



Southwest Power Pool, Inc.  
OPERATING RELIABILITY WORKING GROUP  
Denver, CO Face to Face  
Wednesday August 1<sup>st</sup> 2018 8:00 AM – 5:00 PM (CDT)  
Thursday August 2<sup>nd</sup> 2018 8:00 AM – 12:00 PM (CDT)

• Action Items and Voting Record •

**ACTION ITEM:** Return to ORWG with CR Performance metrics.

**ACTION ITEM:** Send out a poll to ORWG to determine member PRC-002-2 plans related to PMU.

**ACTION ITEM:** Determine if agreements are needed to run independent studies during the testing phase of the RDS.

**June 27, 2018 ORWG meeting minutes**

Ron Gunderson (Nebraska Public Power District) moved to approve the June 27, 2018 ORWG meeting minutes as modified, and Allan George (Sunflower Electric Power Corporation) seconded the motion. The motion carried without opposition or abstention.

**RR266 JOU Combined Single Resource Modeling**

Jeff Wells (Grand River Dam Authority) moved to approve RR266 as presented, and Abu Elteriefi (ITC Holdings) seconded the motion. The motion carried without opposition or abstention.

**RR305 Attachment O and Business Practice 7060 Clarification**

Ron Gunderson (Nebraska Public Power District) moved to approve RR305, and Jeff Wells (Grand River Dam Authority) seconded the motion. The motion carried without opposition or abstention.

**ORWG Charter Update**

Craig Speidel (Western Area Power Administration) moved to approve the ORWG Charter as amended, and Doug Peterchuck Proxy for Todd Gosnell (Omaha Public Power District) seconded the motion. The motion carried without opposition or abstention.



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• M I N U T E S •

**Agenda Item 1 – Call to Order**

Chairman Allen Klassen (Westar Energy, Inc.) opened the meeting at 8:01 AM on 8/01/2018.

Chairman Allen Klassen (Westar Energy, Inc.) opened the meeting at 8:00 AM on 8/02/2018.

**Agenda Item 2 – Attendance**

Jason Tanner (Southwest Power Pool) called attendance and a meeting quorum was reached.

**Agenda Item 3 – Antitrust Statement**

Jason Tanner (Southwest Power Pool) read the SPP Antitrust Statement.

**Agenda Item 4 – Agenda Review**

Allen Klassen (Westar Energy, Inc.) reviewed the agenda and noted the items that would require action.

**Agenda Item 5 – Consent Agenda**

Allen Klassen (Westar Energy, Inc.) discussed the consent agenda, which included the June 27, 2018 ORWG meeting minutes, Jason Tanner (Southwest Power Pool) requested to pull the June 27, 2018 ORWG meeting minutes for discussion.

**Pulled From the Consent Agenda**

Jason Tanner (Southwest Power Pool) discussed the grammatical corrections submitted by Ron Gunderson (Nebraska Public Power District) and Casey Cathey (Southwest Power Pool).

**Ron Gunderson (Nebraska Public Power District) moved to approve the June 27, 2018 ORWG meeting minutes as modified, and Allan George (Sunflower Electric Power Corporation) seconded the motion. The motion carried without opposition or abstention.**

**Agenda Item 6 – RR266 JOU Combined Single Resource Modeling**

Gary Cate (Southwest Power Pool) discussed RR266 and stated that the current design for Joint Operating Units (JOUs) has unintended consequences that were documented by the SPP Market Monitoring Unit (MMU). Gary stated that the goal of this RR is to address the gaming opportunity and market inefficiencies that currently exist with the JOU market design. Gary stated that this RR will remove the combined JOU option and only allows the individual resource option. Gary stated that SPP will treat the JOU as one Resource in the market clearing decisions by modeling the JOU as a single Resource in EMS, AGC and reliability models while performing a percent ownership share allocation split of revenues after the fact for settlement purposes. Gary stated that a designated Asset Owner will submit all JOU data as a single Resource. However, other JOU shares will remain and will be used for settlement purposes. Doug Peterchuck (Omaha Public Power District) noted several locations within the RR where additional cost is placed on the customer, and Doug asked what is driving the cost. Gary stated that the cost is mainly driven by implementation cost. Allen Klassen (Westar Energy, Inc.) stated that he sees this RR as improving reliability by modeling JOUs more accurately.

**Jeff Wells (Grand River Dam Authority) moved to approve RR266 as presented, and Abu Elteriefi (ITC Holdings) seconded the motion. The motion carried without opposition or abstention.**

**Agenda Item 7 – RR305 Attachment O and Business Practice 7060 Clarification**

Caitlin Shank (Southwest Power Pool) explained that Attachment O states that upgrades are included in the models upon execution of various agreements and Business Practice 7060 does not allow for transmission service to be included in the ITP models until the Service Agreement with SPP is filed. Caitlin stated that Attachment Z1 was updated to modify the Aggregate Facilities Study process where, if all Transmission Customer parameters are met at the conclusion of the study, then the Transmission Customer is obligated to take the service. Caitlin stated that we removed the requirement for filing a Service Agreement prior to modeling new Transmission Service in the ITP, and the requirement for SPP to issue a NTC or NTC-C prior to filing a Service Agreement was removed.

**Ron Gunderson (Nebraska Public Power District) moved to approve RR305, and Jeff Wells (Grand River Dam Authority) seconded the motion. The motion carried without opposition or abstention.**

**Agenda Item 8 – IBIS Update**

Doug Bowman (Southwest Power Pool) explained that we are currently working with EPRI and PowerTech Labs on time domain simulations. Doug explained that EPRI has also developed a Short-Circuit Ratio (SCR) tool, and Doug provided an education session over grid strength and SCR. Doug explained that a short circuit is an abnormally low impedance path to ground and during short circuit the maximum voltage drop occurs at the fault location. Doug stated that short circuit currents generate large amounts of heat and magnetic forces, and arcing and burning can occur at the short circuit location. Doug stated that short circuit currents flow from various sources to the short circuit location, and system voltage drops in proportion to the current magnitude. Doug explained that grid strength is a measure of the stiffness system with respect to voltage, and unlike frequency, location matters. Doug explained that the SCR measures the strength or voltage stiffness at a point in the power system, and for the IBIS we are measuring the SCR at the point of interconnection for renewable resources. Ron Gunderson (Nebraska Public Power District) stated that he is concerned that SCR could become an issue as we see additional generation retirements. Casey Cathey (Southwest Power Pool) and Jason Tanner (Southwest Power Pool) explained that they see 3 RR's that will likely need to be generated; a RR for future interconnections, existing interconnections, and real-time operations.

**Agenda Item 9 – RR318 CR Calculations**

Garrett Crowson (Southwest Power Pool) discussed RR318 Contingency Reserves Calculations. Garrett explained that the SPP RSG operating process's current definition, and subsequently SPP's calculation, of Minimum Daily Contingency Reserve Requirement is not written to use the Most Severe Single Contingency as the basis for the calculation. Garrett stated that current language requirement is targeted towards single largest and next largest capacities of the generating units. Garrett explained that this revision will allow SPP to use the Most Severe Single Contingency as the basis of the Minimum Contingency Reserve Requirement and also do so on an hourly basis. Garrett stated that this revision request also allows SPP to more accurately set the extra capacity needed above the MSSC to ensure recovery. Ron Gunderson (Nebraska Public Power District) stated that we need to define the process SPP uses to calculate the MSSC as required by NERC Reliability Standards. He is also concerned that as the RR is written we could set reserves to a minimum of the MSSC. Ron suggested that we define a minimum floor scaler of 1.2. The ORWG made language edits to the RR and tabled the discussion until a future ORWG meeting.

**ACTION ITEM: Return to ORWG with CR Performance metrics.**

**Agenda Item 10 – PFRTF Task Force**

Jason Tanner (Southwest Power Pool) provided a list of PFRTF nominations and ask ORWG accept the nominations. Allen Klassen (Westar Energy, Inc.) approved the PFRTF nominations. Jason stated that the PFRTF will also need a chairman, and Allan George (Sunflower Electric Power Corporation) was selected as the PFRTF Chairman.

**Agenda Item 11 – Business Practice Review**

Ken Quimby (Southwest Power Pool) provided a review of the SPP Stakeholder process and explained the deliberative bodies in which policy decisions are developed, informed, vetted and approved by diverse groups of stakeholders. Ken stated that hundreds of representatives from our 95 member companies serve this role in the various Working Groups. Ken stated that SPP currently has 15 Standing Working Groups, multiple Task Forces, Committees, and Sub-Committees as needed. Ken explained SPP Value propositions and stated that SPP is a steward of our stakeholders’ resources, and endeavors to add value whenever we can. Ken stated that we believe our value derives from a five-faceted proposition that is central to our strategy: relationship-based, member-driven, independence through diversity, evolutionary vs revolutionary, and reliability and economics are inseparable. Ken discussed the ORWG charter, working group structure governing documents, the RMS system, and the SPP Revision Request process.

**Agenda Item 12 – ORWG Charter Update**

Jason Tanner (Southwest Power Pool) discussed the redline changes to the ORWG charter, which removed the references to the SPP RE. The ORWG made additional edits to state the following “Coordinate with applicable Reliability Entitles (RE) as needed for reliability issues. The ORWG will coordinate with other working groups on any issues that affect the groups.”

**Craig Speidel (Western Area Power Administration) moved to approve the ORWG Charter as amended, and Doug Peterchuck Proxy for Todd Gosnell (Omaha Public Power District) seconded the motion. The motion carried without opposition or abstention.**

**Agenda Item 13 – ORWG/MWG Joint Wind Management**

Jason Tanner (Southwest Power Pool) introduced the MWG and explained that the goal of this discussion was explain the differences between the messages presented at ORWG vs MWG. Jason stated that we would discuss wind statistics, shortage of short term capacity, and finish with the market design list. Gunnar Shaffer (Southwest Power Pool) explained that 23% of 2017 SPP Energy Production was wind and the installed capacity in the SPP Market is 20,038 MW. Gunnar stated that 605 MW’s is pseudo-tied out of the SPP Market. Gunnar stated that SPP has over 10,000 individual turbines and the current wind peak is 15,690 MWs with a wind penetration record of 63.96%. Gunnar stated that currently SPP has 51 GWs of wind and 17.8 GWs of solar in the GI Queue. Ricky Finkbeiner (Southwest Power Pool) explained the mid-term forecast error and Gunnar explained the confidence bands. Garrett Crowson (Southwest Power Pool) discussed the shortage of short-term capacity and stated that the system is starting to experience larger net errors. Garrett explained that net errors can include wind, load, NSI, and resource availability. Garrett explained there is no current mechanism that excludes the market from utilizing all short-term capacity if economic, which could possibly leave the system with inadequate offline capacity to offset the net errors experienced in real-time. Garrett explained that we are working with wind vendors to seek solutions to forecast uncertainty, and we currently have a trial with Meteologica SA from Spain examining their forecasting accuracies in our worst ramping events. Garrett stated that we are meeting with other vendors to look closer at their forecasting products that may help with ramping

*Relationship-Based • Member-Driven • Independence Through Diversity*

*Evolutionary vs. Revolutionary • Reliability & Economics Inseparable*

events. Gary Cate (Southwest Power Pool) discussed the market design list for improvements. Gary discussed the ramp product and stated that ramp management could provide a tool that is utilized based on economic incentives for a resource in lieu of the RUC, which would help solve intra hour ramp problems that exist, and help reduce RUC commitments by bridging the gap from one hour to the next. Gary stated that economic transparency would be created as it related to the market value of ramp in SPP. Gary stated that long-term economic incentive should be in place to entice the right technology to be built for the challenges that face SPP in the short, mid and long-term. Gary discussed the Multi-Day Unit commitment, Economic Decommittments, 30-minute product, primary frequency response and the benefits that would be observed. Ron Gunderson (Nebraska Public Power District) was concerned about the impact on quick start units that may not be committed even though they are economic just to hold back quick start capability to respond to resource and load errors. He asked how generators with shorter lead times that may not be committed to hold back short term capacity could be compensated and could be allocated to the parties that may cause the costs due to the inability to forecast errors in their output. A concern about assigning costs to specific resources was raised by Chris Lyons (Customized Energy Solutions). He suggested that if SPP was to assign costs to the causer, costs of Contingency Reserves could be allocated to the largest resource as that Resource would be the cause for the amount of Contingency Reserves that need to be carried.

#### **Agenda Item 14 – January 17th event update**

Casey Cathey (Southwest Power Pool) discussed the January 17, 2018 event and stated that SPP met with MISO and the joint parties in Atlanta. Casey stated that the group discussed load shed around the seam, and MISO recognized that the flows from MISO to MISO South above 1,000 MW were non-firm flows. Casey stated that MISO is willing to shed load on their system in the event SPP experiences loading across the seam, and experiences a contingency. Casey stated that SPP would need to call MISO and MISO would need to call the individual TOP(s) to shed load. He believes it is concerning that MISO would wait until a post-contingent event before implementing load shed considering the amount of time it would take to implement the load shed once a contingency occurred. Casey stated that SERC, NERC, and FERC were present at the meeting, and Ron Gunderson (Nebraska Public Power District) asked if FERC mentioned anything about plant winterization, and CJ Brown (Southwest Power Pool) stated that topic was discussed.

#### **Agenda Item 15 – Generation Retirement Process Update**

Kirk Hall (Southwest Power Pool) stated that he plans to discuss the generation retirement process at the policy level in October. Kirk stated that the TWG is currently working to develop additional language for the generation retirement process. Kirk stated that TWG will be discussing this topic during their August 15th and 16th meeting. Kirk stated that SPP Planning is working to determine who pays for additional upgrade needs to facilitate a generation retirement. Kirk also explained how SPP would model a generation retirement.

#### **Agenda Item 16 – Replicated Data Server Update**

Tim Miller (Southwest Power Pool) provided an update to the replicated data server project and discussed the goals. Tim stated that we increased the concurrent user limit and added area filtering to displays. Tim explained that the RDS will allow users to export cases and run additional studies. Tim stated that the feature to run additional studies is available through contract with vendor for an additional fee. Tim explained the rating submission tool, the alarm display filtering, and the contingency analysis display. Tim discussed the security and access and the also discussed the project timeline. Mark Eastwood (City Utilities of Springfield) asked if we will need to have an agreement in place to run independent studies during the testing phase. Tim stated that he would discuss this with GE and return to ORWG.

**ACTION ITEM: Determine if agreements are needed to run independent studies during the testing phase of the RDS.**

**Agenda Item 17 – Transmission Switching and RC notification**

Terry Oxandale (Southwest Power Pool) discussed TOP/RC coordination and explained the current communication for transmission switching where some outages return early or after their planned schedule. Terry asked if a lot of the communications would be considered distractions or not. Ron Gunderson (Nebraska Public Power District) stated that his operators are currently communicating any actions of equipment 230kV or higher. Ron stated that the RC Communications tool should be able to be utilized in lieu of phone calls. Jeff Wells (Grand River Dam Authority) stated that if we make changes then we will need to be clear on what the minimum notification requirement is. Kyle McMenamin (Xcel Energy) asked if we should extend the notification time to 1 hour. Terry stated that you could, but he doesn't believe it will help generate an approval any faster.

**Agenda Item 18 – Reliability Communication Tool Update**

Scott Aclin (Southwest Power Pool) discussed the Reliability Communication tool and stated that automation will be in a future version of the tool, but not in the initial version. Scott stated that load shed was the main reason for having a communications tool. Scott stated that the tool is still scheduled for quarter 1 of 2019, and he plans to provide a screenshot demo during the 9/6/2018 ORWG meeting. Scott provided ORWG with live testing dates, and Neil Robertson (Southwest Power Pool) explained how the load shed process would work using the reliability communication tool. Scott also provided the project time line, and Craig Speidel (Western Area Power Administration) asked for a list of the initial testers. Neil stated that NPPD, Evergy, and AEP were the initial testers.

**Agenda Item 19 – System Restoration Task Force Charter**

Neil Robertson (Southwest Power Pool) discussed the System Restoration Task Force (SRTF) charter and stated that this group would review current procedures and technical capabilities of systems used to perform system restoration activities by the SPP BA and TOPs within the SPP BA. Neil stated the SRTF would recommend any necessary policy changes to enhance system restoration capabilities. The ORWG added additional bullets to develop a restoration guideline, and to review BA to BA coordination. Neil stated that he would expand upon the charter and return to ORWG at a future meeting.

**Agenda Item 20 – PMU Syncrophasor Update**

Mike Nugent (Southwest Power Pool) discussed a local 1.7Hz oscillation. Mike stated that the event occurred May 15, 2018 where a single line-ground fault near a 90MW hydro plant caused the plant to go unstable. Mike stated that 1.7Hz oscillation was induced for 3 minutes, which caused MW swings at multiple generators in the area, up to 60MW peak-peak. Mike stated that 90MW peak-peak swings were also observed on a nearby high voltage line. Mike stated that after all 3 hydro units at the plant tripped the oscillation went away. Mike stated the plant recently had new AVR's installed, and during the disturbance a CT programming or settings issue became obvious that did not appear during commissioning. Mike stated that the CT current measurement adjustment was too conservative and the delay was too short for a single phase to ground fault. Mike explained with the delay too short, the unbalance between phases created a CT measurement failure. When the CT measurement failed, the PSS turned off. To compound the issue, the AVR gains were set the same for both PSS active and inactive, generating the instability once the PSS was off. Mike stated that the plant operators took action to remove units from service after erratic operation was observed. Mike explained that the solution for both issues was programming/settings changes recommended by the AVR manufacturer. Mike stated that units

returned to service after a short time, but one unit was removed from service again after a thyristor on the exciter bridge failed.

**ACTION ITEM: Send out a poll to ORWG to determine member PRC-002-2 plans related to PMU.**

**Agenda Item 21 SPP in the West Update**

Casey Cathey (Southwest Power Pool) discussed the Western Interconnection Reliability Coordination Working Group (WIRCWG) and the function it would serve. Casey explained that the WIRCWG would develop, maintain, and coordinate the implementation of policies, procedures, and systems enhancements related to the reliable and secure operation of the Bulk Electric System within the SPP Western Interconnection (WI) Reliability Coordinator footprint. Casey stated that the WIRCWG would provide oversight and direction for the SPP Western Interconnection Reliability Coordinator. Casey stated that the WIRCWG would report to and provide policy input to the Western Interconnection Reliability Coordination Executive Team (WIRCET) just as the ORWG reports to MOPC.

**Other Items:**

**Agenda Item 22 – ORWG Member Topic List**

The ORWG member topic list was provided in the meeting material packet.

**Action Item Review:**

**Agenda Item 23 – Review of Open and Closure Pending Actions**

The action item list was provided in the meeting material packet.

**Agenda Item 24 – New Action Items**

Jason Tanner (Southwest Power Pool) reviewed the new action items with the ORWG.

**Agenda Item 25 – General Q&A/Open Forum**

**Agenda Item 26 – Meeting Schedule**

- a. 9/6/2018 WebEx (Thurs) 0830-1200
- b. 10/3 – 10/4/2018 Face-to-Face (Little Rock, AR) (SPP) – CONFIRMED
- c. 11/1/2018 WebEx (Thurs) 0830-1200
- d. 12/6/2018 WebEx (Thurs) 0830-1200
- e. 1/9 - 1/10/2019 Face-to-Face (Denver, CO)(XCEL) – TENTATIVE
- f. 2/7/2019 WebEx (Thurs) 0830-1200
- g. 3/6 - 3/7/2019 Face-to-Face (Omaha, NE) – CONFIRMED
- h. 4/4/2019 WebEx (Thurs) 0830-1200
- i. 5/2/2019 WebEx (Thurs) 0830-1200
- j. 5/29 - 5/30/2019 Face-to-Face (Juno Beach, FL)(NextEra) – CONFIRMED
- k. 6/27/2019 WebEx (Wed) 0830-1200
- l. 8/1/2019 WebEx (Thurs) 0830-1200
- m. 9/5/2019 WebEx (Thurs) 0830-1200



- n. 10/2 - 10/3/2019 Face-to-Face (Dallas, TX)(AEP Office) – CONFIRMED
- o. 11/7/2019 WebEx (Thurs) 0830-1200
- p. 12/5/2019 WebEx (Thurs) 0830-1200

**Agenda Item 27 – Adjournment**

Chairman Allen Klassen (Westar Energy, Inc.) adjourned the ORWG at 4:30 PM (MDT) on 8/01/2018.

Chairman Allen Klassen (Westar Energy, Inc.) adjourned the ORWG at 11:20 AM (MDT) on 8/02/2018.

Respectfully Submitted,  
Jason Tanner, Secretary





Operating Reliability Working Group  
 Meeting Attendance: 08/01/2018 - 08/02/2018  
 M=Member, G=Guest, S=SPP Staff, P= Proxy



	Day1	Day2		Name	Status	Company
	x	x	1	Allen Klassen, Chairman	M	Westar Energy
	x	x	2	Ron Gunderson, Vice Chairman	M	Nebraska Public Power District
	x		3	Jim Useldinger	M	South Central MCN
	x	x	4	Gary Plummer	M	City of Independence, MO
	x	x	5	Kyle McMenamain	M	Xcel Energy
	x	x	6	Laurie Gregg	M	Lincoln Electric System
	x	x	7	Allan George	M	Sunflower Electric Power Corporation
	x	x	8	Jeff Wells	M	Grand River Dam Authority
	x	x	9	John Allen Proxy for Mark Eastwood	M	City Utilities of Springfield
	x	x	10	Doug Peterchuck Proxy for Todd Gosnell	M	Omaha Public Power District
	x	x	11	Bryn Wilson	M	Oklahoma Gas and Electric Co.
	x	x	12	Tyler Springer Proxy for Chris Shaffer	M	American Electric Power
	x	x	13	David Pham	M	Empire District Electric Company
	p	x	14	Phil Westby Proxy for Matthew Stoltz	M	Basin Electric Power Cooperative
	x	x	15	Chance Myers	M	Western Farmers Electric Cooperative
	x	x	16	Craig Speidel	M	Western Area Power Administration
	x	x	17	Abu Elteriefi	M	ITC Holdings
	x	x	18	Keith Carmen	M	Tri-State G&T
			19	Bob Cochran	G	Xcel Energy
			20	Jerry McVey	G	Sunflower Electric Power Corporation
			21	Tanner New	G	Sunflower Electric Power Corporation
			22	Joe Richardson	G	Xcel Energy
			23	Kevin Ma	G	Oklahoma Gas and Electric Co.
			24	Mark Eastwood	G	City Utilities of Springfield
			25	Neal Faltys	G	Omaha Public Power District
			26	Mick Kirwan	G	Western Area Power Administration
			27	Baryaley Sharwani	G	Western Area Power Administration
			28	Mike Grimes	G	EDP Renewables
			29	Ron Thompson	G	Nebraska Public Power District
			30	John Boshears	G	City Utilities of Springfield
			31	John Knofczynski	G	East River Electric Power Cooperative
			32	Gayle Nansel	G	Western Area Power Administration
			33	Jamie Hajek	G	NorthWestern Energy
			34	Dave Millam	G	Kansas City Power & Light
			35	John Allen	G	City Utilities of Springfield
			36	Mark Robinson	G	Southwestern Power Administration
			37	Mike Wech	G	Southwestern Power Administration
			38	Sing Tay	G	Oklahoma Gas & Electric
			39	Terry Gates	G	American Electric Power
			40	Steve Gaw	G	The Wind Coalition
			41	Tom Mayhan	G	Omaha Public Power District
			42	Casey Cathey	S	Southwest Power Pool
			43	Ron Losh	S	Southwest Power Pool
			44	Kim Gorter	S	Southwest Power Pool

			45	Lonnie Lindekugel	S	Southwest Power Pool
			46	Jason Tanner	S	Southwest Power Pool
			47	Neil Robertson	S	Southwest Power Pool
			48	John Gunter	S	Southwest Power Pool
			49	Ken Quimby	S	Southwest Power Pool
			50	Margaret Q. Adams	S	Southwest Power Pool
			51	Mike Hughes	S	Southwest Power Pool
			52	Jon Langford	S	Southwest Power Pool
			53	Greg Sorenson	S	Southwest Power Pool RE