



SOUTHWEST POWER POOL, INC.

MODEL DEVELOPMENT ADVISORY GROUP MEETING

February 16, 2023

Conference Call

9:00 a.m. – 12:00 p.m. (CST)

AGENDA

- 1. Administrative Items.....John Turner (10 mins)
 - a. Call to Order
 - b. Antitrust Statement
 - c. Attendance
 - d. Proxies
 - e. Agenda Review (**Approval Item**)
 - i. Acknowledgment for the posting of meeting materials
 - ii. *Agenda items may be taken out of order and could conclude earlier or later than estimated time.*
 - f. Previous ~~December~~ January Meeting Minutes (**Approval Item**)
- 2. Review of Past Action Items Lottie Jones (10 mins)
- 3. Focus Group Updates
 - a. MDAG Focus Group Eric Sullivan(15 mins)
- 4. FERC 881John Turner (15 mins)
- 5. CPPTF Common Model Update Brandon Hentschel (30 mins)
- 6. Review SPP Roadmap(MDAG items).....John Turner (15 mins)
- 7. Break..... All (10 mins)
- 8. 2023 series MDAG Model Build/Application Updates
 - a. Powerflow Becca McCann/Darian Richards/Lottie Jones (20 mins)
 - i. Idev only update
 - ii. Docucode Red Checks
 - b. Short Circuit Eric Sullivan (10 mins)
 - c. MOD-033 Eric Sullivan (5 mins)
 - d. Dynamics..... Zach Sabey/Theo Brown (20 mins)
- 9. Discussion of Future Meetings John Turner (5 mins)

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.



All meeting times are represented in the central time zone. Please register for all meetings via spp.org

- a. MDAG: March 20, 2023 (1:00 PM - 4:00 PM)
 - i. 2023 MDAG powerflow and short circuit model approval meeting
- b. MDAG FG: February 21, 2023 (1:00 PM – 3:00 PM)

MDAG encourages you to check out the spp.org calendar for additional information on technical topics discussed in other working groups. SPP also offers stakeholder trainings [found here](#)

- 10. Summary of Action Items..... Lottie Jones (5 mins)
 - a. Agenda Review – additional comments request
- 11. Adjourn..... All

* The approval items denoted with "*" shall be jointly developed by PC, TP, and MDAG

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.

Attendance worksheet

1. Input your group's name in A1

2. Enter your representative information

- A. Enter the names of your rostered representatives in column A, beginning with your name (staff secretary) in row 7
- B. Enter the company name for each of the rostered representatives in column B, beginning with "SPP" in row 7

2. Enter your meeting details

- A. Enter your meeting dates beginning in column C, row 1 and continue across the worksheet until all meeting dates are entered
- B. Enter the actual duration for each meeting beginning in column c, row 2. Round to the nearest .5 hours.
- C. Enter the actual number of votes taken per meeting beginning in column c, row 3. **Do not count** administrative votes such as votes to approve the agenda or adjourn the meeting. When counting consent votes, count one vote for each item under the consent topic. Do not count a consent vote as 1 if it includes multiple items.
- D. Enter the total number of attendees for each meeting beginning in column c, row 4
- E. Enter the meeting format for each meeting beginning in column c, row 5

3. Track attendance at each meeting per representative

- A. For yourself and each member note how the individual attended the meeting using the drop down for the cell. Options are webex, in-person, proxy, absent or non-member. Non-member is to be used for those who were members for only part of the assessment period. If you have a member that joined or left the group during the assessment period, utilize the non-member option for all meetings in which they were not considered a rostered member of the group.

Org Report Survey worksheet

1. Enter member demographic data

- A. Indicate Yes if the member is current and No if they are no longer a part of the group
- B. Enter the type of member for each representative in column D
- C. Enter the sector type for each representative in column E
- D. If a representative leaves mid assessment period add a red asterick in front of their name

2. Enter Yes or No to indicate the status of your scope review in L8

3. Enter Assessment Period in A2

**Model Development
Advisory Group**

Meeting Date(s)	1/19/2023	2/16/2023
Meeting Length (hrs)	3	2.5
Number of Votes Taken	2	2
Overall Attendance	61	61

Member Name	Company	Current Member	WELX	WOLX
Alex Macha	Oklahoma Municipal	Yes	WELX	WOLX
Brianne Huser (Vice Chair)	Western Area Power	Yes	WELX	WOLX
Dustin Burt	Nebraska Public Pow	Yes	WELX	WOLX
Jason Shook	GDS Association	Yes	WELX	WOLX
Jerry Bradshaw	City Utilities of Spri	Yes	WELX	WOLX
Jesse Krutzfeldt	Missouri River Enst	Yes	WELX	WOLX
John Fule	Grand River Dam A	Yes	WELX	WOLX
John Turner (Chair)	Western Farmers El	Yes	WELX	WOLX
John Vira	Golden Sernal Erc	Yes	WELX	WOLX
Liam Strickham	Southwest Electric P	Yes	WELX	WOLX
Lottie Jones (Staff Secretary)	SPP	Yes	WELX	WOLX
Proctor Binsky	Bain Electric Power	Yes	WELX	WOLX
Renee Miranda	Southwestern Publ	Yes	WELX	WOLX
Ryan Baylender	Energy	Yes	WELX	WOLX
Scott Blankett	American Electric Pt	Yes	WELX	WOLX
Scott Schichtl	Arkansas Electric Co	Yes	WELX	WOLX
Steve Mahoney	Omaha Public Power	Yes	WELX	WOLX
Tyler Baxter	City of Ball Power Co	Yes	WELX	WOLX
Member Name	Company	Current Member		
Adam Murremet	Burns & McDonnell	No	WELX	
Adam Nirell	Oklahoma Gas and	No	WELX	WOLX
Adrian Salfavian	SPP	No	WELX	
Ala Wadi	Liberty Utilities	No		WELX
Amiee Cheaf	DFW	No		WELX
Andrew Burg	Missouri River Enst	No		WELX
Andrew Howard	Lincoln Electric Syst	No		WELX
Antonio Barrera	Southwestern Publ	No	WELX	
Armin Sahic	Nebraska Municipa	No	WELX	WOLX
Aster Amalashion	Nebraska Municipa	No	WELX	
Ben Hammer	WAPA	No	WELX	WOLX
Banca McCann	SPP	No	WELX	WOLX
Ben Mitchell	SPP	No	WELX	
Blake Poole	Energy	No	WELX	WOLX
Bobby Gray	Liberty Utilities	No	WELX	WOLX
Brandon Hentschel	SPP	No	WELX	WOLX
Brooks Kuerst	SPP	No	WELX	
Bruce Doll	Nebraska Municipa	No	WELX	
Calvin Costello	Kansas Power Food	No	WELX	WOLX
Cathy Carthey	SPP	No	WELX	
Charles Costello	Summit	No	WELX	
Chia Wang	American Electric Pt	No	WELX	
Chris Colson	Western Area Power	No		WELX
Chris Gidson	Ti State	No	WELX	
Chris Rich	Oklahoma Gas and	No	WELX	
Clarence Campbell	SFS	No	WELX	
Clare Napsa	Burns & McDonnell	No	WELX	WOLX
Conner Sweet	City Utilities of Spri	No	WELX	WOLX
Curtis Miller	Western Farmers El	No	WELX	
Dale Reinhold	Hudson Utilities	No		WELX
Darwin Rutledge	AEC	No	WELX	
Daniel Borg	Southwest Electric P	No	WELX	
David Bromberg	Purd Street Techno	No	WELX	WOLX
David Cahari	SPP	No	WELX	WOLX
David Mendez	Grand River Dam A	No	WELX	WOLX
David Sheng	American Electric Pt	No	WELX	
David Brown	Energy	No	WELX	
David Peterson	National Grid Bona	No	WELX	WOLX
Devin Toledo	Grand River Dam A	No	WELX	WOLX
Douglas Bowman	SPP	No	WELX	WOLX
Drew Parks	Grand River Dam A	No	WELX	WOLX
Donald Hargrave	Oklahoma Gas and	No	WELX	
Dylan Hale	Ti State	No	WELX	
Ebrahim Rezaei	American Electric Pt	No	WELX	WOLX
Edna Wilson	SPP	No	WELX	WOLX
Edin Tasic	Lincoln Electric Syst	No	WELX	
El Nyambura	Southwest Electric P	No	WELX	
Elihan Salinas	LES	No		WELX
Ellen Cook	SPP	No	WELX	WOLX
Eric Jones	Omaha Public Power	No	WELX	WOLX
Eric Sullivan	SPP	No	WELX	WOLX
Erin Carthy	SPP	No	WELX	
Estevan Padilla	SPP	No	WELX	
Frank Kovacs	Southwestern Publ	No	WELX	WOLX
Garrick Nelson	Western Area Power	No	WELX	WOLX
Gary Bourger	Oklahoma Gas and	No	WELX	
Garth Boushery	Energy	No	WELX	
Gene Robinson	Oklahoma Gas and	No	WELX	
Hannah Mason	Light Source BP	No	WELX	
Harriet Walsh	CP&D	No	WELX	WOLX
Hugh Bonfer	SPP	No	WELX	WOLX
James Oberlies	Sarban Energy	No	WELX	
Jason Menka	Nebraska Public Po	No	WELX	
Jeff Knutak	City Utilities of Spri	No	WELX	
Jeff McDermid	SPP	No	WELX	WOLX
Jeff Vow	NEA	No	WELX	WOLX
Jeffrey Taylor	DC	No	WELX	WOLX
Jerad Ehrhard	Oklahoma Gas and	No	WELX	
Jeremy Severson	Bain Electric Power	No	WELX	
Jesse Krutzfeldt	Missouri River Enst	No	WELX	
Joe Williams	Western Farmers El	No	WELX	
John Bobbers	City Utilities of Spri	No	WELX	
John Mayhan	Omaha Public Power	No	WELX	
John Vira	Golden Sernal Erc	No	WELX	
John Varnell	Tussock	No	WELX	
John Wilson	Southern Current Li	No	WELX	
Jon Landford	CP&D	No	WELX	
Jonathan Aus	Eco River	No	WELX	WOLX
Josh Houshram	Arkansas Electric Co	No	WELX	
Joshua Pilgrim	SPP	No	WELX	
Justin Daggart	WAPA	No	WELX	
Juliano Freitas	SPP	No	WELX	
Justin Hill	1190 and Company	No	WELX	
Kadron Brown	APD	No	WELX	WOLX
Kalan Kelley	WEC	No	WELX	WOLX
Kalvin Allen	SPP	No	WELX	
Kim Farris	SPP	No	WELX	
Kim Gragan	Energy	No	WELX	
Kimberly Woods	SPP	No	WELX	WOLX
Kristie Brown	SPP	No	WELX	WOLX
Kristen Carlson	SPP	No	WELX	
Larry Brusseau	City of Ball Power Co	No	WELX	
Liz Goodrich	SPP	No	WELX	
Loqan Peterson MPC	Minnesota	No	WELX	WOLX
Max Cruz	Southwestern Publ	No	WELX	
Max Moor (Everay)	Energy	No	WELX	
Margaret Kristian	National Grid Bona	No	WELX	
Martin Green	American Electric Pt	No	WELX	
Mason Favazza	SPP	No	WELX	
Matthew Alvarado	EB	No	WELX	
McKady Kellam	Energy	No	WELX	
Maui Archambault	Enel	No	WELX	
Michael Bowman	City Utilities of Spri	No	WELX	WOLX
Mike Swan	Omaha Public Power	No	WELX	
Missie Botch	Gridiance	No	WELX	
Mostafa Sadrizadeh	SPP	No	WELX	
Nathan Davis	Liberty Utilities	No	WELX	
Nathan McNeil	Midwest Energy	No	WELX	
Nitin Kothwala	National Grid Bona	No	WELX	
Nevse Tokman	NEA	No	WELX	
Nolan Fortig	SPP	No	WELX	WOLX
Palish Datta	Energy	No	WELX	WOLX
Paul Vovk	Omaha Public Power	No	WELX	WOLX
Peter Jones	Sarban	No	WELX	
Phil Westby	BEPC	No	WELX	
Ramona Eganbala	Enel	No	WELX	
Richard Miner	Liberty Utilities	No	WELX	
Ryan Bavinzier	Energy	No	WELX	
Ryan Bortner	Oklahoma Gas and	No	WELX	
Saati Holland	SWPA	No	WELX	
Scott Jordan	SPP	No	WELX	WOLX
Scott Milin	Southwestern Power	No	WELX	WOLX
Seh Cochran	DC Energy	No	WELX	
Shelley Gupta	Acme Clean Energy	No	WELX	
Shannon Mickens	SPP	No	WELX	
Shweta Sattarwaha	Oklahoma Gas and	No	WELX	
Steve Hardback	Oklahoma Gas and	No	WELX	
Steve Purdy	SPP	No	WELX	
Steven Park	Southwest Electric P	No	WELX	
Sunny Rahum	SPP	No	WELX	
Talpaas Jones	SPP	No	WELX	WOLX
Tanner Now	Southwest Electric P	No	WELX	WOLX
Thomas Burns	SPP	No	WELX	
Theo Brown	SPP	No	WELX	
Timothy Sell	ITS	No	WELX	
Todd Chvalkowski	EDF	No	WELX	
Tom Balube	Energy	No	WELX	
Tom Mayhan	Omaha Public Power	No	WELX	WOLX
Tom Green	SPP	No	WELX	WOLX
Walt Shumato	Shumato & Associat	No	WELX	WOLX
Xinye Wang	Enel	No	WELX	
Yaemin Sakalla	Burns & McDonnell	No	WELX	
Zach Anders	SPP	No	WELX	
Zach Sabey	SPP	No	WELX	WOLX

Model Development Advisory Group

August 2021 - July 2022

Name	Company	Is Current Member?
Alex Mucha #REF!	Oklahoma Municipal Power Authority #REF!	Yes #REF!
Brianna Haug (Vice Chair)	Western Area Power Administration	Yes
Dustin Betz #REF!	Nebraska Public Power District #REF!	Yes #REF!
Jason Shook #REF! #REF!	GDS Associates #REF! #REF!	Yes #REF! #REF!
Jerry Bradshaw	City Utilities of Springfield	Yes
Joe Fultz #REF!	Grand River Dam Authority #REF!	Yes #REF!
Liam Stringham	Sunflower Electric Power Corporation	Yes
Preston Blinsky	Basin Electric Power Cooperative	Yes
Reené Miranda #REF!	Southwestern Public Service #REF!	Yes #REF!
Scott Rainbolt	American Electric Power	Yes
Scott Schichtl	Arkansas Electric Cooperative Corporation	Yes
Steve Hohman #REF!	Omaha Public Power District #REF!	Yes #REF!
Tyler Baxter	Corn Belt Power Cooperative	Yes
Amine Chenaf	DNV	No
Andrew Howard	Lincoln Electric System	No
Antonio Barrera	Southwestern Public Service	No
Armin Sehic	Nebraska Municipal Power Pool	No
Becca McCann	SPP	No
Brandon Hentschel	SPP	No
Brooke Keene	SPP	No
John Turner (Chair)	Western Farmers Electric Power	Yes
Bruce Doll	Nebraska Municipal Power Pool	No
Casey Cathey	SPP	No
Chris Colson	Western Area Power Administration	No
Conner Sweet	City Utilities of Springfield	No
David Duhart	SPP	No
David Zhong	American Electric Power	No
Diego Toledo	Grand River Dam Authority	No

Edin Terzic	Lincoln Electric System	No
Eli Nyambegera	Sunflower Electric Power Corporation	No
Ellen Cook	SPP	No
Frank Favela	Southwestern Public Service	No
Garrick Nelson	Western Area Power Administration	No
Grace Bouziden	Oklahoma Gas and Electric Company	No
James Okenfuss	Savion Energy	No
Jason Menke	Nebraska Public Power District	No
Jeff Plew	NextEra	No
Jeremy Severson	Basin Electric Power Cooperative	No
Jesse Kreutzfeldt	Missouri River Energy Services	Yes
Joe Williams	Western Farmers Electric Power	No
John Mayhan	Omaha Public Power District	No
John Vara	Golden Spread Electric	Yes
Kim Farris	SPP	No
Kimberly Woods	SPP	No
Mae Cruz	Southwestern Public Service	No
Marc Moor (Eversy)	Eversy	No
McKady Kellam	Eversy	No
Mike Swan	Omaha Public Power District	No
Moses Rotich	Gridliance	No
Nolan Fertig	SPP	No
Peter Jones	Savion	No

Member Type	Sector	Present	Proxy	Absent	Percent Present
Staff	RTO	13	0	2	87%
Staff	RTO	#REF!	#REF!	#REF!	N/A
TO	Investor Owned Utility	15	0	0	100%
TU	Cooperative	14	1	0	100%
TU	Cooperative	#REF!	#REF!	#REF!	N/A
TO	Cooperative	12	0	3	80%
TU	Municipal	#REF!	#REF!	#REF!	N/A
TO	State	#REF!	#REF!	#REF!	N/A
TO	Cooperative	13	1	1	93%
TO	State	13	1	1	93%
TO	Investor Owned Utility	#REF!	#REF!	#REF!	N/A
TO	Federal	14	1	0	100%
TO	State	12	2	1	93%
TU	Investor Owned Utility	10	5	0	100%
TU	Municipal	#REF!	#REF!	#REF!	N/A
TU	Investor Owned Utility	13	2	0	100%
TU	Investor Owned Utility	13	2	0	100%
TU	Cooperative	14	1	0	100%
TO	Cooperative	#REF!	#REF!	#REF!	N/A
TO	Cooperative	12	1	2	87%

Annual Assessment Totals**Average Length of Meetings (hrs) 3****Number of Votes Taken 63****Average Overall Attendance 59****Total Meetings this Assessment 18****Live 1****Teleconference 17****Scope Reviewed No****Transmission Owner(s) 7****Transmission User(s) 5****Director(s) 0****Investor Owned Utility 4****Cooperative 5****Municipal 0****State 2****Federal 1****Independent Power Producer / Marketer 0****Independent Transmission Company 0****Large Retail 0****Alt Power / Public Interest 0****Small Retail 0**

MDAG MINUTES

January 19, ~~2022~~2023

SOUTHWEST POWER POOL MODEL DEVELOPMENT ADVISORY GROUP MEETING

January 19, 202~~2~~3 9:00 am – 12:00 pm (CST)

Conference Call

SUMMARY OF MOTIONS AND ACTION ITEMS

Action Items:

- **Action Item:** SPP to perform training on powerflow anomaly file.
- **Action Item:** SPP to review the common model timeline.

Motions:

- **Motion:** Renee Miranda motioned to approve the presented agenda as modified. Dustin Betz seconded the motion. The group did not voice concerns during the discussion of the motion. The motion passed unanimously.
- **Motion:** Jason Shook motioned to approve December 15, 2022, meeting minutes as presented. Jesse Kreutzfeldt seconded the motion. The group did not voice any additional concerns during the discussion of the motion.

MDAG MINUTES

January 19, ~~2022~~2023

Southwest Power Pool MODEL DEVELOPMENT ADVISORY GROUP MEETING

~~December 15~~ January 19, 2023 9:00 am – 12:00 pm (CST)

Conference Call

MINUTES

AGENDA ITEM 1 – ADMINISTRATIVE ITEMS

AGENDA ITEM 1A & 1B – CALL TO ORDER AND ANTITRUST STATEMENT

Proxy SPP MDAG Chair, John Turner, called the meeting to order at 9:02 a.m. (CST) with Quorum. SPP Staff Secretary, Lottie Jones, read the anti-trust statement to the group.

MDAG MINUTES
January 19, ~~2022~~2023

AGENDA ITEM 1C & 1D – ATTENDANCE AND PROXIES

The following members attended or were represented by proxy:

MDAG Member	Present	Proxy	Present	Company
Tyler Baxter	Yes			Corn Belt Power Cooperative
Jerry Bradshaw	Yes			City Utilities of Springfield
Dustin Betz	Yes			Nebraska Public Power District
Preston Blinsky	Yes			Basin Electric Power Cooperative
Joe Fultz	Yes			Grand River Dam Authority
Brianna Haug	Yes			Western Area Power Administration, MDAG Vice-Chair
Steve Hohman	Yes			Omaha Public Power District
Reené Miranda	Yes			Southwestern Public Service
Alex Mucha	Yes			Oklahoma Municipal Power Authority
Scott Rainbolt	Yes			American Electric Power
Scott Schichtl	Yes			Arkansas Electric Cooperative Corporation
Jason Shook	Yes			GDS Associates
Liam Stringham	Yes			Sunflower Electric Power Corporation
John Turner	Yes			Western Farmers Electric Power, MDAG Chair
Lottie Jones	Yes			Southwest Power Pool, Inc., MDAG Secretary
John Vara	Yes			Golden Spread Electric
Ryan Baysinger	Yes			Evergy
Jesse Kreuzfeldt	Yes			Missouri River Energy Services

Material: JAN19_Attach2 - 1c. MDAG Conference Call Attendance-01-19-2023

MDAG MINUTES

January 19, ~~2022~~2023

AGENDA ITEM 1E – AGENDA REVIEW (**APPROVAL ITEM**)

John Turner asked the group if they had a chance to review the agenda and if the group had any modifications to the agenda.

Lottie noted that agenda items 7 and 8A have been updated and will be reflected in the final meeting materials.

Motion: Renee Miranda motioned to approve the presented agenda as modified. Dustin Betz seconded the motion. The group did not voice concerns during the discussion of the motion. The motion passed unanimously.

Material: JAN19_Attach1- 1e. MDAG Meeting Agenda

AGENDA ITEM 1F – PREVIOUS DECEMBER 15, 2022 MEETING MINUTES (**APPROVAL ITEM**)

Lottie Jones asked the group if they had any proposed changes for the previous December 15, 2022, meeting minutes. Jesse Kreutzfeldt corrected the spelling on his last name in the minutes. The group reviewed the meeting minutes and did not voice any additional changes

Motion: Jason Shook motioned to approve December 15, 2022, meeting minutes as presented with corrected name. Jesse Kreutzfeldt seconded the motion. The group did not voice any additional concerns during the discussion of the motion.

Material: JAN19_Attach3- 1f. December 15, 2022, Meeting Minutes.docx

MDAG MINUTES

January 19, ~~2022~~2023

AGENDA ITEM 2 – REVIEW OF PAST ACTION ITEMS

Lottie Jones discussed outstanding issues highlighted in red font, including the action items added from the last meeting. Lottie walked the group through updates on action items collected at the previous session and updates for existing in-progress action items.

- Action Item 164 – In-Progress – to be discussed at the January FG meeting.

AGENDA ITEM 3 – 2022 MDAG EFFECTIVENESS RESULTS

John Turner discussed the MDAG effectiveness survey results with the group. *(Please reference January materials for detailed results)*

John requested the group provide any additional feedback related to the meeting minutes either at the end of the meeting, during the meeting, or after.

Brianna Haug suggested running the meeting minutes in congruence with the agenda topics so that members can provide feedback and help to update them on the fly. Brianna will present the idea at the next Staff secretary and chairs meeting.

Renee Miranda mentioned that he likes the idea of having live meeting minutes so that we can capture comments from both the members as well as SPP staff.

Due to MDAG effectiveness survey requesting additional face-to-face meeting, MDAG leadership would like to propose to SPP consider allowing 2 face-to-face meetings for MDAG:

1. Kickoff/Workshop
2. Fix Red Checks

Lottie Jones, to follow up internally on the request.

After reviewing a comment related to vice chair not taking role of chair. Brianna apologized to the group for not taking over the chair role from Jerad after he left the group as she did not feel that she had the experience to transition into the chair role.

Sunny echoed, praising Brianna for stepping up to interim chair, and ensured that MDAG did follow proper process and procedure for selecting the chair. MDAG does not have language that requires the vice chair to assume chair position.

AGENDA ITEM 4 – IIRRG UPDATE

SPP staff, Doug Bowman, updated the staff on the Inverter Based Resource Requirements Group (IIRRG). IEEE 2800-2022 Standard incorporates most of the NERC recommendations around

MDAG MINUTES

January 19, ~~2022~~2023

inverter-based resources (IBRs). SPP has initiated a new internal group consisting of SPP staff to perform a gap analysis of existing SPP IBR requirements and the new IEEE 2800-2022 Standard. Group participants include personnel from Reliability Standards, Modeling, Engineering, GI, Operations, and R&D. Periodic updates to the relevant working groups will be scheduled in the future. An RR will be initiated to modify the tariff as needed to accommodate full IBR requirements for SPP and its members.

Renee Miranda asked if the changes to the tariff would be made retroactive to existing IBRs and Doug mentioned that it would only apply to new IBRs after the update to the tariff. How does the GI process at SPP incorporate TO FAC-001 and FAC-002 requirements (into the DISIS process)? Doug mentioned that any interconnection customer that wants to interconnect to our grid will now have to meet the performance requirements in GRIDV. TOs can have stricter requirements than FAC-001 and FAC-002; however, SPP would like to know about these cases. For wind farms with Type 1 machines, is there a process that must be followed if they are updating these to Type 3 or Type 4 machines? Doug mentioned that this would likely need to go back through the interconnection (GI) process for something like a one-off study (Steve Purdy is the contact at SPP for this type of question).

Doug mentioned that EMT models are becoming more prevalent in studies and the industry and SPP will likely move towards an EMT type model.

John Turner asked what type of software we currently use for EMT studies and Doug mentioned that this software is PSCAD.

Joe Fultz mentioned that IBRs usually go through the GI process with the required parameters for the study; however, once they are operational some of these parameters might change due to tuning in the field. Are we currently seeing where those parameters are changing? Doug mentioned that if they say that they are meeting these requirements, then they have to verify that they are meeting the requirements. The customer puts the data into the final verified model and sent to the GI group for inclusion into the GI study. Sunny mentioned that this information is obtained from the data owner as part of the MOD-032 study. This information is reviewed with GI as well. GI does have some procedures to re-amp the models as well per the current agreements. Sunny suggested that we start these new requirements within the GIA process to begin this overall process.

Todd Chwialkowski asked if SPP will continue to use PSCAD models, or will they follow ERCOT to utilize TSAT models, in addition to PSSE models? Are there any comments on requirements for model quality tests (MQT) or Parameter Verification Reports (PVRs)? Doug mentioned that SPP will perform the validation on the PSCAD models provided by members. SPP will not be requiring TSAT models through the interconnection process though this ask could come from the modeling group in the future. Renee mentioned that SPP operations is currently requesting TSAT models and Doug mentioned that it is in our right to ask for them at any time.

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Sunny mentioned that RR495 (RDS Dynamic Model Characteristics) is tied to CIP-012 and that is where the requirement for TSAT models is coming from based upon the request from William Holden.

<https://www.spp.org/documents/63743/rdsei%200820ext00126.pdf>

John and Renee asked for additional discussions from Doug related to this process and any tariff updates.

AGENDA ITEM 5 – FOCUS GROUP UPDATES

AGENDA ITEM 5A – MDAG FOCUS GROUP

SPP staff, Eric Sullivan, reminded the group that we did not have any member volunteers to run the combined MDAG FG meeting so this will be coordinated by SPP staff if/until there is a volunteer. Eric asked the group if they any topics that they would like to discuss during the 2023 MDAG FG meetings.

John Turner mentioned that FERC Order 881 will be very involved and will likely require manual updates so he would like the group to be involved in this discussion.

Brianna would like to see a bullet point for manual updates so that we do not lose track of the fact that this is a combined meeting for both the FG and MTF.

Eric mentioned that this will be a recurring bullet point for future MDAG FG meetings.

AGENDA ITEM 6 – BREAK (10 MINUTES)

AGENDA ITEM 7 – CPPTF COMMON MODEL UPDATE

SPP staff, Brandon Hentschel, updated the group on the current CPPTF Common Model proposal.

Current Proposal:

1. Currently MDAG and ITP BR models are built in parallel
2. Proposing that the 2025 ITP BR models be built first from July-Jan and then apply System Intact Alteration MOD projects and re-dispatching to build the 2024 MDAG model set for MMWG and Dynamics.
3. Build out all the necessary MDAG/ITP years/seasons July-Jan and dispatch using ITP dispatch methodology.

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4. Model all generation/projects with a GIA regardless of firm service. Gens without firm service will be offline in the ITP BR models.

Brianna asked the difference between the ITP dispatch methodology versus the MDAG dispatch methodology. Brandon mentioned that the ITP model would become the common model and that the process would basically mimic how we do it today for ITP. How does SPP determine the dispatch of generators? This is done internally at SPP; however, adjustments can be made throughout the model build.

Renee Miranda asked which of the two models (ITP or MDAG) has a better representation of the transmission that is operating in SPP. Brandon mentioned that topology would likely be the same; however, neither one of them is doing a market type dispatch. The MDAG model can contain some non-firm service. Which would be the best model to supply to MMWG? This will remain the same as it is done currently. Could the July-Jan timeframe be extended for load information (maybe July-April)? David mentioned that the models aren't sitting on a shelf; however, the powerflow models are then being utilized for the economic studies. Load changes/updates will have a downstream impact on these studies. Renee mentioned that improvements are usually focused on the reliability models. Is the economic model build being reviewed for improvements as well? David mentioned that he is looking to put together an economics working group to discuss these areas of improvements. When would changes be made to the ITP BR models that would be incorporated into the MDAG models in regards to load changes and updates? Brandon mentioned that there is a deadline for both MDAG and ITP model load updates. Can we add the ITP BR model build process to the MDAG schedule for reference? Lottie mentioned that the schedule would likely changed to be based more around the common model approach than the MDAG/ITP model approach.

Steve Hohman commented that it seems like the benefits are there when compressing the schedule; however, there is a current lack of transparency when dispatching the BR models. If you take away a couple of months then you are taking away a pass and further review of the models. Brandon mentioned that we can have further discussions regarding the dispatching of BR models. Brianna mentioned that they are dispatching MDAG models like the BR models. Modelers are not able to dispatch their own generation so this process relies on SPP to perform the dispatch. These dispatch efforts can have a trickle-down effect so they take quite a bit of time to review and update as necessary. David mentioned that there should be one dispatch for the CPPTF common model. Lottie mentioned that we could add in the EIN number to the dispatch, to help add transparency on why certain generators were chosen over others.

All of the processes would feed off of the common model including the economic model. The general comment from the group is that there is currently not enough time to review the models so it is hard to compress the schedule to July-Jan. Lottie asked the group if it would be possible to start the model build later and go later such as August (or September) – March (or April). Renee mentioned that this is a possibility but would have to be reviewed.

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JAN19_Attach4- 7. CPPTF Common Model Update

AGENDA ITEM 8 – 2023 SERIES MDAG MODEL BUILD/APPLICATION UPDATES

AGENDA ITEM 8A – POWERFLOW

SPP staff, Lottie Jones, updated the group on the current MDAG powerflow model build. Lottie is reaching out to members directly regarding errors and red checks. Several load additions will be included in the Pass 2 Trial 2 MDAG Powerflow models as well.

Renee suggested some further education on how to read some of the data from MOD anomalies that is showing to not exist.

Brianna mentioned that the transaction values posted included cases that are not in the correct order towards the end of EDST. Hugh mentioned that this has been flagged to be fixed by the EDST team.

Lottie encouraged data submitters to please review 2022 AG1 updates made in EDST, and to please continue to review DocuCode Red checks. Lottie encouraged that data submitters bring red check questions to the Tuesday focus group meeting or schedule a WebEx to go through any scenarios that they may have.

JAN19_Attach5- 8a. 2023 MDAG Powerflow Update

AGENDA ITEM 8B – SHORT CIRCUIT

SPP staff, Eric Sullivan, updated the group on the current short circuit model. SPP has posted Posted Pass 1 Trial 2 models and materials. Next steps for SPP staff is to review data submissions via email and GlobalScape for Pass 2 Trial 2 Short Circuit model build

AGENDA ITEM 8C – MOD-033

SPP staff, Eric Sullivan, updated the group on the current MOD-033-2 East request. SPP is in progress of reviewing member updates, more updated data will be provided to the group at a later time.

AGENDA ITEM 8D – DYNAMICS

SPP staff, Zach Sabey, updated the group on the upcoming 2023 MDAG Dynamics Model build. SPP dynamics build has kicked off. SPP staff will review member data and merge with MMWG cases, initialize all cases, and perform fault testing and offline wind initialization.

AGENDA ITEM 9 – NEW STAFF INTRODUCTION

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SPP staff, Becca McCann, introduced Darian Richards as the new modeling team member. Darian will be working with the powerflow team.

AGENDA ITEM 10 – DISCUSSION OF FUTURE MEETINGS

SPP staff, Lottie Jones, updated the group on upcoming meetings.

- a. MDAG: February 16, 2023 (9:00 AM – 12:00 PM)
- b. MDAG FG: January 24, 2023 (1:00 PM – 3:00 PM)
- c. Joint TWG/ESWG/MDAG Meetings – 2023 Roadmap
 - i. Prioritization Finalization Session: February 8, 2023 (1:00 PM – 5:00 PM)

AGENDA ITEM 11 – SUMMARY OF ACTION ITEMS

Lottie discussed the action items from this meeting:

- **Action Item:** SPP to perform training on powerflow anomaly file.
- **Action Item:** SPP to review the common model timeline.

AGENDA ITEM 11 – ADJOURN

John Turner adjourned the meeting at 11:42 a.m. (CST).

Respectfully Submitted,

Lottie Jones
Secretary

MDAG MINUTES

January 19, ~~2022~~2023

Eric Sullivan
Secretary Assistant

Attachments

JAN19_Attach1- 1e. MDAG Meeting Agenda.docx

JAN19_Attach2 - 1c. MDAG Conference Call Attendance-1-19-202~~2~~3

JAN19_Attach3- 1f. December 15, 2022, Meeting Minutes.docx

JAN19_Attach4- 7. CPPTF Common Model Update

JAN19_Attach5- 8a. 2023 MDAG Powerflow Update

MDAG MINUTES

February 16, 2023

SOUTHWEST POWER POOL MODEL DEVELOPMENT ADVISORY GROUP MEETING

February 16, 2023 9:00 am – 12:00 pm (CST)

Conference Call

SUMMARY OF MOTIONS AND ACTION ITEMS

Action Items:

- **Action Item:** How are seasonal ratings shown in the MOD-033 effort. (define how FERC Order 881 and seasonal ratings can be shown in the MOD-033 process to avoid additional unacceptable differences)
- **Action Item:** SPP staff and stakeholders to review proposed 2024 MDAG/2025 ITP timeline and schedule.

Motions:

- **Motion:** Jesse Kreutzfeldt motioned to approve the presented agenda as modified. John Vara seconded the motion. The group did not voice concerns during the discussion of the motion. The motion passed unanimously.
- **Motion:** Tyler Baxter motioned to approve January 19, 2023, meeting minutes as presented with corrected name. Jason Shook seconded the motion. The group did not voice any additional concerns during the discussion of the motion.

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February 16, 2023

Southwest Power Pool MODEL DEVELOPMENT ADVISORY GROUP MEETING

February 16, 2023 9:00 am – 12:00 pm (CST)

Conference Call

MINUTES

AGENDA ITEM 1 – ADMINISTRATIVE ITEMS

AGENDA ITEM 1A & 1B – CALL TO ORDER AND ANTITRUST STATEMENT

Proxy SPP MDAG Chair, John Turner, called the meeting to order at 9:01 a.m. (CST) with Quorum. SPP Staff Secretary, Lottie Jones, read the anti-trust statement to the group.

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February 16, 2023

AGENDA ITEM 1C & 1D – ATTENDANCE AND PROXIES

The following members attended or were represented by proxy:

MDAG Member	Present	Proxy	Present	Company
Tyler Baxter	Yes			Corn Belt Power Cooperative
Jerry Bradshaw	Yes			City Utilities of Springfield
Dustin Betz	Yes			Nebraska Public Power District
Preston Blinsky	Yes			Basin Electric Power Cooperative
Joe Fultz	Yes			Grand River Dam Authority
Brianna Haug	Yes			Western Area Power Administration, MDAG Vice-Chair
Steve Hohman	Yes			Omaha Public Power District
Reené Miranda	Yes			Southwestern Public Service
Alex Mucha	Yes			Oklahoma Municipal Power Authority
Scott Rainbolt	Yes			American Electric Power
Scott Schichtl	No	Josh Hesselbein	Yes	Arkansas Electric Cooperative Corporation
Jason Shook	Yes			GDS Associates
Liam Stringham	Yes			Sunflower Electric Power Corporation
John Turner	Yes			Western Farmers Electric Power, MDAG Chair
Lottie Jones	Yes			Southwest Power Pool, Inc., MDAG Secretary
John Vara	Yes			Golden Spread Electric
Ryan Baysinger	No			Evergy
Jesse Kreuzfeldt	Yes			Missouri River Energy Services

Material: FEB16_Attach2 - 1c. MDAG Conference Call Attendance-02-16-2023

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February 16, 2023

AGENDA ITEM 1E – AGENDA REVIEW (**APPROVAL ITEM**)

John Turner asked the group if they had a chance to review the agenda and if the group had any modifications to the agenda.

Motion: Jesse Kreutzfeldt motioned to approve the presented agenda as modified. John Vara seconded the motion. The group did not voice concerns during the discussion of the motion. The motion passed unanimously.

Material: FEB16_Attach1- 1e. MDAG Meeting Agenda

AGENDA ITEM 1F – PREVIOUS JANUARY 19, 2023 MEETING MINUTES (**APPROVAL ITEM**)

Lottie Jones asked the group if they had any proposed changes for the previous January 19, 2023, meeting minutes. Eric Jones requested to update the 2022 in the minutes to 2023. No further corrections were made. The group reviewed the meeting minutes and did not voice any additional changes

Motion: Tyler Baxter motioned to approve January 19, 2023, meeting minutes as presented. Jason Shook seconded the motion. The group did not voice concerns during the discussion of the motion.

Material: FEB16_Attach3- 1f. January 19, 2023, Meeting Minutes.docx

MDAG MINUTES

February 16, 2023

AGENDA ITEM 2 – REVIEW OF PAST ACTION ITEMS

Lottie Jones discussed outstanding issues highlighted in red font, including the action items added from the last meeting. Lottie walked the group through updates on action items collected at the previous session and updates for existing in-progress action items.

- Action Item 200 – In-Progress – moved to March MDAG FG Agenda
- Action Item 201 – In-Progress – included in February MDAG Agenda

AGENDA ITEM 3 – FOCUS GROUP UPDATES

SPP staff, Eric Sullivan, updated the group on the January MDAG FG topics and future topics for the February MDAG FG.

AGENDA ITEM 4 – FERC 881

John Turner updated the group on the efforts for FERC Order 881. Reviewing timeline, governing language, and identifying next steps. This presentation is an ongoing effort that will be addressed in the February TWG meeting as well.

FERC Order 881 is related to service and not to the reliability standards. The existing FAC-008 standard is sufficient and they weren't addressing any concerns with the standard. Any timeline issues will be related to service and not to FAC-008.

The SPP Tariff was amended with Attachment J including some changes that are SPP specific and seasonal line ratings does not include day/night overheating. Language could be crafted with MDAG around FERC Order 881 and Attachment J.

Several discussions were had as reflected below: Seasonal ratings are not needed for transmission planning but for long-term transmission service. *Is there a possibility that an aggregate study might be using seasonal ratings?* The distinction that is drawn in 881 is outside of 10 days. This is expressly for the granting of service outside of those 10 days. Most RTOs/ITOs are using the same model set. You could carry two sets of ratings for two sets of models and fork them. The recommendation for consistency is that the ITP BR models include seasonal ratings so that they two model sets match. *Should the ratings match between the AQ study and Transmission Planning?* The one set of ratings would avoid any confusion on what is used where and keep the processes in check. Long-term transmission service is through the AG process (AQ process) utilizing the BR Powerflow models as base cases. The MDAG Manual can be updated to include additional language on seasonal ratings. This would have to be carried over to the MOD-033 process as well to avoid any unnecessary failures. *Seasonal ratings refers to summer, winter, fall, and spring as well as the emergency cases (8 total)?* Yes; however, emergency ratings have to be uniquely determined from normal.

MDAG MINUTES

February 16, 2023

Action Item: How are seasonal ratings shown in the MOD-033 effort.

AGENDA ITEM 5 – CPPTF COMMON MODEL UPDATE

SPP staff, Brandon Hentschel, updated the group on the CPPTF common model. Proposing that we begin to consolidate the powerflow models, beginning with building the ITP models; and then building the MDAG models to meet MMWG requirements. Please see posted draft schedule for 2024 MDAG and 2025 ITP. In addition to schedule update, Brandon proposed that we use the EIA data instead of Ops Market Bid data. Also after reviewing the ITP manual, SPP staff is considering an RR to remove the requirement for resources to have firm service to be included in ITP BR. For accurate discussion in March MDAG meeting, please review the posted draft schedule internally and bring comments back to March MDAG

Action Item: SPP staff and stakeholders to review proposed 2024 MDAG/2025 ITP timeline and schedule.

AGENDA ITEM 6 – REVIEW SPP ROADMAP (MDAG ITEMS)

John Turner updated the group on the open SPP Roadmap items as related to MDAG. MDAG has two items ranked and one pending item. SIR142 SCRIPT C3. Common base model set is marked high and SIR534 Topology Rate 3 Data Collection is marked Medium. The item that is pending is SIR544 Short circuit modeling is survey is due to be completed by MDAG membership by 2/17. MDAG members stated that they had not received the email. SPP staff to follow up on email that includes survey

AGENDA ITEM 7 – BREAK (10 MINUTES)

AGENDA ITEM 8 – 2023 SERIES MDAG MODEL BUILD/APPLICATION UPDATES

AGENDA ITEM 8A – POWERFLOW

SPP staff, Becca McCann, updated the group on the 2023 MDAG Powerflow model build. Staff is following up with data submitters on pending red checks, reminding MDAG that this is the last pass for data submitter corrections before finalization. SPP staff reviewed priority red checks that must be addressed. There was a comment made regarding the SPS loads amounts. SPP clarified that the TWG presentation included the aggregate load total.

AGENDA ITEM 8B – SHORT CIRCUIT

SPP staff, Eric Sullivan, updated the group on the 2023 MDAG Short Circuit model build as well as the 2023 GMD model build. Noting that additional time will be given if required due to late posting.

MDAG MINUTES

February 16, 2023

AGENDA ITEM 8C – MOD-033

SPP staff, Eric Sullivan, updated the group on the 2021 MOD-033 East study and results.

AGENDA ITEM 8D – DYNAMICS

SPP staff, Zach Sabey, updated the group on the 2023 MDAG Dynamics model build as well as Dyre updates and PSSE V35 updates.

AGENDA ITEM 9 – DISCUSSION OF FUTURE MEETINGS

MDAG Chair, John Turner, updated the group on upcoming meetings.

- a. MDAG: March 20, 2023 (9:00 AM – 12:00 PM)
- b. MDAG FG: February 21, 2023 (1:00 PM – 3:00 PM)

AGENDA ITEM 10 – SUMMARY OF ACTION ITEMS

Lottie discussed the action items from this meeting:

- **Action Item:** How are seasonal ratings shown in the MOD-033 effort.
- **Action Item:** SPP staff and stakeholders to review the proposed 2024 MDAG/2025 ITP timeline and schedule.

AGENDA ITEM 11 – ADJOURN

John Turner adjourned the meeting at 11:20 a.m. (CST).

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February 16, 2023

Respectfully Submitted,

Lottie Jones
Secretary

Eric Sullivan
Secretary Assistant

Attachments

FEB16_Attach1- 1e. MDAG Meeting Agenda.docx

FEB16_Attach2 - 1c. MDAG Conference Call Attendance-02-16-2022

FEB16_Attach3- 1f. Jan 19, 2023, Meeting Minutes.docx