



**Southwest Power Pool
MODEL DEVELOPMENT WORKING GROUP**

August 29, 2012

Conference Call

2:00 P.M. – 3:00 P.M.

• M I N U T E S •

Agenda Item 1 - Administrative

The meeting was called to order at 2:04 p.m. The following Model Development Working Group (MDWG) members were in attendance:

Joe Fultz, Chair – Grand River Dam Authority (GRDA)
John Boshears – City Utilities of Springfield (CUS)
Mike Clifton – Oklahoma Gas & Electric (OGE)
Nathan McNeil – Midwest Energy (MIDW)
Reen  Miranda – Southwestern Public Service (SPS)
Scott Rainbolt – American Electric Power (AEP)
Jason Shook – GDS Associates (GDS)
Brian Wilson – Kansas City Power & Light (KCPL)

SPP Staff in attendance included Anthony Cook (Secretary), Scott Jordan, Brandon Hentschel, and James Bailey.

The following guests were also in attendance:

Derek Brown (Proxy for Mo Awad) – Westar Energy (WR)
Jason Hofer (Proxy for Dustin Betz) - Public Power District (NPPD)
Tim Smith – Western Farmers Electric Cooperative (WFEC)
Aravind Chellappa – Southwestern Public Service (SPS)
Dave Macey – City of Independence, Missouri (INDN)
Daniel Benedict – City of Independence, Missouri (INDN)
Deepthi Kasinadhuni – Grand River Dam Authority (GRDA)
Liam Stringham – Sunflower Electric Power Corporation (SEPC)
Alex Mucha – Oklahoma Municipal Power Authority (OMPA)
Mark Reinart – Golden Spread Electric Cooperative (GSEC)

Meeting Agenda

The agenda was reviewed by the group. Anthony made the addition of 2012 Dynamic Model Finalization and CBA Model Comments as items 3 and 4 as requested by Joe Fultz and Reen  Miranda. Scott Rainbolt motioned to approve the agenda with the edits; Jason Shook seconded the motion. The motion passed unopposed.

(Attachment 1 - MDWG Meeting Agenda 20120829.doc)

Meeting Minutes

The May 8, 2012 meeting minutes were open for review. Jason Shook motioned to approve the previous meeting minutes; Mike Clifton seconded the motion. The motion passed unopposed. **(Attachment 2 - MDWG Minutes 20120508.doc)**

Agenda Item 2 – 2013 Series:

a. Short Circuit Model Selection:

Anthony Cook began the discussion by stating that per the group's May decision, a short circuit model is not required for every powerflow model, however, the SPCWG needed to be consulted before a selection could be made. Anthony reported that the SPCWG secretary advised him that no specific short circuit models are required since dynamic models are used in their processes. Anthony also added that the SERC decided to build 2013 and 2019 summer models for their short circuit effort. John Boshears gave an explanation about short circuit studies and stated that aside from wanting to study the effect a project might have in the future, short circuit studies should be addressed for near term. The group agreed to complement the models that SERC builds. Nathan McNeil motioned to approve the short circuit model set as 2013 and 2019 summer; John Boshears seconded the motion. The motion passed unopposed. **(Attachment 3 - 2013 Series Model Selection.xlsx)**

Agenda Item 3 – 2012 Dynamic Models Finalization:

Scott Jordan gave an update on the status of the Dynamic Model set. He stated that he is working with some of the member companies to resolve current concerns. Scott also proposed a rebuild once all of the concerns are corrected. Jason Hofer offered to aid Scott with information needed from the Western Area Power Administration (WAPA). Joe Fultz asked if the issues were mainly wind farm topology. Scott answered the issues are both wind farm generic models and some dynamic data. Jason Shook asked why some of the data in the models don't match what was submitted. Scott answered that some assumptions were made in order to get the models to initialize. Scott stated that he is going to update his process to ask members for input for any arising situations and work this into the schedule.

The group decided to give everyone until noon Friday, August 31, 2012, to submit their final comments and have the models corrected and reposted by Tuesday, September 4, 2012.

Agenda Item 4 – CBA Model Comments:

Reené Miranda asked what exactly needs to be checked and what was the model built from. Brandon Hentschel answered that the CBA model was built from the 2018 Summer ITP model. Members need to review the dispatch for their area and keep in mind that a security constrained economic dispatch was used instead of a pure economic dispatch. Reené asked why it wasn't built using the 2012 series MDWG Build 2 model and why a 2018 model and not a 2014 model was used if the integrated market goes into effect 2014? Nathan McNeil stated that the 2018 model was used for representation after the implementation of the market and to make sure projects are captured and to account for possible delays of the market implementation. Reené asked if members would be issued NTCs as a result of the analysis performed on this CBA model. SPP explained that this is just a trial sensitivity analysis and NTCs will not be



issued due to the analysis results. Brandon stated that he would address unanswered questions off the call.

Agenda Item 11 - Closing Administrative Duties:

Next Meetings:

Face-to-Face: Little Rock, November 13, 2012

Upcoming Meetings Topics:

1. TBD

Adjourn Meeting

Reené Miranda motioned to adjourn the meeting, Jason Shook seconded the motion. With no further business to discuss, the MDWG adjourned at 3:14 p.m.

Respectfully submitted,

Anthony Cook
SPP Staff Secretary

**Southwest Power Pool
MODEL DEVELOPMENT WORKING GROUP
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2:00 P.M. – 3:00 P.M.**

• D R A F T A G E N D A •

1. Administrative Joe Fultz
 - a. Call to order
 - b. Proxies
 - c. Approve agenda
 - d. Approve minutes of previous meeting
 - i. May 8, 2012
2. 2013 Series All
 - a. Short Circuit Model Selection
3. 2012 Dynamic Models Finalization All
4. CBA Model Comments All
5. Closing Administrative Duties Joe Fultz
 - a. Next meeting place and date
 - i. November 13, 2012
 - b. Next meeting topics
 - i. TBD
 - c. Adjourn meeting

**Southwest Power Pool
MODEL DEVELOPMENT WORKING GROUP
May 8, 2012
Crowne Plaza Kansas City Downtown
Kansas City, Missouri
9:00 A.M. – 5:00 P.M.**

• M I N U T E S •

Agenda Item 1 - Administrative

The meeting was called to order at 9:00 a.m. The following Model Development Working Group (MDWG) members were in attendance:

Joe Fultz, Chair – Grand River Dam Authority (GRDA)
Nate Morris, Vice Chair – Empire District Electric (EDE)
Scott Rainbolt – American Electric Power (AEP)
Jason Shook – GDS Associates (GDS)
Nathan McNeil – Midwest Energy (MIDW)
Reené Miranda – Southwestern Public Service (SPS)
Scott Schichtl – Arkansas Electric Cooperative (AECC)
Brian Wilson – Kansas City Power & Light (KCPL)
John Boshears – City Utilities of Springfield (CUS)
Mike Clifton – Oklahoma Gas & Electric (OGE)
Dustin Betz - Public Power District (NPPD)

SPP Staff in attendance included Anthony Cook (Secretary), John Mills, Kelsey Allen, Mitch Jackson, Scott Jordan, Tim McGinnis, Susan Polk, and Bob Reynolds (RE).

The following guests were also in attendance:

Derek Brown (Proxy for Mo Awad) – Westar Energy (WR)
Adam Brockmiller – Empire District Electric (EDE)
Jeremy Harris - Westar Energy (WR)
Kyle Drees- Westar Energy (WR)
Tim Smith – Western Farmers Electric Cooperative (WFEC)
Aravind Chellappa – Southwestern Public Service (SPS)
Peter Howard - Kansas City Power & Light (KCPL)
Dave Macey – City of Independence, Missouri (INDN)
Jeff Ellis – American Electric Power (AEP)
Deepthi Kasinadhuni – Grand River Dam Authority (GRDA)
Liam Stringham – Sunflower Electric Power Corporation (SEPC)
Ming Wu – ITC Great Plains, LLC

Select Vice Chair

Anthony Cook presented the candidates for the vice chair position, Nate Morris and Mo Awad. Reené Miranda motioned to vote on the nominees for the vice chair position.

Scott Schichtl seconded the motion. Mo received two votes, Nate Morris received ten votes. Nate Morris was voted as the new vice chair.

Meeting Agenda

The agenda was reviewed by the group. Anthony made the addition of Dynamic Stability/Short Circuit Model Updates as item 10a as requested by Joe Fultz. Jason Shook motioned to approve the agenda with the edit; Scott Schichtl seconded the motion. The motion passed unopposed.

(Attachment 1 - MDWG Meeting Agenda 20120508.doc)

Meeting Minutes

The December 6, 2011 and February 8, 2012 meeting minutes were open for review. There was one edit to the February 8, 2012 minutes to add Jeremy Harris's last name. Nate Morris motioned to approve the previous meeting minutes with the edit; Jason Shook seconded the motion. The motion passed unopposed. **(Attachment 2 - MDWG Minutes 20111206.doc, Attachment 3 – MDWG Minutes 20120208.doc)**

Review of Past Action Items

Anthony Cook reviewed some of the recently completed and in progress action items. Item #56: Entergy prefers SPP members to model load on an SPP bus and connect it to the Entergy bus with a zero impedance line (ZIL). Their reason is to reduce the amount of coordination and errors when creating the MMWG models. The group wants to push to get rid of the ZILs.

Item #57: Scott Jordan gave an update on the standards for stability load data based on discussions at the Transient Stability Task Force (TSTF). This topic is also being discussed at the MMWG level due to the complexity and magnitude of the number of added models and case topology. Another Region has been working for about 8 years developing PSLF load models (single-phase load model to simulate fault induced delayed voltage recovery (FIDVR)) and a system to apply certain constants to emulate different types of loads by region and season. Reené Miranda asked if a bus renumbering would have to take place at the MMWG level due to detail modeling. The MMWG and SPP know that the PSS/E software would have to be augmented to take the additions into account. Right now Siemens-PTI is working with France and Europe to make a 1 million bus case ready version of PSS/E. Nathan McNeil echoed the concern with the amount of work that would be involved. Ming Wu discussed the amount of time it could possibly take to accomplish this task. SPP Staff agreed that this would definitely be a multi-year task.

Action Item - SPP staff will send out MMWG Load Modeling Topology presentation along with a WECC presentation on their load modeling activities over the past 8 or so years.

Item #70: Scott Jordan gave an update on clarification of TPL-004 item D14 of Table 1. He stated that the members should decide what constitutes a “severe power swing” (significant loss of load or generation) for their respective area and that “another Regional Reliability Organization” means one tier from respective area. He stated that each member should maintain documentation of how they perform any study. **(Attachment 4 - SPP MDWG Action Items 20120508.xls)**

Agenda Item 2 – Introduction of Susan Polk:

Anthony Cook introduced Susan Polk as SPP legal assigned to the MDWG. Susan further introduced herself and let the members know that if they have any questions, they can contact her in the future.

Agenda Item 3 – 2011 Working Group Survey

Anthony Cook reviewed the MDWG portion of the 2011 Working Group Survey. He stated that overall, the group improved in several areas, but the overall effectiveness stayed constant from 2010. He asked the members to submit suggestions for improvements. **(Attachment 5 - 2011 org survey_analysis_MDWG.xlsx)**

Agenda Item 4 – Establish Email Voting Protocol:

Anthony Cook presented the group with the recently approved email voting protocols of the TWG. He asked the MDWG to adopt the document since there have been more occurrences of email votes. Nathan McNeil motioned to adopt the TWG email voting protocols as written with the exception of changing TWG to MDWG; Reené Miranda seconded the motion. The motion passed unopposed. **(Attachment 6 - MDWG email voting protocols.pdf)**

Agenda Item 5 – 2013 Series:

a. Model Selection:

The MDWG began reviewing the proposed model selection for the 2013 Series MDWG powerflow, dynamics, and short circuit sets. Anthony Cook stated that the powerflow and dynamics models are based on the MMWG 2013 Series model set. Anthony asked if there is a need to have a short circuit model for every powerflow model. The group agreed that there isn't a need for that many short circuit models, but ask SPP staff to talk to the SPCWG and find out if they have a need for certain seasons. The group decided to vote only on the powerflow and dynamics model sets and table the short circuit model set until later. Reené Miranda motioned to approve the powerflow and dynamics model sets as presented; Scott Schichtl

seconded the motion. The motion passed unopposed. (**Attachment 7 - 2013 Series Model Selection.xlsx**)

Action Item - SPP staff to find out if the SPCWG has a need for any certain short circuit model.

b. Schedule:

The group reviewed the proposed 2013 Series Schedule. Reené Miranda requested for the Pass 5 member changes due date be extended to mid February to give SPS time to gather data from their COOPs. SPP staff advised against it since that would push the final model posting out to the end of February which will delay the start of the Dynamics build, ITP build, TPL study, etc.

Anthony Cook asked if short circuit models need to be built with every pass of powerflow models since SPP member sequence data is in the powerflow models and the external first tier data doesn't change. The group decided that short circuit models don't need to be built with every pass and that they can be built off of the final powerflow models.

Once the discussion ended, Nate Morris motioned to approve the 2013 Series MDWG Schedule as proposed with the exception of building the short circuit models off of the final powerflow models instead of for every pass. Scott Rainbolt seconded the motion. The schedule was approved with an 11 for and 1 against vote. The one vote against came from Reené Miranda of SPS.

(Attachment 8 - MDWG Modeling Schedule 2013_Series.pdf)

Agenda Item 6 – CNTC Project Discussion:

Kelsey Allen discussed with the group that NTC-C projects may not be treated, in the future, like NTC projects as previously thought. This process is currently being discussed in the Business Practices Working Group (BPWG). Kelsey asked if the MDWG wanted to add another MOD project type and status to the MOD matrix so that these projects can be identified separately. Reené Miranda motioned to update the MOD matrix to include a type and status for NTC-C projects; Scott Schichtl seconded the motion. The motion passed unopposed.

Action Item – Kelsey to update the MOD matrix with a type and status for NTC-C projects.

Agenda Item 7 – Discuss Dynamics/GI IDEVs Review:

Scott Jordan informed the group of the use of the wind farm topology IDEV updates from the Generation Interconnection group. The request that he had made earlier was for the MDWG Modeling contacts to review the GI IDEVs and provide feedback, but ultimately get the topology into MOD via a project so that it can be committed to the base case. One of these topology updates was done prior to this at the request of the TO. An error

was found and corrected in the IDEV being used by the GI process. Scott asked that Modeling Contacts review the IDEVs and let him know about any potential errors and also submit MOD projects for them. Joe Fultz asked about getting detailed wind dyre file model data. Scott stated that many of the data submissions are proprietary, so generic models or some proxies have to be used. Ming Wu asked if generation owners are verifying that the generic models behave fairly accurate.

Scott also discussed dyre file updates and that staff created a python program to verify dyre file constants against typical values for the data as supplied by Siemens-PTI in the Program Application Documentation, Volume II, Chapter 25 "Data Verification. SPP will start working with SPP Modeling contacts to work through any issues of values outside of normal parameters.

Scott gave a brief update on the currently held NERC Model Validation Workshop in Atlanta, Georgia. He stated that the workshop was a start on helping build communications between GOs and TOs. It was a learning experience for both the TOs and GOs. Additionally, he and John Mills will work on holding a similar workshop for the SPP Footprint to not only disseminate information but again help communications between GOs and TOs that might not exist. Reené Miranda asked about requirements for generation owners to verify and test generator data. Scott responded by saying that NERC is looking into the process of drafting a standard for this and that WECC currently has a test and verify cycle of 3 years.

Action Item - SPP staff will send out a link to the NERC Model validation Workshop presentations for the MDWG members.

Agenda Item 8 – Model Data Submission Matrix:

The TWG asked the MDWG to create a "report card" so that in the event models are late, they can see who is responsible. Anthony Cook presented a draft matrix to the group to get ideas for the format. This will be implemented for the 2012 Series Build 2 process to see if changes need to be made before the 2013 Series begins.
(Attachment 9 - 2012 MDWG Build 2 Data Matrix.xlsx)

Agenda Item 9 – CBA Model Update:

Kelsey Allen gave a presentation on Near-Term CBA modeling. The presentation is an overview of the development of the CBA model. Nate Morris asked why the 2018 summer model was selected. It was selected as the best option for a representation of post-day-ahead market operation within the ITP NT planning horizon. Joe Fultz asked how non-member loads will be handled. Kelsey stated that load would be left as projected in the regular ITP NT models. Kelsey also added that all intra-SPP transactions will go away and ProMOD will provide the dispatch. A high hurdle rate will be entered to ensure minimal change in overall MW dispatch within SPP for honoring transactions across seams. There will not be any change to tier 1 and out areas. Dustin Betz asked how non-member load and generation within SPP will be handled. Tim McGinnis stated that generation was dispatched along with SPP generation. Kelsey followed up saying that SPP is open to suggestions on how best to address these

details. John Boshears asked how any new reliability issues that arise will be handled. The 2013 ITP NT assessment will have no cost allocation for any projects that may be identified through the ITP NT CBA model analysis; it is for informational purposes only. Future cost allocation for identified projects is still undetermined. (**Attachment 10 - CBA Update _2013 ITP Near-Term.pptx**)

Agenda Item 10 – Other:

a. Dynamic Stability/Short Circuit Model Updates:

Scott Jordan gave an update on the dynamic stability models. He stated that the models will be submitted for review the latter part of July. The group asked for an updated Dynamics schedule to be sent out.

Action Item – Scott to send out updated Dynamics schedule to the members.

Anthony Cook gave an update on the short circuit models. He stated that the models are complete and are ready to be posted.

Additional Comments:

- 1) Joe Fultz commented that there is sometimes a disconnect between ratings submitted for Planning and Operations. He also added that updates for Operations are not necessarily MOD updates.
- 2) Derek Brown stated that normal load growth shouldn't be considered as part of the Attachment AQ process just because it is added to a new substation. His example is if a substation is at capacity and a new substation is added for that load growth. The group decided to request guidance from the TWG.

Agenda Item 11 - Closing Administrative Duties:

Next Meetings:

Conference Call: TBD

Face-to-Face: Little Rock, November, 2012

Upcoming Meetings Topics:

1. TBD

Summary of New Action Items

1. **SPP staff will send out MMWG Load Modeling Topology presentation along with a WECC presentation on their load modeling activities over the past 8 or so years.**
2. **SPP staff to find out if the SPCWG has a need for any certain short circuit model.**
3. **Kelsey to update the MOD matrix with a type and status for NTC-C projects.**

4. **SPP staff will send out a link to the NERC Model validation Workshop presentations for the MDWG members.**
5. **Scott to send out updated Dynamics schedule to the members.**
6. **Ask the TWG to review Attachment AQ for special circumstances.**

Adjourn Meeting

Reené Miranda motioned to adjourn the meeting, Scott Schichtl seconded the motion. With no further business to discuss, the MDWG adjourned at 2:00 p.m.

Respectfully submitted,
Anthony Cook
SPP Staff Secretary

2013 Series Model Selection

Multiregional Modeling Working Group

Year	Season	Power Flow Model	Dynamic Model	
2014	Light Load	X	X	
2014	Spring	X		
2014	Summer	X	X	
2014	Summer Shoulder	X	X	
2014	Fall	X		
2014	Winter	X	X	
2015	Spring	X		
2015	Summer	X	X	
2015	Winter	X		
2019	Light Load	X	X	
2019	Summer	X	X	
2019	Winter	X	X	
2024	Summer	X		

Model Developer

Year	Season
2013	Spring
2013	Summer
2013	Summer Shoulder
2013	Fall
2013	Winter
2014	Light Load
2014	Spring
2014	Summer
2014	Summer Shoulder
2014	Fall
2014	Winter
2015	Spring
2015	Summer
2015	Winter
2019	Light Load
2019	Summer
2019	Winter
2024	Summer
2024	Winter

ment Working Group

Power Flow Model	Dynamic Model	Short Circuit Model
X		
X		X
X		
X		
X		
X	X	
X		
X	X	
X	X	
X		
X	X	
X		
X	X	
X	X	
X	X	X
X	X	
X	X	
X		