



Southwest Power Pool
TRANSMISSION WORKING GROUP MEETING
April 19, 2017
Net Conference – Little Rock, AR

• Summary of Action Items •

1. Approved the Consent Agenda

Southwest Power Pool, Inc.

TWG NET CONFERENCE

April 19, 2017

SPP Corporate Campus – Little Rock, AR

• M I N U T E S •

Agenda Item 1 – Administrative Items

TWG Chair Travis Hyde called the meeting to order at 8:35 am. The following members were in attendance (Attachment 1a – Attendance) or represented by proxy (Attachment 1b – Proxies):

Travis Hyde (Chair), Oklahoma Gas & Electric
Daniel Benedict, City of Independence
Scott Benson, Lincoln Electric System
John Boshears, City Utilities of Springfield
Richard Dahl, Missouri River Energy Services
John Fulton, Southwestern Public Service Company
Kalun Kelley, Western Farmers Electric Cooperative
John Knofczynski, East River Electric Power Cooperative
Dan Lenihan, Omaha Public Power District
Randy Lindstrom, Nebraska Public Power District
Matt McGee, American Electric Power
Nate Morris, Empire District Electric
Gayle Nansel, Western Area Power Administration
Kiet Nguyen, Grand River Dam Authority
Michael Wegner, ITC Great Plains
Chris Pink, Tri-State G&T
Scott Schichtl, Arkansas Electric Cooperative Corporation
Jason Shook, GDS Associates representing ETEC
Matthew Stoltz, Basin Electric Power Cooperative
Harold Wyble, Kansas City Power & Light

Kirk informed the Chair of a quorum.

Kirk identified the following proxies:

- Kiet Nguyen (GRDA) proxy for Joe Fultz (GRDA)
- Michael Wegner, (ITC Great Plains) proxy for Alan Myers (ITC Great Plains)
- Scott Schichtl (AECC) proxy for Michael Mueller (AECC)

Agenda Item 2 – Scope Standardization

Staff and Stakeholder Accountability

English Cook, SPP staff, discussed the process for staff and stakeholder accountability (Attachment 2a, 2b – Staff and Stakeholder Accountability, Draft Staff and Stakeholder Accountability language) in the new ITP process and requested feedback from the TWG. Members provided feedback to English and requested more information on what the penalties might be for members who consistently miss reporting deadlines. English informed the group that a report card would be presented to the MOPC and the Board of Directors for visibility. English also felt like the policy making groups would discuss the issue but would be open to a recommendation from the TWG. English also answered a question related to staff accountability, to which he informed the members that staff would be held accountable to the same process.

Reliability Assessment

Kirk discussed SPP's proposal for the Reliability Needs Assessment (Attachment 2c – Reliability Needs Assessment) with the TWG. Members had questions on monitoring the 69 kV system in the SPP BA powerflow models and the reasoning for analyzing an abbreviated contingency list for the sensitivity models. Staff agreed to review the comments with the TPL subject matter experts and review the methodology with the TWG at a later date

Agenda Item 3 – MOD-033-1 Update

Anthony Cook, SPP staff, reviewed SPP's MOD-033-1 study process (Attachment 3 – MOD-033-1 Update) with the TWG. Anthony responded that staff is still working on how to get data from seams entities that affect the SPP system.

Agenda Item 4 – VIS Model Update

Doug Bowman, SPP staff, updated the TWG on the VIS dynamic model requested by the TWG. He informed the group that staff was not comfortable with the model and wanted to review prior to posting. He also informed the members that the model would be built in PSS/e Version 32.

Respectfully Submitted,

Kirk Hall
Secretary

Southwest Power Pool, Inc.
TWG NET CONFERENCE
April 19, 2017
SPP Corporate Campus – Little Rock, AR

• A G E N D A •

9:00 am – 11:00 pm

1. Administrative ItemsTravis Hyde (5 min.)
 - a. Call to Order
 - b. Proxies
2. Scope Standardization Staff (1 hr.)
 - a. Staff and Stakeholder Accountability – English Cook
 - b. Reliability Assessment – Kirk Hall
3. MOD-033-1 Update Anthony Cook (20 min.)
4. VIS Model Update..... Doug Bowman (10 min.)

Anthony Cook
Antoine Lucas
Brian Johnson - AEP
Brian Rounds (AESL)
Bruce Doll
Chenal WebEx
chris pink
Dan Lenihan
Daniel Benedict (INDN)
David Sargent
Dee Edmondson
Derek Brown (Westar)
Diego Toledo
Ellen Bailey
english cook (spp)
Gayle Nansel
Gimod Olapurayil
Harold Wyble (KCPL)
James Ging
Jamie Hajek
Jarrod Wolford (NTEC)
Jason Mazigian
Jason Shook (GDS/ETEC)
Jason Speer
Jeremy Severson
Jerry Bradshaw (SPRM)
John Boshears (SPRM)
John FULTon
John Knofczynski (EREPC)
Josh Verzal
Josie Daggett
Kalun Kelley(WFEC)
Kevin Foflygen (SPRM)
Kiet Nguyen (GRDA)
Krista Kisch
LDLarson
Marisa Choate
Matt McGee
matthew stoltz
Michael Wegner (ITC)
Mounika Kurra (Quanta)
Nate Morris (EDE)
Nathan McNeil
Nitesh
Randy Lindstrom
reene miranda
Richard Dahl (MRES)

Ross Hohlt
Ryan Yokley
Scott Benson (LES)
Scott Mijin
Scott Schichtl
Shane McMinn
Shaun Golden (WFEC)
Steve Gaw
Steve Hardebeck-OGE
Steve Hohman
Travis Hyde (OG&E)

Kirk Hall

From: Fultz, Joe
Sent: Wednesday, April 19, 2017 8:56 AM
To: Kirk Hall; Hyde, Travis
Cc: Nguyen, Kiet
Subject: **External Email** TWG Proxy

Travis,

Kiet Nguyen will have my proxy for today's meeting.

Joe Fultz
GRDA

Kirk Hall

From: Michael Mueller <Michael.Mueller@aecc.com>
Sent: Tuesday, April 18, 2017 4:41 PM
To: Kirk Hall
Cc: Hyde, Travis; Scott Schichtl
Subject: **External Email** TWG Proxy

Kirk,

Scott Schichtl will have my proxy for tomorrow's conference call.

Thanks,

Michael Mueller
Planning Engineer
Arkansas Electric Cooperative Corporation
501-570-2647
michael.mueller@aecc.com

Kirk Hall

From: Myers, Alan
Sent: Monday, April 17, 2017 6:56 AM
To: Kirk Hall; Hyde, Travis
Cc: Wegner, Michael
Subject: **External Email** FW: [EXT] TWG 4/19/17 Agenda & Updated Background Materials posted

Kirk/Travis:

Michael Wegner will have my proxy for the April 19 meeting.

Thanks,
Alan

From: bounce-56810-118444@spplist.spp.org [mailto:bounce-56810-118444@spplist.spp.org] **On Behalf Of** Audrey White
Sent: Friday, April 14, 2017 5:17 PM
To: Transmission Working Group <twg@spplist.spp.org>
Subject: [EXT] TWG 4/19/17 Agenda & Updated Background Materials posted

Caution - External Sender

Do not click on links from unknown senders.
Contact the ITC Helpdesk with any questions or concerns.

TWG 4/19/17 Agenda & Background Materials have been updated with agenda item 2. The materials are available at the SPP link below.

[TWG Meeting Materials](#)

[TWG 4/19/17 Online Registration](#)

Audrey White | Administrative Assistant | awhite@spp.org | 501-688-2531 | C-501-350-1158
201 Worthen Drive | Little Rock, AR 72223-4936
Southwest Power Pool | SPP.org | twitter.com/SPPorg | facebook.com/SouthwestPowerPool
Helping our members work together to keep the lights on...today and in the future

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To manage your exploder subscriptions [log into SPP.org](#), [edit your account](#) and use the Exploder Lists field to indicate the lists to which you would like to be subscribed or unsubscribed.

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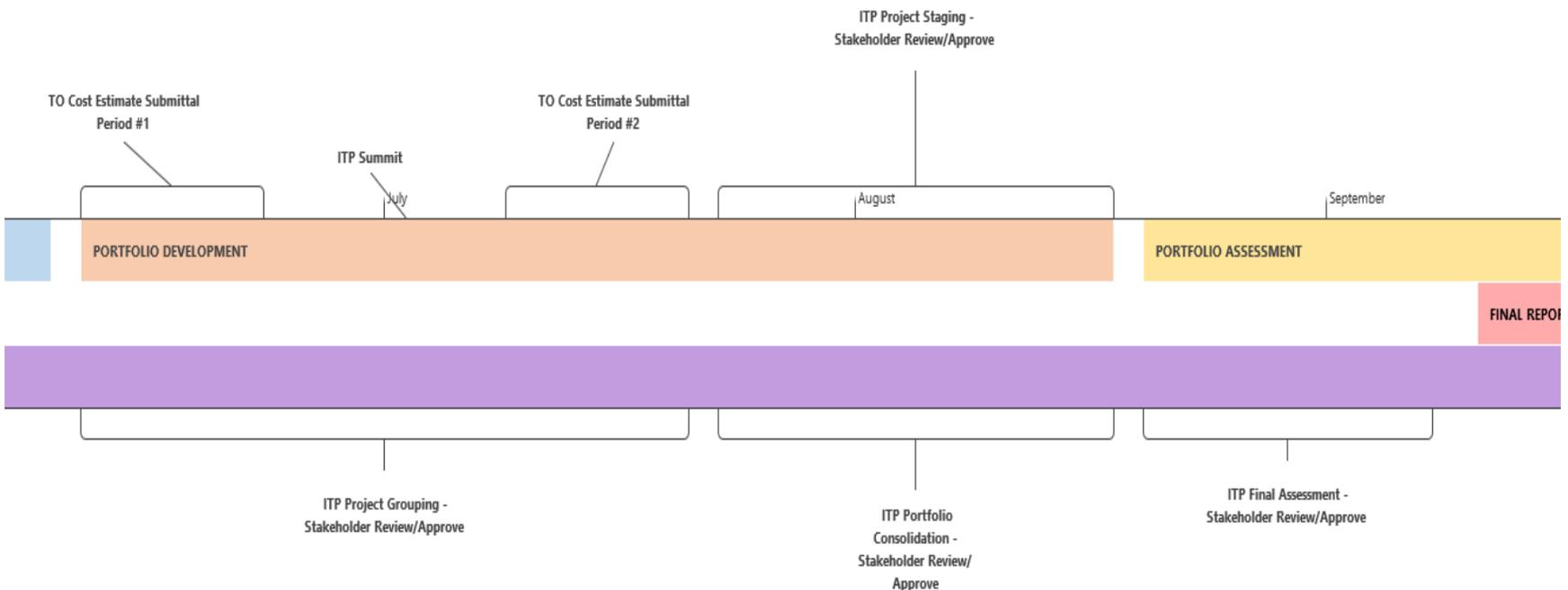
Please consider the planet before you print.

Staff/Stakeholder Accountability

English Cook – SPP Engineering Support Services

Project Schedule

- Vetted and approved study schedule
- Regular review with stakeholders
- Break out milestones requiring stakeholder review and approval



Single Point of Contact

- SPP Staff contacts per group/project
- Stakeholder
 - Coordination and timely delivery of required information
 - Liaison for company

The screenshot shows a web browser window with the URL <https://www.spp.org/spp-documents-filings/?id=18625>. The page title is "SPP Documents" and the breadcrumb trail is "SPP Documents / Engineering & Planning / Technical Studies & Modeling / Reference Documents".

The left sidebar contains a navigation menu with the following items:

- About the Marketplace
- Communications
- Compliance - RTO
- Customer Registration
- Engineering & Planning**
- Fast Facts, Annual Reports & Corporate Metrics
- FERC & Regulatory Documents
- Governing (Tariff, Bylaws, Articles, Criteria, Membership/Seams)

The main content area displays a list of documents:

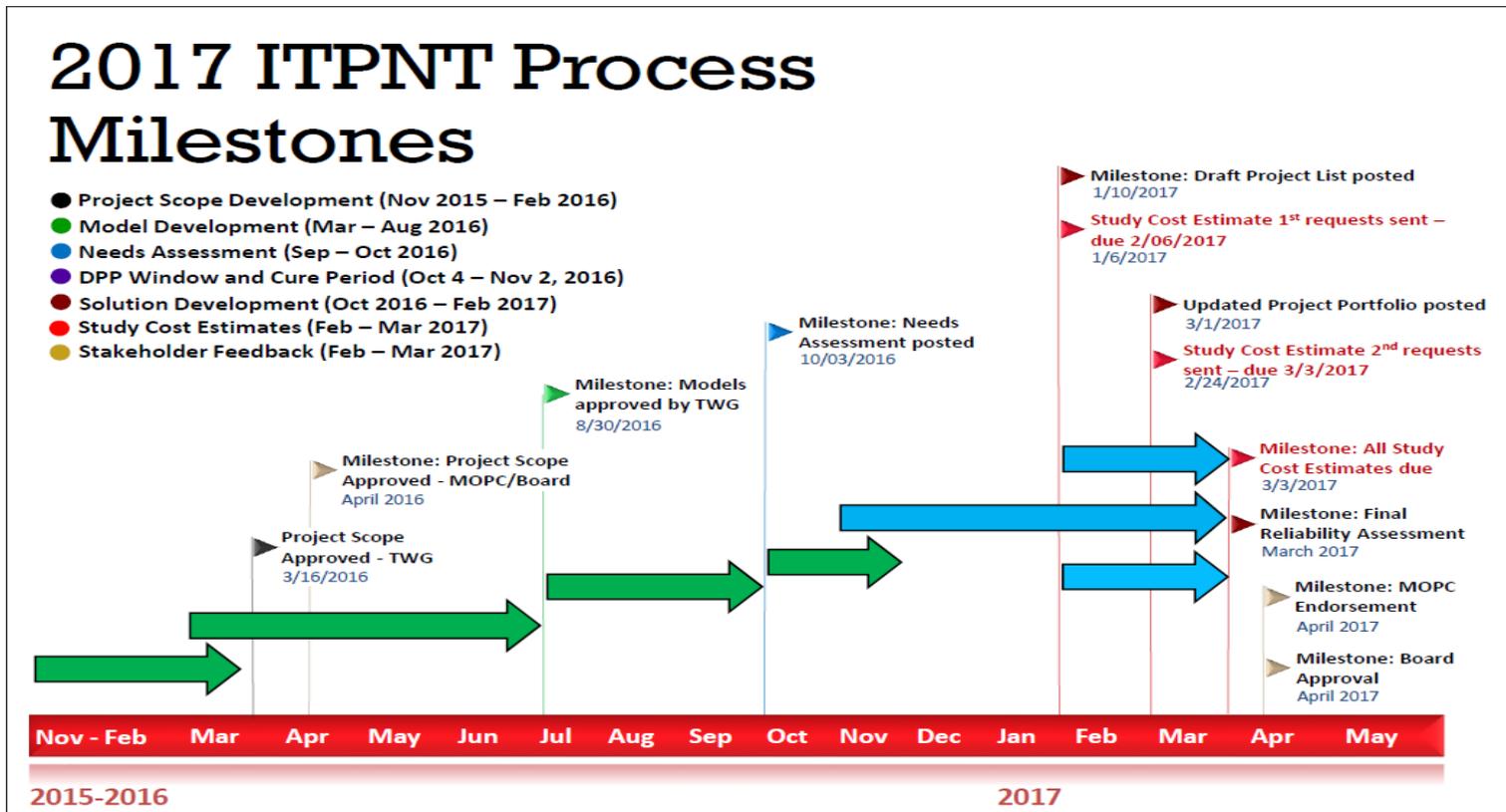
- [2017 Series MDWG Schedule and Model Selection Revised 20170116](#) 142.84 KB
January 18 2017
- [SPP MDWG Model Development Procedure Manual \(Public\)](#) 773 KB
November 30 2016
- [SPP Modeling Contacts](#) 31.16 KB**
August 24 2016
- [2017 Series MDWG Schedule and Model Selection](#) 142.54 KB
July 27 2016
- [SPP Staff Area Contacts](#) 11.84 KB**
July 07 2016

Waiver Process

- Stakeholder-vetted approach on proxy data
- Waiver request to MOPC
 - Post deadline for data/information submission
- SPP Staff
 - Project schedule impacts
 - Schedule mitigation plans
 - Estimate of any costs associated with accommodating the waiver

MOPC Report

- Included in MOPC update presentation
 - Adherence to milestone timelines
 - Issues requiring mitigation



Staff/Stakeholder Accountability

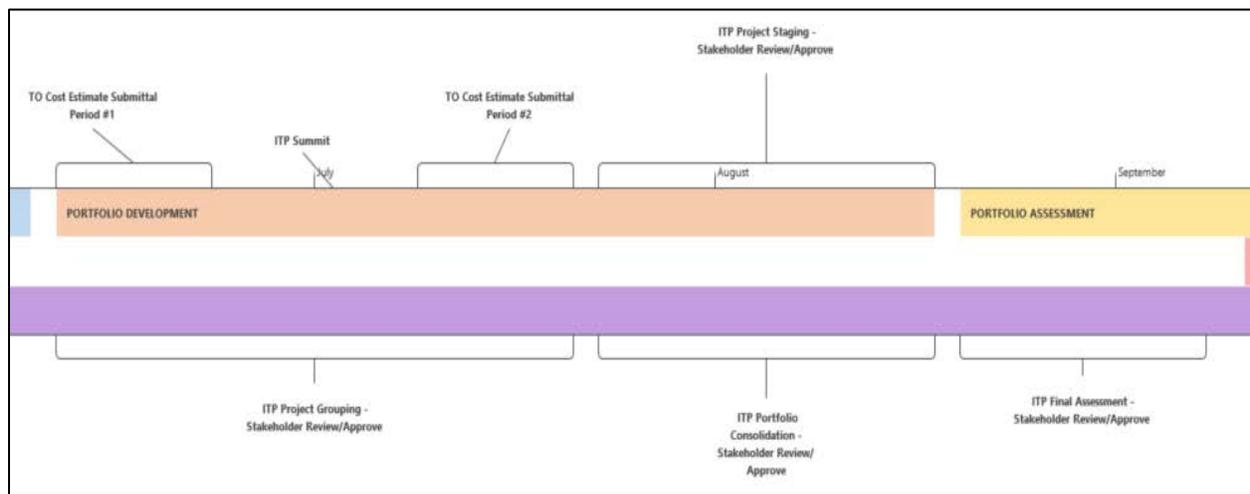
SPP Stakeholders and Staff will introduce steps to focus on accountability for timelines and milestones that consist of mechanisms designed to promote the timely exchanges of data, reviews, and approvals within the transmission planning process.

Project Schedule

SPP Staff will develop a project schedule in parallel with the development of the scope of each successive study. This schedule will identify the timing, duration, and responsible parties for all data exchanges, reviews, and approvals required to complete the ITP study process. Staff will coordinate with Stakeholders in the development of this schedule and formally vet the final schedule with Stakeholders ~~within one month upon~~ of the completion of the study scope ~~and assumptions document~~.

This schedule will be maintained by SPP Staff and regularly reviewed at appropriate stakeholder meetings to keep affected parties informed of upcoming milestones to assist with the timely completion of the planning process.

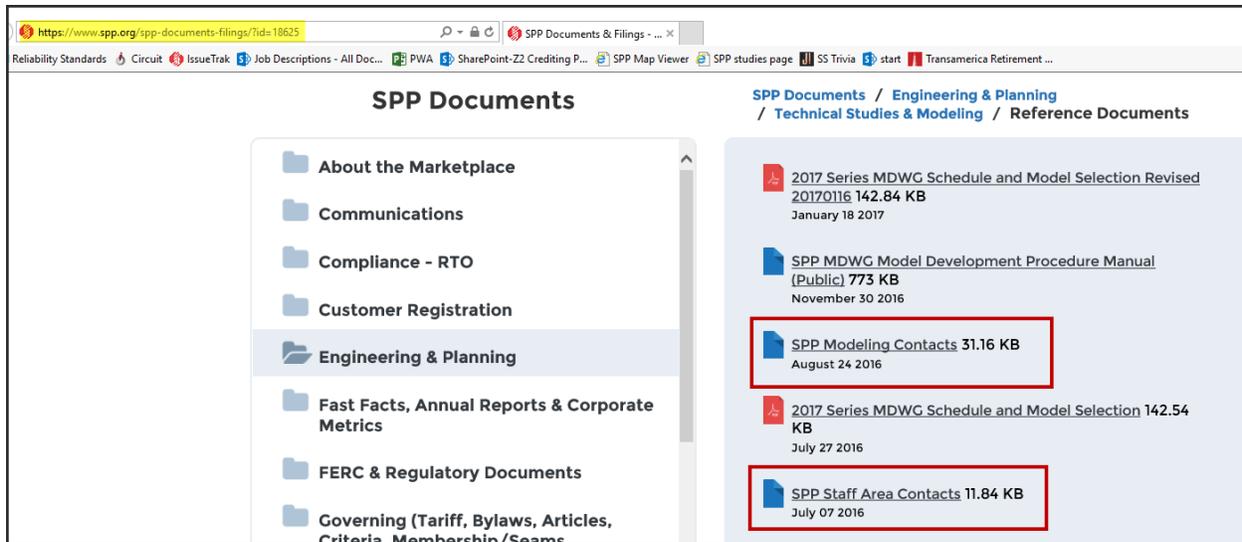
PORTFOLIO DEVELOPMENT	50 days	Mon 6/11/18	Fri 8/17/18
ITP Project Cost Estimates	30 days	Mon 6/11/18	Fri 7/20/18
ITP Project Grouping - Stakeholder Review/Approve	30 days	Mon 6/11/18	Fri 7/20/18
ITP Portfolio Consolidation - Stakeholder Review/Approve	20 days	Mon 7/23/18	Fri 8/17/18
ITP Project Staging - Stakeholder Review/Approve	20 days	Mon 7/23/18	Fri 8/17/18
PORTFOLIO ASSESSMENT	25 days	Mon 7/23/18	Fri 8/17/18



Point of Contact

Each member company will identify a central point of contact (CPOC) for their company who will be responsible for coordinating the submission of all data required to support the modeling and planning processes. TPITF discussions centered on the use of a CPOC to help increase the coordination and timely delivery of required information necessary to meet scheduled milestones.

The SPP Modeling department currently lists Modeling and Staff Area contacts on SPP's corporate website (below). SPP Staff CPOCs for the ITP study process will be determined during the development of the study scope and published on the *Transmission Planning* page of the website. The list of Stakeholder CPOCs will be maintained internally by Staff.



Data Submission, Reviews/Approvals, and Mitigation

Applicable SPP working groups and Staff will agree upon proxy data to be used in the absence of newly submitted data to meet schedule deadlines and avoid process delays. Along with the timely submittal of data, it is a process expectation that data reviews and required approvals will be conducted by the associated schedule deadlines. The [negligence-failure](#) of a Stakeholder to properly and timely perform the required review should not cause a delay in the corresponding process. [For those entities that do not execute these duties in the event that review deadlines are missed](#), the items requiring review or approval will be assumed to be appropriate and the process will move forward without delay.

Any entity that does not meet the prescribed data exchange, review, or approval deadlines and/or wants to add or change data used in the study process may make a request for a waiver of the deadline to the MOPC. SPP Staff will provide the MOPC with the project schedule impacts, schedule mitigation plans, and an estimate of any costs associated with accommodating the waiver to support the MOPC decision making process. The approval of the MOPC will be required to make any adjustments to the process schedule or incur additional financial costs associated with process mitigation.

There has been discussion about Staff performing their own impact assessment to determine if the lack of data or action would be material to the process. Using engineering judgement, Staff would make this determine and share it with the stakeholder and/or appropriate working group. For data, Staff may look to set parameters around what might be considered material. For instance +/- 1.5% on load growth. If a stakeholder has a late load growth submission of 1%, it would automatically be disqualified and passed into the next model build. If the load growth comes in at 2% (outside of bandwidth), staff would use judgement to determine the impact. For example, if it's in northwest North Dakota, there may not be an impact like it would be if it was the OK city area.

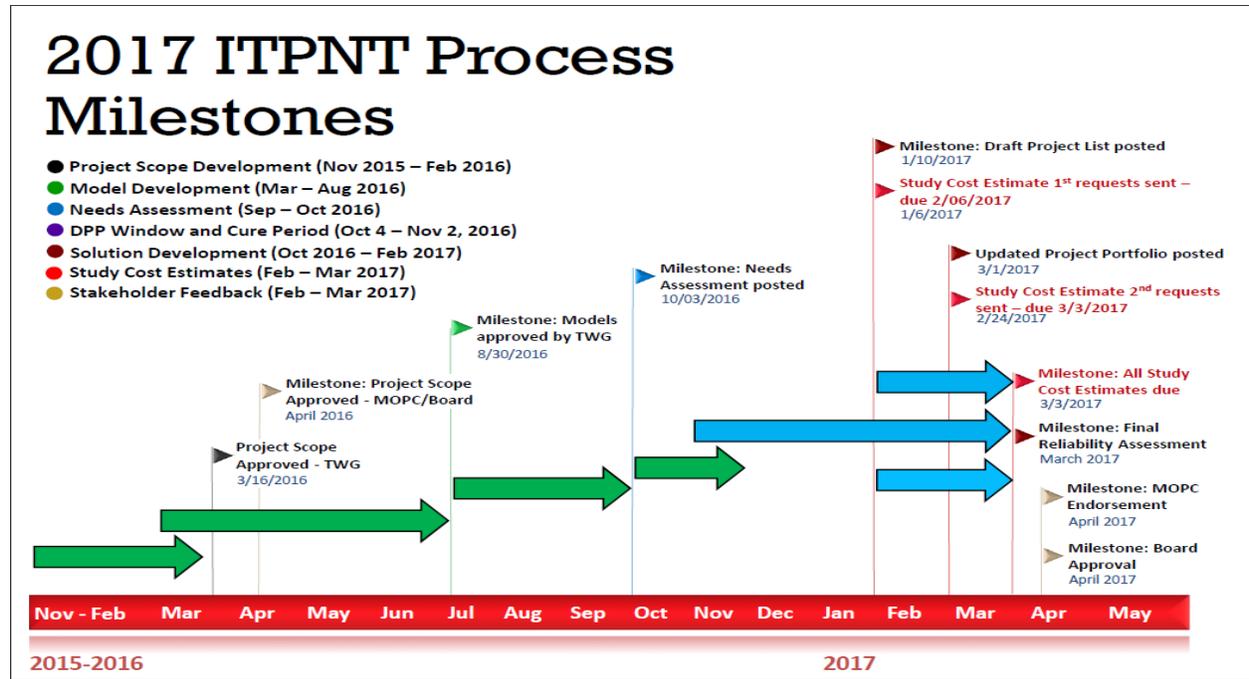
This level of detail would not be included in the document, rather under the corresponding item in the Standardized Scope.

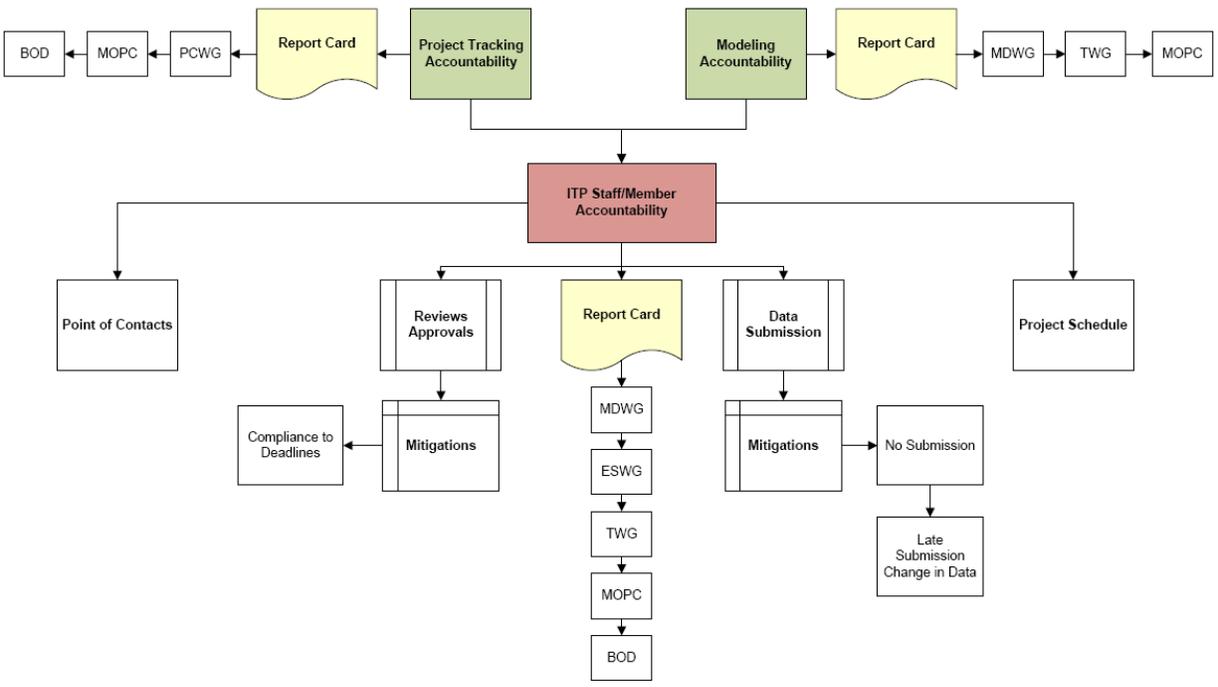
<insert sample of impact assessment>

MOPC Report Card

SPP Staff will provide a quarterly report ~~card~~ to the MOPC [highlighting the process milestones from the preceding quarter](#). [Updates will be given on adherence to milestone timelines in regards to data review and submittal, scheduled reviews and approvals, and on issues that may have required mitigation for the process to remain on schedule.](#)

listing deadlines breached/missed by SPP Stakeholders or Staff. This report will include the number of incidences along with the corresponding companies and responsible SPP Staff. A summary of the participation of Stakeholders and Staff will inform MOPC of the attention and importance placed on the successful completion of milestones and adherence to deadlines critical to producing a complete, high-quality, and timely report and portfolio. Issues requiring mitigation, as mentioned above, whether through the actions of Staff or Stakeholders will be presented in sufficient detail to give the MOPC a clear picture of the issue and remedies put in place to avoid potential impacts to the process schedule. Incidences will include the non-submission of required data and the lack of participation with the review and/or approval of required items.





Base Reliability	P0, P1, P2.1		Other P f
	Mon KV	Con KV	Mon KV
Year 2 Summer	69 kv +		100 kv+
Year 2 Winter			No
Year 2 Light Load			100 kv+
Year 5 Summer			100 kv+
Year 5 Winter			No
Year 5 Light Load			No
Year 10 Summer	100 kv+ *	100 kv+ *	100 kv+
Year 10 Winter	100 kv+ *	100 kv+ *	No
Year 10 Light Load	100 kv+ *	100 kv+ *	No

BA Powerflow	P0, P1, P2.1		Other P f	
	Mon KV	Con KV	Mon KV	
Year 2 Summer Peak	100 kv+ *		100 kv+	
Year 2 Off-Peak			100 kv+	
BAU Year 5 Summer Peak			100 kv+	
BAU Year 5 Off-Peak				
BAU Year 10 Summer Peak				
BAU Year 10 Off-Peak				
F1 Year 5 Summer Peak				
F1 Year 5 Off-Peak				
F1 Year 10 Summer Peak				No
F1 Year 10 Off-Peak				
F2 Year 5 Summer Peak				
F2 Year 5 Off-Peak				
F2 Year 10 Summer Peak				
F2 Year 10 Off-Peak				

*69 kv monitored elements or contingency elements will be used for informational purposes only

**Only Events where NCLL or IFTS is not allowed

*** Contingent elements must have caused a violation in the same season/year in the Base Reliability

Green Cell color notes case is necessary for TPL Compliance

Note: 100 kV+ is intended to account for the BES, however there may be BES facilities that are less than 100 kV. We will not include these facilities if they have received a waiver for inclusion in the BES. Likewise, if a facility has received a waiver for exclusion from the BES, they will not be evaluated

Events**

Con KV

100kV/300 kV+

ne

100kV/300 kV+

100kV/300 kV+

ne

ne

100kV/300 kV+

ne

ne

Events**

Con KV***

100kV/300 kV+

ne

ty Model



than 100 kv. SPP will
as received a waiver

MOD-033-1 Process Overview

Transmission Working Group

April 19, 2017

MOD-033-1

- **Purpose**

- To establish consistent validation requirements to facilitate the collection of accurate data and building of planning models to analyze the reliability of the interconnected transmission system.

- **Responsible Entities**

- Planning Coordinator
- Reliability Coordinator
- Transmission Operator

- **Facilities involved**

- Elements collected for Power System Modeling via MOD-032-1

MOD-033-1

R1 – PC required to implement a documented data validation process that includes the following:

1. Comparison of the performance of the Planning Coordinator's portion of the existing system in a planning power flow model to actual system behavior, represented by a state estimator case or other Real-time data sources, at least once every 24 calendar months through simulation.

PC Roles:

- Send request to RC and TOPs
- Apply RC and TOP Data to offline Planning power flow case

RC/TOP Roles:

- Provide actual system behavior data per request.

MOD-032 Entity Roles:

- Assist PC with modeling assumptions during case creation
- Assist PC with creating contingency file to simulate event

Potential Issues

- Application of EMS and Real-time data to offline planning model
- Getting model to solve

MOD-033-1

R1 – PC required to implement a documented data validation process that includes the following:

2. Comparison of the performance of the Planning Coordinator's portion of the existing system in a planning dynamic model to actual system response, through simulation of a dynamic local event, at least once every 24 calendar months; or use next dynamic event that occurs.

PC Roles:

- Send request to RC and TOPs
- Apply RC and TOP Data to offline Planning dynamic ready case

RC/TOP Roles:

- Provide actual system behavior data per request.

MOD-032 Entity Roles:

- Assist PC with modeling assumptions during case creation
- Assist PC with creating contingency file to simulate event

Potential Issues

- Application of EMS and Real-time data to offline planning model
- Adequate dynamics representation of field equipment

MOD-033-1

R1 – PC required to implement a documented data validation process that includes the following:

3. Guidelines the Planning Coordinator will use to determine unacceptable differences in performance under Part 1.1 or 1.2.

PC Roles:

- Assess power flow and dynamic case to determine if there are any unacceptable differences

RC/TOP Roles:

- N/A

MOD-032 Entity Roles:

- Assist PC with evaluation of unacceptable differences

Potential Issues

- Use of guidelines similar to those developed by NATF
- Set expectations of unacceptable differences with entities applicable to MOD-026, 027, 032

Acceptable Difference Guidelines

Quantity	Acceptable Differences
Bus voltage magnitude	$\pm 2\%$ (≥ 500 kV) $\pm 3\%$ ($230 \geq \text{kV} \geq 345$ kV) $\pm 4\%$ ($100 > \text{kV} > 230$ kV)
Generating Bus voltage magnitude	$\pm 2\%$
Real power flow	$\pm 10\%$ or ± 100 MW
Reactive power flow	$\pm 20\%$ or ± 200 Mvar
Difference in % normal loading	$\pm 10\%$ based on branch normal continuous rating

MOD-033-1

R1 – PC required to implement a documented data validation process that includes the following:

4. Guidelines to resolve the unacceptable differences in performance identified under Part 1.3.

PC Roles:

- Communicate unacceptable differences to applicable entities of MOD-026, 027, 032

RC Roles:

- N/A

MOD-032 Entity Roles:

- Assist PC to assess results that meet unacceptable differences
- Provide data corrections to PC if applicable

Potential Issues

- Set expectations of remedying unacceptable differences with entities applicable to MOD-026, 027, 032

MOD-033-1

R2 – Each Reliability Coordinator and Transmission Operator shall provide actual system behavior data (or a written response that it does not have the requested data) to any Planning Coordinator performing validation under Requirement R1 within 30 calendar days of a written request,

- SPP PC developing Event Criteria regarding loss of generation, load, or transmission equipment and voltage or frequency deviations

PC Role:

- Request EMS and Real-time data from RC and TOPs
- Receive and store data from RC and TOPs

RC Role:

- Communicate event criteria has been met to PC
- Provide EMS and Real-time data to PC

TOP Role:

- Communicate event criteria has been met to PC
- Provide PMU, DFR, or DDR information to PC

Potential Issues

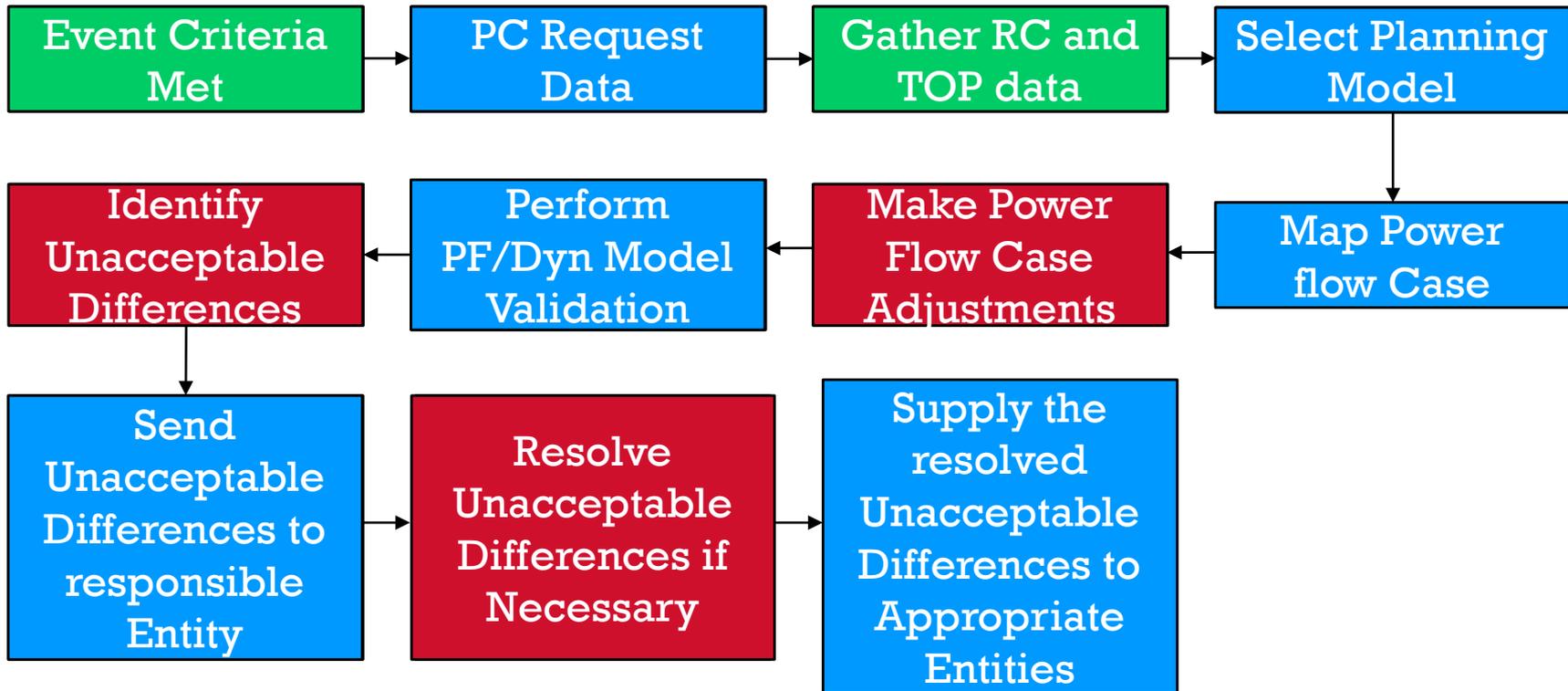
- Availability of PMU data
- Set event criteria expectations with RC and TOPs

System Event Criteria

- Loss of a single generation unit in excess of 500 MWs
- BES fault with the loss of a transmission bus having ≥ 3 transmission lines and/or transformers
- Other large system swings exhibiting significant:
 - Voltage excursions ($\pm 10\%$ for a duration of 15 minutes); or
 - Loss of load > 300 MW; or
 - Frequency fluctuations resulting in a loss of load due to relay intervention

MOD-033-1

Process flow chart:



PC/RC/TOP



PC



PC/TP



MOD-033-1 – Next Steps

- SPP Modeling finalizing procedure document
- Meeting with Working Groups to review activities associated with MOD-033-1
 - TWG
 - ORWG
 - RCWG
 - MDWG
- SPP is in the process of modifying the planning model to match the conditions represented in an EMS case.
- Questions or Comments?
 - SPP Staff Contacts: Anthony Cook acook@spp.org or Scott Jordan – sjordan@spp.org