Southwest Power Pool, Inc.
Model Development Working Group
Net Conference
June 15: 1:00 P.M. – 5:00 P.M.

• M I N U T E S •

Agenda Item 1 – Administrative

The MDWG Chair, Nate Morris, called the meeting to order at approximately 1:06 p.m. The following MDWG members were in attendance:

MDWG Members present:

<table>
<thead>
<tr>
<th>MDWG Member</th>
<th>Proxy</th>
<th>Company</th>
<th>Present</th>
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</thead>
<tbody>
<tr>
<td>Nate Morris</td>
<td>Yes</td>
<td>Empire District Electric Company</td>
<td>Yes</td>
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<tr>
<td>Derek Brown</td>
<td>Yes</td>
<td>Westar Energy</td>
<td>Yes</td>
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<tr>
<td>Jason Bentz</td>
<td>Yes</td>
<td>American Electric Power</td>
<td>Yes</td>
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<td>Dustin Betz</td>
<td>No</td>
<td>Nebraska Public Power District</td>
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<td>John Boshears</td>
<td>Yes</td>
<td>City Utilities of Springfield</td>
<td>Yes</td>
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<tr>
<td>Jerad Ethridge</td>
<td>Yes</td>
<td>Oklahoma Gas &amp; Electric</td>
<td>Yes</td>
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<td>Joe Fultz</td>
<td>Yes</td>
<td>Grand River Dam Authority</td>
<td>Yes</td>
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<td>Wayne Haidle</td>
<td>Yes</td>
<td>Basin Electric Power Cooperative</td>
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<tr>
<td>Holli Krizek</td>
<td>Yes</td>
<td>Western Area Power Administration</td>
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<tr>
<td>Reené Miranda</td>
<td>Yes</td>
<td>Southwestern Public Service</td>
<td></td>
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<tr>
<td>Scott Schichtl</td>
<td>Yes</td>
<td>Arkansas Electric Cooperative Company</td>
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<tr>
<td>Jason Shook</td>
<td>Yes</td>
<td>GDS Associates</td>
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<td>Brian Wilson</td>
<td>No</td>
<td>Kansas City Power &amp; Light</td>
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<tr>
<td>Liam Stringham</td>
<td>Yes</td>
<td>Sunflower Electric Power Corporation</td>
<td></td>
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<tr>
<td>Anthony Cook</td>
<td>Yes</td>
<td>Southwest Power Pool, Inc</td>
<td></td>
</tr>
</tbody>
</table>

The following guests were also in attendance:

Alan Burbach – Lincoln Electric System
Aravind Chellappa – Southwestern Public Service
Dona Parks – Grand River Dam Authority
Edgardo Manansala – Midwest Energy
Gimod Olapurayil – ITC Great Plains
Jarrod Woford – Northeast Texas Electric Cooperative
John Turner – Board of Public Utilities
Kenneth Hale – City Utilities of Springfield
Mark Reinart – Golden Spread Electric Cooperative
Ryan Baysinger – Kansas City Power & Light
Shaun Golden – Western Farmers Electric Cooperative
Moses Rotich, and Mitch Jackson – Southwest Power Pool
Meeting Agenda

Following the roll call audit, Nate asked the group if they had any issues or modifications to the agenda. Holli Krizek asked whether agenda item 6 included member feedback on the 2018 series model schedule. Anthony replied that the 2018 series model schedule would be presented at a later meeting.

(Attachment 1 - MDWG Meeting Agenda 20170615.docx)

Motion: Jason Shook made the motion to approve the agenda. Jason Bentz seconded it. The motion passed unopposed.

Agenda Item 2 – MOD-033-1:

Anthony presented and mentioned that since this item had been in the previous two meeting agendas but never discussed, there was need to discuss it. During the presentation, a lot of discussion ensued. Holli asked which planning models will be utilized for the analysis. Anthony answered by saying that the model selected will depend on when the event happens. He also said that the closest summer model will probably be utilized for powerflow but for a dynamics, a model from the previous model set might be selected in case there isn’t a more current one. During discussion, many stakeholders agreed that MOD-033-1 analysis will be a time consuming effort.

Nate then asked the group if they had comments on the acceptable differences that Anthony had pointed out in his presentation. John Boshears cautioned that somethings may not show up in the panning models that would otherwise show up in the operational models based on experience that City Utilities of Springfield undertook to convert a planning model to an operational one. Many members also voiced concern over the acceptable differences being defined in the MOD-033 document. Anthony alleviated their concerns by mentioning that the MOD-033 document was developed by the North American Transmission Forum (NATF) through collaboration with different industry experts, but that the document was tailored to fit SPP’s needs. He also stated that the acceptable differences could be changed at any point based on experience through learning and current data.

Action Item: Anthony to send members a link to the NATF document on MOD-033

Furthermore, Derek also asked if Antony had considered which Working Group (s) the MOD-033 analysis will fall under. Anthony responded that even though the analysis is mainly a PC function, SPP will present the results of the analysis to a few Working Groups, such as ORWG and RCWG. Reené then asked if SPP had developed a data request template to send out to different entities. Anthony answered that no template has been developed yet but SPP will draft one based on the type of event and other factors.

Agenda Item 3 – MMWG Update:

Anthony provided a recap of the discussion that took place at the 2017 March face-to-face MMWG meeting regarding the creation of an online database to house both interchange and tie line data between the different PCs in the Eastern Interconnect. There was a lot of deliberation on tie lines being submitted as double entry rather than single entry since many PCs did it differently. Anthony commented that during discussion, SPP took the stance that it would help
with coordination between its members on the tie lines and submit the data to the MMWG data base since the PC is responsible for providing data to the MMWG. Additionally, Anthony also pointed out that with the money already spent on creating the Engineering hub, it made more sense to go with the single entry. In conclusion, he mentioned that that the MMWG ended up including options to either upload ties as single or double entry without any additional cost.

**Agenda Item 4 – Frequency of MDWG Meetings:**

Antony commenced discussion by asking the group whether they thought the current MDWG meetings are sufficient or need to be changed. Nate said that given the amount of work that needs to be accomplished, the number of meetings could increase. Anthony then stressed the need to plan out meetings in order to create efficiency, rather than sending out doodle polls every time before scheduling the meetings. Jared then suggested that recurring meetings (for example, every 1st Wednesday of the month) be planned to be consistent. Anthony proceeded to ask if anyone was opposed to the monthly meetings. Holli suggested that for the face-to-face meeting, whole day instead of half day meetings be considered with respect to those who have to travel a great distance. Many members liked the idea of planned meetings since it will help them block their calendars rather than the unexpected meetings. Derek also remarked that the face-to-face meeting be held towards the end of the model build in order to coordinate and finalize any outstanding issues, rather than scheduling it earlier in the model build. After much deliberation, the group came to a consensus on the frequency of meetings. They agreed on the first Wednesday of every month.

**Action Item:** Anthony to schedule recurring MDWG meetings on the first Wednesday of every month.

**Agenda Item 5 – 2018 Series Software:**

Anthony mentioned that the 2017 series models were build using PSS/E v33.7 and wanted to discuss using a newer version of the software in the 2018 series model build. Many members voiced concern about using different PSSE versions. For example, some stated that upgrading to a newer version required vetting and approval by their IT department which in itself was a long process, whereas others noted some bugs and issues in v33.9. Jason Shook asked Anthony if migrating to a different version of PSS/E impacted the MMWG models in any way. Anthony answered that the MMWG normally uses the latest point revision; therefore, it would not be a problem to use a newer point revision for the 2018 series model build. Jason then asked that members who have PSS/E leases be considered in the decision to move to a different version since it can become a problem. After some discussion, the members agreed to use a different PSS/E version for the 2018 series model build. It came down to either using v33.9 or v33.10.

**Action Item:** Moses to send members PSS/E release notes of the versions after v33.7 in order to find out which bugs have been fixed.

**Motion:** Reené made the motion to move to PSS/E v33.10 for the 2018 series powerflow, short circuit and dynamics model builds. Liam seconded it. The motion passed with one abstention.

Moses then gave an update on using a different version of the Models On Demand (MOD) tool for the 2018 series model build. He stated that the SPP IT department will not be able to install the necessary servers and testing environments in time for the upcoming model build. Some members asked whether moving to PSS/E v33.10 will affect MOD in any way. Moses
responded that it would not. Because of these reasons, Moses stated that MOD v8.1.0.1 will continue to be used in the 2018 series model build. He also encouraged members to start submitting MOD projects and correcting any errors before the new model build commences.

Continuing dialogue, Wayne asked if it was possible for SPP to provide members an updated MOD base case monthly and a list of committed projects that were applied in order allow members better review. Anthony answered that the base case had not been updated because of some bugs encountered in MOD in the previous model build. Anthony also said that it is a good idea to update the base case annually but the members would have to vote to get it approved and changed in the manual. Furthermore, he also said that SPP has to get member feedback before committing projects to the MOD base case in order to avoid committing wrong projects and then having members redo extra work.

**Agenda Item 6 – Draft Modeling Timeline:**

Moses presented the draft modeling timeline for the next three model builds. He stated that this was to satisfy an action item for staff to present a modeling time line to the MDWG.

*Action Item: SPP staff to draft a timeline for the ITP and TPL study process so that members can see how it aligns with the modeling timeline.*

**Agenda Item 7 – Administrative Items:**

**Summary of Action Items**

- Anthony to send members a link to the NATF document on MOD-033
- Anthony to schedule recurring MDWG meetings on the first Wednesday of every month.
- Moses to send members PSS/E release notes of the versions after v33.7 in order to find out which bugs have been fixed.
- SPP staff to draft a timeline for the ITP and TPL study process so that members can see how it aligns with the modeling timeline.

**Future Meetings**

- The group decided to have the next conference call meeting on July 5, 2017

**Adjourn Meeting**

Seeing no further discussion, Nate solicited a motion to adjourn the meeting.

*Motion: Scott Schichtl made the motion to adjourn the meeting. Reené Miranda seconded it. The motion passed unanimously.*

Respectfully submitted,
Anthony Cook
SPP Staff Secretary
Southwest Power Pool, Inc.
MODEL DEVELOPMENT WORKING GROUP
June 15, 2017

• A G E N D A •
1:00 p.m. – 5:00 p.m.

1. Administrative Items .............................................................................................................. Nate Morris
   a. Call to Order
   b. Introductions
   c. Proxies
   d. Agenda Review (Action Item)
      i. Meeting Materials

2. MOD-033-1 Presentation ............................................................ Anthony Cook

3. MMWG Update ................................................................................................. Anthony Cook
   a. Powerflow Database
      i. Area Interchange
      ii. MTL: Single/Double Entry

4. Frequency of MDWG Meetings ................................................................. All

5. 2018 Series Software .................................................................................. All
   a. PSS/E Version (Action Item)
   b. MOD Version

6. Draft Modeling Timeline ........................................................................ Moses Rotich

7. Administrative Items ..................................................................................... Nate Morris
   a. Summary of Action Items
   b. Future Meeting
   c. Adjourn