



**Southwest Power Pool
MODEL DEVELOPMENT WORKING GROUP
December 6, 2011
SPP – Chenal Office Location
Little Rock, AR
2:00 P.M. – 5:00 P.M.**

• M I N U T E S •

Agenda Item 1 - Administrative

The meeting was called to order at 2:10 p.m. The following Model Development Working Group (MDWG) members were in attendance:

Scott Rainbolt, Chair – American Electric Power (AEP)
Joe Fultz, Vice Chair – Grand River Dam Authority (GRDA)
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)
Nate Morris – Empire District Electric (EDE)
Mo Awad – Westar Energy (WR)

SPP Staff in attendance included Anthony Cook (Secretary), Kelsey Allen, Mitch Jackson, Brandon Hentschel, Levi Lyons, Daniel Harless and Greg Sorenson (RE).

The following guests were also in attendance:

Clif Smith – Southwestern Public Service (SPS)
Adam Brockmiller – Empire District Electric (EDE)
Peter Howard - Kansas City Power & Light (KCPL)
Derek Brown – Westar Energy (WR)

Meeting Agenda

The agenda was reviewed by the group. Scott Schichtl motioned to approve the agenda, Nate Morris seconded the motion. The motion passed unopposed (**Attachment 1 - MDWG Meeting Agenda 20111206.doc**).

Meeting Minutes

The November 8, 2011 meeting minutes were open for review. Jason Shook motioned to approve the previous meeting minutes as written; Scott Schichtl seconded the motion. The motion passed unopposed (**Attachment 2 - MDWG Minutes 20111108.doc**).

Review of Past Action Items

Anthony Cook reviewed the recently completed and in progress action items. The MDWG asked Staff to complete some of the older action items to clean up the list. **(Attachment 3 - SPP MDWG Action Items 20111206.xls)**

Agenda Item 2 – Proposed 2012 Series Schedule Update:

The group reviewed the proposed 2012 Series Schedule updates while Kelsey Allen stated the reasoning behind the proposal. These changes included improvements to Build 1 and the removal of Build 2 so that effort is focused on only one model build. These changes were based on discussion by the MITF on how to improve the models. Also, passes for building the Short Circuit models were weaved in with the Powerflow model build so that powerflow and short circuit models are built concurrently.

Nate Morris said that he would be fine removing Build 2 if a pass 4 with another month to review the models was added to Build 1. Reené Miranda expressed that SPS had already told their LSEs that there would be a Build 2 and that he would like to see a pass 4 added to Build 1 and keep Build 2. Mo Awad explained that Westar's load distribution information is received later in the year and therefore changes between Build 1 and Build 2. A few of the members are more concerned with using the latest model that is available, whether it is Build 1 or Build 2, to use for internal studies.

Nathan McNeil expressed hesitation to remove Build 2 from the 2012 Series schedule since it has been an area of concern at the recent TWG meetings. Some suggestions for next year's process were given which included starting the Build 1 process earlier, scheduling the Model Update Meeting before Thanksgiving, and adding an additional pass to Build 1. It was suggested that Staff create a 2013 schedule to include these suggestions plus the removal of Build 2 and present it to the MDWG in early February.

The group decided to keep Build 2 for the 2012 Series. A motion was made by Mo to accept the proposed schedule with the short circuit models being built with the powerflow models and add Build 2. Reené seconded the motion. The motion passed unopposed. **(Attachment 4 - MDWG Modeling Schedule 2012 _REV2.pdf)**

Action Item – Staff to create a 2013 schedule with four passes and removal of Build 2.

Agenda Item 3 – MITF White Paper

Kelsey Allen reviewed the Uniform Generation Modeling section of the MITF approved White Paper again and restated that the Western Interconnection, WECC, uses 10 MVA for individual machines and 20 MVA for plants. There were still concerns with the machine and plant aggregate capacity values. Some suggested that the machine size should be 100 MVA and that the aggregate capacity should be done away with. The group decided to push this back to the MITF for justification

Action Item – Kelsey to take this back to the MITF for justification of machine size and plant aggregate capacity values.

Agenda Item 4 – MOD Web Manual:

Kelsey Allen presented the updated MOD Web Manual. Mo Awad motioned to approve the updated MOD Web Manual as presented. Nathan McNeil seconded the motion. The motion passed unopposed. **(Attachment 5 - SPP MODWeb Procedure Manual (Public)_ (2011-12-06).doc)**

Agenda Item 5 – ATP Discussion:

Kelsey Allen discussed that no decision has been made on which model sets will include ATP projects. Jason Shook expressed his opinion that ATP and NTC projects are the same in the evaluation process and should be in the same model sets. Discussion arose about Conditional Notice to Construct (CNTC) projects which prompted Mo Awad to make a motion to modify the MOD Matrix to include a new status. After the group discussed the topic, the realization that CNTC projects are treated the same as NTC projects and therefore a modification to the matrix is not needed. SPP will keep the group informed when a decision is made about ATP projects

Agenda Item 6 – MDWG Involvement Review ITP:

Scott Rainbolt explained that the TWG wants the MDWG to have a review of the ITP models. This is due to the voltage issues that were in the ITP10 off-peak model. Kelsey Allen and Anthony Cook will talk with the planning staff to allow time for the MDWG to review the ITP models going forward.

Action Item – Kelsey and Anthony to talk with the planning staff to allow time for the MDWG to review the ITP models.

Agenda Item 7 – CBA Dispatching Discussion:

The MDWG questioned where the dispatch would come from for the future CBA models. Kelsey Allen discussed the possibilities of creating the dispatch using either PROMOD

or PowerWorld which are security constrained dispatches. SPP will keep the group informed as discussions about CBA models take place.

Agenda Item 8 – Data Submittal Workbook:

Anthony Cook reviewed the purpose of the Expanded Bus and Translation worksheet in the Data Submittal Workbook. He explained that buses should be able to be tracked from series to series as bus numbers change. He noticed that several bus numbers change from series to series but instead of translations being kept, a new entry is being made. He asked the members to be mindful of this going forward.

Anthony also added that SPP staff is working to update the Generator Data worksheet with the data that is in the models instead of requesting the members to do so.

Agenda Item 9 – Other:

A question arose about members having load on another system and whether to use a SPP assigned owner number or the other system's assigned owner number for those loads. Anthony expressed that the SPP assigned owner number should be used in these situations.

Anthony asked the group if they thought yearly MOD training is still necessary. He sighted that Kelsey had assembled a detailed tutorial which all members have access to. The group decided to no longer hold yearly MOD training.

Anthony asked the group if members need confirmation of SPP participation in the MMWG model building process. The members stated that it wasn't necessary but would be useful if a column was added to the Model Participation worksheet and add language to the Procedure Manual to cover the topic.

Scott Rainbolt requested to step down as Chair of the MDWG. He stated that it was time for him to step aside and let Joe Fultz lead. He requested this be effective February, 2012.

Agenda Item 10 - Closing Administrative Duties:

Next Meetings:

Conference Call: February, 2012

Face-to-Face: Kansas City, May, 2012

Upcoming Meetings Topics:

1. 2013 Proposed Schedule
2. MDWG Chairman Change
3. ATP Discussion Update if Necessary

Summary of New Action Items

1. **Staff to create a 2013 schedule with four passes and removal of Build 2.**
2. **Kelsey to take this back to the MITF for justification of machine size and plant aggregate capacity values.**
3. **Kelsey and Anthony to talk with the planning staff to allow time for the MDWG to review the ITP models.**

Adjourn Meeting

Scott Schichtl motioned to adjourn the meeting, Mo Awad seconded the motion.
With no further business to discuss, the MDWG adjourned at 5:16 p.m.

Respectfully submitted,
Anthony Cook
SPP Staff Secretary



**Southwest Power Pool
MODEL DEVELOPMENT WORKING GROUP
December 6, 2011
SPP Chenal Office
2:00 P.M. – 5:00 P.M.**

• D R A F T A G E N D A •

- 1. AdministrativeScott Rainbolt
 - a. Call to order
 - b. Proxies
 - c. Approve agenda
 - d. Approve minutes of previous meetings
 - i. November 8, 2011
 - e. Review of Past Action Items..... Anthony Cook
- 2. Proposed 2012 Series Schedule Update(Action Item)..... All
- 3. MITF White Paper (Action Item)..... Kelsey Allen
 - a. Uniform Generation Modeling
- 4. MOD Web Manual (Action Item)..... Kelsey Allen
- 5. ATP Discussion All
- 6. MDWG Involvement Reviewing ITP All
- 7. CBA Dispatching Discussion All
- 8. Data Submittal Workbook..... All
 - a. Purpose of Expanded Bus & Translation Worksheet
 - b. Updating the Generator Data Worksheet
- 9. Other..... All
 - a. Owner in Different Area
 - b. MOD Training
 - c. Confirmation of MMWG Participation
- 10. Closing Administrative Duties.....Scott Rainbolt
 - a. Next meeting place and date
 - b. Next meeting topics
 - c. Review of Action Items
 - d. Adjourn meeting



**Southwest Power Pool
MODEL DEVELOPMENT WORKING GROUP
November 8, 2011
Conference Call
10:00 A.M. – 11:30 A.M.**

• M I N U T E S •

Agenda Item 1 - Administrative

The meeting was called to order at 10:05 a.m. The following Model Development Working Group (MDWG) members were in attendance:

Scott Rainbolt, Chair – American Electric Power (AEP)
Joe Fultz, Vice Chair – Grand River Dam Authority (GRDA)
Jason Shook – GDS Associates (GDS)
Dustin Betz – Nebraska Public Power District (NPPD)
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)

SPP Staff in attendance included Anthony Cook (Secretary), Kelsey Allen, Mitch Jackson, and Jeff Rooker (RE).

The following guests were also in attendance:

David Macey – City of Independence, Missouri (INDN)
Deepthi Kasinadhuni – Grand River Dam Authority (GRDA)
Liam Stringham – Sunflower Electric Power Corporation (SEPC)
Ryan Yokley – Sunflower Electric Power Corporation (SEPC)
Derek Brown – Westar Energy (WR)

Meeting Agenda

The agenda was reviewed by the group. Scott Schichtl motioned to approve the agenda, Jason Shook seconded the motion. The motion passed unopposed (**Attachment 1 - MDWG Meeting Agenda 20111108.doc**).

Meeting Minutes

The August 2th meeting minutes were open for review. Scott Schichtl motioned to approve the previous meeting minutes as written; Jason Shook seconded the motion. The motion passed unopposed (**Attachment 2 - MDWG Minutes 20110802.doc**).

Agenda Item 2 – MITF White Paper

Kelsey Allen reviewed the Uniform Generation Modeling section of the MITF approved White Paper. He stated that Generator P_{MAX} should be modeled as a gross value with auxiliary load modeled explicitly for machines greater than 20 MVA or plants with an aggregate capacity greater than 20 MVA. Otherwise, auxiliary load should be netted with generator gross capability. Reené Miranda asked what value is currently used for P_{MAX}. Kelsey responded that P_{MAX} should be modeled as machine output capability based on test reports, not a nameplate value. Nathan McNeil asked that the third bullet of the solution under section 1.A. of the white paper be reworded for clarity and the inclusion of seasonal capability language. Nathan asked about the size of the machine and the aggregate capacity of greater than 20 MVA, stating an example of a group of municipal machines totaling 21 MVA for which he expressed concern of being required to model auxiliary load. Kelsey added that generation on a distribution system would fall under this 20 MVA requirement. Jason Shook asked about the options in Appendix C to which Kelsey stated that these were suggestions made by the MITF. Reené also asked about the language of the Tariff and if there is still an issue. Kelsey will review previous meeting minutes and make sure the issue was resolved. Nathan questioned the limit on the aggregate capacity being too low. Kelsey added that the Western Interconnection, WECC, uses 10 MVA for individual machines and 20 MVA for plants.

The group decided to table this decision until the December meeting.

(Attachment 3 - Model Improvement White Paper_draft 20110913_MITF Approved.doc)

Action Item – Kelsey Allen to review previous meeting minutes for resolution of any language discrepancies in the SPP Tariff.

Action Item – Staff to provide background information on reasons for choosing presented values for Uniform Generation Modeling.

Agenda Item 3 – Proposed 2012 Series Schedule Update:

The group reviewed the proposed 2012 Series Schedule updates while Kelsey Allen stated the reasoning behind proposal. These changes included improvements to Build 1 and the removal of Build 2 so that effort is focused on only one model build. These changes were based on discussion by the MITF on how to improve the models. Also, passes for building the Short Circuit models were weaved in with the Powerflow model build so that powerflow and short circuit models are built concurrently.

Scott Rainbolt was concerned about getting the NTC project idevs converted to MOD projects in time for the model build. Kelsey Allen informed the group that the idevs would be added to the model building process and that the projects could be added to MOD at a later date. Dustin Betz asked if the members could review the NTC idevs, to which Kelsey suggested trying to post the idevs for review during the December DBU.

Reené Miranda had concerns about removing Build 2 because SPS LSE companies are expecting a second build to make further improvements. Derek Brown also had concerns because of Westar internal study processes.

Reené suggested beginning in May instead of August for future model builds. Dustin added that the MMWG models are not ready until late fall and therefore does not help all companies to start early. Kelsey added that the two milestones of the build are the MMWG model release and the start of other SPP internal processes and studies in the beginning of the year.

The group decided to table this decision until the December meeting.
(Attachment 4 - MDWG Modeling Schedule 2012_transition_REV2.pdf)

Agenda Item 4 – Load Forecast Request:

Anthony Cook discussed the request for a load forecast for 2033. Scott Rainbolt asked how SPP wanted the members to submit the data. Kelsey Allen stated that Staff could upload a 2023 profile to MOD and name it 2033 for the members to add their profile to. Nathan McNeil questioned how allocation is determined for the off-peak model. Staff said this is a question needing to be answered by SPP Economic Planning and/or the ESWG.

Action Item – Staff to send out formal request for 2033 load forecast.

Agenda Item 5 – Face-to-Face Meetings:

Anthony Cook asked the group if they wanted to continue having face-to-face meetings in February and August in conjunction with the TWG. Staff stated that the February meeting seemed not as effective since it was at the end of the model build and a short time span after the December meeting. The August meetings have been effective, but could be earlier so that necessary agenda items could be presented before the model build begins. The group discussed holding a face-to-face meeting in conjunction with the TWG in May and to keep the current meeting in December, before the DBU, for 2012. Nathan McNeil motioned to accept the proposed face-to-face meeting schedule; Reené Miranda seconded the motion. The motion passed unopposed.

Agenda Item 6 – Other:

- A. Anthony Cook informed the group that the MMWG did decide to increase the model seasons by one year for the 2012 Series. This will coincide with the 2012 Series MDWG models.
- B. Reené Miranda had questions/comments involving the Dynamic Model process.

- i. Can Staff setup a folder on TrueShare for Dynamic submissions so that the Members don't have to wait until the formal request is sent out by Staff to submit data?
- ii. Data coordination for new generation needs to be improved between SPP and TOs. SPP receives data from the party requesting generation interconnection studies, but the TOs don't have the data to add it accurately to the powerflow models. As far as stability data, SPP does not provide the TOs with data.
- iii. SPP should be requesting non-proprietary models that represent an equivalence of the entire wind farm and mimic the characteristics of the farm at the POI.

Anthony will forward the comments of Reené to the correct Staff member.

Agenda Item 7 - Closing Administrative Duties:

Next Meetings:

Model Update Meeting: Little Rock, December 6-8

Upcoming Meetings Topics:

1. The purpose of the Exp. Bus Names & Translation Table
2. Generator Data Table Updates
3. MODWeb Procedure Manual
4. MDWG Model Development Procedure Manual
5. CBA Dispatching Discussion
6. MDWG involvement reviewing ITP Models
7. MDWG Schedule Transition
8. Uniform Generation Modeling
9. MITF Whitepaper
10. ATP Discussion Update
11. Confirmation of MMWG Participation
12. MOD Training

Summary of New Action Items

1. **Staff to review previous meeting minutes for resolution of any language discrepancies in the SPP Tariff.**
2. **Staff to provide background information on reasons for choosing presented values for Uniform Generation Modeling.**
3. **Staff to send out formal request for 2033 load forecast.**

(Attachment 5 - SPP MDWG Action Items 20111108.xls)

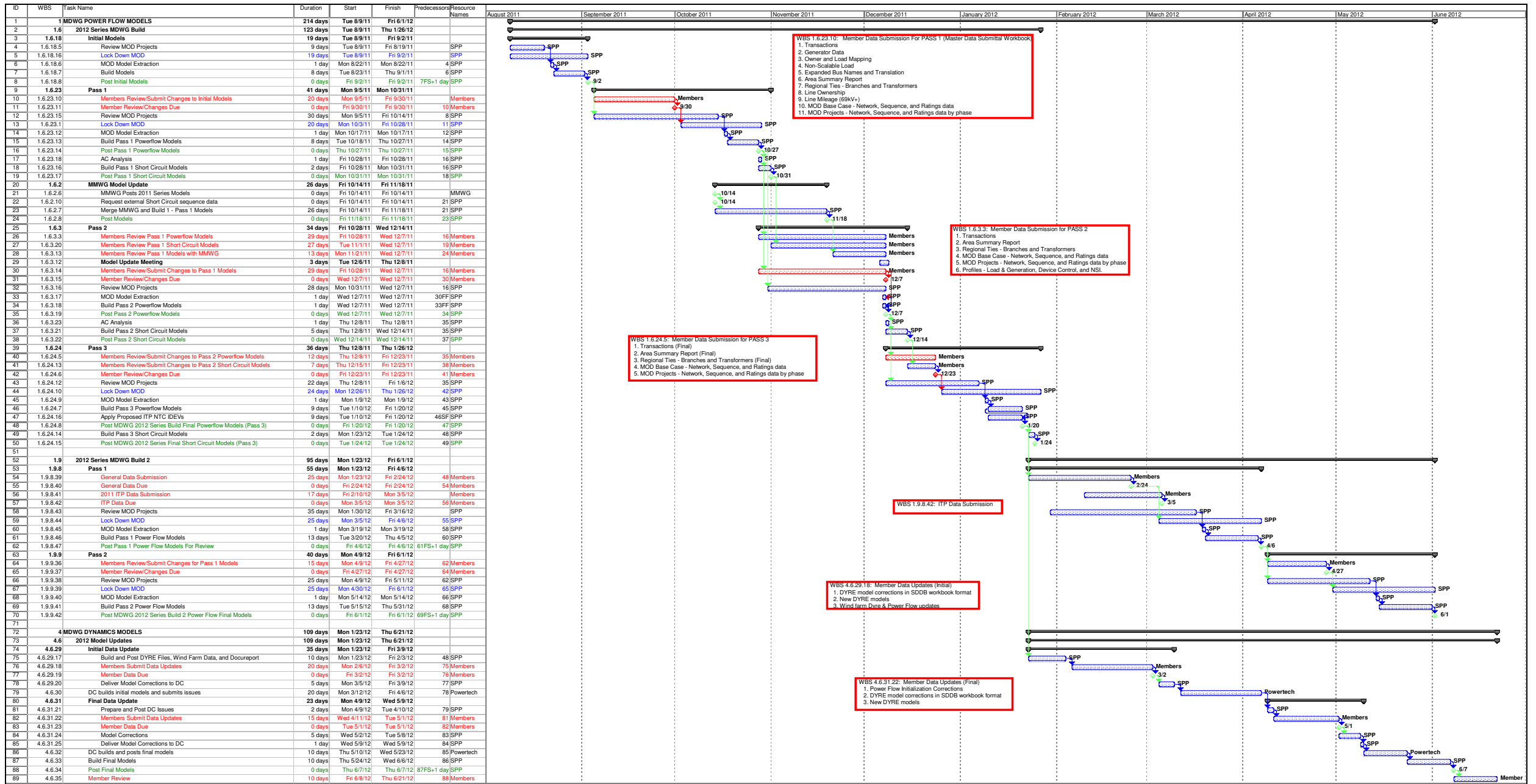
Adjourn Meeting

Scott Schichtl motioned to adjourn the meeting, Reené Miranda seconded the motion. With no further business to discuss, the MDWG adjourned at 11:30 a.m.



Respectfully submitted,
Anthony Cook
SPP Staff Secretary

	Action Item	Responsible Parties	Date Originated	Progress	Notes
2	SPP Staff will add the NERC TPL (Transmission Planning) and MOD (Modeling, Data, and Analysis) Standards that are applicable to each required item in the SPP Compliance Template Form	Anthony Cook	8/7/2009	In Progress	Staff still needs to update the template with Dynamics.
14	Staff will update the Web Based Power Flow Model Development Procedure Manual after MOD version 7 has been released and installed on the production server	SPP Staff	11/17/2009	Complete	
42	Review the new MOD standards approved by FERC and how they will apply to the MDWG and SPP planning modeling	SPP Staff	3/1/2010	In Progress	
50	Reformat the MDWG procedure manual and add hyperlinks for referenced documents	Anthony Cook	8/6/2010	In Progress	
56	Discuss with Entergy about SPP members modeling load with zero impedance lines	SPP Staff	8/6/2010	In Progress	Anthony Cook to follow up
57	Determine the standards for stability load data	Scott Jordan	8/6/2010	In Progress	
67	Staff to add ATP discussion to the December meeting agenda	SPP Staff	8/2/2011	Complete	
69	Staff to provide modeling contacts with documentation on the congestion hedging process	SPP Staff	8/2/2011	Complete	
70	Staff to determine clarification of TPL-004 item D14 of Table 1	SPP Staff	8/2/2011	In Progress	
71	Staff to review previous meeting minutes for resolution of any language discrepancies in the SPP Tariff about Uniform Generation Modeling	Kelsey Allen	11/8/2011	In Progress	
72	Staff to provide background information on reasons for choosing 20 MVA for machines and aggregate plant capacity for Uniform Generation Modeling	Staff	11/8/2011	In Progress	This as been pushed back to the MITF for justification per the 12/6 meeting.
73	Staff to send out formal request for 2033 load forecast	Staff	11/8/2011	In Progress	
74	Develop and Provide a 2013 Series Schedule to the MDWG by 2nd week of February	Staff	12/6/2011	In Progress	Start Build 1 earlier, Scheduling the Model Update Meeting before Thanksgiving, Add Pass 4 to Build 1, Remove Build 2
75	Kelsey and Anthony to talk with the planning staff to allow time for the MDWG to review the ITP models.	Kelsey Allen Anthony Cook	12/6/2011	In Progress	



Project: MDWG Modeling Schedule 20
Date: Thu 12/8/11





Southwest Power Pool, Inc.

MODWeb Procedure Manual

MAINTAINED BY
SOUTHWEST POWER POOL
MODEL DEVELOPMENT WORKING GROUP

PUBLISHED: FEBRUARY, 2008
LATEST REVISION: December, 2011

Copyright © 2011 by Southwest Power Pool, Inc. All rights reserved.



Version History

Original: February 2008

Version 2: September 2008

Version 3: November 2009

Version 4: February 2011

Version 5: December 2011

- Updated for MOD v7.1
- Updated for PSSTME v32
- Updated for current processes
- Re-written, re-arranged
- Added MODWeb application navigation appendix for non-public version
- Added additional file format data for non-public version



Table of Contents

Disclaimer	4
Documents Disclaimer	4
Model Disclaimer.....	4
Copyright	5
Privacy Statement	5
Introduction.....	6
1. MOD Data and Model Input Files	7
1.1. MOD Network Data (Base Case).....	7
1.2. MOD Projects.....	7
1.3. MOD Ratings	10
1.4. MOD Sequence data.....	10
1.5. MOD Profiles	11
1.6. MOD Case Building.....	11
1.6.1. Case Definitions	11
1.6.2. Batch Case Build	13
1.7. SPP File Sharing.....	13
1.7.1. Transactions.....	13
1.7.2. Regional Ties.....	14
1.7.3. SPP MDWG Data Submittal Workbook (Reference Data).....	14
1.7.4. Models	14
2. MOD Workflow.....	15
2.1. Roles.....	15
2.1.1. Submitter (User)	15
2.1.2. Approver.....	16
2.2. Groups	16
2.3. Data Review	17
2.4. Data Extraction.....	19
3. MDWG Model Building Workflow.....	20
4. MDWG Model Building Workflow Summary	26
4.1. Reference Notes	26
4.2. Model Building Flow Diagram (Figure 11)	27
5. Security and Administration	28
Appendix I. Acronyms	29
Appendix II. MOD Profile Data	30
II.A. Load Generation	30
II.B. Device Control.....	31
II.C. NSI.....	31



Disclaimer

Southwest Power Pool, Inc. (SPP) hereby disclaims any warranty, express or implied, as to the accuracy, completeness, timeliness or availability of the information provided within this document. Use of the information within this document in any manner constitutes an agreement to hold harmless and indemnify SPP, its employees, its Members and any consultants or entities performing work with or for SPP or its Members, from all claims of any damages or liability for actual, indirect, incidental, special or consequential damages sustained or incurred in connection with the use of or inability to use the information within this document.

Neither SPP nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by SPP or any agency thereof. SPP does not warrant the accuracy, interpretation, capability or functionality of any of the information, products or services mentioned within this document. Users are advised to verify the accuracy of this information with the original source of the data.

Documents Disclaimer

The posting of this document is done for the convenience of SPP Members as well as any consultants or entities performing work with or for SPP or its Members. NOTE: While SPP attempts to format all posted documents to the original, changes can result from the programs used to format the documents for posting on the MDWG site as well as from the programs used by the viewer to download and read the documents. Accordingly, SPP makes no representation or warranty, express or implied that the documents on this MDWG site are exact reproductions of those documents listed.

Model Disclaimer

SPP models contain proprietary information intended for use only by the designated recipient. Any other use is strictly prohibited. SPP models may not be used in any manner for commercial purposes. The models may include projects that will change or not be built at all. SPP does not warrant the accuracy, interpretation, capability or functionality of any of the information, products or services included in these models.



Users are advised to verify the accuracy of this information with the original source of the data.

Copyright

All Information contained within this document, as with all SPP documentation, is intended for use by SPP and its membership. The copyright on Southwest Power Pool information is intended to protect both the members of SPP as well as any consultants or entities performing work with or for SPP or its member base. No part of the material protected by this copyright notice may be reproduced, retransmitted, or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written permission from the copyright owner (SPP). Material contained herein is to be used for the benefit of SPP and/or its membership but is not limited to SPP and/or its membership. Any inquiries about this copyright should be directed to the Legal, 415 North McKinley, #140 Plaza West, Little Rock, AR 72205-3020, telephone (501) 614-3200, or www.spp.org.

Privacy Statement

This statement discloses the privacy practices for the entire SPP Web Site. We respect the privacy of our members and have therefore adopted a set of information management guidelines that form the foundation of our member relationships. These guidelines have been developed due to rapidly evolving Internet Technology, and that underlying business models are not yet firmly established. Accordingly, these guidelines are subject to change at any time to maintain pace with industry standards. Any such changes will immediately be posted on the SPP website.

Under no circumstances will SPP link IP addresses to anything personally identifiable or provide personal information to any third party in any form, with advertisers or other parties to release information about the members of SPP as well as any consultants or entities performing work with or for SPP or its member base unless prior permission has been obtained from said entity to do so.

Upon request, SPP will remove any information from our website found to be incorrect or unusable. Any such request should be sent via email to planningmodeling@spp.org. SPP is not responsible for the content or the privacy policies of external websites to which we may link.



Introduction

The Southwest Power Pool (SPP) Model Development Working Group (MDWG) and SPP Staff use a secure web based model building process to store up-to-date power flow model data which is used to create custom models. The data are used by members and SPP staff to support the modeling data requirements of the Eastern Interconnection Reliability Assessment Group (ERAG) Multiregional Modeling Working Group (MMWG), various studies encompassed by the SPP Transmission Expansion Plan (STEP), and requirements of various Reliability Standards imposed by the North American Electric Reliability Corporation (NERC). The SPP Modeling Contacts are representative of SPP Data Reporting Members and SPP Staff who supply data to support the data requirements of the MDWG. This document describes the data and procedures for model data submittal and model building using Model On Demand (MOD) and supplementary tools developed by Siemens Power Technologies, International (PTI). This manual is not intended to replace the Siemens PTI MOD Users Manual or the MDWG Powerflow Model Development Procedure Manual, but rather to provide a quick reference and supplement those documents with specific data and processes regarding the use of MOD and how it relates to the SPP model development process. The *MOD Users Manual* (July 2008) released by Siemens PTI contains detailed information on MOD activities and can be found in the MODWeb application under the Help dropdown menu.



1. MOD Data and Model Input Files

MOD is a database repository that contains modeling data in the form of:

- Network Data (Base Case): complete set of system topology.
- Projects: system topology update files used to build upon the MOD Base Case.
- Ratings: files containing seasonal element ratings.
- Sequence data: files containing zero sequence data.
- Profiles: files containing load and generation schedules and device control settings for each season supported by the MDWG.

The MOD database and its inputs are maintained by SPP Staff and SPP Modeling Contacts.

SPP File Sharing is used to store member updates for data applied by SPP external to MOD including Transactions, MMWG region ties, and Generator source impedances.

1.1. **MOD Network Data (Base Case)**

The MOD Network Data consists of existing available high voltage network and resources to serve load within the SPP footprint. The network data reflects modeling areas of the SPP Regional Transmission Organization (RTO) and equivalent systems of the Electric Reliability Council of Texas (ERCOT) and Western Electricity Coordinating Council (WECC).

The MOD Network Data is updated by SPP through committing existing MOD projects. Projects with an in-service date equal to the current date or older will be committed to the Network Data up until the spring of the current series year. Once all model builds are complete for a current series, projects will again be committed based on in-service date.

1.2. **MOD Projects**

Modeling contacts submit changes to system topology data (loads, generators, branches, etc...) are done through MOD Project files (.prj). Models are exported from MOD by adding a series of MOD Projects to the Network topology to create a required future season.

PSS[™]E response (IDEV) files will only be used to correct Project data after the models have been extracted from MOD, and only when necessary. Post



processing IDEV files will only be used once for any given pass of a model build. Therefore, in order for a change to occur in future model builds, a MOD Project must be submitted and approved before the next model extract from MOD.

Projects can include multiple phases, each with its own unique in-service date and name. Each active Project must contain a unique name, preceded by the appropriate owner number¹. This number is used as a key for limiting access to different data by company. Individual project phases must also have an associated ratings and sequence file submitted with them, when applicable (see sections 1.3 and 1.4, respectively).

Projects can be created either manually, with any text editor, or with the tool MOD File Builder² developed by Siemens PTI. The base model and change model are compared in MOD File Builder to create the MOD Project formatted file. The project file format can be found in Appendix A in the non-public version of this document.

Projects are used to make create future models by building on the Network data, being applied by in-service date. Figure 1 shows the project cut-off dates by season for any given year.

Figure 1: Project inclusion dates per season.

Season	Date (On or before)
Spring	May 1
Summer	August 1
Fall	October 1
Winter	February 1

Projects are categorized in MOD with a Type and Status. These are used to define a project and determine in which SPP model sets a project will be included. Figure 2 below is the MOD Type/Status Matrix, a table describing the different project Types and Statuses defined by SPP and Stakeholders and in which models each will be included.

¹ See the SPP Modeling Assignments tab of the latest SPP MDWG Data Submittal Workbook for a list of owner number assignments by company.

² For details on the use of MOD File Builder see the MOD Tutorials powerpoint series posted on SPP File Sharing.



Figure 2: MOD Type/Status Matrix³

Type	Status	Description	Model Set				Special Study
			MDWG	ITP	TS	GI	
TS	w/ NTC (Approved)	Transmission upgrades identified through an Aggregate Transmission Service Study with an executed Transmission Service Agreement and a Notification To Construct from SPP which has been accepted by the Transmission Owner.	X	X	X	X	X
	Proposed (No NTC)	Proposed transmission upgrades identified through an Aggregate Transmission Service Study that have not been issued a Notification To Construct by SPP.					X
GI	w/ IA	Projects identified through the Large or Small Generator Interconnection Procedure (LGIP, SGIP) with an executed Interconnection Agreement and not on suspension.	X	X	X	X	X
	w/ IA on Suspension	Projects identified through the Large or Small Generator Interconnection Procedure (LGIP, SGIP) with an executed Interconnection Agreement and on suspension.					X
	No IA	Projects identified through the Large or Small Generator Interconnection Procedure without an executed Interconnection Agreement.					X
ITP	w/ NTC	STEP Appendix B transmission upgrades determined through the ITP study process that have a Notification to Construct from SPP which has been accepted by the Transmission Owner.	X	X	X	X	X
	w/ NTC (Under Review)	STEP Appendix B transmission upgrades determined through the ITP study process that have a Notification to Construct from SPP and have been requested by the Transmission Owner to be re-evaluated.					X
	w/ ATP	STEP Appendix A transmission upgrades determined through the ITP study process that have an Authorization to Plan from SPP which has been accepted by the Transmission Owner.	?	?	?	?	?
Reliability	STEP (w/NTC)	Appendix B Projects that have a Notification to Construct or Transmission Owner Planning Criteria with an issued Notification To Construct	X	X	X	X	X
	TO Planned	Planned projects that have been budgeted by an individual Transmission Owning company with firm commitment to build.	X	X	X	X	X
	NERC Standard Compliance (Transmission)	Transmission upgrades needed to comply with NERC Reliability Standards, SPP Criteria, or individual Transmission Owner planning criteria that have not been identified in the STEP.	X				X
	NERC Standard Compliance (Generation)	Generation projects needed to comply with NERC Reliability Standards, SPP Criteria, individual Transmission Owner planning criteria that have not been identified in the STEP.	X				X
	Stakeholder Driven (Budgeted)	Transmission upgrades, requested by a Transmission Customer or other entity, which are budgeted and are moving forward.	X	X	X	X	X
	Stakeholder Driven (Proposed)	Transmission upgrades, requested by a Transmission Customer or other entity, which do not meet the definition of any other category of Network Upgrades.	X				X
Requested	Attachment AQ	Transmission upgrades identified under Attachment AQ to the SPP Tariff.	X	X	X	X	X
	High Priority	Transmission upgrades recommended by SPP through a stakeholder requested or internally initiated high priority study or Balanced Portfolio evaluation which provide economic benefit to SPP stakeholders and have a Notification to Construct from SPP which has been accepted by the Transmission Owner.	X	X	X	X	X
	Sponsored Upgrade	Transmission upgrades requested by any entity and evaluated by SPP, which have an executed contract financially committing the Project Sponsor to the upgrade.	X	X	X	X	X
	Alternative	Transmission upgrades that are alternatives to any STEP or other project that will be kept in the MOD database for possible inclusion in a future model set.					
Network	Energized	Transmission upgrades that are in service from a previous MOD Type & Status. Constructed facilities that are in-service.	X	X	X	X	X
	Outage	Projects that change network topology status. Constructed facilities that are out of service or normally open.	X	X	X	X	X
	Correction	Projects that update existing MOD network data and will be immediately committed to the MOD base case upon review.	X	X	X	X	X

³ See the full MOD Project Type/Status matrix with notes on the [SPP website](#)



1.3. MOD Ratings

MOD ratings files allow for seasonal branch ratings (spring, summer, winter, and fall) to be applied to topology elements of a Project Phase or MOD the Base Case and utilized during case building for any one season. MOD defines *rate A* as NORM for Normal, *rate B* as LTE for Long Term Emergency, *rate C* as STE for Short Term Emergency, and *rate D* as LD for Load Dump.⁴ Rates A, B, and C are utilized for SPP model building while Rate D is currently unused.

Ratings files can be imported individually in a comma-separated file format and attached to either the MOD Base Case or a Project Phase. Ratings data associated with a project can be uploaded with the project in the same file; the ratings file header denotes the start of the ratings data and will be separated upon importing to MOD. A ratings file should follow the same naming convention as a MOD project and if applied to a Project Phase, should be named similarly. If imported within the project file itself, the ratings name will inherently take on that of the Project Phase.

Examples of the MOD ratings files in horizontal format (the format used by SPP) can be found in appendix III of the non-public version of this manual..

1.4. MOD Sequence data

Sequence data should be added to all projects in MOD which contain data types that require it. This is done by importing a PSSTME raw sequence file (*.seq) containing data pertaining to the elements in a specific MOD project file, and attaching it to that project. Sequence data can only be attached to projects that are in Preliminary review status.

Base Case sequence data cannot be updated directly as ratings data can. In order to correct current network zero sequence data, a MOD project file with the associated transmission elements must be submitted and the necessary sequence data attached.

PSSTME sequence file format can be found in appendix III of the non-public version of this manual.

⁴ These definitions of ratings are MOD defaults and do not necessarily reflect SPP's or its members definitions. See the SPP MDWG Model Development Procedure Manual for SPP rating definitions.



1.5. MOD Profiles

There are three types of MOD Profiles: Load and Generation, Device Control, and Net Schedule Interchange (NSI) also known as Area Interchange. Profile data is uploaded into MOD with a PSSTME raw data file for each profile type. Each Profile type will glean its specific data from the imported raw data. SPP Staff will upload Base MOD Profile files from the most current set of MDWG models. A specified set of MOD Profiles will be available (typically the most current set of MDWG models) for Modeling Contact updates to attach updates for the next set of MDWG models. It is important for Modeling Contacts to coordinate Load, Generation Dispatch, and Transactions for models to solve. Only solved power flow Profile data should be uploaded into MOD Profiles.

Supply a name for the Profile similar to Project and Ratings file convention. Include your company Owner or Area Number & Model designations (example: 548 2011MDWGB1-17S_DC).

Modeling Contacts are *not* responsible for submitting NSI profile data. Data submitters are to keep the Transaction Workbook (WB) current for each SPP MDWG Model set (See section 1.7).

See Appendix II for a quick reference table detailing each power flow data type that is considered to be profile data. See Appendix III of the non-public version of this manual for profile data file input formats.

1.6. MOD Case Building

1.6.1. Case Definitions

MOD uses a Case Definition to build models. Case Definitions define a group of Project Phases, Profiles, and Ratings used to build a model. Other options and parameters are set in the Case Definition to develop a full model and aid in verification.

1) Project Tree

- a. **Effective Date:** select the 'on or before' date of projects to be included.
- b. **Project Type:** select project types for exported model.
- c. **Review Status:** select review status of Projects for exported model.
- d. **Load Projects:** this button will load projects into the Project & Phases window. The greater than arrow button will move the

- loaded projects in the Project & Phases window into the Selected Projects & Phases window.
- e. **Sort by Effective Date:** This button will sort Selected Projects & Phases so that time dependent project data will be available in other projects.
 - 2) **Case Definition Name:** name of the case definition criteria set to be stored in MODWeb.
 - 3) **External Case:** define internal areas and select an uploaded case to be used as the data set for all other areas.
 - 4) **Profiles and Ratings**
 - a. **Selected Ratings**⁵
 - i. Type for Rate A: Normal
 - ii. Type for Rate B: LTE (long-term emergency)
 - iii. Type for Rate C: STE (short-term emergency)
 - b. **Name:** use spring, summer, fall, or winter for Rate A, B, and C.
 - c. **Selected Profiles**
 - i. **Annual Profiles:** use yearly scale factors. Select Base Case Annual Profiles for Bus Data, Load Data, and Generator Data.
 - ii. **Seasonal Profiles:** use actual data. Seasonal Profiles are the default method to provide MDWG Load and Generation case data. Select the desired model seasonal profile for Bus, Load, Generator, Device Control, and NSI data.
 - 5) **Outages:** not used.
 - 6) **Export SEQ/DYR Files:** select if a sequence data file is needed. Dynamics file (future).
 - 7) **Detailed Case Logging:** detailed log of data and the order in which it was applied to the base case.
 - 8) **Run Solution:** (not used by SPP).
 - 9) **PSSTME Version:** v32.
 - 10) **Parameters:** solution methods (not used by SPP).
 - 11) **Case Name:** name of the exported raw data file.
 - 12) **Build Case:** this button will build the model with the case definition selections.
 - 13) **Save New:** saves the case definition criteria with the case definition name (must be unique).
 - 14) **Save Changes:** save changes made to a case definition with the same name.
 - 15) **Delete:** deletes the current case definition.

⁵ These definitions of ratings are MOD defaults and do not necessarily reflect SPP's or its members definitions. See the SPP MDWG Model Development Procedure Manual for SPP rating definitions.



1.6.2. Batch Case Build

MOD Batch Case Build was implemented with MOD v 6.1.0.1. This allows a user to start case builds from multiple Case Definitions at the same time.

The selected cases are exported sequentially and users can see the current status of export from the *Last Batch Case Build* page, a sublink under the Case Definitions link. This page shows progress details of each build including % complete and is where output files are also downloaded. A user can only execute one batch case at any given time. To start a Batch Case Build, select the Case Definitions link from the navigation tree to the left in the MOD web application, check the boxes next to the case definitions to be included in batch build, and press the "Build Case" button.

A key feature in the batch case build is the ability to continue navigation in the MODWeb application after a build has been started. Navigate back to the case build from the *Last Batch Case Build* link as described above. Once the build is complete, the user may select "Download Files Here" to download the files from the case builds.

1.7. SPP File Sharing

Modeling Contacts will post other required data and changes for modeling data not supplied through the MOD database on the most current SPP File Sharing site.

1.7.1. Transactions

Transactions utilized for SPP models are maintained in the Transactions worksheet of the SPP MDWG Data Submittal Workbook. These transactions and the resulting area interchange are applied to the SPP models through PSS^{TME} idevs developed by a macro utilizing data directly from the workbook. It is important that the transaction data is coordinated and kept up to data in this data source. See the SPP Model Development Procedure Manual for more detailed information on transaction data.



1.7.2. Regional Ties

The ERAG MMWG maintains a workbook of NERC regional tie lines (including transformers) that is coordinated with the entire eastern interconnect. SPP maintains a version of this workbook in 3 worksheets kept in the SPP MDWG Data Submittal Workbook. These ties are applied directly to the SPP models through a macro utilizing the data supplied in those worksheets. It is important that the data for all NERC regional ties are coordinated and stay up to date in that workbook for all model builds. See the SPP Model Development Procedure Manual for more detailed information on Regional Ties.

1.7.3. SPP MDWG Data Submittal Workbook (Reference Data)

The SPP MDWG Data Submittal workbook houses other required reference data including:

- Confirmed OASIS Reservations
- Generator data (including fuel types, seasonal ratings, and generator source impedance data)
- SPP Modeling Assignments (Area, Zone, Ownership, ect...)
- Load Mapping (for non-native load and load types)
- Expanded Bus Names and annual Translation
- Normally Open Lines
- Non-Scaleable Load
- Area Summary Reports

1.7.4. Models

All models released by SPP will only be posted on SPP File Sharing.



2. MOD Workflow

MOD utilizes groups and role designations to define model access, application feature access, and responsibilities. User groups define what part of the model data a user can view and edit while user roles define what application features a user has access to and their role in data validation.

2.1. Roles

Each MOD user is assigned a certain role which defines application access and responsibilities. For data submitting companies these are Users and Approvers.

2.1.1. Submitter (User⁶)

The Submitter access level provides functionality for non-administrative tasks and is mainly intended for viewing and submitting data. A Submitter is allowed to perform the following functions⁷:

- View Case Data
- View Member Data
- View Case Definitions
- Create Case Definitions
- Create Cases
- Download RAWD of Entire Case
- Download Saved Cases
- Download Ratings
- Download Member Projects
- Download Member Profiles
- Download Member Interchange data
- View Additional Project Fields (by group)
- Edit Additional Project Fields (by group)
- View Additional Project Fields (type specific)
- Edit Additional Project Fields (type specific)
- View / Apply Dynamics
- View / Apply Short Circuit
- View / Apply Outages
- Submit Projects
- Submit Profiles

⁶ This role is actually defined as User in MOD but to maintain clarity the term Submitter will be used to describe the User role and 'user' will refer to any MOD account and access level.

⁷ See the PTI MOD Users Manual for details about each of the functions listed in section 2.1.1 and 2.1.2



- Submit Interchange Files⁸
- Submit Ratings
- Submit Project Sequence Data

2.1.2. Approver

The Approver access level provides the same functionality as the user access level, but also allows for the review and approval of data submitted by a Submitter or Approver of the same Group (see 2.2). The Approver is responsible for performing the following additional functions:

- Confirm Interchange Records⁹
- Review / Approve submitted Projects (by group)
- Review / Approve submitted Profiles (by group)
- Review / Approve submitted Ratings (by group)

2.2. Groups

Each data submitting company responsible for maintaining and reviewing data for their own system is given a separate user group. These groups are defined by company name and define access by modeling assignments.

User groups can be limited by Area, Owner, and Zone. Currently SPP utilizes Area and Owner filters when defining user groups. These filters allow preliminary data to be kept viewable only within a group until the data has been reviewed and is finalized. These filters are determined by the preceding area designation applied to any file submitted to MOD. This is why it is one reason why it is important to add an Area number or Owner number prefix to all files. While this is true, note that any user can always view the data they have submitted whether or not it has been finalized.

Comment [KA1]: This needs to be fully tested. I am uncertain if filters can be by both owner and area. The PTI MOD manual is unclear.

Groups are also used to set access to the project types and statuses available in MOD. SPP does not utilize project types and statuses that are not approved by the MDWG and thus does not limit access.

⁸ Not currently used by SPP

⁹ Not currently used by SPP

2.3. Data Review

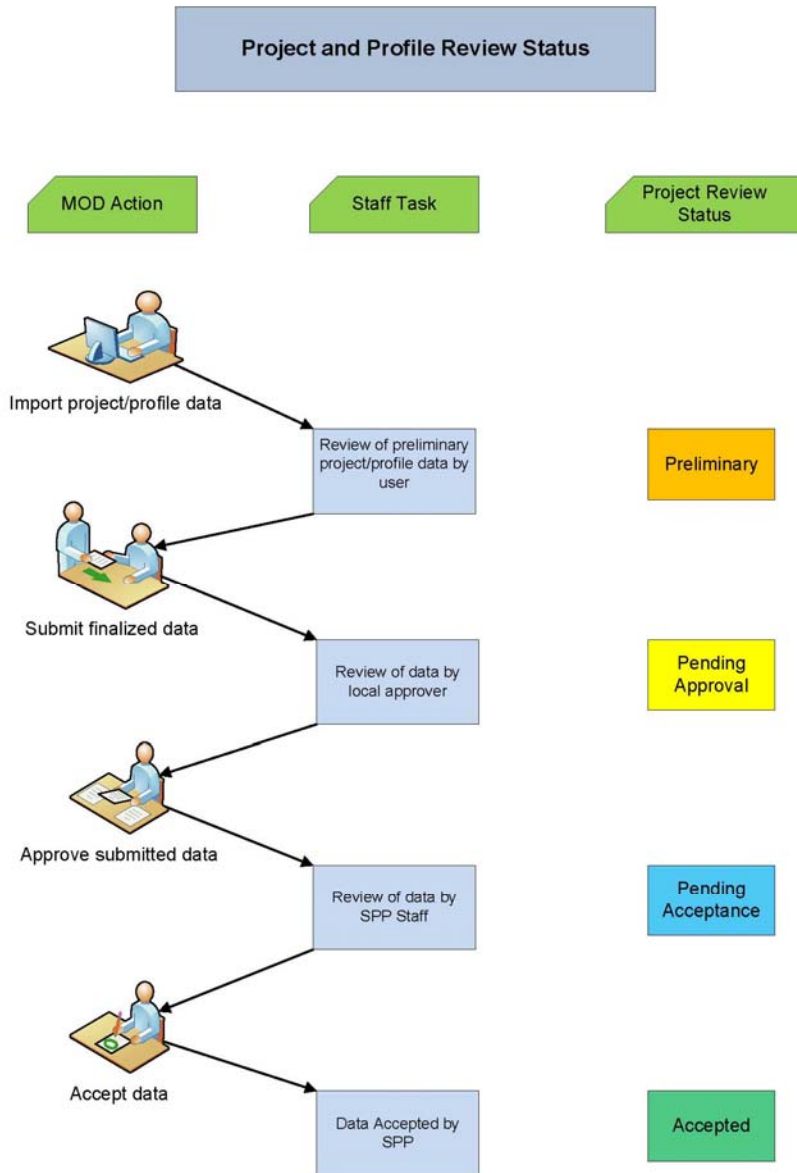
MOD has a multiple step process for data review and validation. When a user uploads a project to MOD it is automatically validated against the Network data for consistency, to make sure that every action specified in the project can be carried out if the project is applied. This validation is not done against other projects; data that builds off of another existing project will be flagged as an error, therefore it is important to keep track of all of the projects submitted in the MOD database.

Each MOD user is responsible for review of data at every stage of the data submittal process. The data submittal and review process is in four stages:

1. A Submitter must create an input data file and upload it to MOD.
2. A Submitter must validate the data being uploaded and review any error logs produced by MOD during validation. Once the Submitter is comfortable with the data it is then submitted to MOD.
3. The Approver must review the data and perform any necessary checks before approving the project.
4. SPP then reviews the data and documents submissions and changes prior to accepting any data file.

This process of data review is detailed below in Figure 3 with each MOD action, the task of member and SPP staff, and the Review Status of the data file through each step of the review process.

Figure 3: MOD Approval Process

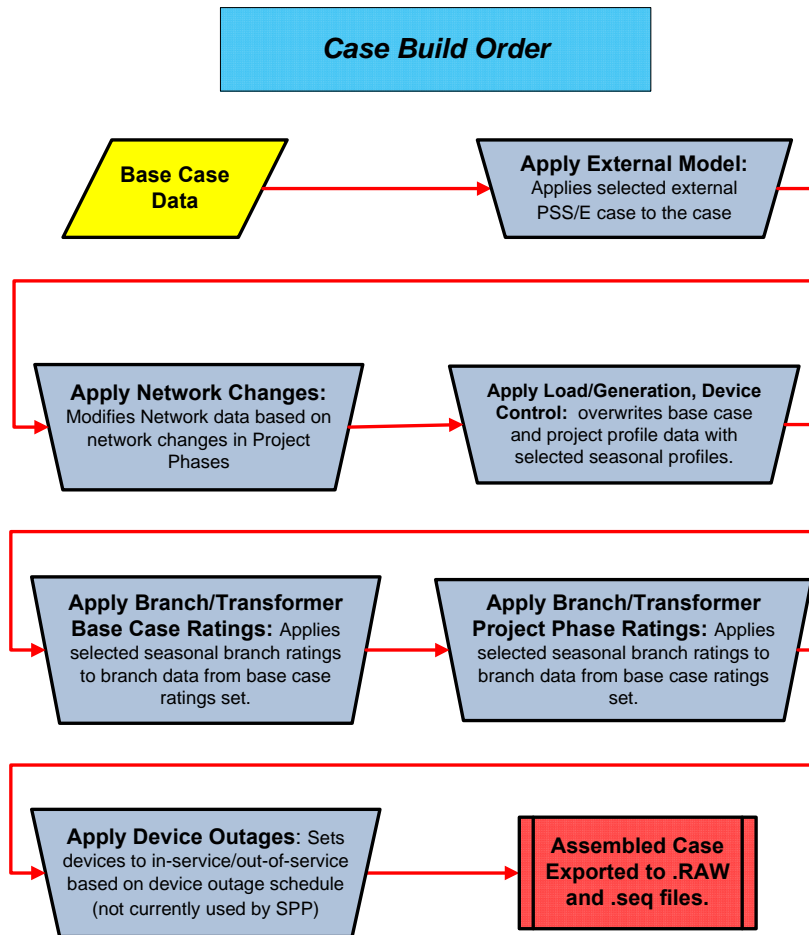


2.4. Data Extraction

MOD utilizes all of the data described in sections 1.1 through 1.5 to compile a case definition as described in section 1.6. Upon export from MOD, the data selected in the case definition is layered on top of the MOD Network data, overwriting data with each piece added.

Figure 4 shows the order in which the data are applied.

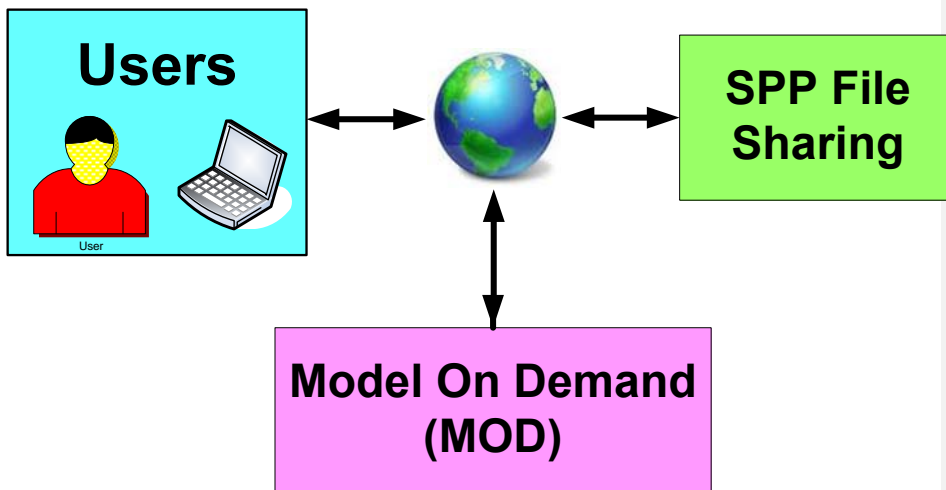
Figure 4: MOD Case Build Order



3. MDWG Model Building Workflow

The SPP Modeling Contacts submit data to the SPP through two mediums: Model On Demand (MOD) and SPP File Sharing, see Figure 5.

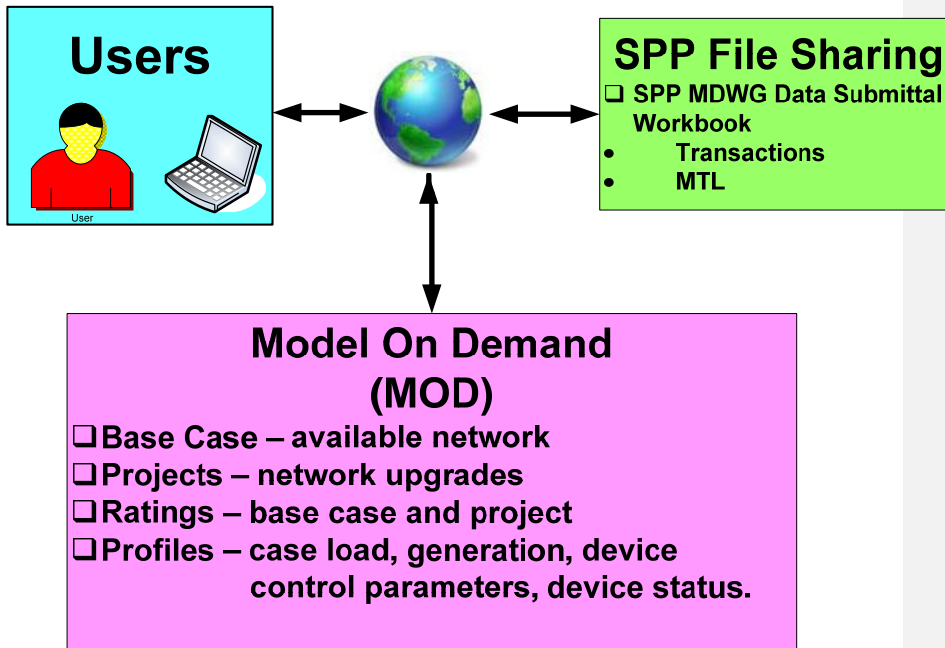
Figure 5: Users view, submit, and download model data in SPP File Sharing and Model On Demand.



SPP File Sharing houses the SPP MDWG Data Submittal workbook for each submitting member. This workbook contains transactions, regional tie line data, and generator source impedance (when required) used in each MDWG Model, among other supplementary data.

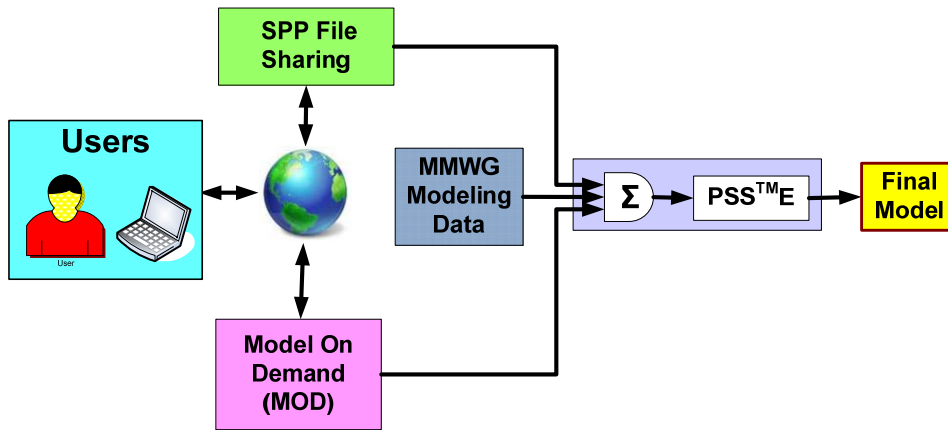
MOD contains the network case, projects, ratings, and final model profiles. Each MOD model will have a unique Profile. There are three types of Profiles in MOD: Bus, Load and Generation Dispatch, Device Control, and Net Schedule Interchange (NSI). NSI changes are currently developed from the Transactions tab of the SPP MDWG Data Submittal Workbook and not utilized in MOD. Figure 6 contains more detail on data in SPP File Sharing and MOD.

Figure 6: SPP File Sharing and MOD data detail.



Data Models are combined as .raw and .seq data files. Changes posted on SPP File Sharing can be added to an exported MOD model in PSSTME. The updated PSSTME case is the final model. Figure 7 shows how the power flow program is used to create final models from SPP File Sharing and MOD data.

Figure 7: The powerflow can be used to combine SPP File Sharing and MOD data to create Final Models.

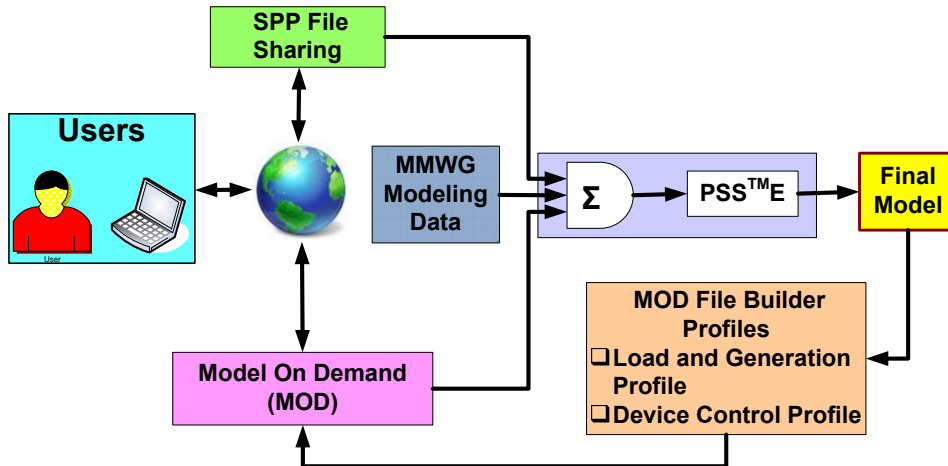


The final models are used to create final MOD Profiles. This can be done via the tool MOD File Builder, or a full PSS™E .raw file. MOD File Builder will import .sav or .raw files and export MOD Profiles (Load and Generation, Device Control, and NSI) in .raw format.

The final solved models will be used to develop final model Profiles to be uploaded into MOD by SPP Staff as a base profile for subsequent model extracts. This can be done using MOD File Builder or the full solved powerflow case RAWD and uploaded into MOD.

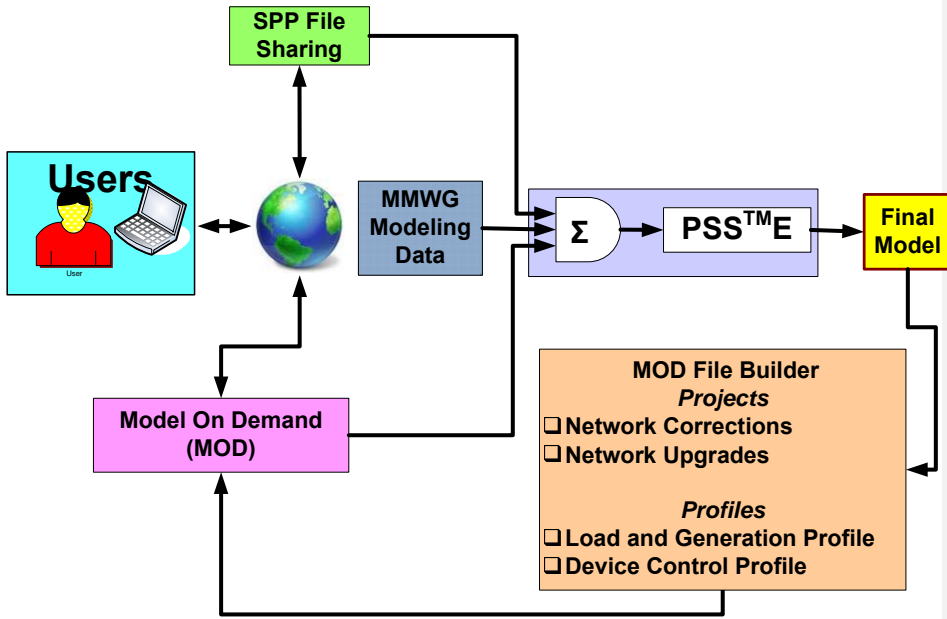
The final model is used by individual users to update profile data on their system to create change profiles to be uploaded and applied to the base profiles submitted by SPP. Figure 8 shows the role of MOD File Builder in creating MOD Profiles.

Figure 8: MOD Final Profile creation via MOD File Builder.



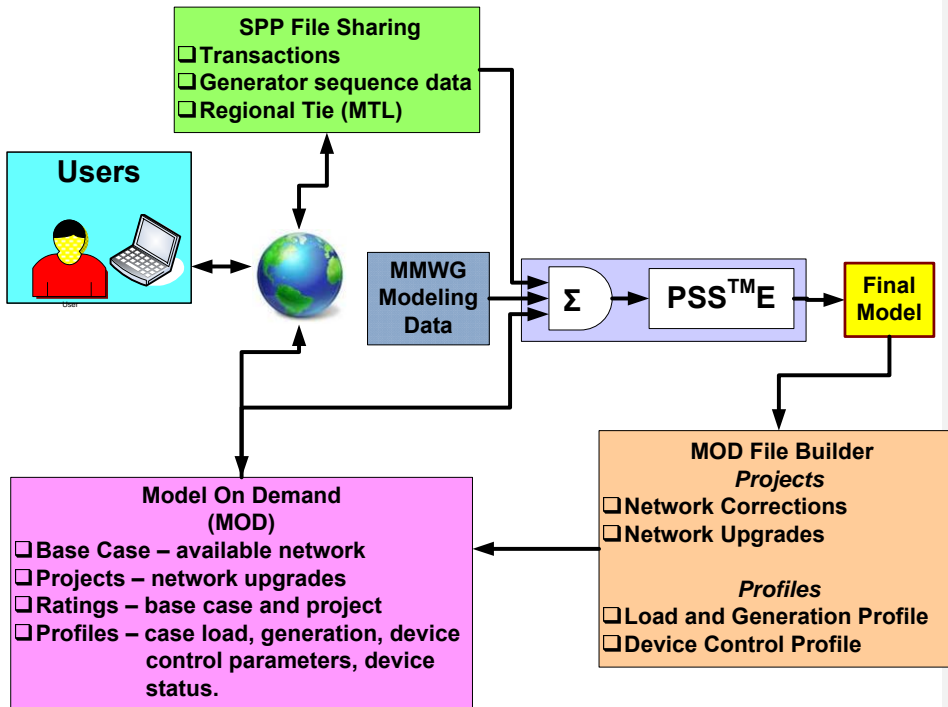
MOD File Builder can also be used to create MOD Project files. The User can make network changes to a MOD final model. The modified case is known as the New Case in MOD File Builder. The original MOD final model is known as the Base Case. The tool will compare the Base Case to the New Case to create a Project file for MOD. Figure 9 shows the functions of MOD File Builder in creating Projects for MOD.

Figure 9: MOD File Builder can be used to create MOD Projects and Profiles.



A summary of the model building process which includes the function of SPP File Sharing, MOD, PSS™E, and MOD File Builder is in Figure 10.

Figure 10: Model building process with SPP File Sharing, MOD, PSSTME, and MOD File Builder.



4. MDWG Model Building Workflow Summary

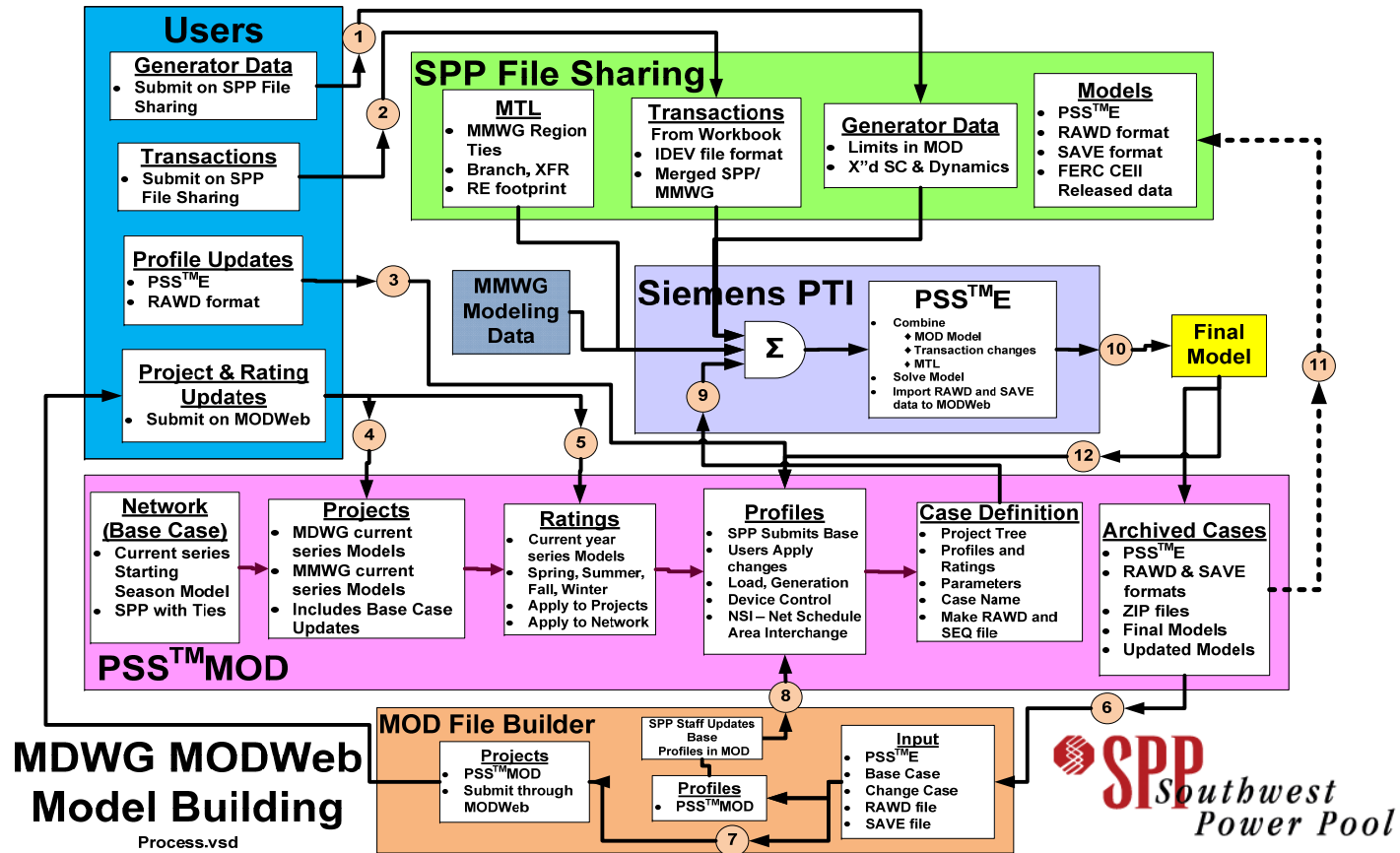
4.1. Reference Notes

The following steps are a summary of the basic model development process utilizing MOD. Each step corresponds to a number on the diagram in section 4.2.

- 1) Users update Generator Ratings in SPP File Sharing (see 1.7.3).
- 2) Users update Transactions in SPP File Sharing (see 1.7.1).
- 3) Users update Profiles in MOD (see 1.5).
 - a. Modifies Loads, Generation, and Device Control settings (Seasonal Net Schedule Interchange is developed from transaction data).
 - b. Does not change network topology.
- 4) Users update Projects in MOD (see 1.5).
 - a. Topology changes
 - b. See Figure 8 for Types and Statuses
 - c. See Appendix II for non-project powerflow data.
- 5) Users update Ratings in MOD (see 1.3).
 - a. Ratings are spring, summer, fall, and winter.
 - b. Ratings data can be applied to Base Case or Projects.
 - c. Each Project has its own set of ratings.
 - d. If none are developed, the default rating for spring and fall should be the summer rating.
- 6) Users download archived models (see 1.7.4).
- 7) Users use PSSTMMOD File Builder to create Projects.
 - a. Compare Archived MOD model to a User modified Change Case to create a new Project.
- 8) Modeling Contacts can use PSSTMMOD File Builder to create MOD Profiles.
 - a. Create MOD change Profile from archived solved MOD model with necessary data updates.
 - b. Upload to MOD and attach to current base profile.
- 9) SPP Staff use MOD Case Definition to create a MOD Model (see 1.6.1).
- 10) SPP Staff use PSSTME to create an updated MDWG Model Set.
 - a. The updated MDWG Model Set Cases combine/include most recent SPP File Sharing and MOD official data.
 - b. The updated MDWG Model Set Cases are solved power flow models.
- 11) SPP Staff post MDWG Model Set Cases in SPP File Sharing.
 - a. SPP File Sharing models are for secure third party access.
- 12) SPP Staff uses MOD to update Profiles from the MDWG Model Set.
 - a. Type: Reliability
 - b. Load Generation Type: Seasonal

Comment [ddb2]: How does the use of the MMWG regional tie file get incorporated into the MDWG process?
Should SPP Staff add additional sections documenting the model building process for Generator Interconnection, Aggregate Delivery Studies, STEP, ITP, etc?

4.2. Model Building Flow Diagram (Figure 11)





5. Security and Administration

Access to MOD requires a User login ID and Password. The login ID and Password can be obtained from the MOD Administrator.

Each company will assign Submitters that will access the specific model data by area(s). Each Submitter will be able to upload and submit, and view their data. A User cannot change data once it has been submitted unless the Approver rejects that data.

Each company will assign at least one Approver who will approve or reject data submitted by its Submitters. The Approver can also submit and download data. The Submitter and Approver may be the same person. **The Approver must notify the SPP MOD Administrator immediately when there are changes in personnel related to Users.**

The Southwest Power Pool will assign the MOD Master. The Master will have all MOD privileges and will be responsible for reviewing and Accepting data approved by data submitting members. See section 2 for more detail.

The URL to access the SPP MOD website is:

<https://sppmodweb.spp.org/MODWeb>

The User ID and Password are assigned by the MOD Administrator.

SPP Models are considered CEII data. Access to CEII data is restricted. Access to models posted on SPP File Sharing will be limited. Access to SPP File Sharing models and MOD must be gained through the SPP modeling department.



Appendix I. Acronyms

ATP	- Authorization to Plan
BOD	- Board Of Directors
CEII	- FERC Critical Energy Infrastructure Information
CIM	- Common Information Model
DR	- Designated Resource
Energized	- Authorized for grid Operations
ERAG	- Eastern Interconnection Reliability Assessment Group
ERCOT	- Electric Reliability Council of Texas
FERC	- Federal Energy Regulatory Commission
GI	- Generation Interconnection
IA	- Interconnection Agreement
IDEV	- PSS TM E language format to update the Power Flow Program
ITP	- Integrated Transmission Planning
LTE	- long term emergency
MDWG	- Model Development Working Group
MMWG	- Multiregional Modeling Working Group
MOD	- Model On Demand
NERC	- North American Electric Reliability Corporation
NITS	- Network Integration Transmission Service
NSI	- Net Schedule Interchange or Area Interchange
NTC	- Notification to Construct (Indicates SPP BOD Approval)
PSS TM E	- Power Systems Simulation for Engineers
PTI	- (Siemens) Power Technologies International
RAWD	- PSS TM E model text data file
RE	- Regional Entity
SPP	- Southwest Power Pool
STE	- short term emergency
STEP	- Transmission Expansion Plan
TS	- Transmission Service
WECC	- Western Electricity Coordinating Council



Appendix II. MOD Profile Data

II.A. Load Generation

Profile	Load Generation				
Sub Profile	Bus	Load	FixedBusShunt	Generator	Transformer
Identifier Keys	<i>Bus (I)</i>	<i>Bus (I), ID</i>	<i>Bus (I), ID</i>	<i>Bus (I), ID</i>	<i>Bus (I), Bus (J), Bus (K), CKT</i>
Data Type	VM	STATUS	STATUS	PG	VMSTAR
	VA	PL	GL	QG	ANSTAR
		QL	BL	QT	
		IP		QB	
		IQ		STAT	
		YP		PT	
		YQ		PB	

II.B. Device Control

Profile	Device Control					
Sub Profile	Generator	Transformer	TwoTermDCLine	VSC	SwitchedShunt	FACTS
Identifier Keys	<i>Bus (I), ID</i>	<i>Bus (I), Bus (J), Bus (K), CKT</i>	<i>I</i>	<i>NAME</i>	<i>Bus (I)</i>	<i>N, I, J</i>
Data Type	VS	CW	MDC	MDC	MODSW	MODE
	IREG	WINDV1	SETVL	MODE	VSWHI	PDES
	GTAP	COD1	VSCHD	DCSET	VSWLO	QDES
	RMPCT	VMA1	VCMOD	ACSET	SWREM	VSET
		VMI1	RCOMP	IBUS	RMPCT	
		WINDV2	DELTI	TYPE	'RMIDNT'	
		COD2	DCVMIN	MODE	BINIT	
		VMA2	TRR	DCSET		
		VMI2	TAPR	ACSET		
		WINDV3	TRI			
		COD3	TAPI			
		VMA3				
		VMI3				

II.C. NSI

Profile	NSI
Sub Profile	Area
Identifier Keys	<i>Area (I)</i>
Data Type	PDES