

Southwest Power Pool
SYSTEM PROTECTION AND CONTROL WORKING GROUP
MEETING

January 24 & 25, 2018
Embassy Suites, Bass Pro Drive
Dallas, TX

• M I N U T E S •

Agenda Item 1: Administrative Items

Call to Order and Introductions

Chair, Louis Guidry, called the meeting to order at 8am and welcomed everyone. There were 20 participants, 16 in person and 4 via webex. (Attendance List Attached).

Proxies

None

Approve minutes of previous meetings

The minutes for the October 18, 2017 meeting were reviewed and unanimously approved

Approve agenda

The agenda for the meeting was reviewed. RAS Approvals/Reviews, EOP Discussion, and OGE RAS Removal was added. The revised agenda was unanimously approved. (Agenda Attached)

Agenda Item 2: Review of Past Action Items

Doug Bowman reviewed the action items through item 93 and noted status updates.

Agenda Item 3: NERC SPC Update

Forrest Brock provided the SPCS update. The SPCS did not meet face-to-face, but did hold a conference call January 4, 2018. During that call, Jeffrey Isler from AEP was nominated to fill the vacant Vice Chair position and was approved by the SPCS membership. Jeff's nomination to the Vice Chair position will go to the NERC Planning Committee (PC) for final approval. Other membership changes discussed included seeking a new representative from TRE, as Sam Francis of Oncor is planning to retire this spring, and a move from primary to alternate SERC representative at the request of Phil Winston, who is considering retirement as well. It was discussed that since the SPP RE is being dissolved, the SERC opening may be a good fit for Louis. Forrest will contact SPCS leadership and NERC staff regarding Louis' current and future SPCS membership status and report back.

Also discussed on the SPCS conference call was NERC PC approval of the PRC-023 Implementation Guidance Document recently authored by the SPCS. The SPCS discussed further revision and review of the PRC-024 guidance document and appointed a sub-team to begin work on the PRC019 guidance document as well. A face-to-face meeting this spring at

Oncor headquarters in Fort Worth, Texas is possible, and may include discussion of a Misoperations guidance document.

Agenda Item 4: FERC Ruling for PRC-027

Jeff Beasley talked about the PRC-027 FERC NOPR and noted that some of the information doesn't make sense with respect to coordination studies. R1 is designed to cover new relays and the required coordination studies and R2 captures gradual changes to the legacy system. Jeff asked if the SPCWG should provide a response as there might be some logic there that the group can correct. It has to be done by the 29th to make a statement. The group reviewed and edited Jeff's draft comments document. DB will work with SPP Legal to have them submitted to NERC.

Agenda Item 5: Update on SPP RE Future

Louis talked about the decision to dissolve the RE at the end of the year 2018. Members will have to go to a new RE. NERC made a recommendation on where members should go, SERC or MRO. Files on the NERC website show where members will go and why they'll go there. Feb 8, 2018 will be the presentation to the Board of Trustees for vote. Then it will go to FERC in March.

Louis asked how will the SPP SPCWG operate beginning 2019? How will RAS approvals and misoperations be handled? MRO has a process for approving RAS which is really our own process. SERC probably has something similar. Does the SPCWG continue to take on that task? Charles said the SPCWG will still need to represent the PC and RC as the new standard says the PC and RC is responsible. Also, Criteria 8.4 will need to be examined again. Louis noted that as we wind down 2018, we need to develop a transition plan. Louis will reach out to SERC and MRO to get their misoperation review processes. As details are learned, the transition plan will be put together.

Agenda Item 6: Criteria Section 8 Review

Forrest and Ken reported on this item. The criteria spreadsheet outlining what edits were needed was provided. Forrest and Ken went through the remaining sections of criteria 8 to determine if anything else needs to be removed. A number of issues were seen and some sections needed to be removed. Doug, Forrest, and Ken will put together RRs to revise the criteria according to SPCWG recommendations.

Agenda Item 7: Misoperations

- a) Misoperations Report: Louis presented for Thomas T. and reviewed the member misoperations for Q3 2017.
- b) Misoperations Summit – The 2017 Summit was a success. Comments were favorable. Other REs are now starting to have their own misoperations meetings. Jeff noted that Louis' flowchart was a very good tool to use in evaluating the misoperations. The question is, will MRO and SERC be compiling the information for the SPCWG since the SPP RE is doing it now?
 - i. Future Reviews in Multiple REs: See item 5 notes.
 - ii. Flow Chart Tool and Roll-Out: This item not covered due to a time restriction.

- iii. 2018 Summit: This item not covered due to a time restriction.
- c) Misoperations Subcommittee Formulation: This item not covered due to a time restriction.

Agenda Item 8: Poplar Bluff Request

Charles Hendrix presented SPP PC's response to Poplar Bluff's request to be removed from the UFLS plan. SPP's response and recommendation was to deny Poplar Bluff's request. Neil Williams, Poplar Bluff Municipal Utilities provided his argument to the SPP response. After the group discussed the issues involved, the SPCWG made a motion to support the PC's recommendation. Rick Gurley made that motion and Jeff Beasley seconded. A member vote was requested and the members provided unanimous support for the PC's response. The motion carried.

Neil Williams requested the next UFLS study include analysis to determine the impact of their request. A new UFLS study will begin sometime in 2019 and consideration will be given to the Poplar Bluff concern in the study scope.

Agenda Item 9: LeBrock Tripping Scheme

Rick provided further information on the Scheme. The following details were given:

- The GTS operates based on breaker and switch status, via aux contacts from the Pirkey line breakers and line switches.
- It does not use any voltage or current inputs from the transmission system.
- It does not trip a BES element. It trips the low voltage generator breakers.
- The problem is related to stability and not an overload condition.
- Stability study notes:
 - Case 4C is the event that leads to the instability condition.
 - LeBrock 345 kV voltage is unstable, per the Harrison County Plant Stability Study Report (HCPSSR) PDF page 20.
 - Harrison GTs 1 & 2 encounter speed instability in 2 seconds, per HCPSSR PDF page 22.
 - Harrison GTs 1 & 2 encounter voltage instability, per HCPSSR PDF pages 24 & 25.
- In the absence of the GTS, the end result would be the same. The unstable generators will trip off due to instability by their own protection. The advantage of the GTS is to remove them as quickly as possible to reduce the probability of generator damage.
- NERC RAS definition, exception "e" applies since the GTS operates on breaker status, after the lines are opened, manually or automatically; not for a fault (i.e. no power system inputs to the tripping scheme).
- NERC RAS definition, exception "n" mentions generator instability.

A formal motion to recommend the tripping scheme not be considered a RAS was made by Rick Gurley. Mathew Thykkuttathil seconded the motion. A vote requested and the motion to recommend the tripping scheme not be considered a RAS was unanimously approved.

Agenda Item 10: PSET Tool Project Update

Steve Wadas has been working with EPRI using the PSET tool. The NPPD Aspen model and database was successfully imported into the tool. EPRI provided results analysis spreadsheet and other information. One small area of the NPPD system was tested and the results agreed with Aspen. A number of small issues with the PSET tool were found. It was noted that the PSET tool can fault all busses for PRC-027. Forrest noted the PSET tool could be used as a way to satisfy the requirement that a quality review of settings take place. NPPD will continue to work with EPRI and Steve will report further work at the next meeting.

Agenda Item 11: EOP-004-3 R2 Discussion

Steve discussed the event type “transmission loss” whether it should be reported if “unexpected loss within its area, contrary to design, of three or more BES elements caused by a common disturbance occurs”. He questioned whether it should be reported as a misoperation. The group’s consensus was that they are not reporting it since it is not contrary to design.

Agenda Item 12: OGE RAS Removal

Shawn Jacobs noted the RAS spreadsheet/checkoff list is very limited in what is required to remove a RAS. Louis showed what he provided when the Wells Reactor SPS was removed. Shawn presented a description of the Centennial Wind Farm SPS Removal request and the Crossroads Wind Farm SPS Removal request. A formal motion to approve the removal of the two RAS was made by Steve Wadas. Forrest Brock seconded the motion. The motion was unanimously approved by the members.

Agenda Item 13: Discussion of Future Meetings (Proposed Meeting Dates)

- Future Meeting Dates and locations
 - April 25, 26 Dallas, TX, Downtown AEP Office
 - July 25, 26 Denver, CO, Downtown Xcel Office
 - October 24,25 Dallas, TX, Downtown AEP Office

Agenda Item 14: Closing Administrative Duties

The action item list was updated to reflect four (4) new action items and these were summarized by Doug Bowman (Action Items Attached). Louis asked for additional discussions and none occurred. The meeting was adjourned.

Respectfully Submitted,

Douglas Bowman
SPCWG Staff Secretary

SPRING
ATTENDANCE 1-24/25 2018

Attendance:

First Name	Last Name	Attending Through	Company	Email
✓ Allen	Halling	Web/Phone Conference	Kansas City Power and Light	allen.halling@kcpi.com
✓ Bob	Soper	Web/Phone Conference	Western Area Power Administration-Upper Great Plains Region	soper@wapa.gov
✓ Charles	Hendrix	In person	Southwest Power Pool, Inc.	chendrix@spp.org
✓ Christopher	Angland	Web/Phone Conference	Omaha Public Power District	cangland@oppd.com
✓ David	Wheeler	In person	Xcel Energy	david.e.wheeler@xcelenergy.com
✓ David	Oswald	In person	Empire District Electric Company	doswald@empiredistrict.com
✓ Derek	Vonada	Web/Phone Conference	Sunflower Electric Power Corp	dvonada@sunflower.net
✓ Douglas (Doug)	Bowman	In person	Southwest Power Pool	dbowman@spp.org
✓ Douglas (Doug)	Jackson	Web/Phone Conference	Grand River Dam Authority	djackson@grda.com
✓ Evan	Estes	In person	Quanta Technology	eeestes@quanta-technology.com
✓ Gary	Condict	In person	Sunflower Electric Power Corp	gcondict@sunflower.net
✓ Jeff	Beasley	In person	Grand River Dam Authority	jbeasley@grda.com
✓ John	Hare	In person	Oklahoma Gas & Electric	harejm@oge.com
✓ John	Anderson	In person	Westar Energy	john.anderson@westarenergy.com
✓ Ken	Zellefrow	In person	City Utilities Springfield Missouri	ken.zellefrow@cityutilities.net
✓ Kevin	Goalsby	Web/Phone Conference	GDS Associates	kevin.goalsby@gdsassociates.com
✓ Louis	Guidry	In person	Cleco	louis.guidry@cleco.com
✓ Matthew	Thykkuttathil	In person	Sunflower Electric Power Corporation	mthykkuttathil@sunflower.net
✓ Michael	Fleck	In person	ITC Holdings	mifleck@itctransco.com
✓ Randall	Wilmoth	In person	Xcel Energy	randall.wilmoth@xcelenergy.com
✓ Rick	Gurley	In person	American Electric Power	rgurley@aep.com
✓ Robert	Hirchak	Web/Phone Conference	Cleco	robert.hirchak@cleco.com
✓ Shawn	Jacobs	In person	Oklahoma Gas and Electric Co	jacobs@oge.com
✓ Sing	Tay	Web/Phone Conference	Oklahoma Gas & Electric	taysh@oge.com
✓ Stephen	Wadas	In person	NPPD	stwadas@nppd.com
✓ Thomas	Teafatiller	In person	SPP RE	teafatiller.re@spp.org
✓ Tom	Miller	Web/Phone Conference	ITC Holdings	tom.miller@itctransco.com

✓ Neil Williams
✓ Forrest Brack

Southwest Power Pool, Inc.
SYSTEM PROTECTION AND CONTROL WORKING GROUP
January 24-25, 2018
Embassy Suites BassPro Drive, Dallas, TX

• A G E N D A •

1. Administrative Items.....Louis Guidry
 - a. Call to Order
 - b. Proxies
 - c. Approve minutes of October 18, 2017 meeting
 - d. Approve agenda
2. Review of Past Action Items Doug Bowman
3. NERC SPC Update.....Forrest Brock
4. FERC Ruling for PRC-027.....Jeff Beasley
5. Update on SPP RE FutureLouis Guidry
 - a. RAS Approvals/Reviews
6. Criteria Section 8 Review.....Ken Zellefrow, Forrest Brock
7. Misoperations
 - a. Misoperations Report for Q3 2017 Thomas Teafatiller
 - b. October 2017 Misoperations Summit Discussion.....Louis Guidry
 - i. Future Reviews in Multiple Res
 - ii. Flow Chart Tool and Roll-Out
 - iii. 2018 Summit
 - c. Misoperations Subcommittee Formulation.....Louis Guidry
8. Poplar Bluff Request.....Charles Hendrix, Jonathan Hayes
9. LeBrock Tripping Scheme.....Rick Gurley
10. PSET Tool Project Update.....Steve Wadas
11. EOP-004-3 R2 Discussion.....Steve Wadas
12. OGE RAS Removal.....Shawn Jacobs
13. Discussion of Future Meetings (Proposed Meeting Dates).....Louis Guidry
 - a. 2018 Dates and Locations
 - i. April 25 & 26, 2018 Little Rock, AR, SPP Office
 - ii. July 25 & 26, 2018 Denver CO, TBD
 - iii. October 24 & 25, 2018, Dallas, TX, TBD
14. Closing Administrative Duties.....Louis Guidry
 - a. Summarize Action Items
 - b. Discuss upcoming meeting topics
 - c. Adjourn meeting

ACTION ITEMS

88	07/12/17	DB and RG discuss LeBrock tripping scheme with ORWG leadership. ORWG thought that it should be a RAS.	RG will go back to ORWG/TWG during Feb/Mar to get a formal vote on the matter	ongoing
89	07/12/17	DB, TM, SPP Modeling, and CAPE to discuss short circuit modeling conversion issues.	graphs need to be incorporated into whitepaper	Complete
90	07/12/17	DB to set up webex for Aug 10 to discuss unresolved misoperations. LG to contact FPL to determine process for reviewing misops prior to MIDAS submittal. TT to check to see if he can set up an EFT server for members to store misop info.	Conference call to be scheduled	Completed
91	10/18/17	DB and EPRI to investigate the best way to incorporate the PSET tool and give a recommendation at the January SPCWG mtg.	Report at the January SPCWG	Complete
92	10/18/17	LG to review and revise the existing Misoperations Subcommittee charter to reflect it's new home under the SPCWG	Report at the January SPCWG	Complete
93	10/18/17	FB and KZ will review Criteria section 8 and determine if any needs to be removed and report to the group in January.	Report at the January SPCWG	Complete
94	01/24/18	LG, SW, and FB will reach out to SERC and MRO to get their misoperation review processes.	Report at the April SPCWG	
95	01/24/18	Forrest, Ken and Doug will put together language for an RR for DB to initiate a revision to criteria 8.4.	Draft RR will be prented at the April SPCWG	
96	01/24/18	Forrest, Ken, Doug to initiate an RR to remove criteria as per SPCWG recommendation.	Draft RR will be prented at the April SPCWG	
97	01/24/18	DB to determine method by which PRC-027 comments are submitted (deadline 1/29)	DB to discuss with Shannon or Charles	