SOUTHWEST POWER POOL
ECONOMIC STUDIES WORKING GROUP MEETING

January 7, 2021
Net Conference

SUMMARY OF MOTIONS AND ACTION ITEMS

General:

- 2021 ESWG Meeting Schedule approved

2022 ITP:

- Approved changing the Hydro Annual Energy tab in the generation review to a yellow (editable) tab
- Approved changing the fuel forecast for Horseshoe Lake from ST7 to NG Oklahoma

SOUTHWEST POWER POOL
ECONOMIC STUDIES WORKING GROUP MEETING
January 7, 2021
Net Conference

MINUTES

AGENDA ITEM 1 – ADMINISTRATIVE ITEMS

Economic Studies Working Group (ESWG) Chair Alan Myers called the meeting to order at 8:00 a.m. The following members were in attendance or represented by proxy:

Al Tamimi, SUNC
Alan Myers, ITC
Anita Sharma, AEP
Bennie Weeks, Xcel
Calvin Daniels, WFEC
Derek Brown, Evergy
Gayle Nansel, WAPA
Jeremy Severson, BEPC
Jody Holland, SCMCN
Kurt Stradley, LES
Kyle McKinney, GSEC
Michael Watt, OMPA
Randy Collier, CUS
Steve Gaw, APA
Steve Hohman, OPPD
Tim Owens, NPPD
Zac Hager, OGE

Proxies:
Cliff Franklin for Al Tamimi

(Attachment 1 – Attendance) (Attachment 2 – Proxy Statements)

Joshua Norton (SPP) confirmed there was a quorum and provided the antitrust statement. Alan Myers reviewed the agenda for any changes. (Attachment 3 – Agenda)

> **Kurt Stradley made a motion, seconded by Calvin Daniels to approve the agenda. The motion was approved unanimously.**

AGENDA ITEM 2 – CONSENT AGENDA

The consent agenda included the following items:

Meeting Minutes – December 3-4, 2020 (Attachment 4 – ESWG Minutes 2020-12-03). Due to limited review time, these minutes will be approved at the February ESWG meeting.

AGENDA ITEM 3 – ESR TASK TEAM REPORTS

This item was removed from the agenda and will covered in a future meeting.

AGENDA ITEM 4 – REVIEW OF PAST ACTION ITEMS

Joshua Norton (SPP) reviewed the past action items list. The ESWG requested clarification on the goal and end result of Action Item 203. A proposal was made to include lessons learned as part of the ITP schedule as a way to conclude this action item. Staff will bring details on the implementation into the schedule. (Attachment 5 – Past Action Items)

AGENDA ITEM 5 – ITP QUARTERLY REPORT

Dara Solomon (SPP) presented the ITP Quarterly Report. The 2021 ITP is in red status and a proposed mitigation plan and recommendation will be brought back to the ESWG. Stakeholder feedback was given that delays to any ITP studies will result in a waterfall effect to other studies. Stakeholders questioned if the upcoming lessons learned will identify and address recurring issues in each ITP study or if a larger picture discussion is needed for ITP study overlaps and staff constraints. Staff clarified that both a specific study look at milestones, as well as a more holistic view to include other ongoing engineering planning efforts are being evaluated to look at both smaller and larger scale efforts. In addition, a concern was expressed on how the Section 10.3 items are reported and the perception with the 2021 ITP being in "red" status. Staff proposed to review the ITP Manual Sections 10.3 and 10.4 processes and bring back a proposal to ESWG for more effective communication and correlation to impact on schedule. (Attachment 6 – ITP Quarterly Report_Jan2021)

AGENDA ITEM 6A – 2021 ITP CURTAILMENT PRICING METHODOLOGY

Joshua Norton (SPP) reviewed the 2021 ITP market economic model wind curtailment price implementation for existing and projected internal and external wind resources. (Attachment 7 – 2021 ITP Curtailment Pricing Methodology)

AGENDA ITEM 7A – 2022 ITP LOAD & GENERATION REVIEW UPDATE

Brooke Keene (SPP) provided an update and presented two items for approval. She presented staff's recommendation to change the Hydro Annual Energy tab in the generation review to a yellow (editable) tab. (Attachment 8 – 2022 ITP Load & Generation Review Update)

> **Steve Gaw made the motion, seconded by Cliff Franklin, to approve changing the Hydro Annual Energy tab in the generation review to a yellow (editable) tab. The motion was approved unanimously.**

Brooke Keene detailed how Horseshoe Lake ST7 was originally mapped in ABBF19 to Waste Heat, but should have been mapped to NG Oklahoma.

> **Cliff Franklin made the motion, seconded by Jeremy Severson, to approve changing the fuel forecast for Horseshoe Lake from ST7 to NG Oklahoma. The motion was approved unanimously.**

AGENDA ITEM 8 – DPP FEE SCHEDULE

Kirk Hall (SPP) discussed the DPP fee schedule proposal. Some members expressed support of the proposal and there were some that thought a higher fee is warranted. Other efforts were discussed that could impact the DPP process. The draft revision request is in development, and endorsement will be requested at a future meeting to move forward with the RR process. (Attachment 9 – DPP Process Improvements)

AGENDA ITEM 9 – ACTION ITEM 201: INTERCHANGE METHODOLOGY

This item will be covered on a future agenda.

AGENDA ITEM 9A – FORMALIZATION OF 2020 ITP HURDLE RATE SENSITIVITY

Due to time constraints, this item was not covered and will be moved to a future agenda.

AGENDA ITEM 9B – REVIEW 2021 ITP MEM INTERCHANGE

Due to time constraints, this item was not covered and will be moved to a future agenda.

AGENDA ITEM 10 – 2020 ESWG ORGANIZATIONAL GROUP EFFECTIVENESS SURVEY RESULTS

Due to time constraints, this item was not covered and will be moved to a future agenda. (Attachment 10 – 2020 Organizational Group effectiveness Survey)

AGENDA ITEM 11 – 2021 MEETING SCHEDULE

Joshua Norton (SPP) reviewed the proposed 2021 ESWG meeting schedule and expressed that any changes to times and/or locations will be communicated as early as possible ahead of meetings. (Attachment 11 – 2021 ESWG Meeting Schedule Presentation) (Attachment 12 – 2021 ESWG Meeting Schedule)

> **Steve Gaw made the motion, seconded by Jeremy Severson, to approve SPP's recommendation on 2021 ESWG meeting dates. The motion was unanimously approved.**

AGENDA ITEM 12 – 2021 ESWG GOALS

Josh Norton (SPP) reviewed the current 2021 ESWG goals and initiatives and then opened up for ideas from the group. Steve Gaw mentioned Order 2222, West expansion, and Grainbelt as items to be on the radar. Anita Sharma expressed a need to review and improve the process to identify shortfalls in resource planning, especially for the carbon reduction future. . (Attachment 13 – 2021 ESWG Goals and Initiatives)

AGENDA ITEM 13 – 2020 ITP BUTLER-TIOGA

Kelsey Allen (SPP) discussed the progress of staff's review of the Butler-Tioga 138 kV project from the 2020 ITP. He reviewed the top project scope options, the main project drivers, and a path forward. Many of these items will come back to the ESWG for additional discussion. (Attachment 14 – 2020 ITP Butler-Tioga)

Southwest Power Pool

ECONOMIC STUDIES WORKING GROUP MINUTES

January 7, 2021

AGENDA ITEM 14 – CLOSING ITEMS

There were no action items taken.

Respectfully Submitted,

Joshua Norton

Secretary

Name	Company/Email	Attendance
aaron dingmann	aaron.p.dingmann@xcelenergy.com	Webex
Adam Bell	abell@spp.org	Webex
Ahmed Alazzawi	aalazzawi@spp.org	Webex
Alan Myers	amyers@itctransco.com	Webex
amber greb	agreb@spp.org	Webex
Andrew Berg	andrew.berg@mrenergy.com	Webex
Anita Sharma	asharma@aep.com	Webex
Ben Elsey (SPS)	ben.r.elsey@xcelenergy.com	Webex
Bennie Weeks (SPS)	bennie.weeks@xcelenergy.com	Webex
Brian Johnson	bajohnson1@aep.com	Webex
Brian Rounds	brian.rounds@aeslconsulting.com	Webex
Britt Runion	brunion@spp.org	Webex
Brooke Keene	bkeene@spp.org	Webex
Call In User	hummad.malhi@wfec.com	Webex
Calvin Daniels (WFEC)	calvin.daniels@wfec.com	Webex
Casey Cathey	ccathey@spp.org	Webex
Charlton Hill	chill@spp.org	Webex
Chris Colson (WAPA-UGPR)	colson@wapa.gov	Webex
Chris Cranford	ccranford@spp.org	Webex
Chris Jamieson	cjamieson@spp.org	Webex
Chris Matthes	camatthes@aep.com	Webex
Christopher Davis	cdavis@spp.org	Webex
Cindy Ireland	cindy.ireland@arkansas.gov	Webex
Clifford Franklin	clifford.franklin@sunflower.net	Webex
Conner Sweet	conner.sweet@cityutilities.net	Webex
Connor Massery	cmassery@spp.org	Webex
Dara Solomon	dsolomon@spp.org	Webex
David Busse	david.busse@libertyutilities.com	Webex
David Marshall	dcmarsha@southernco.com	Webex
Derek Brown	derek.brown@evergy.com	Webex
Derek Sunderman	dsunderman@savionenergy.com	Webex
Eddie Watson	ewatson@spp.org	Webex
Ellen Cook	ellenfbailey@gmail.com	Webex
Eric Rodriguez	eric.rodriguezreyes@nexteraenergy.com	Webex
Gayle Nansel	nansel@wapa.gov	Webex
Greg Lampley	glampley@spp.org	Webex
Hassan Hayat	hhayat@aep.com	Webex
J.P. Maddock_(BEPC)	jpmaddock@bepc.com	Webex
Jake Pannell	pannell.jacob@gmail.com	Webex
James Bailey	jbailey@spp.org	Webex

Jason Atwood (Hitachi ABB)	jason.atwood@hitachi-powergrids.com	Webex
Jason Mazigian	jmazigian@bepc.com	Webex
Jason Shook	jason.shook@gdsassociates.com	Webex
Jeremy Severson	jseverson@bepc.com	Webex
Jim Jacoby (AEP)	jwjacoby@aep.com	Webex
Jodi Woods	jwoods@spp.org	Webex
Jody Holland	jholland@gridliance.com	Webex
Joe Richardson	joseph.m.richardson@xcelenergy.com	Webex
John Olsen	john.olsen@livephase.net	Webex
John Tennyson	john.tennyson@cityutilities.net	Webex
Jonathan Surls	jonathan.surls@energyexemplar.com	Webex
Jordan Schmick	jordan.h.schmick@xcelenergy.com	Webex
Joshua Pilgrim	jpilgrim@spp.org	Webex
Josie Daggett	daggett@wapa.gov	Webex
Kelsey Allen	kallen@spp.org	Webex
Kirk Hall	khall@spp.org	Webex
Krishada Watson	kwatson@spp.org	Webex
Kurt Stradley	kstradley@les.com	Webex
Kyle McKinney	kmckinney@gsec.coop	Webex
Lane Sisung	lane@sisung.com	Webex
Laura Cummings	laura.cummings@energyexemplar.com	Webex
Liz Gephardt	lgephardt@spp.org	Webex
Loren Ditsch	ljditsch@oppd.com	Webex
MATT PAWLOWSKI	matt.pawlowski@nexteraenergy.com	Webex
Matthew Rudy	mrudy@itctransco.com	Webex
Maurisa Hughes	mghughes@spp.org	Webex
Michael Watt	mwatt@ompa.com	Webex
Michael Wegner (ITC)	mwegner@itctransco.com	Webex
MICHAEL WISE	mwise@gsec.coop	Webex
Mike Swan	mswan@oppd.com	Webex
Moses Rotich	moses.rotich@gridliance.com	Webex
Nathan Pearce	nathan.pearce@sunflower.net	Webex
Neeya Toleman	neeya.toleman@nexteraenergy.com	Webex
Nick Parker	nparker@spp.org	Webex
Pat Hayes	phayes@lspower.com	Webex
Paul Vovk	pvovk@oppd.com	Webex
Randy Collier	randy.collier@cityutilities.net	Webex
Raul Perez Guerrero	raul.perez@nexteraenergy.com	Webex
Ryan Baysinger	ryan.baysinger@evergy.com	Webex
Ryan Benton	rbenton@mwenergy.com	Webex
Ryan Yokley	ryokley@sunflower.net	Webex

Sean Rogers	sean.m.rogers@xcelenergy.com	Webex
Sherri Maxey	smaxey@spp.org	Webex
Steve Gaw	rsgaw1@gmail.com	Webex
Steve Hohman	shohman@oppd.com	Webex
Sunny Raheem	sraheem@spp.org	Webex
Tammy Bright	tammybright1@gmail.com	Webex
Tim Owens	tjowens@nppd.com	Webex
Toby Hu	thu@ameren.com	Webex
Tony Gott	tgott@kamopower.com	Webex
Travis Hancock	travis.hancock@sunflower.net	Webex
Tyler Baxter	tyler.baxter@cbpower.coop	Webex
Vince Vandaveer	vince.vandaveer@cityutilities.net	Webex
William Leung	bleung@bjleung.com	Webex
Zac Hager	hagerzc@oge.com	Webex

Proxy Statements

Member	Proxy	Note
Al Tamimi (Sunflower)	Cliff Franklin	8am-10am

From: Tamimi, Al <atamimi@sunflower.net>
Sent: Wednesday, January 6, 2021 11:00 PM
To: Myers, Alan K. <amyers@ltctransco.com>; Franklin, Cliff <cfranklin@sunflower.net>
Subject: [EXT] Proxy

Alan,

Cliff has my proxy from 8 am to about 10 am for the Thursday eswg meeting

Thanks
Al

Southwest Power Pool

SOUTHWEST POWER POOL, INC.
ECONOMIC STUDIES WORKING GROUP MEETING
January 7, 2021
Net Conference

AGENDA

Thursday, 8:00a.m – 12:00p.m.

1. Administrative Items..Alan Myers (15 min)
   - A. Call to Order, Introductions ....Alan Myers
   - B. Receipt of Proxies ....Joshua Norton
   - C. Review of Agenda[1] ....Alan Myers
   - D. Antitrust Reminder ....Joshua Norton
2. Consent Agenda[1]
   - A. December 3-4, 2020 minutes
3. ~~ESR Task Team Reports~~
   - ~~A. E1 Update[1]..Al Tamimi (20 min)~~
4. Review of Past Action Items[1]..Joshua Norton (10 min)
5. ITP Quarterly Report..Dara Solomon (15 min)
6. 2021 ITP
   - A. Curtailment Pricing Methodology[1]..Chris Jamieson (20 min)
7. 2022 ITP
   - A. Load & Generation Review Update (Approval)[1]..Brooke Keene (20 min)
8. DPP Fee Schedule[1] ....Kirk Hall (30 min)
9. Action Item 201: Interchange Methodology

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[1] Background Material Included

A. Formalization of 2020 ITP Hurdle Rate Sensitivity................................Chris Jamieson (20 min)

B. Review 2021 ITP MEM interchange (if available) ....Chris Jamieson (20 min)

10. 2020 ESWG Organizational Group Effectiveness Survey Results[1] ....Joshua Norton (20 min)

11. 2021 Meeting Schedule (Approval) [1] ....Joshua Norton (10 min)

12. 2021 ESWG Goals[1] ....Joshua Norton (20 min)

13. 2020 ITP Butler-Tioga...Kelsey Allen (30 min)

14. Closing Items... All (10 min)

A. Summary of Action Items

B. Upcoming Meeting Agenda Items

C. Future Meetings

i) February 3-4, 2021: Net Conference

ii) March 3-4, 2021: Net Conference

iii) March 31-April 1, 2021: Net Conference

SOUTHWEST POWER POOL

ECONOMIC STUDIES WORKING GROUP MEETING

December 3-4, 2020

Net Conference

SUMMARY OF MOTIONS AND ACTION ITEMS

General:

- Approved RR 417: Clarify no NTC issued from 20-year assessment
- Approved the TX1 white paper with TWG modifications

2021 ITP:

- Approved Bakken as a target area
- Approved SPS-New Mexico as a target area

2022 ITP:

- Approved the electric demand growth assumptions
- Approved not to accept the High Banks Wind resource addition request
- Approved to accept the Rockhaven Wind resource addition request
- Approved staff's recommendation for a waiver of the ITP manual for the 2022 ITP requiring the use of resource expansion software

20-Year Assessment:

- Approved to adopt 4th future based on SPP F3 with hurdle rate of 0 between MISO and SPP

Action Items:

- Added action item to review pulling the RPS table out of the ITP Manual

SOUTHWEST POWER POOL
ECONOMIC STUDIES WORKING GROUP MEETING
December 3-4, 2020
Net conference

MINUTES

AGENDA ITEM 1 – ADMINISTRATIVE ITEMS

Economic Studies Working Group (ESWG) Chair Alan Myers called the meeting to order at 8:00 a.m. The following members were in attendance or represented by proxy:

Al Tamimi, SUNC
Alan Myers, ITC
Anita Sharma, AEP
Bennie Weeks, SPS
Calvin Daniels, WFEC
Derek Brown, Evergy
Gayle Nansel, WAPA
Jeremy Severson, BEPC
Jody Holland, GridLiance
Kurt Stradley, LES
Kyle McKinney, GSEC
Michael Watt, OMPA
Randy Collier, CUS
Steve Gaw, APA
Steve Hohman, OPPD
Tim Owens, NPPD
Zac Hager, OGE

Proxies:
Joe Dan Wilson for Kyle McKinney on 12/4

(Attachment 1 – Attendance) (Attachment 2 – Proxy)

Joshua Norton confirmed there was a quorum and provided the antitrust statement. Alan Myers reviewed the agenda for any changes. (Attachment 3 – Agenda)

> **Tim Owens made a motion, seconded by Kurt Stradley to approve the agenda. The motion was approved unanimously.**

AGENDA ITEM 2 – CONSENT AGENDA

The consent agenda included the following items:

RR 417: Clarify no NTC issued from 20-year assessment (Attachment 4 – RR 417 Recommendation Report) (Attachment 5 – RR417 – 20 Year Assessment No NTC presentation)

The consent agenda was approved.

AGENDA ITEM 3A – ESR TASK TEAM REPORTS: TX1 WHITE PAPER

Scott Benson and Josh Pilgrim presented the TX1 white paper with TWG-requested revisions to include local TO load profile data. (Attachment 6 – TX1 White Paper Redline) (Attachment 7 – TX1 White Paper presentation)

Kurt Stradley made the motion, seconded by Zac Hager, to approve the TX1 white paper with TWG modifications. The motion was approved unanimously.

AGENDA ITEM 3B – ESR TASK TEAM REPORTS: E1 UPDATE

Al Tamimi gave an update for the E1 task team. (Attachment 8 – E1 White Paper Summary)

AGENDA ITEM 4A – 2021 ITP SCHEDULE UPDATE

Dara Solomon reviewed the 2021 ITP schedule. (Attachment 9 – 2021 ITP Schedule)

AGENDA ITEM 4B – 2021 ITP TARGET AREA DISCUSSION

Josh Pilgrim and Liz Gephardt presented target areas for the 2021 ITP assessment. They reviewed the Bakken and SPS-New Mexico as recommendations for target areas. There was discussion about the two additional SVCs required in models. (Attachment 10 – 2021 Target Area)

Jeremy Severson made the motion, seconded by Gayle Nansel, to approve Bakken as a target area in the 2021 ITP assessment. The motion was approved unanimously.

Jeremy Severson made the motion, seconded by Bennie Weeks, to approve SPS-New Mexico as a target area in the 2021 ITP assessment. The motion was approved with one vote against (Jody Holland) and three abstentions: Zac Hager, Al Tamimi, and Kyle McKinney.

AGENDA ITEM 5A – 2022 ITP SCHEDULE UPDATE

Dara Solomon reviewed the 2022 ITP schedule. (Attachment 11 – 2022 ITP Schedule)

AGENDA ITEM 5B – 2022 ITP ELECTRIC VEHICLE DEMAND GROWTH

Jake Pannell reviewed the electric vehicle energy demand growth calculation process. (Attachment 12 – 2022 ITP EV Demand Growth)

> **Zac Hager made the motion, seconded by Jeremy Severson, to approve the electric demand growth assumptions for use in the 2022 ITP assessment. The motion was approved unanimously.**

AGENDA ITEM 5C – 2022 ITP DRAFT SCOPE REVIEW

Adam Bell reviewed the draft scope. (Attachment 13 – Draft Scope)

AGENDA ITEM 5D – 2022 ITP RENEWABLE POLICY REVIEW/RESOURCE PLAN – PHASE 1

Krishada Watson gave an overview of the Renewable Policy Review and Resource Plan Phase 1 milestones. (Attachment 14 – Renewable Policy Review) (Attachment 15 – Resource Plan Phase 1)

> **Tim Owens made the motion, seconded by Kurt Stradley, to add an action item to review pulling the RPS table out of the ITP Manual. The motion was approved unanimously.**
>
> **Action Item: Review pulling the RPS table out of the ITP Manual**

AGENDA ITEM 5E – 2022 ITP LOAD & GENERATION REVIEW

Brooke Keene gave an update on the Load and Generation Review. (Attachment 16 – Load & Generation Review)

AGENDA ITEM 5F – 2022 ITP RESOURCE ADDITION REQUESTS

Derek Johnson presented a resource addition request for High Banks Wind. (Attachment 17 – High Banks RAR)

> **Jeremy Severson made the motion, seconded by Tim Owens, not to accept the High Banks Wind resource addition request. The motion was approved with one abstention: Jody Holland.**

The Lonesome Creek resource addition request did not need to be covered because it was approved as a waiver at the December TWG meeting. (Attachment 18 – Lonesome Creek RAR)

Aaron Vander Vorst presented a resource addition request for Rockhaven Wind. (Attachment 19 – Rockhaven RAR)

> **Zac Hager made the motion, seconded by Calvin Daniels, to accept the Rockhaven Wind resource addition request. The motion was approved with four abstention: Jody Holland, Anita Sharma, Jeremy Severson, and Tim Owens.**

During discussions it was voiced that the sooner in-service date was a factor in approving the Rockhaven RAR and not the High Banks Wind RAR. It was decided to revisit the discussion of the RAR process after the other agenda items. Once revisited it was decided to have an education session on RARs and siting exception decision making.

AGENDA ITEM 6A – 20-YEAR ASSESSMENT FUTURES DEVELOPMENT

Adam Bell gave a recap of recent activity in regards to the 20-year assessment scope development and presented options to finalize the futures. (Attachment 20 – 20YA Futures Development)

> **Steve Gaw made the motion, seconded by Anita Sharma, to adopt 4th future based on MISO MTEP F3 with hurdle rate of 0 between MISO and SPP.**
>
> **Calvin Daniels proposed a friendly amendment to adopt 4th future based on SPP F3 with hurdle rate of 0 between MISO and SPP. The amendment was accepted and the motion was approved unanimously.**

AGENDA ITEM 7 – RESOURCE PLANNING SOFTWARE

Antonio Barber (Attachment 21 – Resource Planning Software)

> **Kurt Stradley made the motion, seconded by Tim Owens, to approve SPP staff's recommendation for a waiver of the ITP manual for the 2022 ITP requiring the use of resource expansion software. The motion was approved unanimously.**

AGENDA ITEM 8 – BUTLER-TIOGA PROJECT DISCUSSION

Kelsey Allen presented history of the Butler-Tioga project in the 2019 and 2020 ITP assessments. He discussed ongoing work for refining the project after the Board of Directors deferred action and covered information on different routes for the project. (Attachment 22 – Butler-Tioga 138kV)

AGENDA ITEM 9 – RR 431: LOCAL PLANNING CRITERIA IN THE ITP

This item was struck from the agenda

AGENDA ITEM 10 – PLANNING ROADMAP

Erin Cathey presented an overview of the strategic roadmap development process including a background and breakdown of the phases of the process. (Attachment 23 – Strategic Roadmap Development Process)

AGENDA ITEM 11 – CLOSING ITEMS

An action item was taken to review pulling the RPS table out of the ITP Manual.

Respectfully Submitted,

Joshua Norton

Secretary

Southwest Power Pool, Inc.

ECONOMIC STUDIES WORKING GROUP

Pending Action Items Status Report

January 7, 2021

#	Action Item	Date Originated	Status	Comments
190	Utilize the results from RCAR III to determine the ratio of APC benefit to Transmission Outages benefit to be applied in the ITP assessments.	October 12th, 2017	In Progress	Working with SPP operations on additional APC benefit with outages included.
199	How we inform our Siting Plan: Research the appropriateness of relying on the GI Queue for Siting of renewables and Battery Storage and looking into other available information	April 2019	In Progress	Goal: to complete and implement for the 2021 ITP Assessment Continue discussing the battery storage piece
201	Review the interchange methodology	July 2019	In Progress	Goal: To complete for the 2021 ITP Assessment
203	Conduct a Lessons Learned Session with the ESWG on the 2019 ITP Assessment	August 2019	In Progress	Presented in June 2020; more to cover soon in addition to 2020 ITP
209	Create Revision Request to remove RPS table from the ITP Manual	December 2020	In Progress	Bringing RR in upcoming meeting
210	Create list of 20YA items to review	January 2021	In Progress	

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ITP QUARTERLY REPORT

DARA SOLOMON

JANUARY 2021

STATUS LEGEND

Status Indicator	Status	Milestone Tasks Are…
	Complete	Completed on-time or per rebaseline
	On Track	In progress and on schedule
	Monitor/At Risk	Being monitored for potential schedule/ study impact(s)
	In Mitigation	Following mitigation process
	Late/Delayed	Late/behind schedule

Late/Delayed

2021 ITP

Late/Delayed

COMPLETED MILESTONES

Milestone	Status	*Previous Start Date*	*Previous End Date*	Actual Start Date	Actual End Date
Schedule was re-baselined due to 2020 ITP mitigation efforts					
Siting Plan & Generator Outlet Facilities (GOFs)	★	*3/15/2020*	*8/04/2020*	**4/20/2020**	**11/02/2020**
Market Economic Model Benchmarking	★	*4/01/2020*	*8/01/2020*	**9/14/2020**	**12/3/2020**

Late/Delayed

CURRENT AND UPCOMING MILESTONES

Milestone	Status	*Previous Start Date*	*Previous End Date*	Current Start Date	Current End Date
Schedule is being re-evaluated as part of mitigation efforts					
Market Economic Model (MEM) Build		*12/01/2019*	*12/18/2020*	**12/01/2019**	**3/22/2021**
Constraint Assessment		*9/21/2020*	*12/18/2020*	**1/11/2021**	**3/22/2021**
Market Powerflow Model (MPM) Build		*10/18/2020*	*1/14/2021*	**12/3/2020**	**4/1/2021**
Needs Assessment (All)		*11/16/2020*	*3/18/2021*	**12/3/2020**	**5/5/2021**

Late/Delayed

MITIGATION PLAN IN DEVELOPMENT

Mitigation options under consideration to maintain decision quality

- Reprioritization of resources
- Reprioritization of other work
- Reduction of ITP scope
- Extension of timeline

➢ **Project end date currently considered high risk**

Late/Delayed

DEPENDENCIES

- Present staff's mitigation recommendation to ESWG and TWG, and obtain approval
  - Request ad hoc MOPC/Board of directors meeting for any extension, if needed
- Complete schedule rebaseline based on mitigation decision and communicate to stakeholders
- Follow rebaselined schedule and meet needs assessment posting to open Detailed Project Proposal (DPP) window
- Timely stakeholder review and feedback

RISKS

- Staff availability due to overlapping studies and initiatives
- Unplanned data issues that may lead to rework on milestones
- Several coordination and network issues associated with staff working remotely

2021 ITP BASE RELIABILITY MODEL – ENTITY ENGAGEMENT

Late/Delayed

- All data submitters that participated in the model build submitted data by the scheduled deadline; however, additional corrections were submitted after the deadline by the following entities

Applicable Entities		
Evergy	NPPD	SPP
OPPD	WAPA	BEPC
ENEL		

- Note: SPP performed evaluations of all late requests/changes per Section 10.3 of the SPP ITP Manual

On Track

2022 ITP

On Track

CURRENT AND UPCOMING MILESTONES

Milestone	Status	Start Date	End Date
Scope Development		7/06/2020	1/13/2021
Powerflow Model Development		7/06/2020	3/12/2021
Load and Generation Review		7/06/2020	3/22/2021
Short-Circuit Model Development		7/06/2020	3/19/2021
Renewable Policy Review		2/01/2021	3/12/2021
Resource Plan - Phase 1		2/08/2021	3/26/2021
Resource Plan – Phase 2		2/15/2021	5/28/2021
Siting Plan & Generator Outlet Facilities (GOFs)		3/01/2021	7/08/2021

2021 ITP RENEWABLE PRICING

ESWG

JANUARY 7TH, 2021

OBJECTIVE

- Review 2021 ITP Market Economic Model Wind Curtailment Price Implementation for Existing and Projected Internal and External Wind Resources

HIGH LEVEL IMPLEMENTATION OF NON-STANDARDIZED ITEMS

- Wind Curtailment Price Process
  - Review Applicable PTC Laws and Regulations at commencement of study
  - Determine Federal Corporate Tax Rate
  - Determine Negative Curtailment Price
  - Determine Projected Wind Assumed Construction and In-Service Dates to reflect PTC "phase out"
    - Approximate per-year wind additions between existing wind and Year 5 additions
    - Assume per-year wind additions have an in-service date in prior year with a 4-year construction lead time
    - Apply assumed in-service and construction start dates to projected wind sites by rank
- Distributed Solar Curtailment Process
  - Generally, default to SPP MMU negative $500/MWh to avoid curtailments unless study scope requires otherwise

WIND CURTAILMENT PRICE PROCESS

- IRS published PTC value and “phase out” in 2019 at commencement of study
  - PTC value = $25/MWh (2019$)
  - No changes to PTC “phase out” that occurred after commencement of study
- Federal corporate tax rate
  - 21%
- Negative Curtailment Price
  - “grossed-up” PTC value = PTC/(1-tax rate)
  - Curtailment price = -(“grossed-up” PTC value)
  - $31.65/MWh (2019$)

2021 ITP NEGATIVE CURTAILMENT PRICE FOR WIND (100% PTC)

					Study Year 2			Study Year 5					Study Year 10
Year	2019$	2020$	2021$	2022$	2023$	2024$	2025$	2026$	2027$	2028$	2029$	2030$	2031$
Curtailment Price	-31.65	-32.28	-32.92	-33.58	-34.25	-34.94	-35.64	-36.35	-37.08	-37.82	-38.58	-39.35	-40.13

- Curtailment price for wind adjusted for inflation using 2.0% annual inflation rate
- Existing Wind Resources and Resource Addition Requests (RAR) will have a curtailment price based on 100% PTC value for at least 10 years with respect to commission dates prior to 12/31/2020
- Existing Wind Resources and Resource Addition Requests (RAR) will have a $0 curtailment price by Study Year 10

DETERMINE PROJECTED WIND ASSUMED CONSTRUCTION AND IN-SERVICE DATES

- Considerations for determining approximate per year additions
  - Impact of PTC Phase Out (e.g. Declining Growth Rate)
  - Site Rank, Endorsement, and Exceptions
  - Maintain Nameplate Capacity of Ranked Site Per Year

2021 **ITP**

SPP PROJECTED RESOURCE CURTAILMENT PRICE IMPLEMENTATION

APPROXIMATE PER YEAR ADDITIONS AND PTC %

		Year-1	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Future 1	Wind Total Per Year (GW)	22.2	26.8	28.7	28.7	28.7	29	29	29.6	30.2	30.8	31.4	32
	RAR Additions Per Year (GW)		3.1	0	0	0	0	0	0	0	0	0	0
	Per Year Additions (GW)		1.6	1.9	0	0	0.3	0	0.6	0.6	0.6	0.6	0.6
Future 2	Wind Total Per Year (GW)	22.2	27.5	29.6	30.5	31.3	32.2	33	33.8	34.6	35.4	36.2	37
	RAR Additions Per Year (GW)		3.1	0	0	0	0	0	0	0	0	0	0
	Per Year Additions (GW)		2.3	2.1	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8
	PTC % for 10 years	100	100	80	60	40	0	0	0	0	0	0	0

- Declining growth rate based on PTC Phase out using PTC% as weighting factor without introducing 0 GW per year additions unless site ranking, endorsements, and exceptions dictate otherwise
- Maintain Nameplate Capacity of Ranked Site Per Year

2021 **ITP**

AECI PROJECTED WIND RESOURCE CURTAILMENT PRICE IMPLEMENTATION

APPROXIMATE PER YEAR ADDITIONS AND PTC %

		Year-1	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Future 1	Incremental Wind Total Per Year (GW)	0	0	0	0	0	0	0	0	0	0	0	0
	Per Year Additions (GW)		0	0	0	0	0	0	0	0	0	0	0
Future 2	Incremental Wind Total Per Year (GW)	0	0.2	0.4	0.6	0.8	0.9	1.1	1.3	1.5	1.8	2	2.2
	Per Year Additions (GW)		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	PTC % for 10 years	100	100	80	60	40	0	0	0	0	0	0	0

- Declining growth rate based on PTC Phase out using PTC% as weighting factor without introducing 0 GW per year additions
- Maintain Nameplate Capacity of Ranked Site Per Year

2021 **ITP**

MISO, SASK, TVA PROJECTED WIND RESOURCE CURTAILMENT PRICE IMPLEMENTATION

MISO, SASK, TVA APPROXIMATE PER YEAR ADDITIONS

- MISO and TVA follows similar approach to SPP
  - Declining growth rate based on PTC Phase out using PTC% as weighting factor without introducing 0 GW per year additions
  - Maintain Nameplate Capacity of Ranked Site Per Year
  - Not provided due to confidentiality issues
- SASKPower
  - Production Tax Credit not applicable to Canadian Utility

NEXT STEPS

NEXT STEPS

- 2021 ITP Market Economic Model QA and approval that will capture renewable pricing implementation as presented

APPENDIX

ITP MANUAL

2.2.1.10 Renewable Pricing[18]

The economic modeling of wind and solar resources include two primary parameters that impact pricing: curtailment price and VOM.

Wind and solar resources include an hourly profile. The curtailment price for wind and solar is the price at which the resource will curtail. If the LMP at the generation bus is greater than or equal to the curtailment price, the unit will generate energy in accordance with the hourly profile. If the locational marginal price (LMP) at the generation bus is less than the curtailment price, the unit generation will be curtailed. As a result, the curtailment prices impact the dispatch of wind and solar units in the economic models but do not impact the operating cost of the units.

To model a curtailment price for wind units that will reflect market operation, including projected production tax credit (PTC) impacts, the following criteria will be used for wind curtailment price modeling:

- Both existing and projected wind units will have $0/MWh curtailment price if any of the following are true[19]:
    - The unit is placed or assumed to be placed in service at least 10 years prior to the study year[20].
    - Construction on the unit has not or is assumed to not have started prior to January 1, 2020.
    - An entity associated with the unit has provided feedback that the investment tax credit (ITC), rather than PTC, is applicable.
- Otherwise, both existing and projected wind units will have a negative curtailment price[21] that reflects the "grossed-up" value of a PTC[22] and accounts for the PTC "phase out" in accordance with applicable laws and regulations.

For the purposes of applying the above wind curtailment price modeling criteria to additional wind amounts determined by the Renewable Resource Expansion Plan, SPP and the ESWG will estimate the additional wind amounts per year and use information from the Resource Siting Plan to determine the assumed construction and in service dates for additional wind units[23].

If any significant changes to the PTC rules occur during an ITP assessment, SPP staff or stakeholders can bring information to the ESWG for review and potential approval for use in the ITP assessment. Any resulting deviations from this standard curtailment pricing will be noted in the study report.

To model a curtailment price for utility-scale solar units that will reflect market operation, the curtailment price will be set at $0/MWh[24].

The VOM for wind and solar resources defines the unit operating cost per MWh of energy generated. This operating cost is included in production cost calculations. The VOM parameter does not impact dispatch, curtailment, or LMPs in the economic model simulations.

For all wind and solar units, the VOM shall be $0/MWh to reflect the low operating cost of renewable resources.

ITP MANUAL

[18] The renewable pricing for each of the modeled regions external to SPP will closely resemble the same logic.
[19] Reflecting that the PTC is not a factor in its operation
[20] For purposes of this provision, a unit that has been qualified for the PTC as a repowered unit shall be deemed placed in service at the time it is in service after repowering.
[21] The negative curtailment price will be adjusted for inflation to the study year using a typically assumed inflation rate for the study.
[22] Reflecting a IRS published PTC value and federal corporate income tax rate at the commencement of the study where the "grossed-up" PTC value = PTC/(1-corporate tax rate)
[23] For example, approximate projected wind amounts per year can be determined from existing wind amounts and projected wind amounts by linear interpolation or other means and wind site rankings from the Resource Siting Plan can be used by assuming highest rank sites receive earlier in-service dates.
[24] Distributed Solar will have an appropriate negative curtailment price to limit distributed solar curtailments.

2021 **ITP**

SPP PROJECTED RESOURCE CURTAILMENT PRICE IMPLEMENTATION

ALTERNATIVE OPTIONS

APPROXIMATE PER YEAR ADDITIONS AND PTC % (ALTERNATIVE OPTION)

		Year-1	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Future 1	Wind Total Per Year (GW)	22.2	26.6	27.7	28.5	29	29	29	29.6	30.2	30.8	31.4	32
	RAR Additions Per Year (GW)		3.1	0	0	0	0	0	0	0	0	0	0
	Per Year Additions (GW)		1.3	1.1	0.8	0.5	0	0	0.6	0.6	0.6	0.6	0.6
Future 2	Wind Total Per Year (GW)	22.2	28	30.2	31.9	33	33	33	33.8	34.6	35.4	36.2	37
	RAR Additions Per Year (GW)		3.1	0	0	0	0	0	0	0	0	0	0
	Per Year Additions (GW)		2.8	2.2	1.7	1.1	0	0	0.8	0.8	0.8	0.8	0.8
	PTC % for 10 years	100	100	80	60	40	0	0	0	0	0	0	0

- Declining growth rate based on PTC Phase out using PTC% as weighting factor
- Introduces 0 GW per year additions

APPROXIMATE PER YEAR ADDITIONS AND PTC % (ALTERNATIVE OPTION)

		Year-1	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Future 1	Wind Total Per Year (GW)	22.2	26	26.6	27.2	27.8	28.4	29	29.6	30.2	30.8	31.4	32
	RAR Additions Per Year (GW)		3.1	0	0	0	0	0	0	0	0	0	0
	Per Year Additions (GW)		0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Future 2	Wind Total Per Year (GW)	22.2	27.4	29.2	30.5	31.4	32.2	33	33.8	34.6	35.4	36.2	37
	RAR Additions Per Year (GW)		3.1	0	0	0	0	0	0	0	0	0	0
	Per Year Additions (GW)		2.2	1.8	1.3	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	PTC % for 10 years	100	100	80	60	40	0	0	0	0	0	0	0

- Declining growth rate based on PTC Phase out using PTC% as weighting factor without introducing 0 GW per year additions

2022 ITP AND 20-YEAR ASSESSMENT LOAD AND GENERATION REVIEW UPDATE

BROOKE KEENE

1/7/2021

OBJECTIVE

- Milestone Updates
- Schedule Review

CURTAILMENT PRICE UPDATE

- Changing wind and solar curtailment price after PTCs expire to -0.01$/MW (versus 0.10$/MW)
  - Reason for change: still effectively 0, but gives an appropriate edge to wind and solar over zero-cost non-transactions such as batteries and hydro

EFFLUENT DEFINITION UPDATE

- Populating the Effluent Definition tab for year of study, versus a select month for each year within the study horizon
  - Previously posted January Cost ($/ton) for all 20 years
  - Cost varies by month, reference data potentially misleading
  - To calculate cost for another study year, escalate by 2% (SPP's inflation rate)

HYDRO ANNUAL ENERGY TAB

- Hydro generation does not follow an associated hourly profile
- ABB data shows discrepancy with actual historical data

- Recommendation: SPP staff recommends changing the *Hydro Annual Energy* tab to a yellow (editable) tab

FUEL CHANGE

- Horseshoe Lake: ST7 was originally mapped in ABBF19 to Waste Heat, but should have been mapped to NG Oklahoma
  - Now a stand alone unit and fuel should be changed for accuracy

- Recommendation: SPP staff recommends we change the Fuel Forecast of Horseshoe Lake: ST7 to NG Oklahoma

SCHEDULE

- Generation Pass 1 – Trial 1
  - Posting 10/02/2020
  - Review 10/05/2020 – **10/16/2020**
- Waiver Requests & RAR
  - Posting 10/02/2020
  - Applications Due via RMS **11/20/2020**
- Generation Pass 1 – Trial 2
  - Posting 11/20/2020
  - Review 11/23/2020 – **12/11/2020**
- Generation Pass 2
  - Posting 1/22/2021
  - Review 1/25/2021 – **2/5/2021**
- Final Pass
  - Posting for Approval 3/12/2021
  - Review 3/15/2021 – **3/19/2021**
  - Final ESWG Approval: 3/22/2021

DPP PROCESS IMPROVEMENTS

KIRK HALL

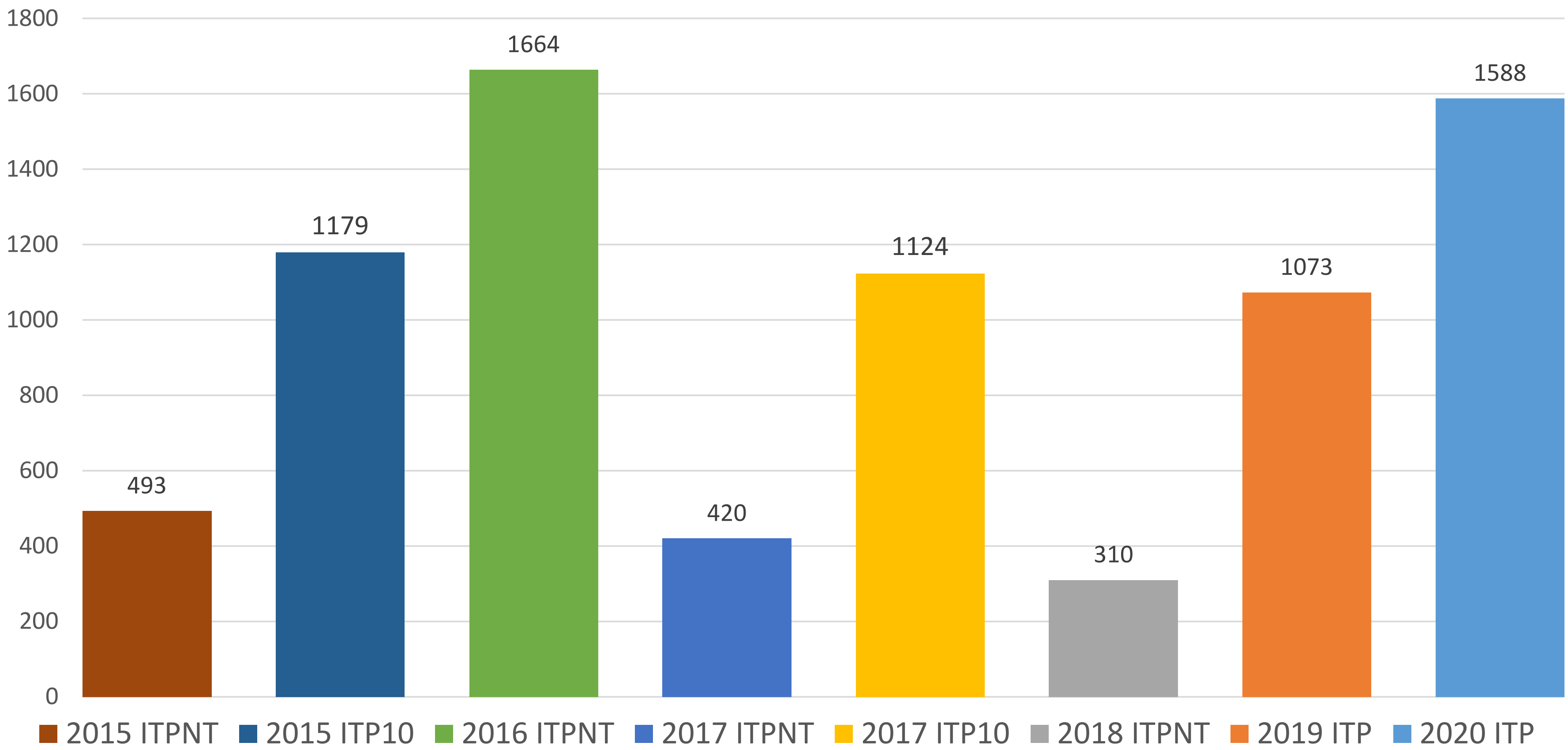
JANUARY 2021 TWG/ESWG

OVERVIEW

- Discuss and receive feedback on staff's DPP Submission Fee proposal

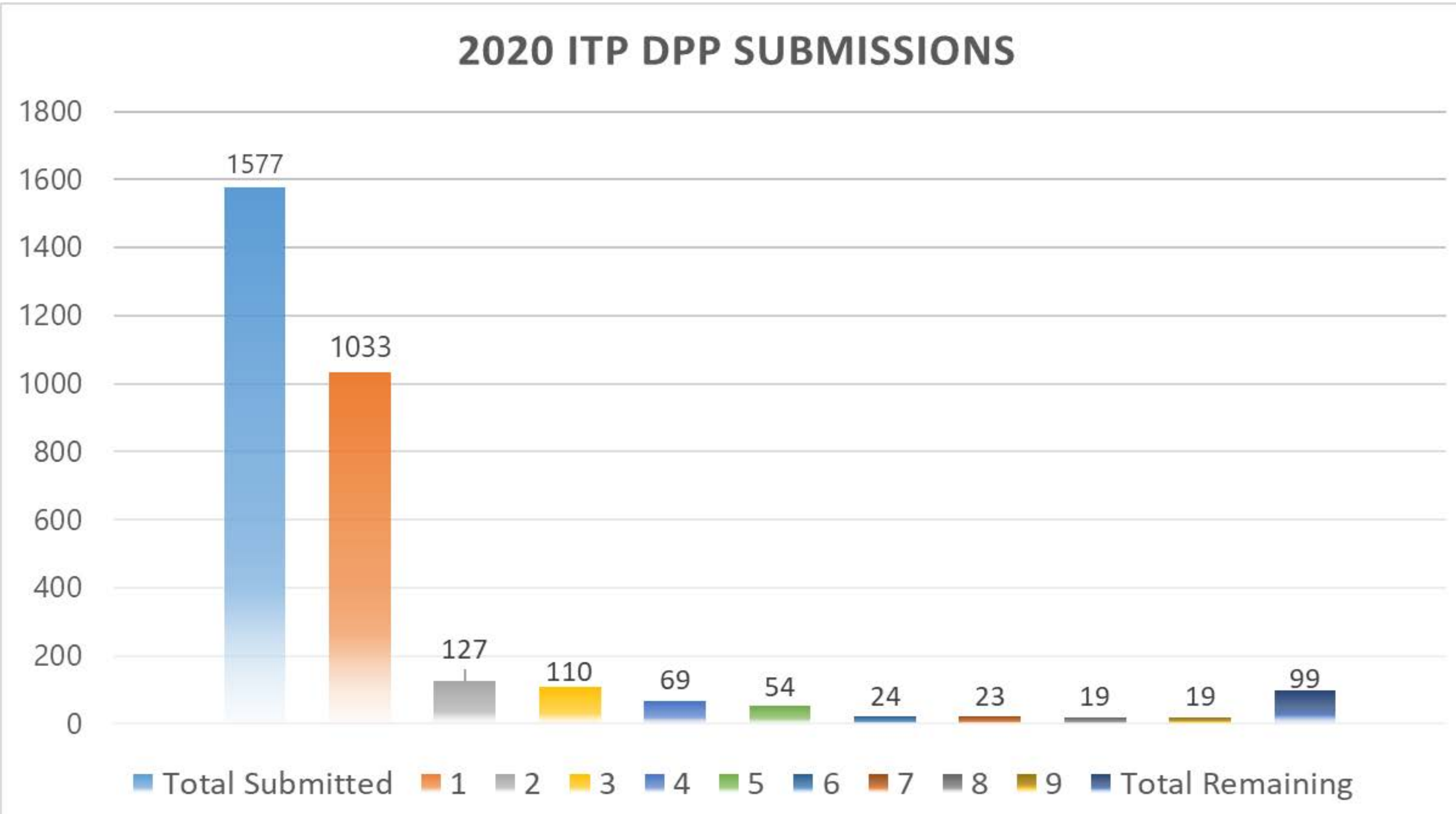
BACKGROUND

DPP SUBMISSIONS PER STUDY

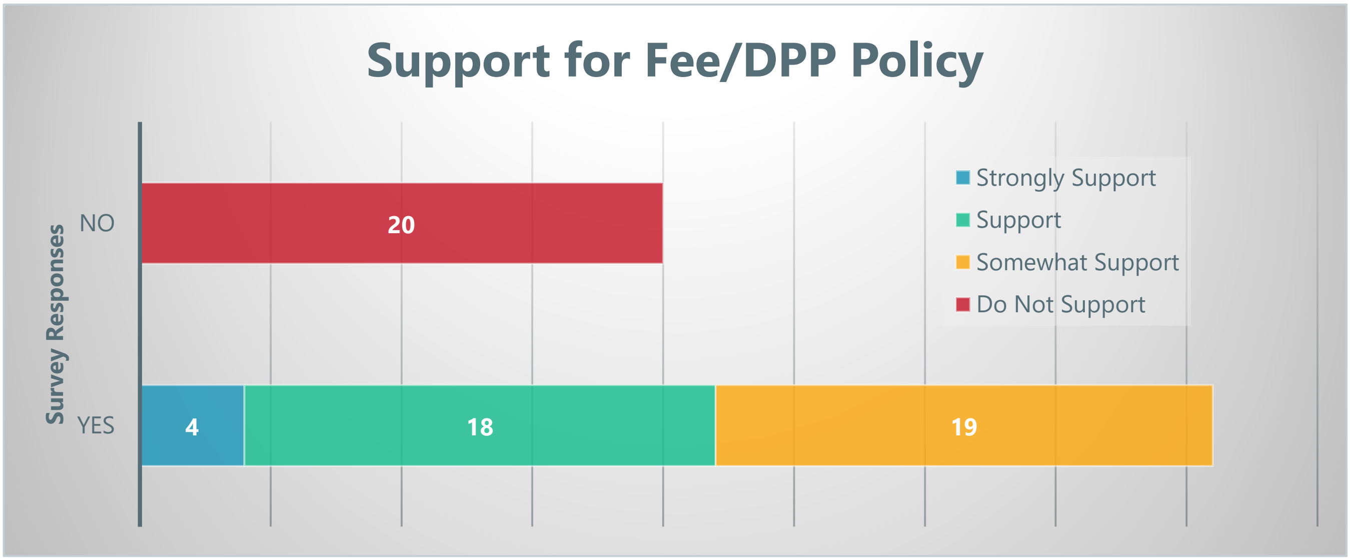


KEY METRICS – DPPS (2020 ITP)

- Staff received 1577 submissions from 23 submitters utilizing the DPP form



SURVEY RESULTS



- Submissions free to some number (i.e. 50), fee structure for additional submittals
- 67% of respondents either supported or somewhat supported the idea

DPP FEE SCHEDULE PROPOSAL

DPP FEE SCHEDULE PROPOSAL

- Based on support from the DPP Survey, staff believes a DPP submission fee schedule is an appropriate solution to:
  - Incentivizing quality DPP submissions
  - Decreasing time spent by staff curing/validating DPPs
  - Increasing time spent by staff evaluating solutions and reviewing project results

FEE SCHEDULE OVERVIEW

- Stakeholders are able to submit up to 50 (*suggested value*) solutions during the 30 day transmission planning response window
- Each submittal after the initial 50 are subject to a progressive administrative fee for curing/validation and project review
- Revision Request would be necessary to modify:
  - Attachment O: Identify there is a fee schedule and the maximum amount of free submissions
  - Business Practices: Identify the fee schedule

BENEFITS OF A PROGRESSIVE FEE SCHEDULE

- Some number (50 suggested) free submittals to allow all stakeholders to participate in the process
- Encourages higher volume submitters to provide their top-rated solutions first
  - Staff gets these earliest, evaluation can start immediately
- Encourages higher volume submitters to provide only solutions that they feel are valuable (after initial 50)
- Concept is simple to implement and keep track of

OTHER DETAILS

- Stakeholders would still use the DPP Submission Form for submittals
- The submittal fee will not be subject to solutions containing only
  - Model corrections/adjustments
  - Non-transmission solutions such as reactive setting adjustments or operating guides
  - Submissions intending to invalidate a need

DRAFT FEE SCHEDULE

- First 50 DPPs: $0/DPP
- DPPs 51-100: $100/DPP
- DPPs 101-500: $125/DPP
- Fee increases $50/DPP, after every 500 submittals

DPPs (Low Range)	DPPs (High Range)	Cost/ DPP	Min Cost	Max Cost
0	50	$0	$ -	$ -
51	100	$100	$100	$5,000
101	500	$125	$5,125	$55,000
501	1000	$175	$55,175	$142,500
1001	1500	$225	$142,725	$165,000

SPP

OTHER IDEAS?

- Only economic/policy solutions charged a fee
  - No fee for reliability solutions
- Flat/Progressive fee for all submissions

FEEDBACK AND NEXT STEPS

- Questions/Feedback
  - Policy Proposal
  - Draft Fee Schedule
- Draft RR already in development
  - Tariff (Att. O) and BPs
- Request endorsement from TWG/ESWG in February or March to move forward with RR process

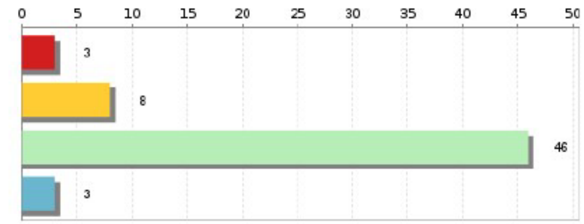
APPENDIX

SURVEY RESULTS

- Highlight DPP Improvements survey results and responses
  - Survey response results
  - Recurring comments/concepts from open-ended questions

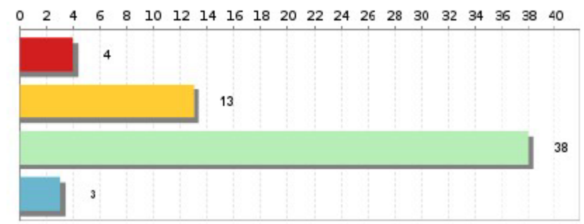
How satisfied are you with the DPP submittal process?

	Extremely unsatisfied	Somewhat unsatisfied	Somewhat Satisfied	Extremely Satisfied	Response total
	5% (3)	13.33% (8)	76.67% (46)	5% (3)	60



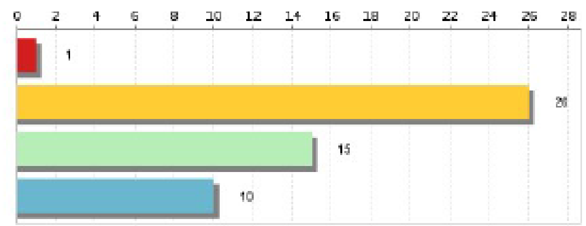
- Form: Cumbersome, too detailed, too many tabs, suggest web submission tool
- Needs info: too many needs, group facilities together
- Process abuse: overwhelms staff with low-quality submissions, undeveloped project ideas
- Incentive Points: How are they awarded?

How satisfied are you with the incentive point process?

	Extremely unsatisfied	Somewhat unsatisfied	Somewhat Satisfied	Extremely Satisfied		Response total
	6.9% (4)	22.41% (13)	65.52% (38)	5.17% (3)		58

- Incentivizes high volume submittals
- Submission limits may be necessary
- Allows for most creative solutions
- More rigorous review of same/similar projects

Do you support modifying the incentive point structure process to be participation-based? (Points are based on participation in the ITP process versus submittal of projects.)

	Strongly support	Do not support	Somewhat support	Support		Response total
	1.92% (1)	50% (26)	28.85% (15)	19.23% (10)		52

- 50/50 split on support of a move to participation based process
- Participation model may result in less DPPs submitted
- Current sponsorship model leads to the best ideas to be submitted

CONT'D

- Limit on DPPs submitted per Need
- Cap or Cost may limit good projects
- Fee/DPP may not be enough of an incentive to limit submissions
- Find the sweet spot!

CURING/VALIDATION

- High-quality review of data ensures we are evaluating high-quality projects for best portfolio
- Staff (12) spent 1150 hours curing/validating DPPs
  - Over 40 days to finalize curing/validation process
  - Equivalent to $200k in consultants

CURING/VALIDATION, CONTINUED

- If SPP determines DPP is incomplete, stakeholders can cure deficiency by the end of DPP window or 10 days after notice is provided
- 2019 ITP DPP return rate: ~60%
  - Over 600 DPPs returned at least once
  - Cure Period Issues: ~40%
  - Data Validation Issues: ~20%
  - 161 DPPs resubmitted more than 1 time

KEY METRICS - CURING AND VALIDATION (2020 ITP)

- Staff spent ~1250 hours curing and validating the DPP submittals
- 168 DPPs were returned (10.6% return rate)
  - 2019 ITP return rate ~60%
  - Self-Validating Workbook
  - Most errors corrected by staff with no return to submitter
  - 11 DPPs sent back multiple times

NEXT STEPS

- SPP Board comments
- Legal/Regulatory Feedback
- Discuss setup for a call with FERC staff to discuss any ideas that would not be considered

2020 ORGANIZATIONAL GROUP EFFECTIVENESS SURVEY

JANUARY 7, 2020

OVERALL WORKING GROUPS RESULTS

- General observations
  - Group effectiveness trending up
  - Survey response rate trending down

	2020	2019	2018	2017	2016
Overall effectiveness	4.4	4.3	4.3	4.2	4.2
Response rate	59%	63%	69%	74%	71%

ESWG RESULTS

- Response Rate and overall effectiveness score went down

	2020	2019	2018	2017	2016	2015	2014	2013	2012
Number of members	19	19	19	19	19	15	16	16	16
Number of responses	10	13	11	12	16	11	9	10	13
Response rate	53%	68%	56%	63%	84%	73%	56%	63%	81%
Overall effectiveness score	4.4	4.5	4.5	4.4	4.3	3.8	4.4	4.1	4.2

ESWG RESULTS

- Highest scores

The chair seeks input, and organizational group members are able to influence key decisions and plans.	4.9
The chair is supportive and respectful of the individual needs and differences of group members.	4.9
The information provided prior to the meeting is utilized during the meeting.	4.8
Dissenting voices are heard.	4.8
The chair keeps the group on task to achieve appropriate outcomes.	4.8
The chair ensures follow-through on questions and commitments.	4.8
Facilitation is sufficient to guide discussion.	4.7
Members are supportive and respectful of the individual needs and differences of group members.	4.7

ESWG RESULTS

- Lowest scores

The information presented in meetings is clear.	4.2
Membership represents the diversity of the SPP organization.	4.2
Membership has the necessary expertise and/or skills to accomplish its goals.	4.2
Members are engaged during the meeting.	4.1
Members come prepared to meetings.	3.9
Meeting minutes are an accurate reflection of the meeting.	3.7

SUMMARY OF COMMENTS

- Agenda/Materials:
  - Agenda items up for approval lately have not been noted on the agenda to allow for internal discussion prior to the meeting
  - Information presented in the meetings is not always clear but further SPP explanation usually clears it up
  - More presentations are being revised after they were posted and in some cases being revised on the day of the meeting, which doesn't always allow for adequate review
  - Meeting minutes are not being posted in a timely manner after the meeting

SUMMARY OF COMMENTS

- Group:
  - Larger entities usually have more staff that they can assign to follow the ESWG and review information and materials while smaller companies are juggling other company business and priorities so it is hard at times to keep everything straight

SUMMARY OF COMMENTS

- Virtual environment:
  - Meeting only via WebEx has made facilitation of meetings and member engagement more challenging. Still, staff and our chairperson continue to do a good job in encouraging discussion and ensuring that everyone has an opportunity to share their perspective/position

SUMMARY OF COMMENTS

- ITP
  - The overall structure has drifted toward endorsing that the process was followed which has led to an apathetic feel for whether the process is working correctly or if the results are the right results. Results are meant to be challenged in order to have the best product, which may be happening at the SPP level but it does not feel like enough happens at the member level. Also, the schedule is so crazy and tight that any hang up or delay compresses the rest of the analysis which can call into question the thoroughness of the result.

RECOMMENDATIONS FOR IMPROVEMENT

- Provide meeting materials and minutes in timely manner
- Provide more detail on the nature of the agenda
- Coordinate all project schedules (ITP, RCAR, RRs, HITT, SCRIPT) to account for necessary meeting approvals and alignment of those meetings
- Seek clear direction from MOPC regarding the relative priority of the tasks, emergent and on-going, assigned to the ESWG. At present, the ESWG and associated SPP staff have more work activities (e.g., ITP, 20-yr assessment, ESR issues, etc.) than can be realistically achieved within the specified timeframes. (I suspect this is true of other working groups & task forces.)
- Standardize more assumptions in the ITP manual vs. addressing them annually during development of each study scope.
- Take a further look at method for portfolio consolidation including a method to consolidate more than two futures in the ITP studies on the occasion the ESWG recommends more than 2 futures.
- Provide more data in the grouping phases
- Provide the details of the APC calculations on GlobalScape
- Bring in more input and accuracy for ITP future development and modeling processes including fuel forecasts and advancing Promod features

APPENDIX

COMMENTS

- Agenda items up for approval lately have not been noted on the agenda to allow for internal discussion prior to the meeting.
- Meeting materials are not always available in a timely manner prior to the meeting. Some are updated late and some items have no materials provided when they are expected.
- Information presented in the meetings is not always clear but further SPP explanation usually clears it up.
- It has been many months since meeting minutes have been brought to the group. Meeting minutes are an important record of what happens in a meeting and should be available at the next meeting for review.
- It seems we have taken a step back recently in regards to meeting preparation. This includes issues such as: (a) Approval items not being clearly marked as such on the agenda; (b) More presentations being revised after they were posted and in some cases being revised on the day of the meeting, which doesn't always allow for adequate review; (c) Meeting minutes not being posted in a timely manner after the meeting.
- The only problem is that sometimes the material gets discussed over several meetings we have to re-hash some things to get going again or we (members) forget what parts we have already discussed or where we made decisions.

COMMENTS

- Larger entities usually have more staff that they can assign to follow the ESWG and review information and materials while smaller companies are juggling other company business and priorities. With at times 3 ITP studies going on at the same time, it is hard at times to keep everything straight in your mind and to understand everything as thoroughly as you should.
- Again, it seems we may have taken a step back recently in these areas. Member preparation may be related to the meeting preparation items listed earlier. Likewise, the need to utilize only net meetings, because of the pandemic, does make participation and robust discussion more difficult to achieve. Still members are committed to accomplish the group's goals and remain supportive and respectful.
- Diversity is good for discussion but is not always good for the "voting membership" when only one type of member is bearing the cost of the projects.

COMMENTS

- As mentioned before, the necessity of meeting only via WebEx has made facilitation of meetings and member engagement more challenging. Still, staff and our chairperson continue to do a good job in encouraging discussion and ensuring that everyone has an opportunity to share their perspective/position.
- The virtual meetings work well when everyone is connected like we have been since March. We don't use some of the features very well (like chat or hand raising) because the discussions go well. If we find that we are talking over each other more then we will have to leverage more of the virtual functions to help facilitate the meeting.

COMMENTS

- The ESWG chair in my mind is as good as you can get, very professional and very effective.
- Alan continues to do an excellent job as the ESWG chairperson. We are fortunate to have him.
- Alan does a phenomenal job and running these meetings.
- There is no one that can compare to Alan!!!

COMMENTS

- I appreciate the effort of staff to bring educational sessions to the ESWG especially on derivation of APC for pricing zones. Appreciate the ESWG being informed on progress of the coordinated system planning studies. Will the ESWG have a guidance role in the work of SCRIPT?
- The overall structure has drifted toward endorsing that the process was followed which has led to an apathetic feel for whether the process is working correctly or if the results are the right results. Results are meant to be challenged in order to have the best product, which may be happening at the SPP level but it does not feel like enough happens at the member level. Also, the schedule is so crazy and tight that any hang up or delay compresses the rest of the analysis which can call into question the thoroughness of the result.

SPP Southwest Power Pool

2021 MEETING SCHEDULE

JANUARY 7, 2021

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2021 MEETING SCHEDULE

MONTH	DATE	Day 1 Time (CT)	Day 2 Time (CT)	LOCATION
JANUARY	4; 7	1-3	8-12	Net Conference Only
FEBRUARY	3-4	8-12	8-12	Net Conference Only
MARCH	3-4	8-12	8-12	Net Conference Only
APRIL	MAR 31- APR 1	8-12	8-12	Net Conference Only
MAY	5-6	1-5	8-12	TBD
JUNE	2-3	1-5	8-12	TBD
JULY	JUN 30-JUL 1	1-5	8-12	TBD
AUGUST	4-5	8-12	8-12	Net Conference Only
SEPTEMBER	1-2	1-5	8-12	TBD
OCTOBER	SEP 29-30	1-5	8-12	TBD
NOVEMBER	3-4	1-5	8-12	TBD
DECEMBER	8-9	8-12	8-12	Net Conference Only

CONTINGENCIES

- Travel policy
  - Locations (net conference vs in-person)
  - Meeting time
- Joint meetings prior to MOPC
  - Meeting time and/or date

RECOMMENDATION

- Recommendation to approve 2021 ESWG meeting dates

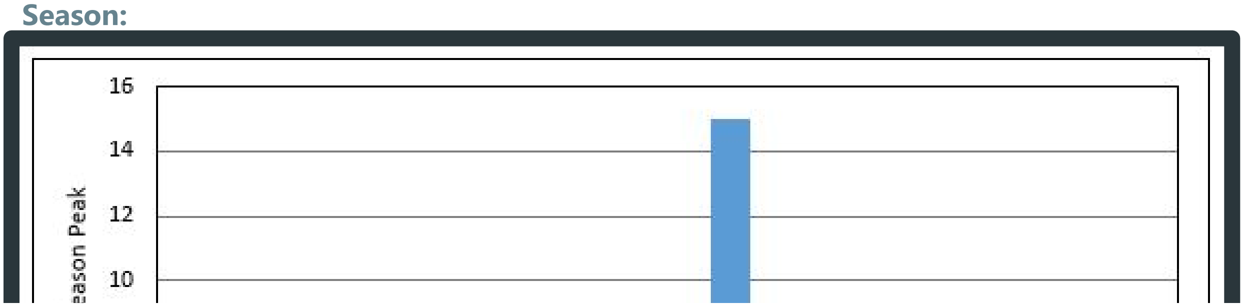
2021 ESWG SCHEDULE

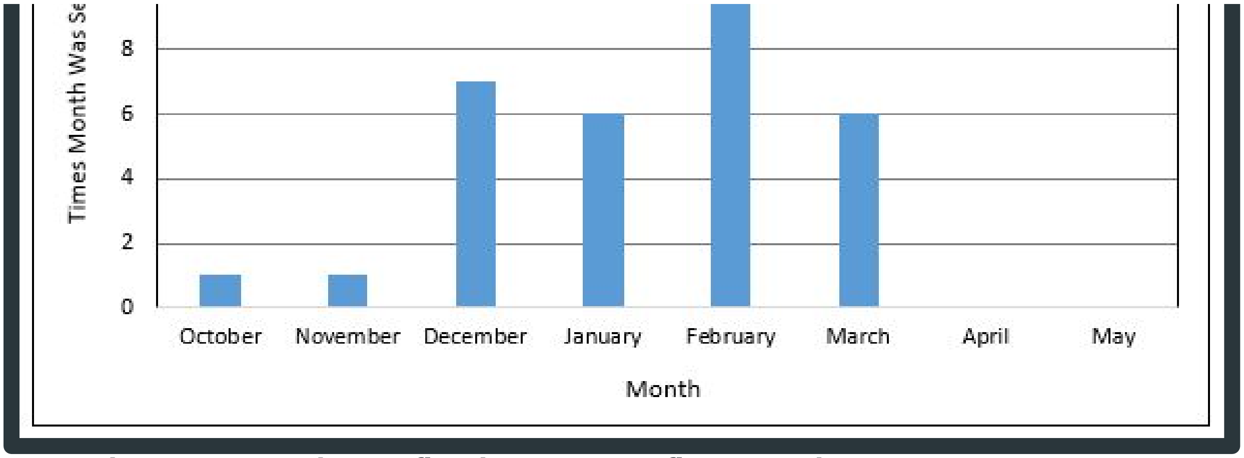
MONTH	DATE	Day 1 Time (CT)	Day 2 Time (CT)	LOCATION	Alt. Location
JANUARY	4; 7	1-3	8-12	Net Conference	
FEBRUARY	3-4	8-12	8-12	Net Conference	
MARCH	3-4	8-12	8-12	Net Conference	
APRIL	MAR 31-APR 1	8-12	8-12	Net Conference Only	
MAY	5-6	1-5	8-12	TBD	
JUNE	2-3	1-5	8-12	TBD	
JULY	JUN 30-JUL 1	1-5	8-12	TBD	
AUGUST	4-5	8-12	8-12	Net Conference	
SEPTEMBER	1-2	1-5	8-12	TBD	
OCTOBER	SEP 29-30	1-5	8-12	TBD	
NOVEMBER	3-4	1-5	8-12	TBD	
DECEMBER	8-9	8-12	8-12	Net Conference	

Roadmap Education Session Schedule

MONTH	DATE	Day 1 Time (CT)	Day 2 Time (CT)	LOCATION	Alt. Location
FEBRUARY	23	TBD	N/A	Net Conference	
MAY	17	TBD	N/A	Net Conference	

Influenza Season:





Source: https://www.cdc.gov/flu/about/season/flu-season.htm

Notes

Pre-MOPC

Pre-MOPC

Pre-MOPC

Pre-MOPC; Potential joint with TWG on Day 1

Notes

JANUARY

Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	31	1 NEW YEAR'S DAY	2
3	4 ESWG/TWG 1-3	5 CAWG	6 TWG	7 ESWG 8-12	8	9
10	11 MOPC	12 MOPC	13	14	15	16
17	18 MLK JR. DAY	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3 ESWG	4 ESWG	5	6

2021

<- SUMMARY   <- JANUARY   MARCH ->

FEBRUARY

Su	Mo	Tu	We	Th	Fr	Sa
31	1	2 TWG	3 ESWG	4 ESWG	5	6
7	8	9	10	11 CAWG	12	13
14	15 PRESIDENT'S DAY	16	17	18	19	20
21	22	23 Roadmap Education Session - ESWG, TWG, MDAG	24	25	26	27
28	1	2	3 ESWG	4 ESWG	5	6
7	8	9	10	11	12	13

MARCH

Su	Mo	Tu	We	Th	Fr	Sa
28	1	2 TWG CAWG	3 ESWG	4 ESWG	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 ESWG	1 ESWG	2	3
4	5	6	7	8	9	10

2021 [<- SUMMARY] [<- MARCH] [MAY ->]

APRIL

Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	31 ESWG	1 ESWG	2	3
4	5	6 TWG	7	8 CAWG	9	10
11	12 MOPC - Little Rock, AR	13 MOPC - Little Rock, AR	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1
2	3	4	5 ESWG	6 ESWG	7	8

2021 [<- SUMMARY] [<- APRIL] [JUNE ->]

MAY

Su	Mo	Tu	We	Th	Fr	Sa
25	26	27	28	29	30	1
2	3	4 TWG	5 ESWG - TBD	6 ESWG - TBD	7	8
9	10	11 CAWG	12	13	14	15
16	17 Roadmap Education Session - ESWG, TWG, MDAG	18	19	20	21	22
23	24	25	26	27	28	29
30	31 MEMORIAL DAY	1	2 ESWG - TBD	3 ESWG - TBD	4	5

2021

<- SUMMARY <- MAY JULY ->

JUNE

Su	Mo	Tu	We	Th	Fr	Sa
30	31	1 TWG	2 ESWG - TBD	3 ESWG - TBD	4	5
6	7	8 CAWG	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30 ESWG - TBD	1 ESWG - TBD	2	3
4	5	6	7	8	9	10

2021 <- SUMMARY <-JUNE AUGUST ->

JULY

Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30 ESWG - TBD	1 ESWG - TBD	2	3
4	5 INDEPENDENCE DAY	6 TWG	7	8 CAWG	9	10
11	12 MOPC - Oklahoma City, OK	13 MOPC - Oklahoma City, OK	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4 ESWG	5 ESWG	6	7

2021

AUGUST

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3 TWG	4 ESWG	5 ESWG	6	7
8	9	10 CAWG	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1 ESWG - TBD	2 ESWG - TBD	3	4
5	6	7	8	9	10	11

SEPTEMBER

Su	Mo	Tu	We	Th	Fr	Sa
29	30	31	1 ESWG - TBD	2 ESWG - TBD	3	4
5	6 LABOR DAY	7 TWG	8	9 CAWG	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29 ESWG - TBD	30 ESWG - TBD	1	2
3	4	5	6	7	8	9

2021 <- SUMMARY <- SEPTEMBER NOVEMBER ->

OCTOBER

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29 ESWG - TBD	30 ESWG - TBD	1	2
3	4	5 TWG CAWG	6	7	8	9
10	11 MOPC	12 MOPC	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3 ESWG - TBD	4 ESWG - TBD	5	6

NOVEMBER

Su	Mo	Tu	We	Th	Fr	Sa
31	1	2 TWG	3 ESWG - TBD	4 ESWG - TBD	5	6
7	8	9	10	11 CAWG	12	13
14	15	16	17	18	19	20
21	22	23	24	25 THANKSGIVING	26 DAY AFTER THANKSGIVING	27
28	29	30	1	2	3	4
5	6	7	8 ESWG	9 ESWG	10	11

2021 [<- SUMMARY] [<- NOVEMBER] [JANUARY ->]

DECEMBER

Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	1	2	3	4
5	6	7 TWG	8 ESWG	9 ESWG CAWG	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24 CHRISTMAS EVE	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

SPP Southwest Power Pool

2021 ESWG GOALS AND INITIATIVES

JANUARY 7, 2021

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TRANSMISSION PLANNING INITIATIVES

- PROMOD replacement
- RCAR III
- Energy Storage in Planning
- Conceptual Cost Estimate Improvements
- Roadmap process
- Others?

SOME SUGGESTED GOALS

- Complete 2021 ITP
- Engage in roadmap process
- Prioritize and complete ESWG action items
- Make further improvements to ITP processes
- Improve organizational effectiveness score
- Others?

SPP Southwest Power Pool

2020 **ITP**

BUTLER – TIOGA 138 KV

2020 ITP

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2020 **ITP**

BUTLER – TIOGA 138 KV

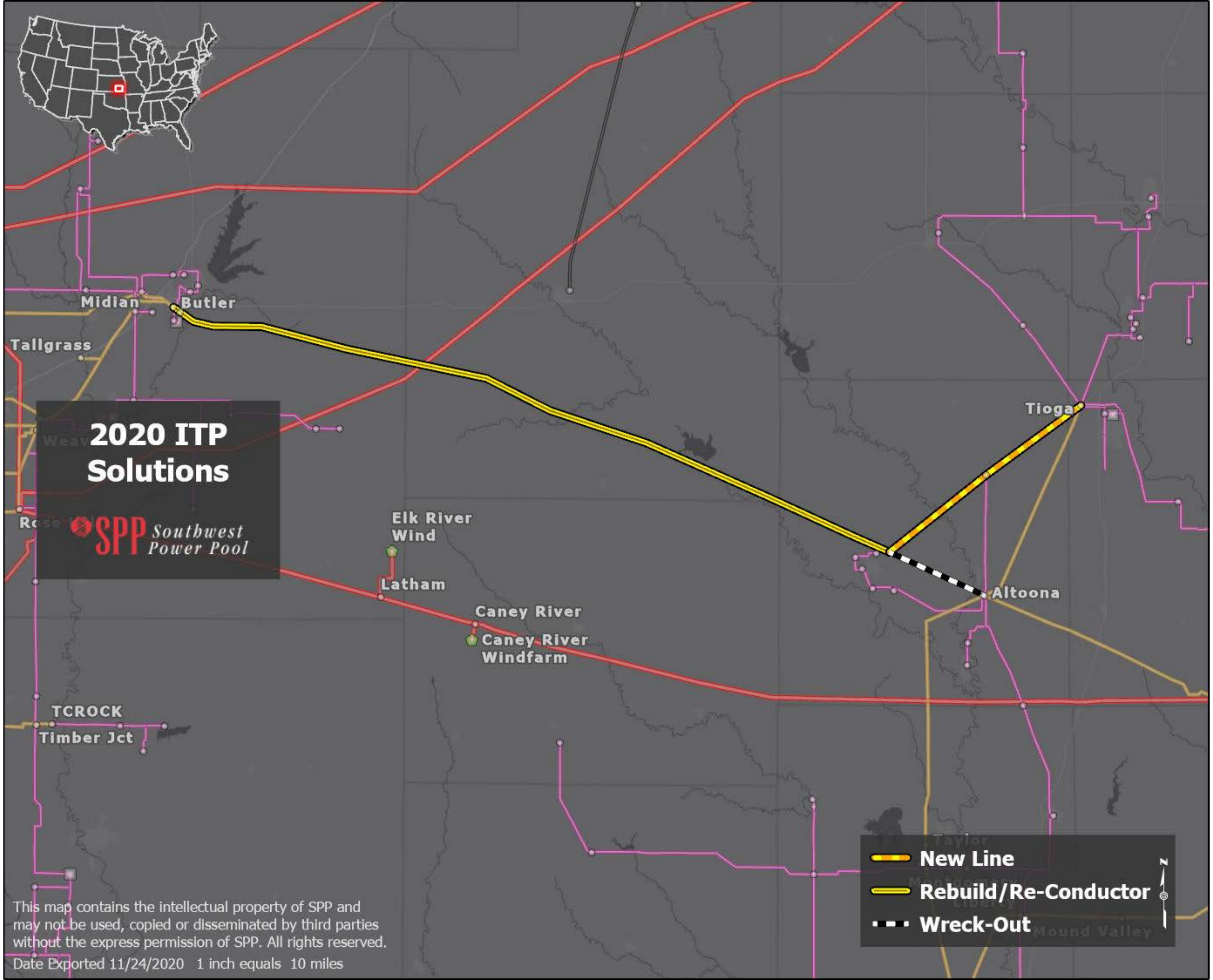
OVERVIEW

- October Board direction
- Recap top project scope options
- Review main technical drivers discussed by staff
- Discuss path forward
- Review items for future discussion – "Lessons learned"

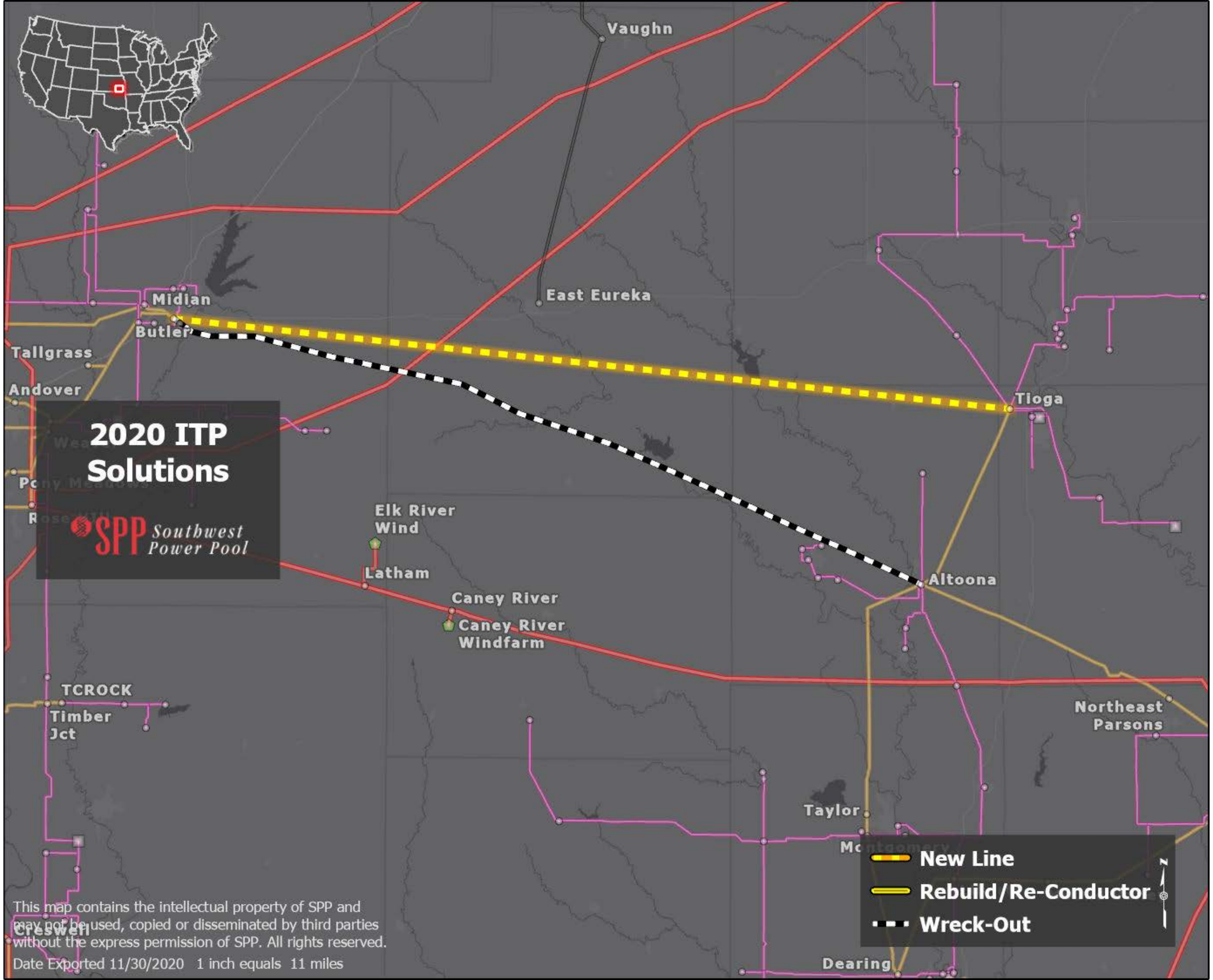
OCTOBER BOARD DIRECTION

- SPP Board of Directors deferred action on the Butler-Tioga 138 kV project due to the need for further refinement
  - A 138 kV line from Butler to Tioga was approved
  - More time is needed to finalize the scope and study estimates for the purposes of:
    - Upgrade determination in accordance with Attachment Y
    - Appropriate and sufficient language and data to be included in an NTC/RFP

OPTION 1: YELLOW JACKET



OPTION 2: BUTLER-TIOGA



PROJECT TECHNICAL DISCUSSION

- Option 1 (Butler – Altoona partial rebuild with re-termination to Tioga)
  - Main Driver: "Leveraging existing infrastructure" as defined in the ITP manual
    - Directly address age and condition of existing facility
  - More opportunity to improve local reliability for municipals along existing line route
  - ~~Cost: $142.9M highway/byway cost~~
- Option 2 (Butler – Tioga with normally open operation of Butler - Altoona)
  - Main driver: remain generally indifferent to line routing
    - SPP staff avoid detailed routing considerations due to lack of expertise
  - Allow for more potential cost reduction opportunity through RFP process
  - Potentially consider qualitative considerations through the RFP process*
  - ~~Cost: $127.3M highway/byway cost~~

*TBD – via RFP or IEP. Goal of ensuring all relevant information is available for all stakeholders.

PROJECT PATH FORWARD

- Key considerations
  - SPP *does* have the authority to direct operation of the transmission system
  - SPP *does not* have the authority to direct retirement of an existing transmission asset without a replacement in kind
- Option 2: SPP direct construction of facility from Butler – Tioga (and normally open operation of Butler – Altoona)
  - Allow routing considerations to take place during the RFP process
  - Let the RFP process determine the best version of the approved solution for the region
    - Consider qualitative recommendations through the RFP process

FUTURE DISCUSSION

- Better consideration of aging infrastructure in development of plans and project recommendations
- Better coordination with local TO plans in the transmission planning (specifically ITP) process
  - Currently TO LPC/LPP notifications via RMS
- More well defined consideration of qualitative benefits of projects in the ITP process
- Asset retirement

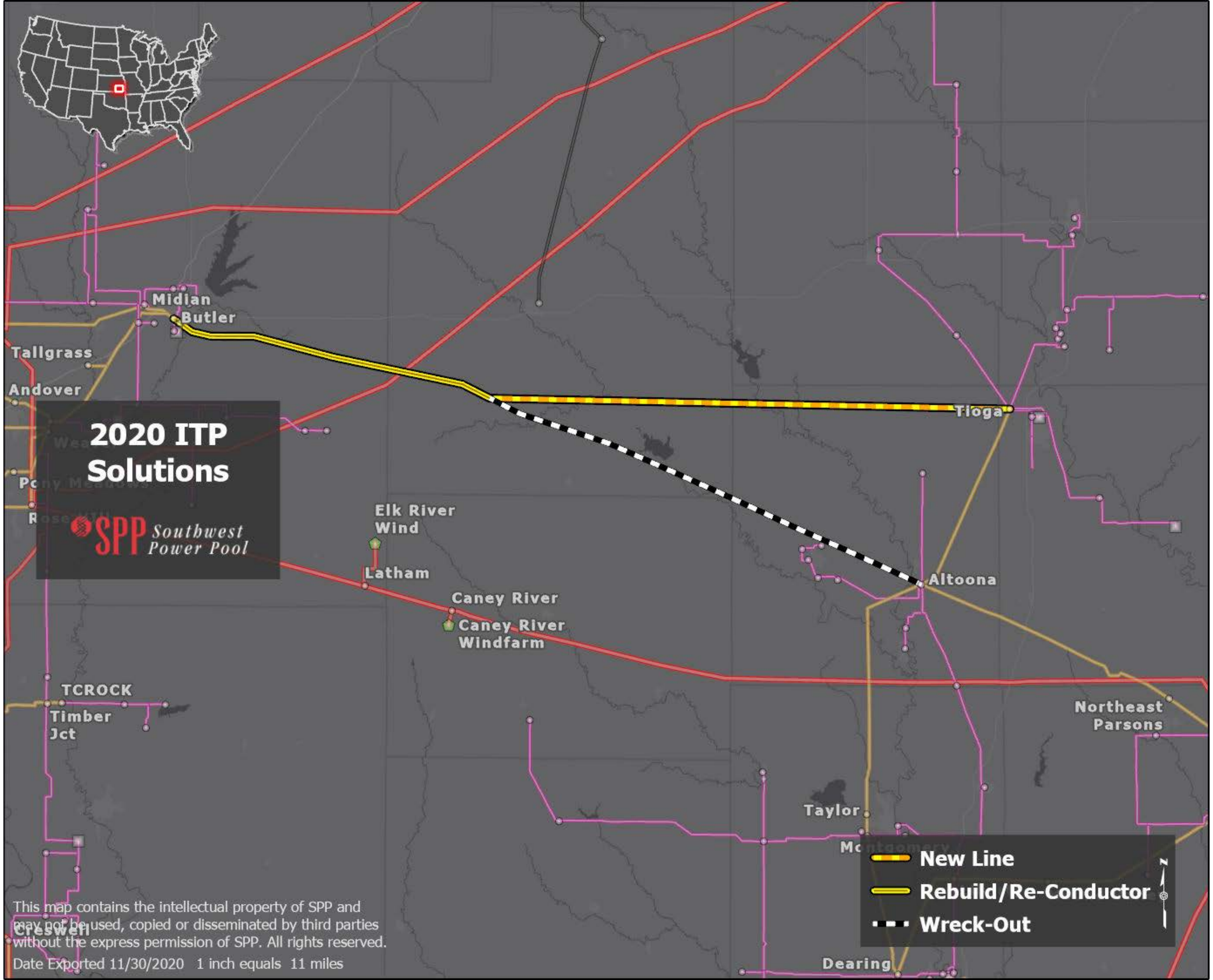
APPENDIX

PROJECT HISTORY – 2019 ITP

- SPP analyzed multiple options to address Butler – Altoona constraint
  - Wreck-out/rebuild of Butler – Altoona
  - Wreck-out/rebuild of Butler – Altoona with re-termination to Tioga
  - Butler – Altoona "out-of-service"
- SPP discusses scope of projects, including re-termination "break-away" point near East Eureka
- Capital construction projects above did not meet B/C criteria
  - PST at Butler on the Butler-Altoona line selected for 2019 ITP portfolio
    - Not approved for construction due to concerns about investment that does not address age and condition of the facility driving the need

EAST EUREKA

- Original scope of project from 2019 ITP
- Used for 2020 ITP modeling
- Used for 2020 ITP conceptual costs

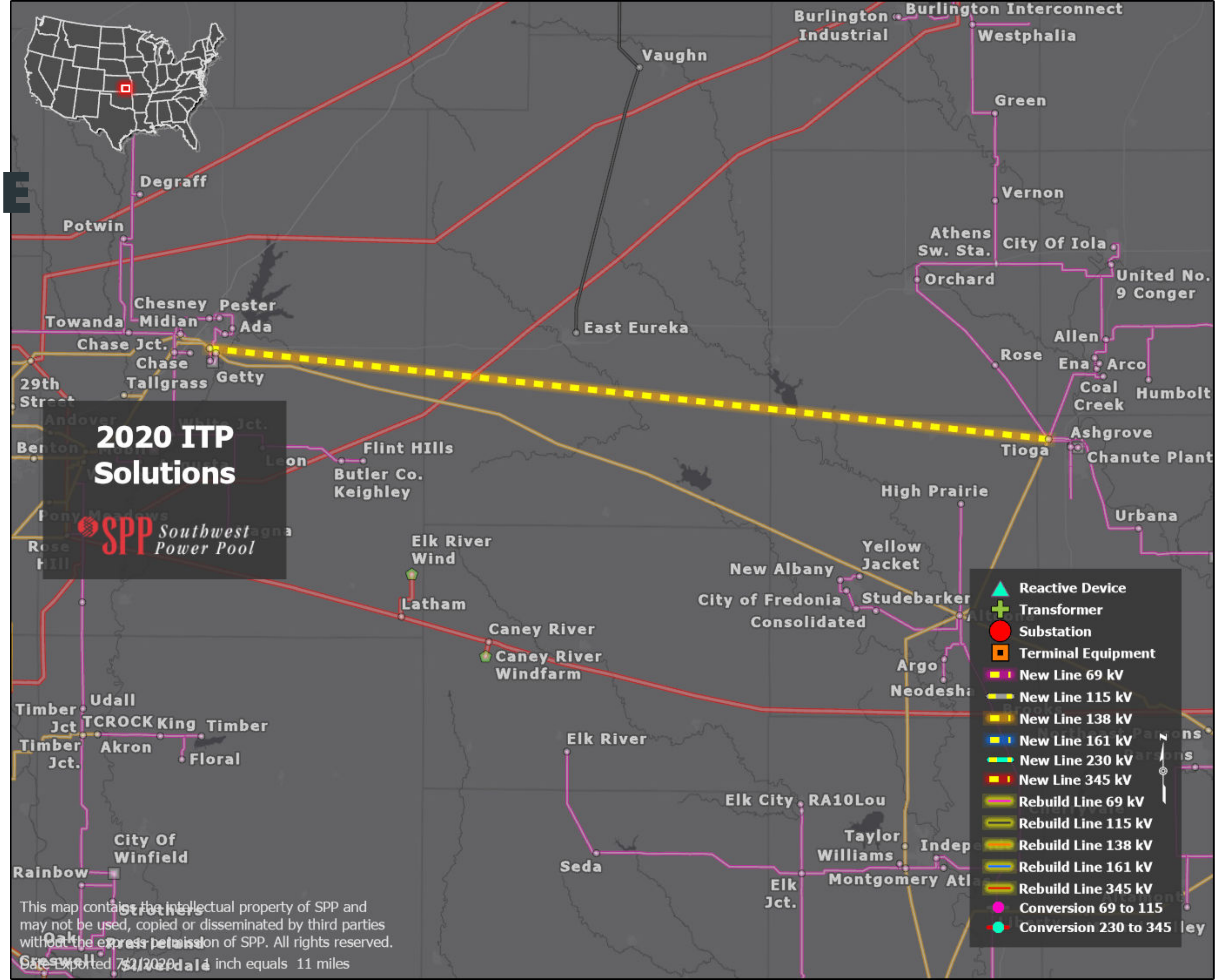


PROJECT HISTORY – 2020 ITP

- SPP re-analyzed most 2019 options
  - Projects met requisite conceptual B/C ratios
- Discussed project with stakeholders at summit
  - Includes wreck-out of Butler – Altoona
    - SPP models "break-away" point near East Eureka per 2019 ITP scope of re-termination option
    - Map does not reflect this (see map presented on next slide)
- Full project was incorrectly deemed potentially non-competitive, study estimate sent to Evergy
  - SPP did not specify "break-away" point
- 2020 ITP report postings
  - First draft posted with reference to tear down/rebuild of Butler – Altoona with "break-away" point of the line towards Tioga near East Eureka
  - Second draft posted for working groups incorporated comments changing project narrative to specify re-direction of line towards Tioga at Yellow Jacket consistent with study cost estimate

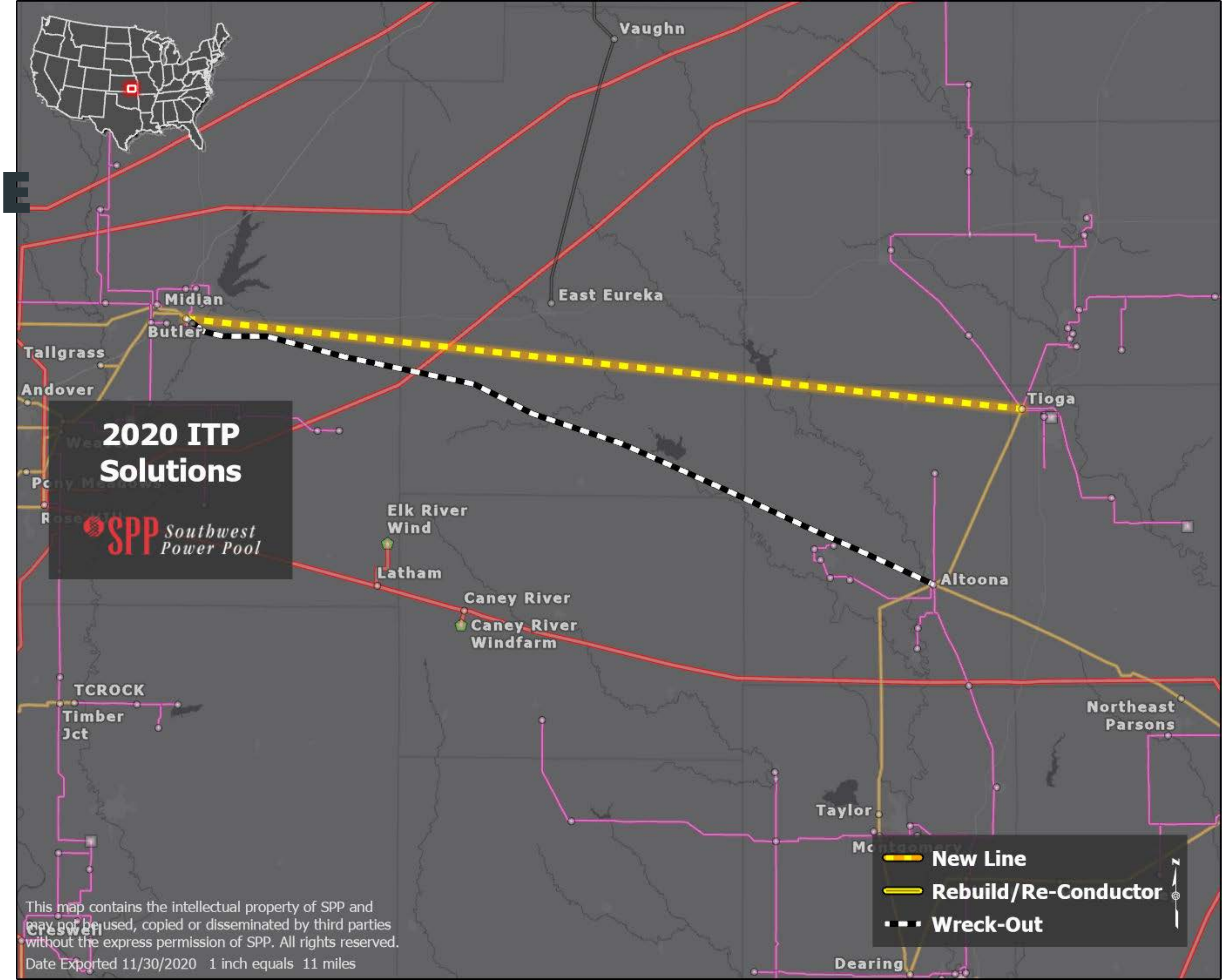
NO ROUTE PREFERENCE

- Version of map included in all 2020 ITP documentation



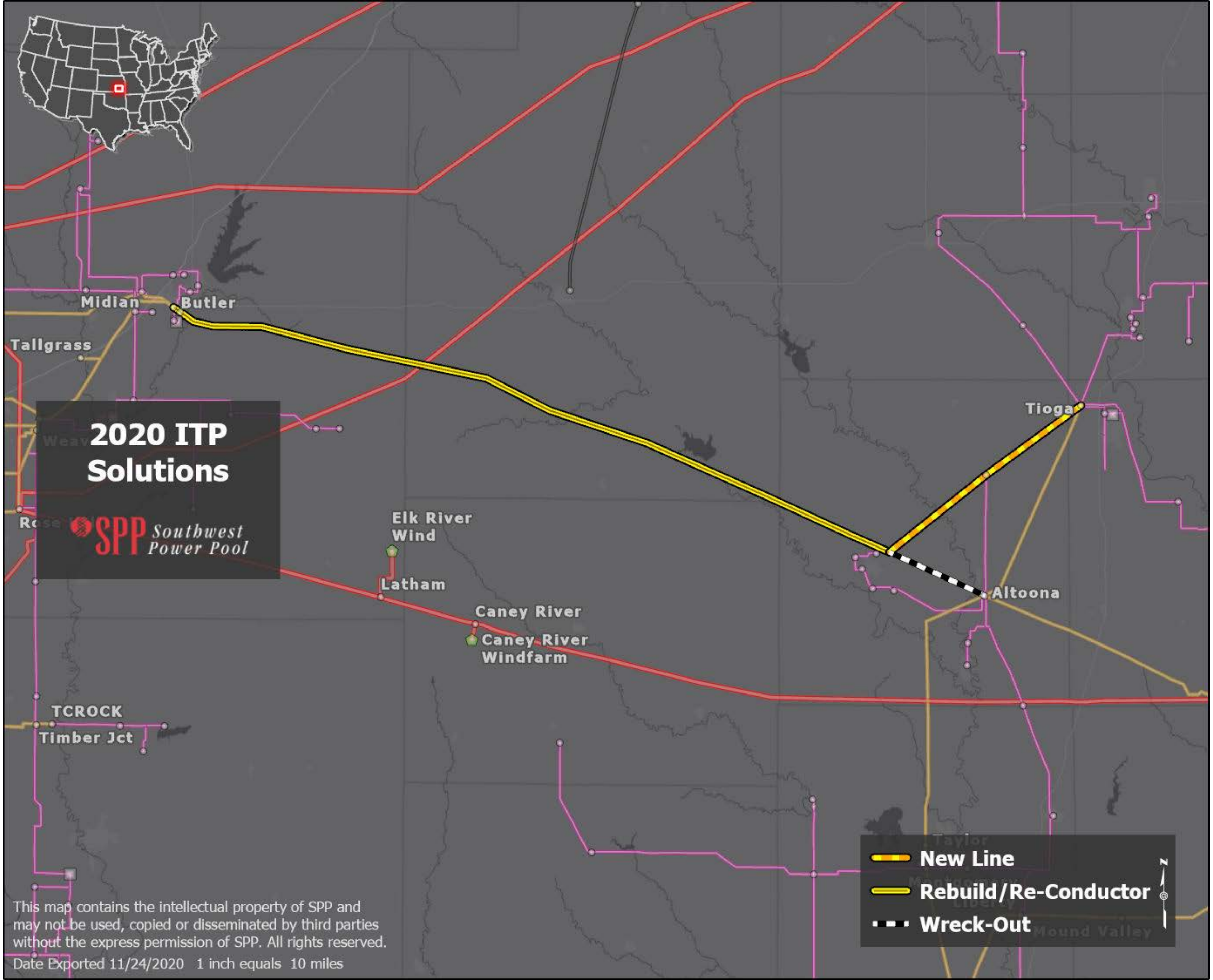
NO ROUTE PREFERENCE

- Version of map included in all 2020 ITP documentation, updated consistent with project list description



YELLOW JACKET

- General scope of project used for study cost estimate (simplified for map)



PROJECT HISTORY – 2020 ITP

- SPP posted updated report for ESWG/TWG approval with Evergy comments included
  - From a modeling and benefit perspective, the different "break-away" points produce negligible differences in results
  - ★ ESWG/TWG approved "Yellow Jacket" project scope
- SPP discussed the project more and attempted to be more generic in terms of preference for "break-away" point
  - Posted updated report for MOPC with generic point of re-direction towards Tioga, specifying "with the objective of minimizing transmission costs"
  - ★ MOPC approved no preference to "break-away" point project scope
- SPP continues to discuss project scope history and potential benefits/complications with different options
  - ★ Board of Directors defer action/approval on Butler-Tioga 138 kV

INTERIM WORK

- Update to study cost estimates based on potentially competitive/non-competitive portions of top options
- More detailed discussions with engineering team on pros/cons of top options
- Additional cost/benefit analysis
- Discussions with SPP management, legal and regulatory