Southwest Power Pool

ECONOMIC STUDIES WORKING GROUP

July 21st, 2016

VistaTech at Schoolcraft College (ITC Host) – Livonia, MI

• SUMMARY OF ACTIONS TAKEN •

1. Approved RR164, ITP Schedule Clarification.

Southwest Power Pool

Southwest Power Pool

ECONOMIC STUDIES WORKING GROUP

July 21st, 2016

VistaTech at Schoolcraft College (ITC Host) – Livonia, MI

• MINUTES •

<u>Agenda Item 1 – Administrative Items</u>

<u>Agenda Item 1a - Call to Order, Introductions</u>

Chair Alan Myers (ITC Great Plains) called the meeting of the Economic Studies Working Group (ESWG) to order at 8:00 AM, welcomed those in attendance, and asked for introductions.

There were 10 in-person participants and 52 web conference participants, representing 16 of 17 ESWG members. (Attachment 1 – July 21st, 2016 Attendance List)

<u>Agenda Item 1b – Receipt of Proxies</u>

Alan Myers (ITC Great Plains) asked for any proxy statements. Six proxies were identified; Don Le (NextEra Energy Transmission) named Alan Myers (ITC Great Plains) as his proxy, Jody Holland (South Central MCN) named Eric Burkey (South Central MCN) as his proxy, Leon Howell (OGE) named Zac Hager (OGE) as his proxy, Natasha Henderson (GSEC) named Evan Racine-Johnson (GSEC) as her proxy, Randy Collier (CUS) named Kevin Foflygen (CUS) as his proxy (12-3pm), and Tim Owens (NPPD) named Kurt Stradley (LES) as his proxy (afternoon). (Attachment 2 – Proxy Statements)

<u>Agenda Item 1c – Review of Agenda</u>

Chair Alan Myers (ITC Great Plains) presented the agenda for review and asked for any additions or corrections. (Attachment 3 – July 21st, 2016 ESWG Agenda)

> **Tim Owens (NPPD) made a motion; seconded by Pat McCool (KCPL) to adopt the agenda. The motion was approved unanimously.**

<u>Agenda Item 2 – Review of Past Action Items</u>

Kelsey Allen (SPP Staff) reviewed the list of past action items and asked for any comments or questions. (Attachment 4 – Past Action Items)

<u>Agenda Item 3 – Consent Agenda</u>

The consent agenda included the following items:

> Meetings Minutes – June 16th, 2016 (Attachment 5 – June 16th, 2016 ESWG Minutes)

Alan Myers (ITC Great Plains) asked if any items should be removed from the consent agenda.

> **The consent agenda was approved unanimously.**

<u>Agenda Item 4 – Study Schedules</u>

<u>Agenda Item 4a – 2017 ITP10</u>

Juliano Freitas (SPP) reviewed the 2017 ITP10 schedule. This updated focused on the current status of DPP processing by SPP Staff and next steps for development of portfolios based on project screening. SPP Staff will be developing a list of projects that will be considered for portfolio development and sending those out for Study cost estimates. Projects determined to be likely competitive will be sent to a third party for cost estimation and those determined to be likely non-competitive will be sent to the incumbent transmission owners. SPP will be requesting that these estimates be returned within 4 weeks and will be holding a Planning Summit August 18th for interim discussion on the potential projects being considered. The group asked that the list of projects being sent out for Study estimates be posted for public consumption for the sake of transparency. (Attachment 6 – 2017 ITP10 Schedule)

ACTION ITEM: Staff to post project lists for the 2017 ITP10 when sent out for cost estimation.

Agenda Item 5 – 2017 ITP10 Needs Assessment Review

Agenda Item 5a – Economic

Kelsey Allen (SPP Staff) reviewed the process for defining economic needs and the resulting needs by future. Staff incorporated additional considerations for defining the posted needs after what was originally presented to the group.

Agenda Item 5b – Policy

Kelsey Allen (SPP Staff) reviewed process for defining policy needs and the details of the needs assessment resulting in no policy needs being identified for the 2017 ITP10 study.

(Attachment 7 – 2017 ITP10 Needs Assessments)

Agenda Item 6 – RR164-ITP Schedule Clarification

Kelsey Allen (SPP Staff) reviewed RR164 regarding clarification of the ITP schedule referenced in the Tariff. (Attachment 8 - RR 164_Recommendation Report_Revised _Approved_20160608)

> **Kurt Stradley (LES) made a motion; seconded by Tim Owens (NPPD) to approve RR164. The motion was approved unanimously.**

Agenda Item 7 – ITP Manual Task Force

Juliano Freitas (SPP Staff) informed the group that SPP Staff is working on a draft of the ITP Manual Task Force (ITPMTF) charter and asked for anyone interested in being involved. The task force will be a joint effort with the ESWG and TWG. The group asked that the charter be sent to the ESWG and TWG for review with solicitation of new members.

ACTION ITEM: Staff to send the ITP Manual TF charter to the TWG/ESWG for review with solicitation of new members.

The group asked for items likely to be standardized and the level of detail that would need to be covered by the ITPMTF and requested that Staff develop a list of decision points that will need to be discussed in order to begin work on the ITP manual.

ACTION ITEM: Staff to develop a checklist of decision points for development of the ITP standard scope.

Agenda Item 8 – 2017 ESWG Meeting Schedule

Kelsey Allen (SPP Staff) reviewed the proposed 2017 ESWG meeting schedule and asked for any comments or proposed adjustments. Dates and locations have been proposed for 8 of 12 meetings with the remaining 4 to be coordinated with the TWG. Kelsey asked for any volunteers to host the meeting for any of the proposed dates. (Attachment 9 – 2017 ESWG Meeting Schedule)

Agenda Item 9 – Mitigation of Transmission Outages Metric – 2017 ITP10

Juliano Freitas (SPP Staff) began discussion on the mitigation of transmission outages metric in the context of the 2017 ITP10. SPP Staff posed the question of what, if any, data updates need to be made for the 2017 ITP10 in light of the discussion during review of the RCAR II results. Staff utilized the previous results of outage analysis to determine the benefit of mitigating transmission outages as a function of APC. Staff recommended to continue with the current percentage of APC for the 2017 ITP10 and to spend the effort in the future to analyze potential adjustments. Gayle Nansel (WAPA-UGP) noted that the Integrated System was not included in the original analysis and asked if the incorporation of that system would have an impact on the metric. While including new systems in the analysis would likely have an impact, it would likely have less of an impact than a reassessment with a selection of different outages across the region due to the metric being a function of regional APC differences with an without the outages modeled. The group also pointed out that this metric has much less of an impact in the 2017 ITP10 than in an RCAR assessment because of the smaller group of projects and the fact that the metric is for informational purposes, not used in the selection of transmission projects. The group requested that Staff come back with additional information before making a decision on how to proceed in the 2017 ITP10.

ACTION ITEM: Staff to develop a presentation on the technical details, limitations and recommendation regarding the Transmission Outage benefit metric.

Agenda Item 10 – ITP Scope Standardization

Juliano Freitas (SPP Staff) continued review of the proposal for standardization of the ITP scope. This review focused on benchmarking, development of the economic model, and resource planning. Juliano reviewed the current state of the Model Development and Benchmarking process, touching on the data sources utilized and the data items reviewed, and requested feedback on the current process. The group discussed many of the challenges with benchmarking against real-world expectations due to model limitations, such as granularity, and real-world volatility, such as gas prices. Discussion continued on how much of the vendor data is updated as a part of the benchmarking process. Some members make updates, some do not in order to achieve more realistic operation. There was concern that these different approaches to data scrubbing can cause certain zones to be out of step with others if updates are not made consistently. Staff mentioned the idea of moving to a more standard dataset produced by a vendor to gain that consistency and streamline the model development process. The group requested that Staff contact ABB to present on the methodology and sources behind development of the Reference Case dataset. In discussion of other economic model related items, members expressed concern regarding the modeling of DC ties, including lack of pricing signals to simulate operation and loss of TTC on DC ties with the current methodology, wind price modeling, including VOM and curtailment pricing and whether the model should reflect true VOM or PPA type pricing, and demand modeling, including validation of total load and load shapes. (Attachment 10 – ITP Scope Standardization) (Attachment 11 – Working Group Involvement)

ACTION ITEM: Staff to contact ABB to present the methodology and data sources behind development of the Reference Case.

Closing Items

Chair Alan Myers (ITC Great Plains) requested other items meriting discussion.

List of action items from the meeting:

1. Staff to post project lists for the 2017 ITP10 when sent out for cost estimation.
2. Staff to send the ITP Manual TF charter to the TWG/ESWG for review with solicitation of new members.
3. Staff to develop a checklist of decision points for development of the ITP standard scope.
4. Staff to develop a presentation on the technical details, limitations and recommendation regarding the Transmission Outage benefit metric.
5. Staff to contact ABB to present the methodology and data sources behind development of the Reference Case.

The meeting was adjourned at 2:20 PM.

Respectfully Submitted,

Kelsey Allen
ESWG Secretary

Southwest Power Pool, Inc.
ECONOMIC STUDIES WORKING GROUP
July 21, 2016
VistaTech at Schoolcraft College /Livonia, MI

• ATTENDANCE LIST •

Name	Company
Jason Davis	SPP
Alan Myers	ITC
Michael Wegner	ITC
RAJU BRAHMANDHABHERI	ITC
Eric Bunkey	South Central MCN
Gayle Nansel	WAPA-UGP
JULIANO FREITAS	SPP
Kelsey Allen	SPP
Aaron Puga	LS Power
David Binkley	ITC

Name	Email
Aaron Pupa	
Adam Bell (SPP)	abell@spp.org
Adam Mummert	amummert@burnsmcd.com
Al Tamimi	atamimi@sunflower.net
Alan Myers	
Ben Abing	babing@itctransco.com
Bennie Weeks	bennie.weeks@xcelenergy.com
Bethany King	bking@empiredistrict.com
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Jon Shipman	jeshipman@oppd.com
Jordan Schmick	jordan.h.schmick@xcelenergy.com
Juliano Freitas	
Justin Radl	justin.w.radl@xcelenergy.com
Kelsey Allen	
Kelsey Zenko	kzenko@spp.org
Kenny Munsell (Xcel Energy)	kenny.munsell@xcelenergy.com
Kevin Foflygen (SPRM)	kevin.foflygen@cityutilities.net
Kirk Hall	khall@spp.org
Kurt Stradley (LES)	kstradley@les.com
Liz Gephardt	lgephardt@spp.org
Meena Thomas	meena.thomas@puc.texas.gov
Michael Massery (AECC)	michael.massery@aecc.com
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Michael Watt (OMPA)	mwatt@ompa.com
Michael Wegner	
Mounika Kurra (Quanta)	mkurra@quanta-technology.com
Pat McCool	patrick.mccool@kcpl.com
Raju Brahmandhabheri	
Randy Collier (CUS)	randycollier@cityutilities.net
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Ryan Yokley	ryokley@sunflower.net
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Steve Gaw	rsgaw1@gmail.com
Tim Owens (NPPD)	tjowens@nppd.com
Todd Tadych (DATC)	ttadych@atcllc.com
Tom Gentile	tgentile@quanta-technology.com
Yan Du	ydu@lspower.com
Zac Hager	hagerzc@oge.com

1. **Don Le (NextEra Energy Transmission) proxy to Alan Myers (ITC Great Plains)**

From: Le, Don
Sent: Tuesday, July 12, 2016 12:21 PM
To: Myers, Alan; Kelsey Allen
Subject: **External Email** 7/21 ESWG Meeting Proxy

Kelsey,

I'm unable to attend the 7/21/16 ESWG Meeting and Alan has agreed to be my proxy.

Let me know if you have any questions.

Don Le
System Planning Manager
Lone Star Transmission, LLC
NextEra Energy Transmission, LLC
(M) 713-366-6105
(O) 512-236-3144
Don.Le@NextEraEnergy.com

2. **Jody Holland (SCMCN) proxy to Eric Burkey (SCMCN)**

From: Holland, Jody
Sent: Friday, July 15, 2016 9:08 AM
To: Alan Myers (amyers@itcgreatplains.com); Kelsey Allen
Cc: Eric Burkey
Subject: **External Email** FW: ESWG 7/21/16 Agenda & Background Materials posted

Alan/Kelsey,
I'm providing my proxy to Eric Burkey for the 7/21 Livonia ESWG. Thanks.

Jody Holland
Director, Transmission Planning
South Central MCN, LLC
Midcontinent MCN, LLC
MidAtlantic MCN, LLC
Cell: 501-681-5950
jholland@gridliance.com

3. **Leon Howell (OGE) proxy to Zac Hager (OGE)**

From: Howell, Leon
Sent: Friday, July 15, 2016 1:36 PM
To: Kelsey Allen
Cc: Myers, Alan; Hager, Zac
Subject: **External Email** proxy

Kelsey,

Please recognize Zac Hager as my proxy for the July 21 ESWG meeting.
Leon

4. **Natasha Henderson (GSEC) proxy to Evan Racine-Johnson (GSEC)**

From: Henderson, Natasha
Sent: Friday, July 15, 2016 8:25 AM
To: Myers, Alan; Kelsey Allen
Cc: Evan Racine-Johnson
Subject: **External Email** Proxy for ESWG meeting 7/21

Alan/Kelsey:

I would like to give my proxy for the ESWG meeting 7/21 to Evan Racine-Johnson.

Thanks!

Natasha Henderson
Manager of Strategic Planning
Golden Spread Electric Cooperative
nhenderson@gsec.coop
(806)316-9581

5. **Randy Collier (CUS) proxy to Kevin Foflygen (CUS)**

From: Collier, Randy
Sent: Tuesday, July 19, 2016 1:37 PM
To: Kelsey Allen; Myers, Alan
Cc: Knottek, Jeff; Kevin Foflygen
Subject: **External Email** Proxy for ESWG Meeting 7/21/16

Kelsey/Alan,
Kevin Foflygen has my proxy from 12:00-3:00 CDT for the ESWG meeting on 7/21/16.

Thanks,
Randy Collier
Contract Mgr - Electric Supply
City Utilities of Springfield, Missouri
417-831-8323

6. **Tim Owens (NPPD) proxy to Kurt Stradley (LES)**

From: Owens, Tim
Sent: Monday, July 18, 2016 9:22 AM
To: Kelsey Allen
Cc: Myers, Alan; Stradley, Kurt
Subject: **External Email** Proxy - July 21 ESWG meeting

Kelsey,

[…] I will by phoning into the ESWG meeting on the morning of July 21, rather than joining you in Livonia. During the afternoon, Kurt Stradley will have my proxy.

Thanks,

Tim

Tim Owens
Resource Planning & Risk
Nebraska Public Power District
Ph: 402-563-5526; FAX: 402-563-5511
E-mail: tjowens@nppd.com

ECONOMIC STUDIES WORKING GROUP

July 21st, 2016

VistaTech at Schoolcraft College (ITC Host) – Livonia, MI

• A G E N D A •

8:00am – 3:00pm CST

1. Administrative items
   a. Call to Order, Introductions...Alan Myers (5 minutes)
   b. Receipt of Proxies ....Kelsey Allen (1 minute)
   c. Review of Agenda[1] ....Alan Myers (1 minute)

2. Review of Past Action Items[1] ....Kelsey Allen (5 minutes)

3. Consent Agenda[1] (Approval Item)..Alan Myers (5 minutes)
   a. Approval of Meeting Minutes – June 16th, 2016

4. Study Schedules... Juliano Freitas (15 minutes)
   a. 2017 ITP10

5. 2017 ITP10 Needs Assessment Review .... SPP Staff (45 minutes)
   a. Economic (Kelsey Allen)
   b. Policy (Clayton Mayfield)

6. RR164 – ITP Schedule Clarification[1] (Approval Item)............................ Clayton Mayfield (30 minutes)

7. ITP Manual Task Force .... Juliano Freitas (15 minutes)

8. 2017 ESWG Meeting Schedule[1] ....Kelsey Allen (30 minutes)

9. Mitigation of Transmission Outages Metric – 2017 ITP10 .... SPP Staff (15 minutes)

10. ITP Scope Standardization[1] ....All (180 minutes)

11. Closing Items..All (5 minutes)
    a. Summary of Action Items (Kelsey Allen)
    b. Future Meetings
       i. August 23rd, 2016: Northern Hotel, Billings, MT
       ii. September 15th, 2016: 8th Floor AEP Offices, Dallas, TX
       iii. October 20th, 2016: OMPA Offices, Edmond, OK

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[1] Background Material Included

iv. November 17th, 2016: SPP Corporate Office, Little Rock, AR
v. December 8th, 2016: 8th Floor AEP Offices, Dallas, TX

Southwest Power Pool, Inc.

ECONOMIC STUDIES WORKING GROUP

Pending Action Items Status Report

July 21st, 2016

	Action Item	Date Originated	Status	Comments
057	SPP staff will write a straw-man procedure or portion of the ITP manual that deals with conventional and wind generation planning and siting within the ITP process. The process should be in place by the Spring of 2015.	August 23rd, 2012	In Progress Staff	A draft resource siting whitepaper will be developed for review mid-2016.
151	Staff to look into optional software tools for use in ITP studies.	May 20th, 2015	In Progress Staff	Staff is meeting with software vendors and users and expects to have a recommendation on any potential resource planning software changes by 4th quarter 2016.
160	SPP Staff and the ESWG are to formalize standard procedures for data requests and member review of information related to ITP studies.	January 21st, 2016	In Progress Staff/ESWG	Combined item representative of AI148 and AI149.
161	Staff to report on carbon emissions as the 2017 ITP10 study moves forward through the different milestones.	February 24th-25th, 2016	In Progress Staff	
163	SPP Staff and members to prepare for discussion on scope standardization and prioritization of discussion items.	April 21st, 2016	In Progress Staff/Members	
165	ESWG to review the assumed benefit of mandated reliability projects	May 13th, 2016 RARTF	In Progress ESWG	
166	ESWG to review the impacts of using the system reconfiguration hybrid approach for the Assumed Benefit of Mandated Reliability Projects	May 13th, 2016 RARTF	In Progress ESWG	
167	ESWG to review the classification of projects in the ITP process	May 13th, 2016 RARTF	In Progress ESWG	
168	Staff and the ESWG to evaluate the issues seen in the DC to AC model	May 18th-19th,	In Progress	

	conversion process.	2016	Staff/ESWG	
169	Staff to investigate the requirements for approval of a new standard ITP scope in order to determine the date of approval by the working groups needed prior to final approval by MOPC and the Board.	June 16th, 2016	In Progress Staff	
170	Staff to coordinate with other SPP groups regarding requirements and opportunities for standardization of requesting and utilizing peak load data.	June 16th, 2016	In Progress Staff	
171	Staff to investigate coordination opportunities regarding request for member hourly load data.	June 16th, 2016	In Progress Staff	
172	Staff to develop examples and language for tackling synergies of powerflow and economic generation data.	June 16th, 2016	In Progress Staff	
173	Staff to develop a process for annual update of the economic model with vendor data.	June 16th, 2016	In Progress Staff	
174	Staff to develop criteria and methodology to developing resource plans absent a software tool.	June 16th, 2016	In Progress Staff	
175	Staff to post project lists for the 2017 ITP10 when sent out for cost estimation.	July 21st, 2016	In Progress Staff	
176	Staff to send the ITP Manual TF charter to the TWG/ESWG for review with solicitation of new members.	July 21st, 2016	In Progress Staff	
177	Staff to develop a checklist of decision points for development of the ITP standard scope.	July 21st, 2016	In Progress Staff	
178	Staff to develop a presentation on the technical details, limitations and recommendation regarding the Transmission Outage benefit metric.	July 21st, 2016	In Progress Staff	
179	Staff to contact ABB to present the methodology and data sources behind development of the Reference Case.	July 21st, 2016	In Progress Staff	

Southwest Power Pool

ECONOMIC STUDIES WORKING GROUP

June 16th, 2016

8th Floor AEP Offices, Dallas, TX

• SUMMARY OF ACTIONS TAKEN •

1. Approved RR163, ITP Manual Reference Corrections.
2. Endorsed the TWG recommendation for the use of option 1 with regard to scenario 5 in the 2017 ITPNT.

Southwest Power Pool

ECONOMIC STUDIES WORKING GROUP

June 16th, 2016

8th Floor AEP Offices, Dallas, TX

• MINUTES •

Agenda Item 1 – Administrative Items

Agenda Item 1a - Call to Order, Introductions

Chair Alan Myers (ITC Great Plains) called the meeting of the Economic Studies Working Group (ESWG) to order at 8:00 AM, welcomed those in attendance, and asked for introductions.

There were 13 in-person participants and 56 web conference participants, representing 16 of 17 ESWG members. (Attachment 1 – June 16th, 2016 Attendance List)

Agenda Item 1b – Receipt of Proxies

Alan Myers (ITC Great Plains) asked for any proxy statements. One proxy was identified; Jon Iverson (OPPD) named Jon Shipman (OPPD) as his proxy. (Attachment 2 – Proxy Statements)

Agenda Item 1c – Review of Agenda

Chair Alan Myers (ITC Great Plains) presented the agenda for review and asked for any additions or corrections. (Attachment 3 – June 16th, 2016 ESWG Agenda)

Tim Owens (NPPD) made a motion; seconded by Pat McCool (KCPL) to adopt the agenda. The motion was approved unanimously.

Agenda Item 2 – Review of Past Action Items

Kelsey Allen (SPP Staff) reviewed the list of past action items and asked for any comments or questions. The group asked if the action items discussed at the RARTF were formalized in their meeting minutes. Staff will investigate. (Attachment 4 – Past Action Items)

Agenda Item 3 – Consent Agenda

The consent agenda included the following items:

Meetings Minutes – May 18th-19th, 2016 (Attachment 5 – May 18th-19th, 2016 ESWG Minutes)

Alan Myers (ITC Great Plains) asked if any items should be removed from the consent agenda. Kelsey Allen (SPP) reviewed minor changes to the minutes since posted in the background materials.

Kurt Stradley (LES) made a motion; seconded by Leon Howell (OGE) to approve the minutes as amended. The motion was approved unanimously.

Agenda Item 4 – Study Schedules

Agenda Item 4a – 2017 ITP10

Juliano Freitas (SPP) reviewed the 2017 ITP10 schedule. Jody Holland (SCMC) expressed concern regarding the model changes posted by SPP that will be evaluated for their impact on the posted needs for the study. (Attachment 6 – 2017 ITP10 Schedule)

Agenda Item 5 – RR163-ITP Manual Reference Correction

Clayton Mayfield (SPP Staff) reviewed RR163 which requests a Tariff change to update references from old transmission planning documents to the current ITP Manual. (Attachment 7 – Tariff RR163 ITP Manual Reference Corrections_ RTWG Approved 20160525)

Tim Owens (NPPD) made a motion; seconded by Bennis Weeks (SPS) to approve RR163. The motion was approved unanimously.

Agenda Item 6 – Scenario 5 in the 2017 ITPNT

Kirk Hall (SPP Staff) reviewed the proposal and TWG action on treatment of Scenario 5 modeling assumptions in the 2017 ITPNT. The MOPC assigned an action item to the TWG and ESWG to investigate the Scenario 5 modeling methodology for the 2017 ITPNT to incorporate thoughts of the Transmission Planning Improvement Task Force (TPITF) in order to address the TPITF concern with wind modeling in the summer peak models. The TWG approved the proposed option 1 to utilize an SPP Balancing Authority dispatch model coupled criteria for determination of Scenario 5 needs. (Attachment 8 - 2017 ITPNT Scenario 5)

Jody Holland (SCMCN) made a motion; seconded by Tim Owens (NPPD) to endorse the TWGs recommendation for the use of option 1 with regard to scenario 5 in the 2017 ITPNT. The motion was approved unanimously.

Agenda Item 7 – ITP Scope Standardization

Juliano Freitas (SPP Staff) reviewed a proposal for standardization of the ITP scope to consider recommendations of the TPITF. He stepped through the scope items to be reviewed and proposed a schedule for formalization over the next year. He overviewed the current process and a proposed future process for the load review, generation review, renewable policy survey, resource plan phase 1, resource plan phase 2, and resource siting plan. After discussion, SPP staff took feedback in preparation for development of future discussion materials on the following items:

ACTION ITEM: Staff to investigate the requirements for approval of a new standard ITP scope in order to determine the date of approval by the working groups needed prior to final approval by MOPC and the Board.

ACTION ITEM: Staff to coordinate with other SPP groups regarding requirements and opportunities for standardization of requesting and utilizing peak load data.

ACTION ITEM: Staff to investigate coordination opportunities regarding request for member hourly load data.

ACTION ITEM: Staff to develop examples and language for tackling synergies of powerflow and economic generation data.

ACTION ITEM: Staff to develop a process for annual update of the economic model with vendor data.

ACTION ITEM: Staff to develop criteria and methodology to developing resource plans absent a software tool.

(Attachment 9 – ITP Scope Standardization)

Closing Items

Chair Alan Myers (ITC Great Plains) requested other items meriting discussion.

List of action items from the meeting:

1. Staff to investigate the requirements for approval of a new standard ITP scope in order to determine the date of approval by the working groups needed prior to final approval by MOPC and the Board.
2. Staff to coordinate with other SPP groups regarding requirements and opportunities for standardization of requesting and utilizing peak load data.
3. Staff to investigate coordination opportunities regarding request for member hourly load data.
4. Staff to develop examples and language for tackling synergies of powerflow and economic generation data.
5. Staff to develop a process for annual update of the economic model with vendor data.
6. Staff to develop criteria and methodology to developing resource plans absent a software tool.

The meeting was adjourned at 2:20 PM.

Respectfully Submitted,

Kelsey Allen
ESWG Secretary

2017 ITP10

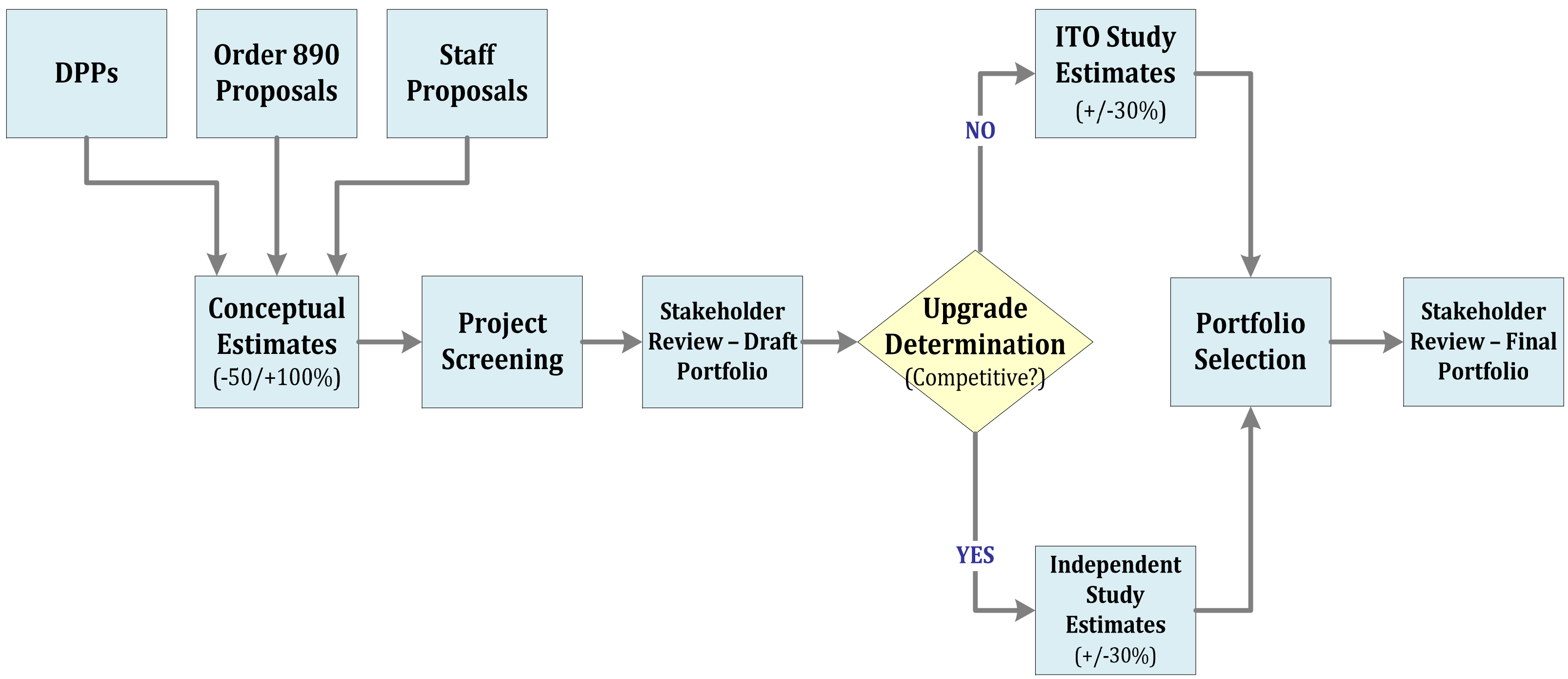
ESWG

July 21st, 2016

2017 ITP10 – Current Status

- ✓ Detailed Project Proposal (DPP) Phase
  - 2017 ITP10 DPPs received = 1,126

- Solutions Development / Preliminary Project Grouping
  - Solution 2A for received Study Estimates (+/-30%)



Updated 2017 ITP10 Schedule

Dates	Description
Jul 1 – Aug 5	Solution Development including preliminary project grouping
Jul 22 – Aug 8	Upgrade Determination (SPP BP 7660)
Jul 22, 29 & Aug 8	Staged Study Estimate Requests
Aug 8 – Sep 9	Study Estimates to Incumbent TOs and third party estimator
Aug 18	Planning Summit
Sep 8 – 23	Phase 2 – Project Grouping
Sep 23 – Nov 23	Portfolio Consolidation / Project Staging
Nov 28 – Dec 31	Finalize Portfolio and Report

Study Estimate Process

- For projects deemed likely to be non-competitive, incumbent TOs would have 4 weeks to complete Study Estimate
- For projects deemed likely to be competitive, the Study Estimate to be provided by the third party estimator
- Incumbent TO would have 5 business days to determine if they can provide the Study Estimate, or if they would rather have the Study Estimate be provided by the third party estimator
- If incumbent TO does not notify SPP staff within 5 business days if they are able to provide the Study Estimate within 4 weeks, the Study Estimate will be provided by the third party estimator
- SPP staff will have all project Study Estimates to the incumbent TOs and third party estimator no later than <u>August 8, 2016</u>

Study Estimate Process

- If the ITO agrees to provide the Study Estimate but does not do so by the deadline in the cost estimate request communication (4 weeks from date of request), the Conceptual Estimate will be utilized for the purpose of portfolio selection


SPP
75th Anniversary
75
SEVENTY-FIVE YEARS OF
RELIABILITY THROUGH RELATIONSHIPS

2017 ITP10 Needs Assessments

ESWG

July 21st, 2016

Economic Needs Assessment

Defining Economic Needs (Proposed)

All economic needs are congested flowgates, not all congested flowgates are defined as economic needs

1. Rank the congested flowgates by congestion score
2. Determine which congested flowgates have greater than $50k in annual flowgate congestion score
3. Determine whether the remaining flowgates provide benefit to SPP by alleviating each constraint (run simulations removing them from the event file one by one)
4. Remove any flowgates that provide none or negative benefit to SPP
5. Remaining top 25 congested flowgates from each future considered economic need
6. Identify economic needs as seams needs by:
   - Evaluating the benefit of each remaining constraint to external areas (MISO/AECI)
   - Current market to market flowgates

Considerations for Adjusting Criteria

- Limited by top 25 criteria
- Needed a more defined approach to identifying externally located flowgates for consideration
- Redundant monitored elements

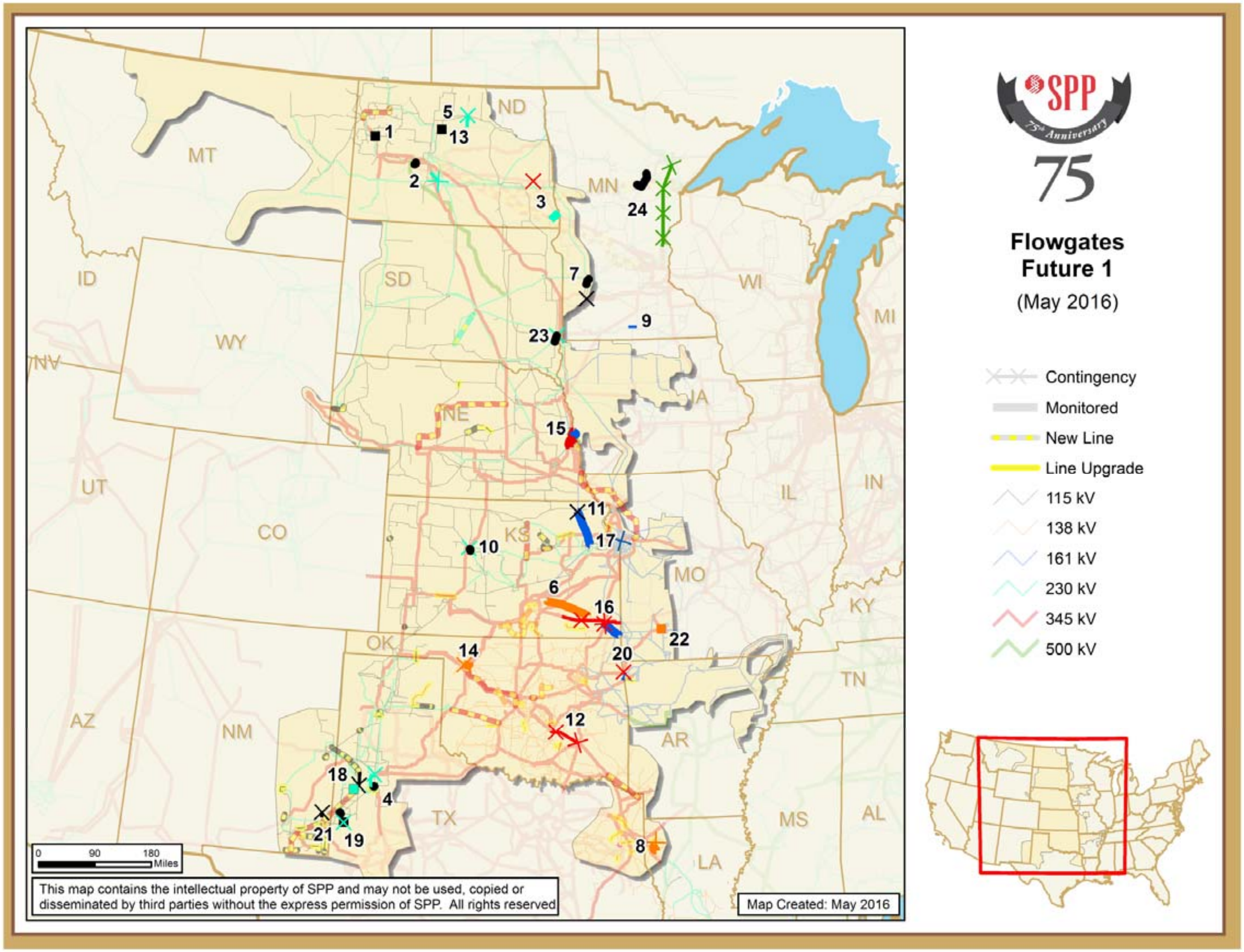
Defining Economic Needs (As Posted)

The economic needs per Future were determined by filtering the congested flowgates and applying the following criteria:

- Greater than $50,000 in annual congestion score (=annual average shadow price x number of binding hours)
- For flowgates with monitored elements not interconnected to the SPP transmission system: the flowgate must provide greater than $1,000,000 in potential benefit to SPP (potential benefit is determined by relaxing the rating of the monitored element of a flowgate)
- Most congested unique monitored element (the lesser congested flowgates in the top 25 for which the monitored element is congested for multiple contingencies are excluded)
- In the top 25 of all congested flowgates

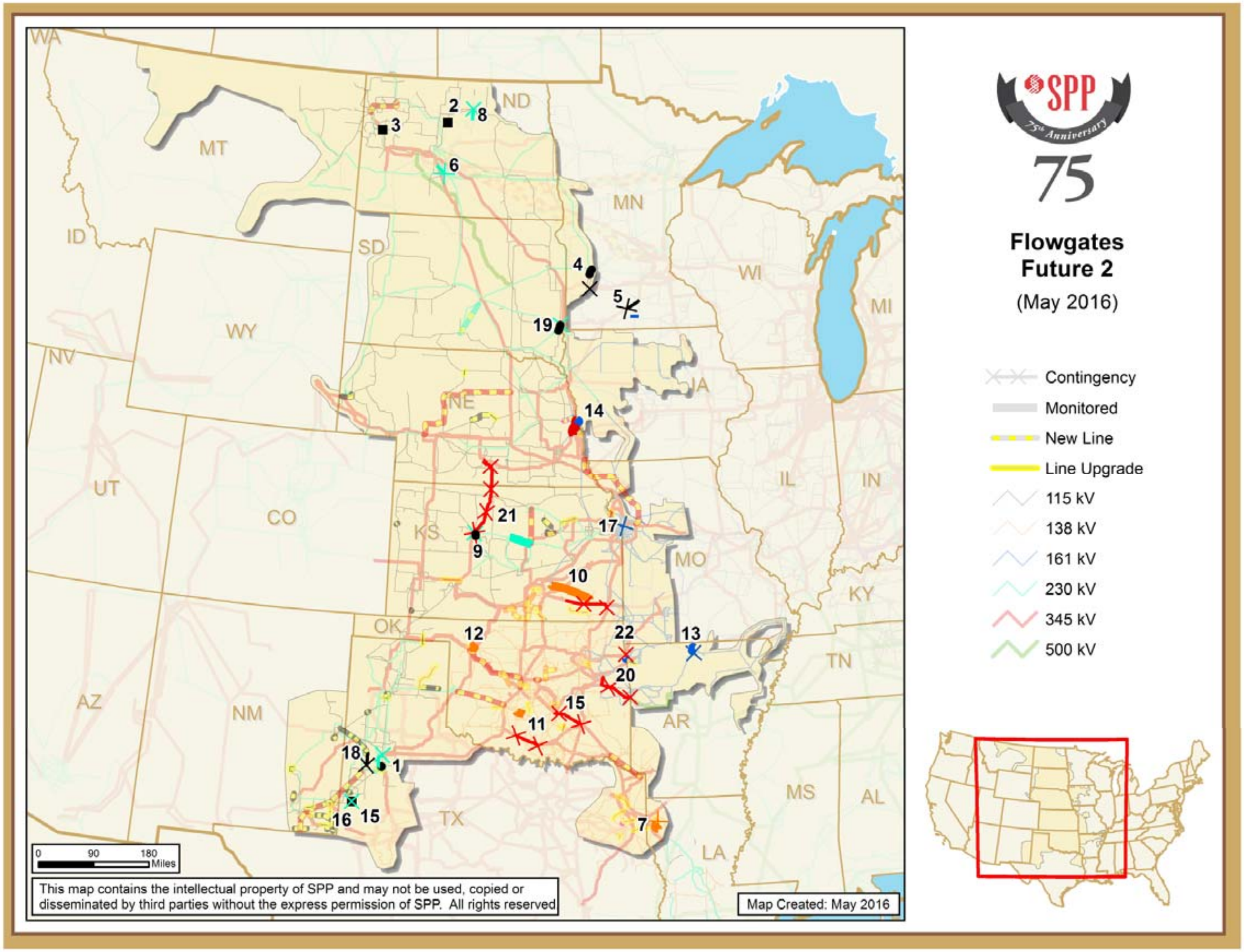
Future 1

Economic Needs



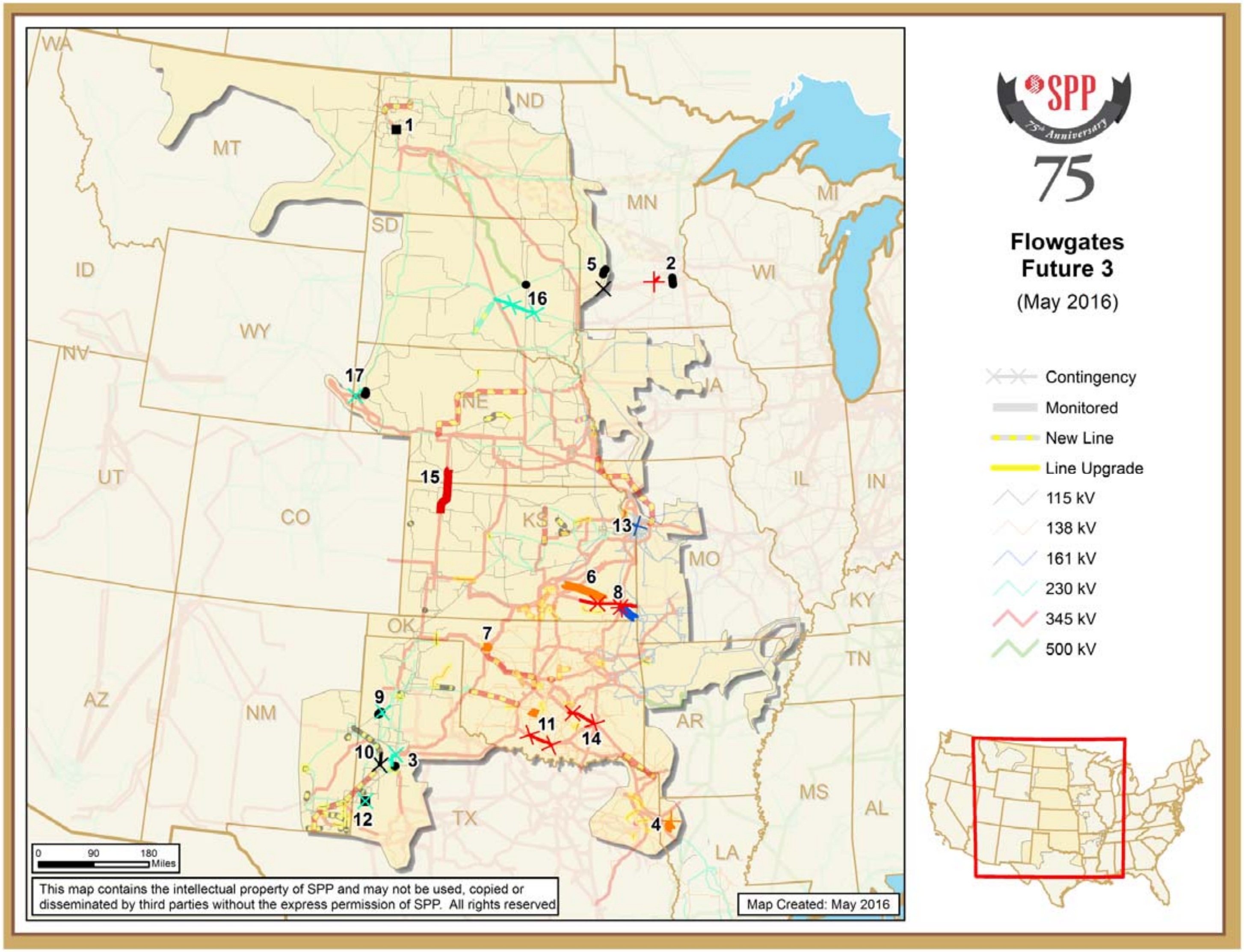
Future 2

Economic Needs



Future 3

Economic Needs



Policy Needs Assessment

Methodology Overview

Evaluate utilities' ability to meet renewable policy mandates/goals on an individual state by state basis such as AEP OK, AEP TX, etc.

- Assess deliverability of all renewable units
  - A 3% curtailment buffer was utilized, consistent with the 2015 ITP10
  - For renewables with > 3% curtailment, the designated utility was assessed in further detail
    - If all renewable units within a utility experience < 3% curtailment, the utility will experience < 3% renewable curtailment overall
- Assess if company is meeting their renewable mandate or goal requirement type (capacity or energy) according to the Policy Survey on a state level for each company

Unit Curtailment

Unit Name	Future 1	Future 2	Future 3
Smoky Hills WF ALL	5.08%	3.81%	0%
Flat Water (Richardson County)	4.74%	0%	0%
Cedar Bluff Wind	4.65%	4.07%	0%
Centennial OGE	0%	0%	4.18%
NEW WIND SOUTH #1	4.03%	6.08%	3.59%
NEW WIND KSMO #4	3.36%	0%	0%

Assessment Summary

- Smoky Hills WF ALL - Multi
  - 14% owned by "Other Entities-SPP"
- Flat Water (Richardson County) - OPPD
  - No mandate/goal
- Cedar Bluff Wind - Westar
  - Kansas capacity goal
- Centennial OGE - OGE
  - Oklahoma capacity mandate
- NEW WIND SOUTH #1 - AEPWOK
  - Oklahoma capacity mandate
- NEW WIND KSMO #4 - INDN
  - MO energy mandate (INDN) – 115,097 MWh
  - Remaining energy to meet mandate including curtailment reduction: 328,358 MWh

Conclusion

- All Utility by State Mandates/Goals met in each Future. As a result, no Policy Needs were identified for the 2017 ITP10.

Southwest Power Pool

Revision Request Recommendation Report

RR #: 164	**Date: 4/19/2016**
RR Title: ITP Schedule Clarification	

SUBMITTER INFORMATION	
Submitter Name: Liz Gephardt	**Company:** Southwest Power Pool
Email: lgephardt@spp.org	**Phone:** 501-482-2236

EXECUTIVE SUMMARY OF ACTION AND RECOMMENDATION

OBJECTIVE OF REVISION

Objectives of Revision Request:
Describe the problem/issue this revision request will resolve.

Figure 2 in this section is no longer accurate since the Integrated Transmission Planning Near-Term (ITPNT) assessment is now conducted in the April-March timeframe. Also, the beginning and end of the ITPNT in relation to the ITP10 and ITP20 do not line up as they previously did.

Describe the benefits that will be realized from this revision.

This revision will ~~remove~~ update ~~the unnecessary and now inaccurate~~ Figure 2 to correctly reflect the current ITPNT process schedule.

IMPACT ANALYSIS REQUIRED: ☐ **Yes** ☒ **No**

Estimated Cost: $ *Cost is a **rough order of magnitude** estimate, approx. +/-50%*	**Estimated Duration:** months *Duration is a **rough order of magnitude** estimate, approx. +/-50%*

Priority Rank for System Change: ☐ **1 – Critical** ☐ **2 – High** ☐ **3 – Medium** ☐ **4 – Low**

SPP DOCUMENTS IMPACTED		
☐ **Market Protocols**	**Protocol Section(s):**	**Protocol Version:**
☐ **Criteria**	**Criteria Section(s):**	**Criteria Date:**
☒ **Tariff**	**Tariff Section(s):**	
☐ **Business Practice**	**Business Practice Number:**	

WORKING GROUP REVIEWS AND RECOMMENDATIONS
List Primary and any Secondary/Impacted WG Recommendations as appropriate

Primary Working Group: **RTWG**	**Date: 06/23/2016** **Action Taken: Approved** **Abstained:** **Opposed:**
Reason for Opposition:	
Regional Compliance Working Group Recommendation ***(if applicable)***	**Date:** 6/8/2016 **Recommended Action:** Approved

Secondary Working Group: PCWG	**Date:** 5/6/2016 **Action Taken:** Approved **Abstained:** **Opposed:** ITC-GP
Reasons for Opposition:	
Secondary Working Group:	**Date:** **Action Taken:** **Abstained:** **Opposed:**
Reasons for Opposition:	
Secondary Working Group:	**Date:** **Action Taken:** **Abstained:** **Opposed:**
Reasons for Opposition:	
MOPC	**Date:** **Action Taken:** **Abstained:** **Opposed:**
Reasons for Opposition:	
BOD/Member Committee	**Date:** **Action Taken:** **Abstained:** **Opposed:**
Reasons for Opposition:	

COMMENTS
Comment Author: ITC-GP
Date Comments Submitted: 4/28/2016

Description of Comments: ITC believes it is premature to execute this Revision Request until changes underway in the Transmission Planning Improvement Task Force (TPITF) have been approved at the July Markets and Operations Policy Committee/Board of Directors meetings. Currently, the TPITF is seeking to combine the ITP10 and ITPNT planning studies into a single 18-month cycle. A revised Figure(s), reflecting the new 18-month cycle, should then be the subject of a separate Revision Request to make SPP's Tariff current. If RR164 moves forward, however, we suggest that a revised version of Figure 2 be included in the Integrated Transmission Planning Manual (rather than removing Figure 2 altogether as suggested in the RR), along with the appropriate reference in the Tariff (Attachment O Section I).
Status:
Comment Author: Brenda Fricano
Date Comments Submitted: 5
Description of Comments: RTWG reviewed the revisions and requested Figure 2 updated with the current ITPNT process schedule.
Status:
PROPOSED REVISION(S) TO SPP DOCUMENTS
Market Protocols

Tariff (OATT)

I. Overview of Planning Process

The Transmission Provider's transmission planning process is an open process. New and proposed transmission facilities can come from several different areas of the Tariff. These areas are: 1) transmission service requests; 2) Generation Interconnection Service requests; 3) the integrated transmission planning process (ITP Upgrades); 4) the Balanced Portfolio process; 5) the high priority study process (high priority upgrades); 6) requests for Sponsored Upgrades; and 7) the evaluation of proposed Interregional Projects. Figure 1 illustrates the planning processes within SPP and how these result in a comprehensive regional plan called the SPP Transmission Expansion Plan (STEP).

Each of these sources of potential upgrades has its own evaluation and approval process. Transmission Service requests are evaluated in accordance with Attachment Z1 of this Tariff. Generator interconnection requests are assessed under the provisions of Attachment V of this Tariff. In addition, the process for adding new delivery points is described in Attachment AQ of this Tariff. The integrated transmission planning process and other study processes for Sponsored Upgrades, Balanced Portfolios, high priority upgrades, and proposed Interregional Projects are described in this Attachment O.

The results from all these sources are collected and reported in the annual SPP Transmission Expansion Plan which gives a twenty (20) year projection of transmission changes in the SPP Region. The SPP Transmission Expansion Plan, as endorsed by the Markets and Operations Policy Committee, is presented to the SPP Board of Directors once a year for their review and approval, as required in accordance with Section V of this Attachment O. The SPP Board of Directors may modify upgrades that are part of approved Balanced Portfolios in accordance with Section IV of Attachment J of this Tariff, ITP Upgrades, or high priority upgrades in the SPP Transmission Expansion Plan throughout the year in accordance with Section V of this Attachment O. Projects associated with transmission service requests, Generation Interconnection Service requests, Sponsored Upgrades and Interregional Projects may also be added throughout the year as described in this Attachment O.

SPP's long range transmission planning is conducted over a three year planning cycle- as shown in Figure 2. A 20-Year Assessment is conducted during the first half of this three year cycle. A 10-Year Assessment is conducted in the second half of the three year cycle. The Near Term Assessment is conducted each year and generally looks over the next five to seven years. Each of these assessments and the approval process is set forth in this Attachment O.

Figure 1- SPP Transmission Planning

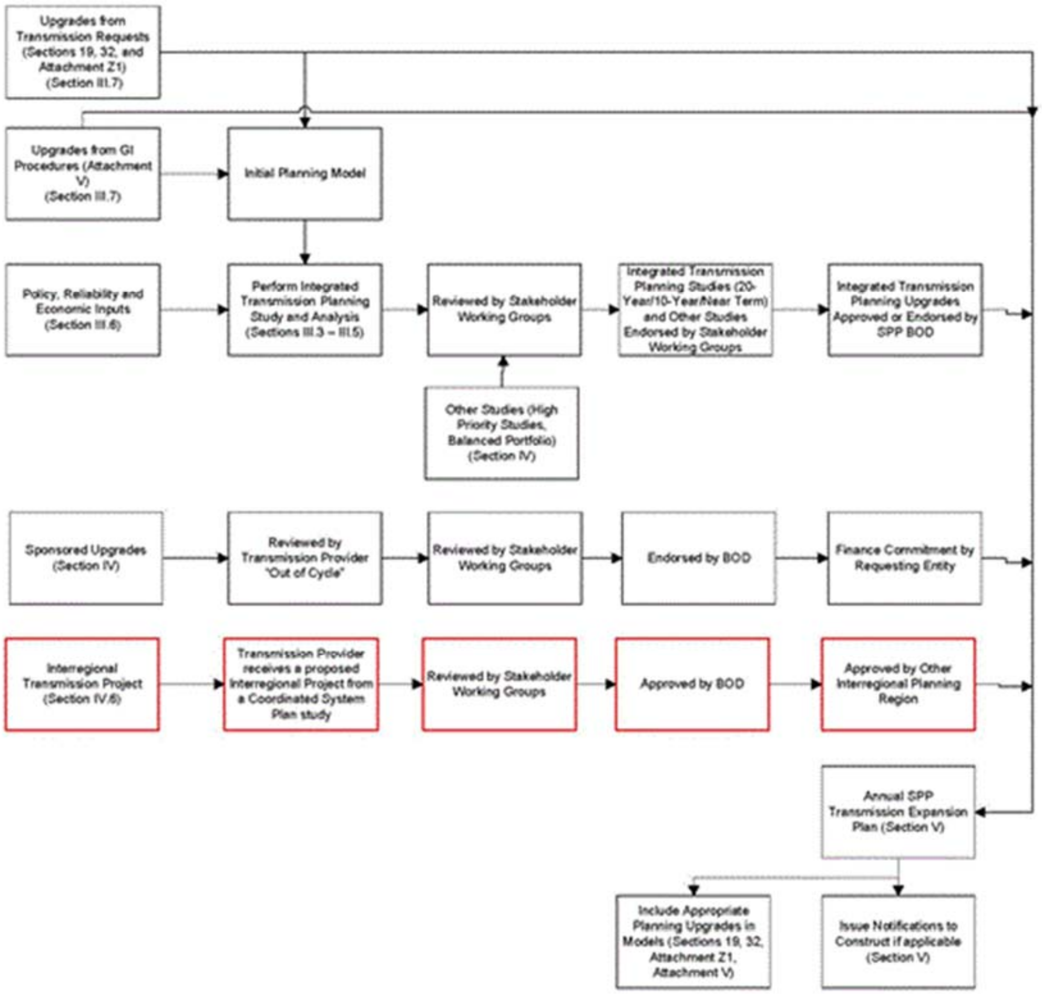


Figure 2 - SPP Integrated Transmission Planning Process 3-Year Cycle

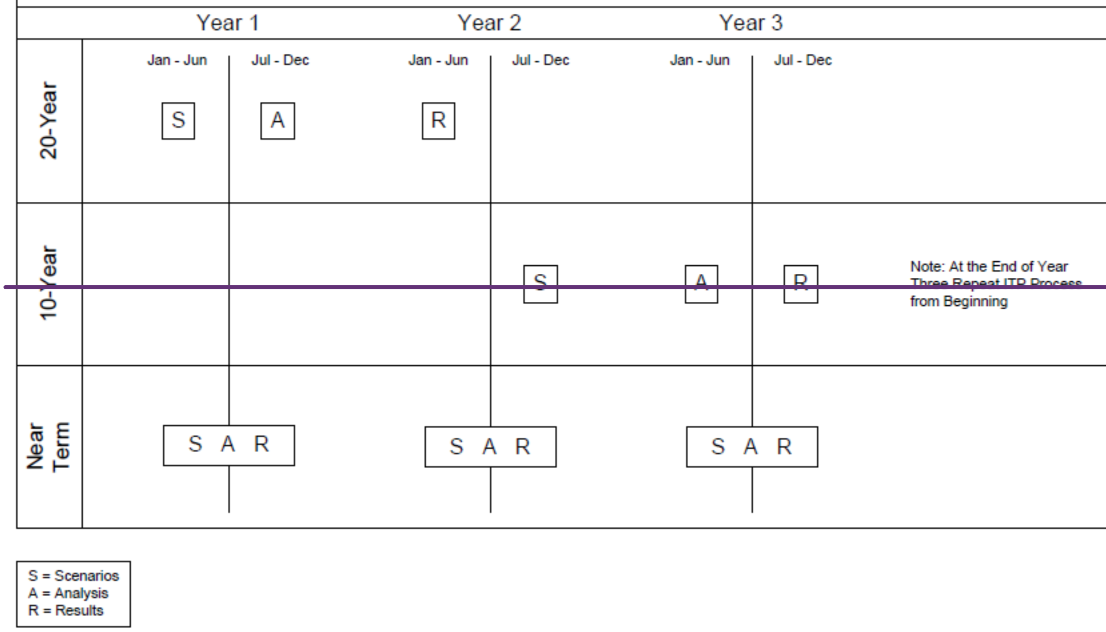


Figure 2 - SPP Integrated Transmission Planning Process 3-Year Cycle

	Year 1				Year 2				Year 3			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
20-Year												
10-Year												
Near-Term												

SPP Criteria

SPP Business Practices


SPP
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SEVENTY-FIVE YEARS OF
RELIABILITY THROUGH RELATIONSHIPS

2017 Meeting Schedule

ESWG

July 21st, 2016

Proposed Schedule – 1st Semester

January

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

February

S	M	T	W	T	F	S
			1	2	3	4
5	6	9	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

May

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	10	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

March

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

June

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Month	Day	Location
January	12	Dallas (AEP)
February	15-16	? (wTWG)
March	16	Dallas (AEP)
April	20	Dallas (AEP)
May	17-18	? (wTWG)
June	15	Dallas (AEP)

- BOD
- RSC
- MOPC
- PCWG
- SPCWG
- CAWG
- TWG
- ESWG
- MDWG
- SSC
- SPC
- GWG
- SPP Holiday

Combination Dates

- ESWG/TWG
- ESWG/SSC
- ESWG/PCWG
- SSC/CAWG
- PCWG/TWG/SSC
- PCWG/SSC
- ESWG/MDWG/TWG
- ESWG/MDWG

Proposed Schedule – 2nd Semester

July

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

October

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	9	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

November

S	M	T	W	T	F	S
			1	2	3	4
5	6	8	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

September

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

December

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Month	Day	Location
July	20	Dallas (AEP)
August	16-17	? (wTWG)
September	14	Dallas (AEP)
October	12	Dallas (AEP)
November	15-16	Little Rock (SPP)
December	14	Dallas (AEP)

BOD
RSC
MOPC
PCWG
SPCWG

CAWG
TWG
ESWG
MDWG

SSC
SPC
GWG

SPP Holiday

Combination Dates
ESWG/TWG
ESWG/SSC
ESWG/PCWG
SSC/CAWG
PCWG/TWG/SSC
PCWG/SSC
ESWG/MDWG/TWG
ESWG/MDWG

75


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RELIABILITY THROUGH RELATIONSHIPS

ITP Scope Standardization

ESWG

July 13th, 2016

ITP Scope Items

- Load Review
- Generation Review
- Renewable Policy Survey
- Resource Plan phase 1 (Renewables)
- Resource Plan phase 2 (Conventional + Renewables)
- Siting Plan
- Economic Model
- Benchmarking
- Constraint Assessment
- DC to AC Conversion
- Needs Assessment
- Project Selection
- Project Grouping
- Portfolio Consolidation
- Project Staging
- Benefit Metrics
- Sensitivities

Proposed Schedule for Scope Development

	2016							2017						
	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
Load review														
Generation review														
Policy Survey														
Resource Plan Phase 1														
Resource Plan Phase 2														
Siting Plan														
Economic Model														
Benchmarking														
Constraint Assessment														
DC to AC Conversion														
Needs Assessment														
Project Selection														
Project Grouping														
Portfolio Consolidation														

ITP Models

Description	Year 2	Year 5	Year 10	Total
Reliability: CBA **(TPL Sensitivity Case)**	One Future Coincident Peak On/Off-Peak (2)	Up to Three Futures Coincident Peak On/Off-Peak (6)	Up to Three Futures Coincident Peak On/Off-Peak (6)	14
Reliability: Base Scenario **TPL: Powerflow**	Summer Winter Light Load Non-coincident Peak (3)	Summer Winter Light Load Non-coincident Peak (3)	Summer Winter Light Load Non-coincident Peak (3)	9
Economic	One Future Coincident Peak 8760 (1)	Up to Three Futures Coincident Peak 8760 (3)	Up to Three Futures Coincident Peak 8760 (3)	7

Current Methodologies

Reference

Load Review (Current State)

- Projected peak load per area for the years 5 and 10
- Stakeholders review peak demand from most recent powerflow model, as well as annual load and loss factors
- Peak load and energy identified for load serving entities within SPP RTO areas

Load Review (Future State)

- Stakeholders submit data to MDWG
- Staff would use a standard process for non-submitted data
- Data requested:
  - Peak Load
    - Option 1: Transmission and generation Forecast
    - Option 2: Gross Forecast
      - Passive and active demand response
      - Energy efficiency
      - Behind the meter generation
    - Backup: latest MDWG model series (calculated value)
  - Hourly Load Shape
    - Develop process for members to create hourly load shapes
    - Backup A: vendor data
    - Backup B: develop process to get data from operations

Load Review (Future State)

- Monthly Peak and Monthly Energy
  - Backup: calculate from hourly load shape data
- Annual Load Factor
  - Backup A: calculate from hourly load shape data
  - Backup B: previous study data
- Annual Loss Factor
  - Backup: previous study data
- Bus mapping
  - Individual bus mapping to PROMOD demand groups
  - Reference table demand group to MDWG owner identification
    - Backup: SPP Staff will determine the bus mapping

Generation Review (Current State)

- ESWG and MDWG review the data for all generators added to the model as part of the ITP10 Study (Conventional + Renewable)
- Proposed resources are included and designated to a utility if it meets the resource criteria approved by the ESWG
- Non-designated resources are included based on commercial operation statuses

Generation Review (Future State)

- Stakeholders submit data through MDWG model development process
- Staff would use an standard process for non-submitted data

Generation Review (Future State)

- Member data requested:
  - Commission and retirement dates
  - Seasonal maximum capacity by year
  - Powerflow bus mappings
  - Ownership by year
  - Fleet PPAs
  - DC Ties Profiles
  - Backup: previous study data
- Vendor data reviewed:
  - Generation category
  - Variable O&M
  - Fixed O&M
  - Heat rate
  - Heat rate profile
  - Annual maintenance hours
  - Forced outage rates
  - Must run status
  - Effluents
  - Effluents (% removed)
  - Fuel forecast
  - Hydro energy limits
  - Unit location (state)
  - Backup A: member data for new units
  - Backup B: use data from similar units

Renewable Policy Survey (Current State)

- Stakeholders provide feedback through a survey (conducted by the ESWG), on anticipated renewable mandates and goals based on current regulations
- Energy or capacity requirements for years 5 and 10
- The current process requires 50 hours of work (2.5 months)

Renewable Policy Survey (Future State)

- Stakeholders provide data through the MDWG model development process

Resource Plan Phase 1 (Current State)

- Additional renewables are included in the models, as needed, to meet the renewable Mandates and Goals projections, as supplied by the Renewable Policy Survey

Resource Plan Phase 1 (Future State)

- In the end of the Resource Plan phase 2 SPP Staff would check the renewables added to model, and compare it with Mandates and Goals projections, as supplied by the Renewable Policy Survey

Resource Plan Phase 2 (Current State)

- Each SPP RTO load serving member must meet the current reserve margin requirement outlined in SPP Criteria
- Capacity needs are identified for each Future for years 5 and 10
- The process requires SPP Staff to use a software to determine new resource additions
  - Wind and solar generation are added based on methodologies developed by the ESWG
- SPP Staff uses prototypes (Lazard data for the 2017 ITP10) approved by the ESWG for new generation

Resource Plan Phase 2 (Future State)

- Stakeholders to provide company IRPs to SPP Staff for years 5 and 10
- For non-submitted data, SPP Staff would develop a default plan to determine new generation using a ratio (CTs/CCs/Renewables) for each zone
  - Would be necessary to develop criteria to determine the need of peaking and base load generation for each zone

Siting Plan (Current State)

- Expected locations of future generation are considered in areas with appropriate potential
- Sites selected based on past ITP Studies, SPP Generation Interconnection queue, stakeholder feedback, engineering analysis, in addition to other analysis as appropriate for the Futures considered during the study

Siting Plan (Future State)

- Stakeholders would submit data to model generation planned through company IRP
- For non-submitted data SPP Staff would follow the current criteria approved the ESWG

Benchmarking (Current State)

- Compare 2017 ITP10 Future 3(BAU) model to historical data and 2015 ITP10 Future 1 (BAU)
- Specific benchmarks:
  - Capacity Factor by unit type
  - Generation by unit category
  - Maintenance Outages
  - Renewable generation profiles
  - Operating and spinning reserve levels
  - Coal transportation costs
  - Locational Marginal Prices (LMPs)
  - Flowgate loading
  - Production costs
  - Generation dispatch order
  - Zonal purchases and sales

Economic Model

- ABB Reference case is the base for generation parameters
- Renewables
  - Primarily wind and solar
- Fuel prices
  - Fuel prices for coal, oil and uranium, including transportation costs are forecasted based upon the latest NERC Nodal Reference Case
  - The ABB reference case is utilized for natural gas prices
- Emission prices
  - For SO2 and NOX prices the NERC Nodal Reference Case is utilized
- DC Ties
  - DC ties and lines connect SPP to the WECC, ERCOT and Eastern Interconnect
  - Hourly profiles are developed based on 3 year historical flows on the DC facilities
  - No curtailment price assumed for the long-term firm service profile

Economic Model

- Capacity accreditation/margin
  - 13.6% reserve margin for resource planning
  - Use actual calculated values for accreditation of wind resources with 3 years of historical data and follow SPP criteria for accreditation of future wind resources
  - Follow SPP criteria for accreditation of solar resources
- Wind Prices
  - $ 8/MWh VOM and curtailment prices
- Hurdle Rates
  - Zonal hurdle rates calculated by ABB, for the 2017 ITP10 area structure
- Must Run
  - Currently we remove PROMOD must run flag on all base load units except nuclear


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Working Group Involvement

ESWG

July 13th, 2016

ESWG

- Scope
- Load Forecast - Energy
- Generation Review
- Policy Survey
- Resource Plan
- Siting Plan
- Benchmarking
- Economic Model
- Policy Assessment
- Economic Assessment
- Transmission Plan Development
- Benefit Metrics
- Sensitivity Analysis
- Project Staging
- Report

TWG/MDWG

- Scope
- Load Forecast - Energy
- Generation Review
- Generator Outlet Facilities
- Powerflow Models
- Constraint Assessment
- Reliability Assessment
- Transmission Plan Development
- Benefit Metrics
- Report

MOPC

- Scope
- Futures
- Policy Driven Decisions
- Report

SPC

- Futures

SSC

- Seams Impacts

RSC

- Transmission Plan
- Cost and Benefit Allocation
- Report

BOD

- Transmission Plan
- Cost and Benefit Allocation
- Report