowman
5. SPP 2024 UFLS Design Assessment Scope (Approval) ..... Scott Jordan
6. Series Compensation (Update)..... Everygy
7. CIP-014 delayed remote clearing .....Steve Wadas
8. Reliability Groups (Update):
  - a. [NERC SPCWG](#)..... Lynn Schroeder
    - FERC [Order 881](#) white paper and Impact to [PRC-023](#)
  - b. [NERC Standards](#).....Shannon Mickens
  - c. [MRO PRS](#) ..... Jeff Beasley
9. Protection in your shop:
  - a. Discussion of future ..... Chris Angland
  - b. MRO RAM Process Audit Experiences (Deferred).....David Oswald

10. Closing Administrative Duties:

- a. Review of New, Open and Closure Pending Actions.....William Holden
- b. Discuss upcoming meeting schedule, topics, and location ..... Chris Angland
  - i. February 13-14, 2024 (Teleconference)
  - ii. May 14-15, 2024 (In-person)
  - iii. August 13-14, 2024 (In-person)
  - iv. November 12-13, 2024 (Teleconference)
- c. Adjourn meeting ..... Chris Angland



## SPCAG MEMBER ATTENDANCE:

Name	Company	Role	11/7/2023	11/8/2023
Chris Angland	Omaha Public Power District	Chair	✓	✓
David Oswald	Liberty Utilities	Vice Chair	Excused Absence	Excused Absence
John Anderson	Evergy, Inc	Member	✓	✓
Jeff Beasley	Grand River Dam Authority	Member	Excused Absence	Excused Absence
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> <p>4/25/23: Closure pending evaluation of NERC paper incorporation into MDAG process</p> <p>11/8/23: Closure pending MDAG process validations being evaluated and updated to include NERC paper recommendations, Chris Angland will investigate further to achieve closure</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</p>	In progress	Zach Sabey	

Action Item	Origin Date	Action Item	Update Summary	Status	Owner	Date Closed
			<p>opportunity for feedback on the current short circuit model development. 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> <p>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.</p> <p>4/25/23: SPP Modeling Staff deferred detailed update to the next meeting in August.</p> <p>11/8/23: Sub-group to form and update initiative language</p>			
165	05/11/22	SPCAG to explore SPP Roadmap for Short Circuit modeling program purchase.	<p>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</p> <p>11/9/22: Eric Sullivan (SPP) provided an update on the initiative</p> <p>2/7/23: no progress to report</p> <p>4/25/23: Closure pending SIR544 prioritization agreeable by SPCAG</p> <p>11/8/23: Closure pending SIR544 prioritization agreeable by SPCAG</p>	Closure pending	William Holden	
166	05/11/22	SPCAG to create sub-group for coordination with MDAG.	<p>8/10/22: SPCAG members have been attending MDAG Focus Group meetings</p> <p>11/9/22: Eric Sullivan (SPP) provided an update on opportunity for feedback on the current short circuit model development.</p> <p>2/7/23: no progress to report</p> <p>4/25/23: SPP Modeling staff invited SPCAG members to participate in MDAG model process</p> <p>11/8/23: Sub-group to form and update initiative language</p>	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	<p>11/9/22: Eric Sullivan (SPP) provided an update on the initiative</p> <p>2/7/23: no progress to report</p> <p>4/25/23: SIR544 submitted, in-process for prioritization by working groups (e.g. TWG)</p>	In progress	William Holden	

Action Item	Origin Date	Action Item	Update Summary	Status	Owner	Date Closed
			8/1/23: Eric Sullivan (SPP) provided an update on the initiative. Will consult with SPP management then provide an update by email. 11/8/23: Sub-group to form and update initiative language			
169	04/25/23	SPCAG to be engaged in TWG and MDAG to appropriately prioritize SIR544	11/8/23: Sub-group to form and update initiative language	Not Started	William Holden	
170	11/8/23	Review and approve the SPP 2024 UFLS Design Assessment Scope in consideration of Light Load evaluation	11/8/23: ad-hoc meeting to evaluate and approve: budget impacts, vendor availability, case conditions compared with TPL sensitivity case, UFLS entity data request, and UFLS data request updates.	Not Started	William Holden	

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

January 3, 2024 8:30AM - 11:30AM (CPT)

Teleconference

## **SUMMARY OF MOTIONS AND ACTION ITEMS**

### **MOTIONS:**

- Jeff Beasley (GRDA) motioned to delay performing voting, to recommend approval of the Judson temporary RAS to be installed until the Roundup – Kummer Ridge 345 kV line is placed in service, by email for one week to allow time for the members to review the material. Shawn Jacobs (OKGE) seconded the motion. The motion carried without opposition or abstention. The email vote received unanimous approval.

### **ACTION ITEMS:**

- No new items

## **MINUTES**

### **AGENDA ITEM 1 – ADMINISTRATIVE ITEMS**

SPCAG Chair Chris Angland (OPPD) called the meeting to order at 8:41 AM on 1/3/2024.

SPCAG Staff Secretary William Holden (SPP) took attendance which was initially inadequate to establish a meeting quorum. Quorum was later established. A record of member attendance is an attachment to these minutes.

William Holden (SPP) read the SPP Antitrust Statement.

Chris Angland (OPPD) reviewed the agenda. A record of the Agenda is an attachment to these minutes.

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES

01/03/2024

### AGENDA ITEM 2 – REMEDIAL ACTION SCHEMES

#### *JUDSON TEMPORARY RAS (APPROVAL)*

Philip Westby (Basin) presented on the proposed Judson RAS.

**Jeff Beasley (GRDA) motioned to delay performing voting, to recommend approval of the Judson temporary RAS to be installed until the Roundup – Kummer Ridge 345 kV line is placed in service, by email for one week to allow time for the members to review the material. Shawn Jacobs (OKGE) seconded the motion. The motion carried without opposition or abstention. The email vote received unanimous approval.**

#### *PROCESS DOCUMENT*

William Holden (SPP) provided an update that the SPP Reliability Coordinator has posted the revisions to the *Reliability Coordinator and Planning Coordinator NERC Reliability Standard PRC-012-2 Process Document for the Eastern Interconnection* which is now effective.

### AGENDA ITEM 3 – CLOSING ADMINISTRATIVE DUTIES

SPCAG Chair Chris England (OPPD) noted the upcoming email vote on the Judson RAS recommendation, the next meeting in February, and adjourned the SPCAG at 9:36 AM on 1/3/2024.

Respectfully Submitted,

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

## SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MINUTES

01/03/2024

### SUMMARY OF ATTACHMENTS:

SPCAG 1/3/2024 Agenda (pg. 4)

SPCAG 1/3/2024 Member Attendance (pg. 5)



SOUTHWEST POWER POOL, INC.

SYSTEM PROTECTION AND CONTROL ADVISORY GROUP MEETING

January 3, 2024 8:30AM - 11:30AM CPT

Net Conference

AGENDA

- 1. Administrative Items:
  - a. Call to Order..... Chris Angland
  - b. Attendance .....William Holden
  - c. Antitrust Statement.....William Holden
  - d. Agenda Review ..... Chris Angland
- 2. Remedial Action Schemes: [spp.org/documents/62226/SPP RC PRC-012-2\\_0820ext00137.pdf](http://spp.org/documents/62226/SPP_RC_PRC-012-2_0820ext00137.pdf)
  - a. Judson Temporary RAS (Approval)..... Philip Westby
  - b. EI PRC-012-2 Process Document Revisions (Update) .....William Holden
- 3. Closing Administrative Duties:
  - a. Review of New, Open and Closure Pending Actions.....William Holden
  - b. Discuss upcoming meeting schedule, topics, and location ..... Chris Angland
    - i. February 13-14, 2024 (Teleconference)
  - c. Adjourn meeting ..... Chris Angland



## SPCAG MEMBER ATTENDANCE:

Name	Company	Role	1/3/2024
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-Neudahl	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	✓