SOUTHWEST POWER POOL
ECONOMIC STUDIES WORKING GROUP MEETING

June 1, 2022
Tenaska Offices – Irving, TX

SUMMARY OF MOTIONS AND ACTION ITEMS

- Approved May 5, 2022 ESWG meeting **minutes**.
- Approved the 2023 ITP **Battery Siting Plan**.
- Approved the 2023 ITP **Conventional Siting Plan**.
- Approved the **10.3 request for Sunflower facility ratings updates** in the 2023 ITP.

SOUTHWEST POWER POOL
ECONOMIC STUDIES WORKING GROUP MEETING
June 1, 2022
Tenaska Offices – Irving, TX

MINUTES

AGENDA ITEM 1 – ADMINISTRATIVE ITEMS

Economic Studies Working Group (ESWG) Chair Alan Myers called the meeting to order at 1:00 p.m. The following members were in attendance or represented by proxy:

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

(Attachment 1) (Attachment 2)

Nick Parker confirmed there was a quorum and provided the antitrust statement. Alan Myers reviewed the agenda for any changes. (Attachment 3)

> **Derek Brown made a motion, seconded by Jim Jacoby to approve the agenda. The motion was approved unanimously.**

AGENDA ITEM 2 – CONSENT AGENDA

The consent agenda included the following items:

- Meeting Minutes – May 5, 2022 (Attachment 4)

The consent agenda was approved unanimously.

AGENDA ITEM 3 – 2021 ITP FURTHER EVALUATION

Chris Davis presented top project characteristics and critical contingencies. He reviewed high ranking solutions and system voltage strength analysis. He summarized analysis and provided next steps. (Attachment 5)

AGENDA ITEM 4A – 2023 ITP: RESOURCE PLAN UPDATE

Antonio Barber presented an update to the resource plan that removed the need for a combined cycle unit in SPS. (Attachment 6)

AGENDA ITEM 4B – 2023 ITP: BATTERY & CONVENTIONAL SITING

Joshua Norton presented an overview of the siting process and reviewed results of the battery and conventional siting plans. (Attachment 7) (Attachment 8) (Attachment 9)

Jim Jacoby made the motion, seconded by Jordan Schmick, to approve the battery siting plan. The motion was approved unanimously.

Jeremy Severson made the motion, seconded by Kurt Stradley, to approve the conventional siting plan. The motion was approved unanimously.

AGENDA ITEM 4C – 2023 ITP: GENERATOR OUTLET FACILITIES

Spencer Magby reviewed preliminary GOFs and next steps. (Attachment 10)

AGENDA ITEM 4D – 2023 ITP: 10.3 REQUEST

Eddie Watson summarized the model change request and impacts and stated that SPP staff can accommodate the changes if approved. (Attachment 11)

Jeremy Severson made the motion, seconded by Anita Sharma, to approve the 10.3 request for Sunflower facility ratings updates. The motion was approved unanimously.

AGENDA ITEM 5 – ESWG AI 201: REVIEW INTERCHANGE METHODOLOGY

This item was removed from the agenda to be discussed in an upcoming meeting.

AGENDA ITEM 6A – 20YA: SITING

Joshua Norton discussed the upcoming posting of the 20YA Siting Repository. (Attachment 12)

AGENDA ITEM 6B – 20YA: FUTURE 3 & 4 RESOURCE PLAN UPDATE

Antonio Barber reviewed ELCC assumptions for the 20-year assessment. (Attachment 13)

AGENDA ITEM 7 – SPP-MISO TARGETED MARKET EFFICIENCY PROJECTS (TMEP)

Neil Robertson discussed the SPP-MISO TMEPs process and fielded questions from the group. He indicated that the Interregional Planning Stakeholder Advisory Committee (IPSAC) would be holding meetings to discuss and that candidate flowgates would be posted soon.

AGENDA ITEM 8A – 2021 ITP FURTHER EVALUATION SCHEDULE

Dara Solomon reviewed the schedule. (Attachment 14)

AGENDA ITEM 8B – 2022 ITP SCHEDULE

Dara Solomon reviewed the schedule. (Attachment 15)

AGENDA ITEM 8C – 2023 ITP SCHEDULE

Dara Solomon reviewed the schedule. (Attachment 16)

AGENDA ITEM 9 – REVIEW OF ACTION ITEMS

Joshua Norton reviewed action items. (Attachment 17)

AGENDA ITEM 10 – CLOSING ITEMS

There were no action items taken.

EMAIL ITEMS

There were no email items since the prior meeting.

Respectfully Submitted,

Joshua Norton

Secretary

Name	Company/Email	Attendance
Aaron Bloom	aaron.bloom@nee.com	Webex
Aaron Dingmann	aaron.p.dingmann@xcelenergy.com	Webex
Adam Bell	abell@spp.org	Webex
Al Tamimi	atamimi@sunflower.net	Webex
Alan Myers	ITC GP	In-person
Amber Joyce	amber.joyce@mdu.com	Webex
Anita Sharma	AEP	In-person
Antonio Barber	abarber@spp.com	Webex
Aravind Chellappa	Gridliance	In-person
Bakhtawar Khan	bakhtawar@gabelassociates.com	Webex
Brandon Hentschel	bhentschel@spp.org	Webex
Brenda Prokop	bprokop@lspower.com	Webex
Brian Rounds	brian.rounds@aeslconsulting.com	Webex
Brooke Keene	bkeene@spp.org	Webex
Caitlin Shank	caitlin.shank@enel.com	Webex
Calvin Daniels	calvin.daniels@wfec.com	Webex
Casey Cathey	ccathey@spp.org	Webex
Charlton Hill	chill@spp.org	Webex
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Chris Cranford	ccranford@spp.org	Webex
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Chris Matthes	camatthes@aep.com	Webex
Cliff Franklin	Sunflower	In-person
Colton Stanton	cstanton@spp.org	Webex
Dara Solomon	dsolomon@spp.org	Webex
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drake hill	dhill@spp.org	Webex
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Jeremy Severson	jseverson@bepc.com	Webex
Jim Jacoby	AEP	In-person
Joanna Cloud	Anchor Power Solutions	In-person
Joe Fultz	jfultz@grda.com	Webex
Joe Richardson	joseph.m.richardson@xcelenergy.com	Webex
John Boshears	john.boshears@cityutilities.net	Webex
John Turner	john.turner@wfec.com	Webex
John Varnell	Tenaska	In-person
Jordan Schmick	jordan.h.schmick@xcelenergy.com	Webex
Josh Verzal	jverzal@oppd.com	Webex
Josie Daggett	daggett@wapa.gov	Webex
Kelsey Allen	SPP	In-person
Kirk Hall	khall@spp.org	Webex
Krishada Watson	kwatson@spp.org	Webex
Kurt Stradley	kstradley@les.com	Webex
Kyle Combes	kyle.combes@1898andco.com	Webex
Kyle McKinney	kmckinney@gsec.coop	Webex
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Michael Watt	mwatt@ompa.com	Webex
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Neeya Toleman	neeya.toleman@nexteraenergy.com	Webex
Neil Robertson	nrobertson@spp.org	Webex
Nick Parker	SPP	In-person
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Paul Vovk	pvovk@oppd.com	Webex
Piyush Gupta	piyush.gupta@nexteraenergy.com	Webex
Randy Collier	randy.collier@cityutilities.net	Webex
Robert Pick	rjpick@nppd.com	Webex
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Spencer Magby	smagby@spp.org	Webex
Steve Gaw	APA	In-person
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Sunny Raheem	SPP	In-person
Susanna Padilla	spadilla@spp.org	Webex
Tammy Bright	tbright@spp.org	Webex
Tanner New	tanner.new@sunflower.net	Webex
Tyler Baxter	tyler.baxter@cbpower.coop	Webex
Zac Hager	hagerzc@oge.com	Webex

Proxy Statements

Proxy	Member	Note
Jim Jacoby	Anita Sharma	Until Arrival
Moses Rotich	Jody Holland	
Josh Verzal	Steve Hohman	
Kurt Stradley	Tim Owens	

Hello Josh,

My flight lands at around 1:30pm in Dallas tomorrow and should be at the meeting venue by around 2pm. I give my proxy to Jim Jacoby until I arrive.

Thanks,

-Anita

Alan,
I've just moved to Ohio and am unable to attend today's ESWG meeting due to unpacking😁 Please accept Moses Rotich as my proxy. Thx!

Jody Holland

Hi Josh and Alan,

Josh Verzal will have my proxy for both days of the ESWG next week, 6/1/2022 and 6/2/2022.

Thanks,

Steve

Josh & Alan,

I will be on vacation next week an unable to attend the ESWG meeting June 1 – 2. Kurt Stradley will have my proxy for the meeting. Thanks.

Take care,

Tim

SPP Southwest Power Pool

SOUTHWEST POWER POOL, INC.
ECONOMIC STUDIES WORKING GROUP MEETING
June 1-2, 2022
Tenaska Offices – Irving, TX

AGENDA

Wednesday 6/1, 1p.m. – 5p.m. CT
Thursday 6/2, 8a.m. – 12p.m. CT

Estimated meeting time: 3h 40m

1. Administrative Items .... Alan Myers 15
   - A. Call to Order, Introductions .... Alan Myers
   - B. Receipt of Proxies .... Joshua Norton
   - C. Review of Agenda .... Alan Myers
   - D. Antitrust Reminder .... Joshua Norton
2. Consent Agenda
   - A. May 5-3, 2022 ESWG minutes
3. 2021 ITP Further Evaluation .... Chris Davis 60
4. 2023 ITP
   - A. Resource Plan Update .... Antonio Barber 10
   - B. Battery & Conventional Siting (Approval) .... Greg Lampley 30
   - C. Generator Outlet Facilities .... Spencer Magby 10
   - D. 10.3 Request (Approval) .... Eddie Watson 10
5. ~~ESWG AI 201: Review Interchange Methodology .... Joshua Norton 20~~
6. 20-Year Assessment (20YA)
   - A. 20YA Siting .... Joshua Norton 10
   - B. Future 3 & 4 Resource Plan Update .... Antonio Barber 20

7. SPP-MISO TMEPs...Neil Robertson 15

8. ITP Schedules ....Dara Solomon 15

   A. 2021 ITP Further Evaluation Schedule

   B. 2022 ITP Schedule

   C. 2023 ITP Schedule

9. Review of Action Items...Joshua Norton 10

10. Closing Items...All 10

   A. Summary of Action Items

   B. Upcoming Meeting Agenda Items

   C. Future Meetings

      i) June 29-30 – Little Rock, AR
      ii) August 4 – Tulsa, OK
      iii) August 31-September 1 – Little Rock, AR

11. No informational Items

SOUTHWEST POWER POOL
ECONOMIC STUDIES WORKING GROUP MEETING
May 5, 2022
Evergy Offices - Kansas City, MO

SUMMARY OF MOTIONS AND ACTION ITEMS

- Approved the March 30-31, 2022 ESWG minutes
- Approved **RR 489**
- Approved the **2023 ITP Wind & Solar Siting plans**, including all exceptions presented in the meeting
- Approved the **2023 ITP BR Model 10.3 requests**

SOUTHWEST POWER POOL
ECONOMIC STUDIES WORKING GROUP MEETING
May 5, 2022
Evergy Offices - Kansas City, MO

MINUTES

AGENDA ITEM 1 – ADMINISTRATIVE ITEMS

Economic Studies Working Group (ESWG) Chair Alan Myers called the meeting to order at 9:00 a.m. The following members were in attendance or represented by proxy:

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

(Attachment 1) (Attachment 2)

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

> **Jeremy Severson 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:

- Meeting Minutes – March 30-31, 2022 (Attachment 4)

The consent agenda was approved unanimously.

AGENDA ITEM 3 – RR 489: PLANNING ESR AND HYBRID RESOURCES (ESRSC-E2)

Brandon Hentschel reviewed the language updates in RR 489 for the business practices and ITP Manual. He fielded questions from the group regarding modeling storage in PROMOD and hybrid configurations. Brandon noted that another RR should be discussed to cover economic models. (Attachment 5) (Attachment 6)

Jim Jacoby made the motion, seconded by Katy Onnen, to approve that RR 489 has no impact for ESWG.

After further discussion revealing ESWG seemed to be impacted, the motion was amended to approve RR 489. The motion passed unanimously

Voting Rational: Alan noted that the RR 489 is intended to only impact the steady-state models.

An action item was added to review modeling issues surrounding hybrid and co-located resources in economic models

AGENDA ITEM 4 – 2021 ITP FURTHER EVALUATION

Kirk Hall reviewed Emergency Energy and how excess amounts are handled. He discussed impacts to emergency energy resulting from economic model changes for the 2021 ITP further evaluation. He presented the path forward and next steps for 2021 ITP further evaluation. He answered questions from the group about emergency energy. (Attachment 7)

AGENDA ITEM 5A – 2023 ITP: RESOURCE PLAN PHASE II

Antonio Barber reviewed the results of the Resource plan phase II milestone and presented a recommendation of approval. Attachment 8)

Jeremy Severson made the motion, seconded by Jim Jacoby, to approve the results of 2023 ITP Resource Plan Phase II. The motion was approved with one abstention (Tim Owens).

AGENDA ITEM 5B – 2023 ITP: RENEWABLE SITING PLAN & EXCEPTIONS

Greg Lampley presented the results of renewable siting and showed impact that the listed exceptions would have if approved. Caitlin Shank presented exceptions for Sky View Wind and for Seven Cowboy solar project. (Attachment 9) (Attachment 10) (Attachment 11) (Attachment 12)

The Sky View Wind exception request was approved through voice vote.

The Seven Cowboy Solar exception request was approved through voice vote.

Jim Jacoby presented an exception request to site 395 MW at Pirkey due to a replacement request having been submitted. (Attachment 13)

The Pirkey Solar exception request was approved through voice vote.

Greg Lampley presented staff's recommendation to approve the 2023 ITP wind and solar siting plans.

Jeremy Severson made the motion, seconded by Jim Jacoby, to approve the 2023 ITP Wind Siting plan. The motion was approved unanimously.

Jim Jacoby made the motion, seconded by Steve Hohman, to approve the 2023 ITP Solar Siting plan. The motion was approved with two abstentions (Jeremy Severson and Kyle McKinney).

AGENDA ITEM 5C – 2023 ITP: GENERATOR OUTLET FACILITIES

Spencer Magby gave an update on GOFs. (Attachment 14)

AGENDA ITEM 5D – 2023 ITP: BR MODEL 10.3 REQUEST

Eddie Watson presented a 10.3 request for implementing changes as part of proposed initial final 2023 ITP Base Reliability models. (Attachment 15)

Jeremy Severson made the motion, seconded by Tim Owens, to approve the 2023 ITP BR Model 10.3 requests. The motion was approved unanimously.

AGENDA ITEM 5E – 2023 ITP: MARKET ECONOMIC MODEL

Charlton Hill presented an update for the MEM milestone. (Attachment 16)

AGENDA ITEM 6 – ESWG AI 201: REVIEW INTERCHANGE METHODOLOGY

Joshua Norton presented background on MISO-PJM transactions in the economic model. He reviewed a revised modeling of the transactions using historical MISO-PJM transactions. Anita Sharma stated the imports and exports need to be reversed. Steve Gaw asked if hurdle rate changes would make a difference. Joshua Norton presented resulting impacts to SPP region from the runs and reviewed next steps for the action item, including checking the direction for transactions and including analysis on the hurdle rate's impact. (Attachment 17)

AGENDA ITEM 7 – MOPC AI 314: REVIEW OF DOCUMENTS FOR PROCESS IMPROVEMENTS

Sherri Maxey gave an update for MOPC action item 314. (Attachment 18)

AGENDA ITEM 7A – MOPC AI 314: ITP MANUAL SECTION 10.3 CHANGES

Nick Parker presented a draft revision request for updating the ITP Manual section 10.3 and opened up for the group to discuss. The group expressed disinterest in including a fee for submitting 10.3 requests. Nick reviewed how the revision request would clarify the process overall and stated that this item would come back to the next meeting. (Attachment 19)

AGENDA ITEM 8A – 20YA: SCOPE AND STUDY EXECUTION ACTION ITEMS

Sherri Maxey reviewed the list of 20-Year assessment scope action items. (Attachment 20)

AGENDA ITEM 8B – 20YA: FUTURE 1 & 2 RESOURCE PLAN UPDATE

Antonio Barber reviewed related scope adjustments, modeling assumptions, prototype summary, accreditation overview, and next steps for the milestone. (Attachment 21)

AGENDA ITEM 8C – 20YA: FUTURE 3 & 4 RESOURCE PLAN UPDATE

Kyle Combes from 1898 & Co. gave an update on the work performed for the F3 & 4 resource plans thus far. He presented results of the analysis, including findings that roughly 60 GW of new renewables are needed – without additional storage –to meet the scoped 93% emissions reduction target, and that the seasonality of renewables likely limits the effectiveness of additional storage. He discussed next steps for this milestone. (Attachment 22)

AGENDA ITEM 9 – SITING MANUAL UPDATES INTRODUCTION

Joshua Norton discussed evaluation of the unstudied site ranking methodology and consideration of replacement capacity in the siting process. (Attachment 23)

AGENDA ITEM 10A – ESWG AI 212, 213, 214: REVIEW ELCC, IRPS, RETIREMENT EXCEPTIONS

Antonio Barber reviewed ideas for implementing ELCC and IRPs for the 2024 ITP and received feedback from the group. (Attachment 24)

AGENDA ITEM 10B – ESWG AI 215: REVIEW THE RAR PROCESS

Brooke Keene proposed language to be included in the 2024 ITP scope document or ITP manual to reflect the RAR process taken during the 2023 ITP scope development. (Attachment 25)

AGENDA ITEM 11A – ITP SCHEDULES

Dara Solomon covered the 2021 ITP further evaluation, 2022 ITP, and 2023 ITP schedules. (Attachment 26) (Attachment 27) (Attachment 28)

AGENDA ITEM 12 – REVIEW OF ACTION ITEMS

Joshua Norton reviewed action items. (Attachment 29)

AGENDA ITEM 13 – CLOSING ITEMS

An action item was taken to review modeling issues surrounding hybrid and co-located resources in economic models

EMAIL ITEMS

There were no email items since the prior meeting.

Respectfully Submitted,

Joshua Norton

Secretary

2021 ITP FURTHER EVALUATION

CHRIS DAVIS

LEAD ENGINEER

CURRENT STATUS

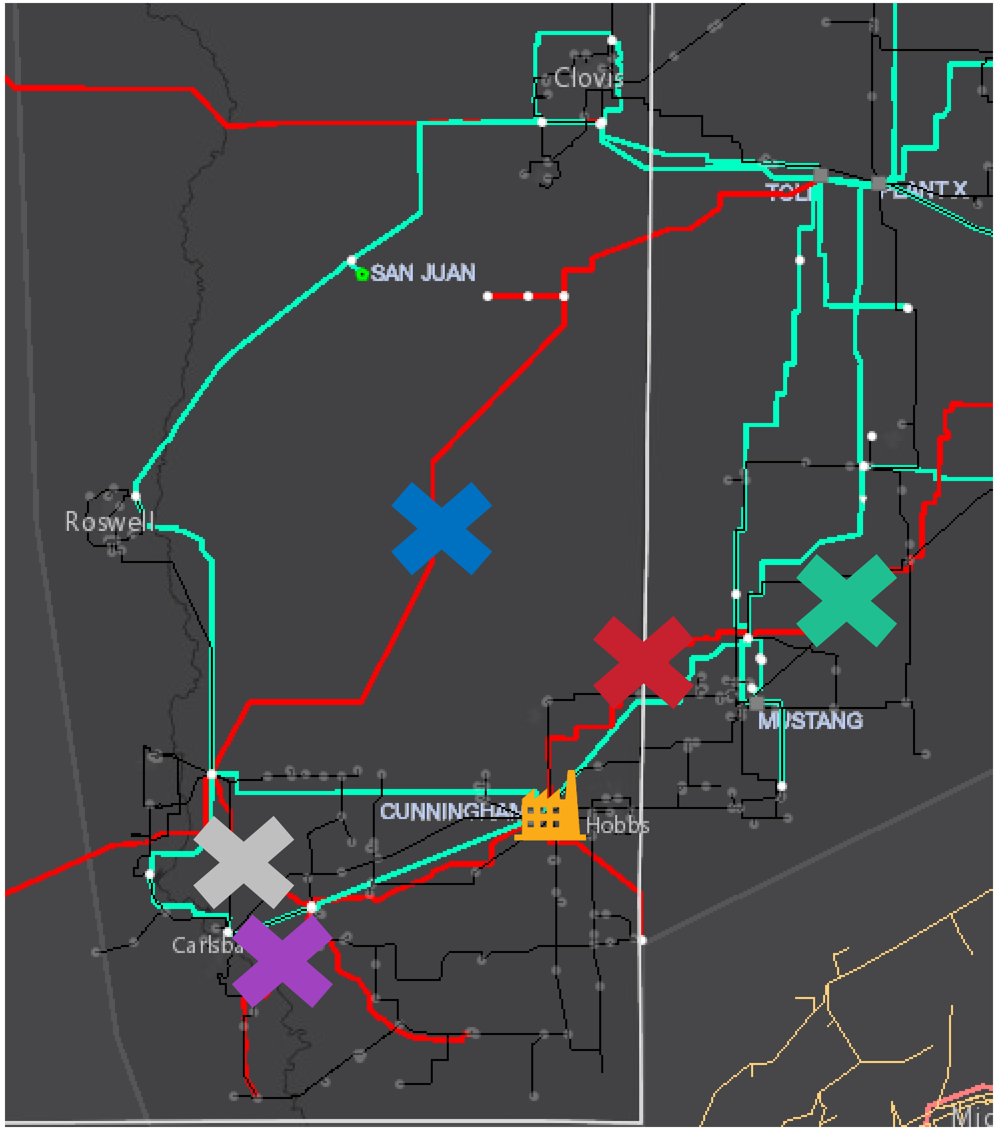
- Review top project characteristics and critical contingencies
- Discuss high-ranking solutions
  - Solution details
  - SPSNMTIES Interface Analysis
  - Economic results
- System Voltage Strength Analysis
- Request stakeholder feedback
- Detail next steps

TOP RANKING PROJECT CHARACTERISTICS

- Addresses all reliability issues
  - Terminates in Permian Basin
  - Originates at Crossroads or further north
  - Addresses critical contingencies
- Provides good economic benefits
  - Mitigates need for emergency energy
  - Remains cost effective after removing emergency energy costs
- Qualitative considerations
  - Project longevity
  - Delivers real power to the load pocket
  - Potential for increased transfer capability

CRITICAL CONTINGENCIES

- Hobbs Generation combined with any of:
  - Crossroads – Eddy
  - Tuco – Yoakum
  - Yoakum – Hobbs
  - Eddy – Kiowa
  - Kiowa – N Loving
- Several 345 kV bus outages



FURTHER EVALUATION EMERGENCY ENERGY FOLLOW-UP

- May 5th ESWG: Staff discussed an issue observed in the 2021 ITP Further Evaluation MEM where emergency energy needed to serve load was abnormally high
- After discussion, staff committed to go through an effort to provide more realistic B/C ratios
- Staff determined the best route to take was to reduce the cost of emergency energy in the post processing APC calculations, allowing for equivalent system operation and avoiding additional simulation time
  - Emergency energy cost reduced from pre-defined penalty cost (.eve soft constraint: $1,000/MWh) to the average cost of a energy from a Combustion Turbine (MEM benchmarking: ~$40/MWh)

HIGH RANKING SOLUTIONS

EXPLANATION OF INFORMATION

Additional Load

- Maximum pro-rata load increase achieved while meeting interface analysis criteria*

Emergency Energy:

- Amount of residual emergency energy in target area with solution in place

40-yr. B/C

- Reflects APC savings associated with reduced emergency energy costs (~$40/MWh)

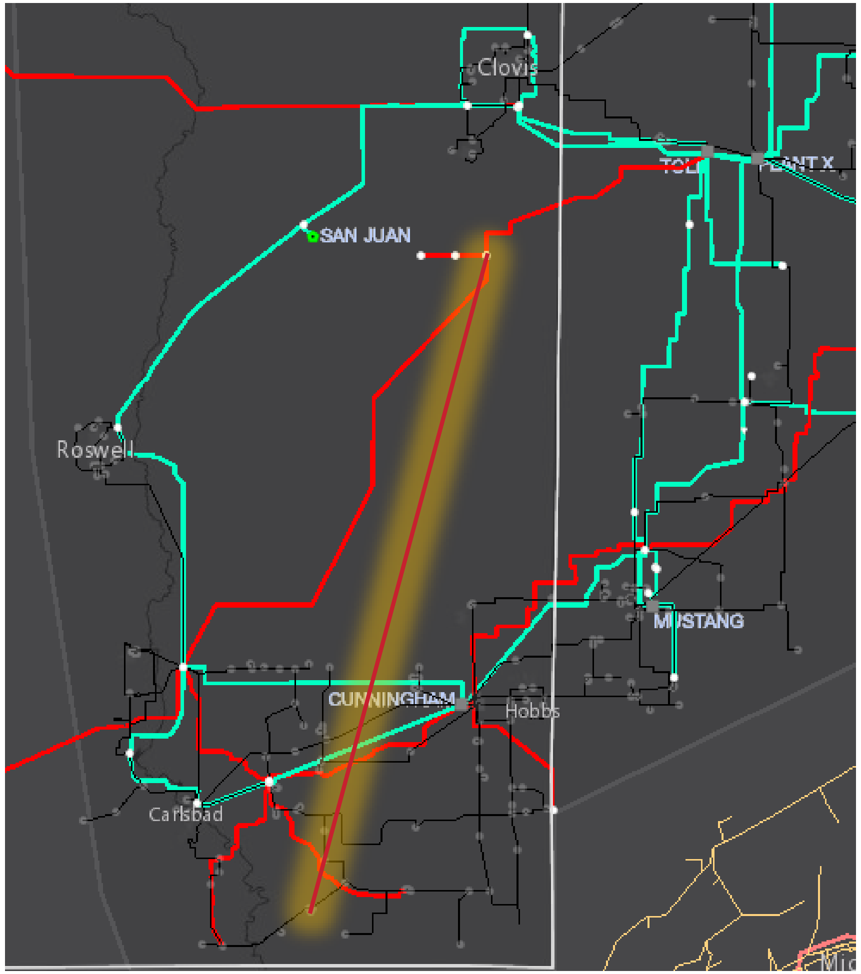
Net Benefit:

- Reflects net benefits associated with reduced emergency energy costs (~$40/MWh)

*See SPSNMTIES Interface Analysis Methodology

CROSSROADS – PHANTOM 345KV DBL CKT

- Conceptual Cost: $256M ~~$513M~~
- 150 miles long
- Reliably serves load pocket at peak load with strong voltage profile
- Long double circuit provides voltage gain directly to one of the larger delivery points in the load pocket
- Relatively fewer points of failure for lower risk

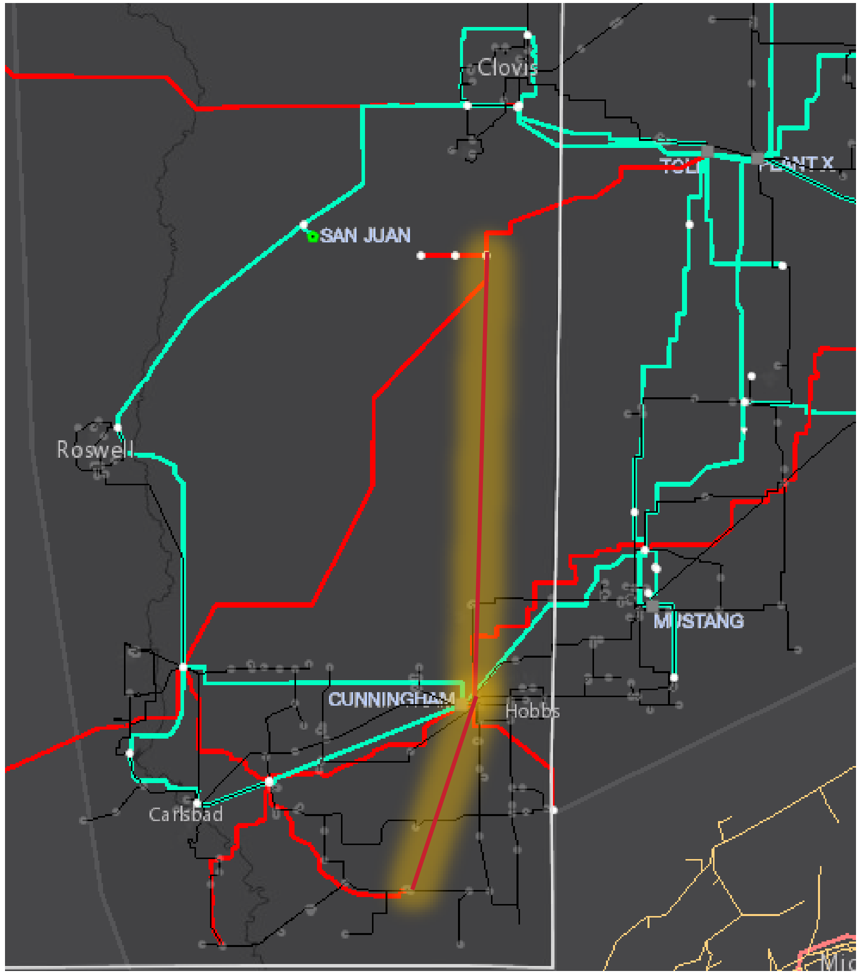


Reliability	F1			F2		
Additional Load (MW)	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit
600	3,803	6.65 ~~3.32~~	2.46B ~~2.02B~~	5,620	7.21 ~~3.61~~	2.70B ~~2.27B~~

Note: Conceptual costs were used for equal comparison across solutions and are currently under refinement; costs, B/C's, and net APC benefit values are likely to change before final recommendation

CROSSROADS – HOBBS - ROADRUNNER DBL CKT

- Conceptual Cost: $244M ~~$488M~~
- 143 Miles
- Intermediate stop at Hobbs for more direct access to reactive reserves to serve the pocket
  - Supports voltage on north and south side of the load pocket
- Slightly weaker voltage profile than Crossroads – Phantom under certain contingencies due to less direct line to larger loads

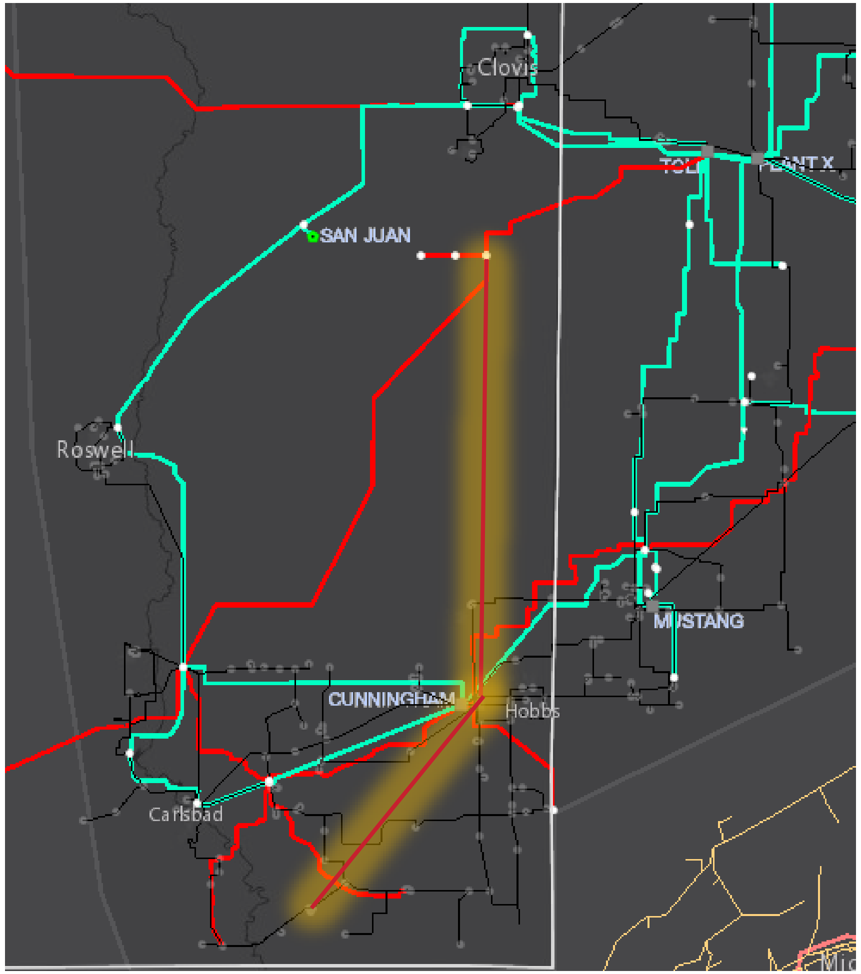


Reliability	F1			F2		
Additional Load (MW)	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit
700	2,848	7.35 ~~3.67~~	2.46B ~~2.15B~~	6,311	7.94 ~~3.9~~	2.87B ~~2.46B~~

Note: Conceptual costs were used for equal comparison across solutions and are currently under refinement; costs, B/C's, and net APC benefit values are likely to change before final recommendation

CROSSROADS – HOBBS - PHANTOM DBL CKT

- Conceptual Cost: $268M ~~$537M~~
- 157 Miles
- Seems to be strongest reliability solution
  - Direct line to current largest concentration of loads
  - Access to any available reactive reserves at Hobbs
- Likely more costly solution than others
  - Longest length solution
  - Potential for additional costs due to crossing Kiowa – Roadrunner 345kV line



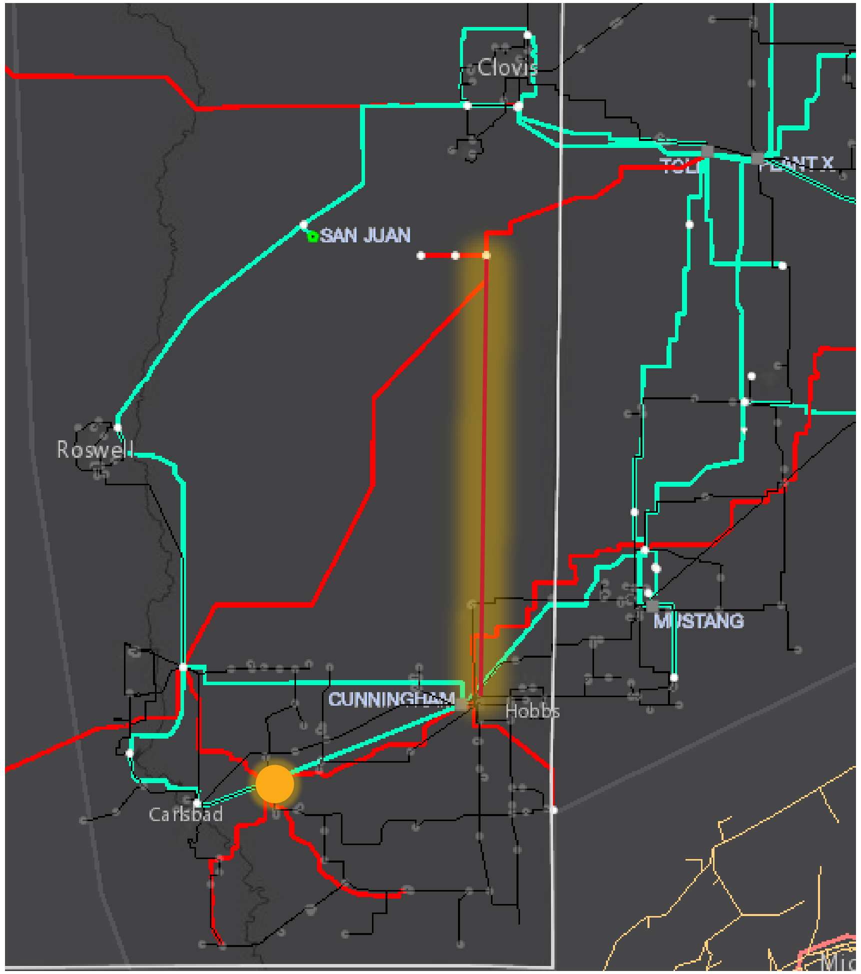
Reliability	F1			F2		
Additional Load (MW)	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit
700	12,146	6.32 ~~3.16~~	2.43B ~~1.97B~~	15,738	6.9 ~~3.45~~	2.69B ~~2.24B~~

Note: Conceptual costs were used for equal comparison across solutions and are currently under refinement; costs, B/C's, and net APC benefit values are likely to change before final recommendation

CROSSROADS – HOBBS 345KV + KIOWA 300 MVAR SVC

- Conceptual Cost: $163.5M
- 99 Miles
- Solves all needs using shorter single or double circuit transmission coupled with SVC
- Does not terminate in load pocket
- Weaker voltage profile when expected load additions come in than larger transmission solution

Reliability	F1			F2		
Additional Load (MW)	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit
375	22,638	8.20	2.0B	26,537	8.69	2.13B



Note: Conceptual costs were used for equal comparison across solutions and are currently under refinement; costs, B/C's, and net APC benefit values are likely to change before final recommendation

CROSSROADS – HOBBS 345KV + KIOWA 300 MVAR SVC

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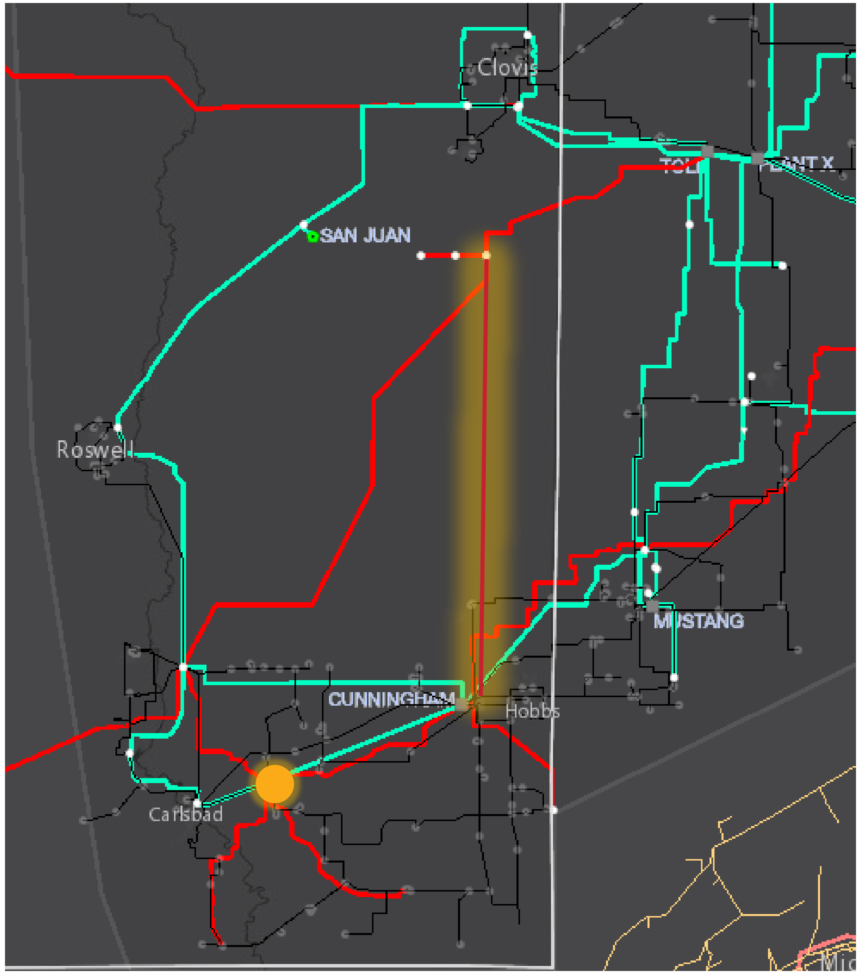
- Does not terminate in load pocket
- Weaker voltage profile when expected load additions come in than larger transmission solution



Reliability	F1			F2		
Additional Load (MW)	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit	Emer. Energy (MWh)	40-yr. B/C	Net APC Benefit
375	22,638	8.20	2.0B	26,537	8.69	2.13B

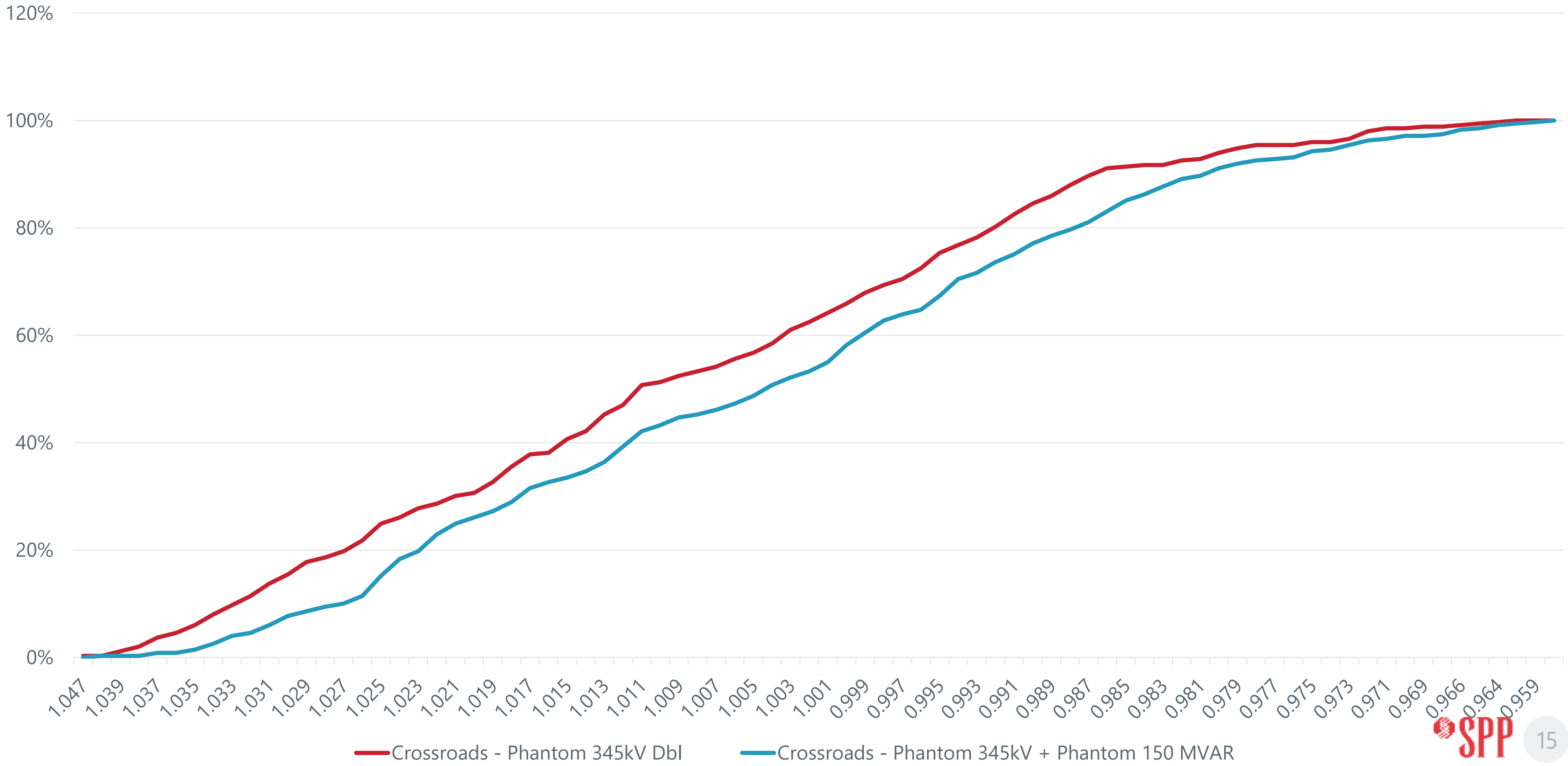
Note: Conceptual costs were used for equal comparison across solutions and are currently under refinement; costs, B/C's, and net APC benefit values are likely to change before final recommendation

SYSTEM VOLTAGE STRENGTH ANALYSIS

SYSTEM VOLTAGE STRENGTH ANALYSIS

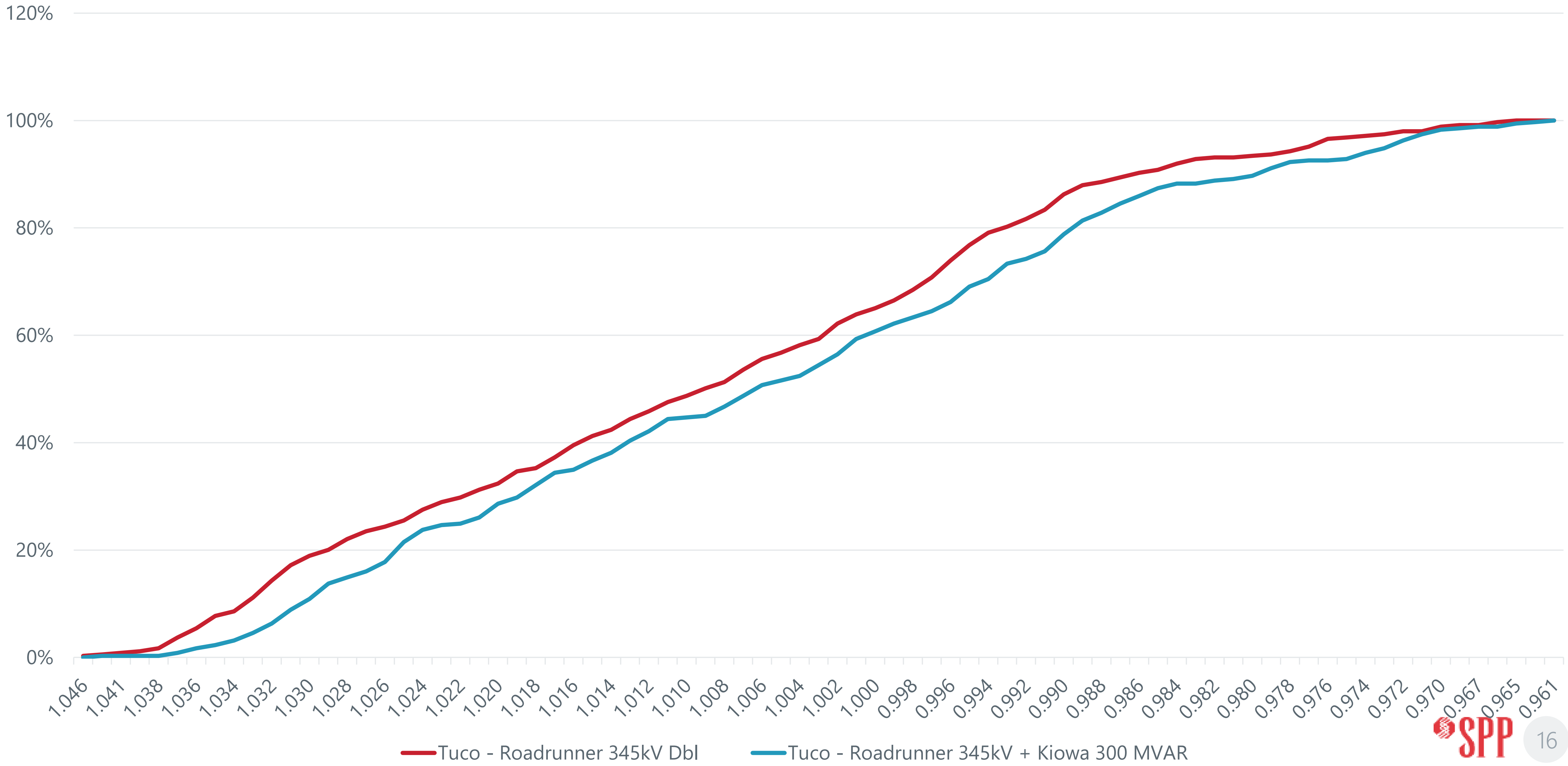
- Comparison of double circuit construction vs single circuit paired with a reactive device
  - Analyzes voltage levels across the load pocket (zones 1505 thru 1509) for each project
- Displays a curve showing the percentage of buses maintaining a post-contingent voltage at or above a certain PU level
  - 70 voltage collapse contingencies for 31S case analyzed
- Summary:
  - Double circuit construction results in higher system voltage levels across the load pocket than single circuit construction paired with reactive support, which provides voltage support to a more localized area

Post-Contingent Bus Voltage Analysis
Double Circuit 345kV vs Single Circuit w/ Reactive Device



SPP

Post-Contingent Bus Voltage Analysis
Double Circuit 345kV vs Single Circuit w/ Reactive Device



ANALYSIS SUMMARY

ANALYSIS SUMMARY

- **Double circuit construction fares better over single circuit construction paired with a reactive device**
  - Supports additional load growth
  - Produces in better system voltage profile in the load pocket
  - Results in lower amounts of residual emergency energy
  - Enables higher projected net APC benefits
- **Tolk replacement with renewables yielded higher B/C ratios and net APC benefits due to:**
  - Capacity replaced with high % of low cost renewables
  - Generation at Tolk POI now available annually instead of summer only (Tolk plant seasonal operation)

NEXT STEPS

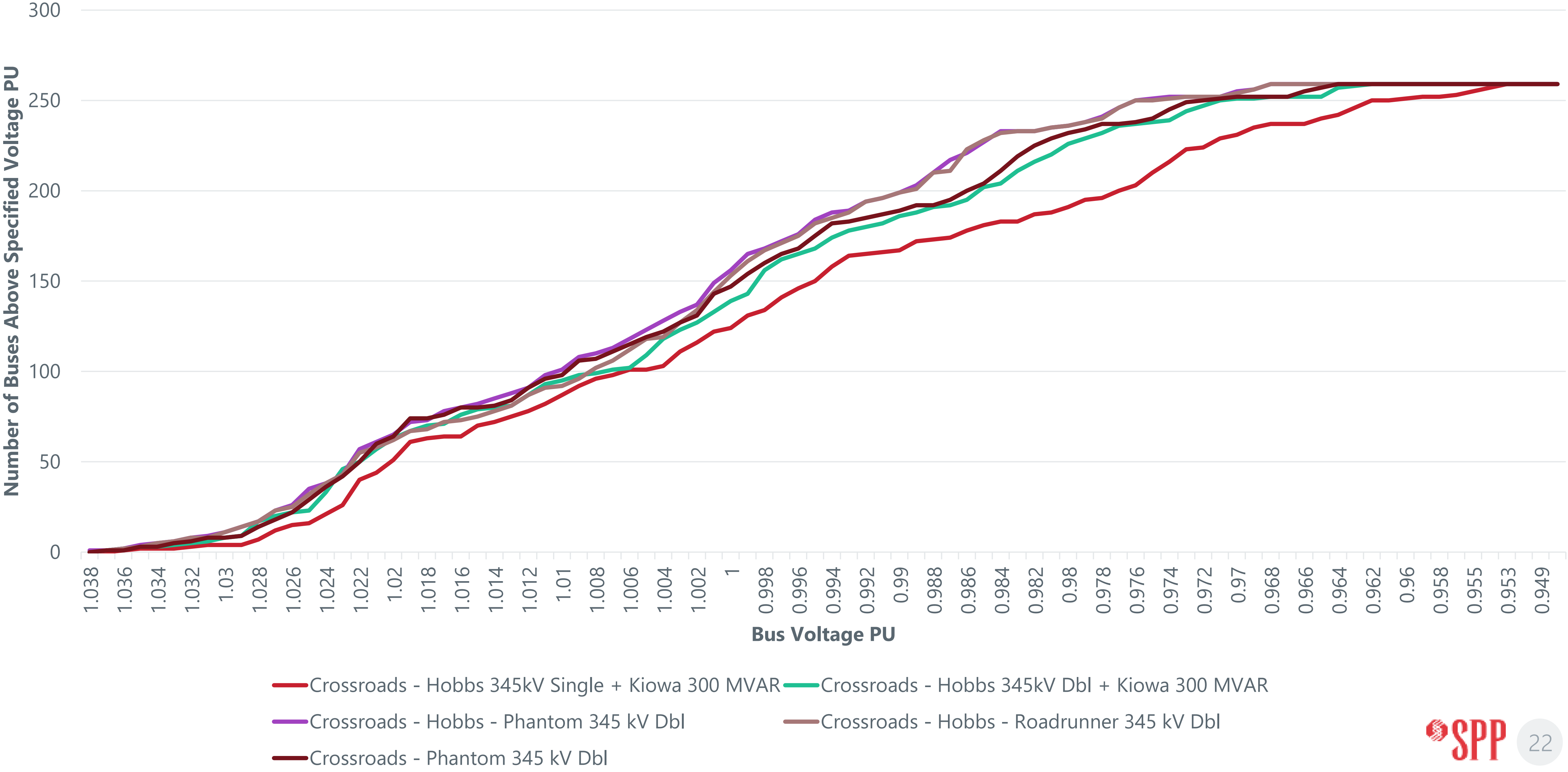
- Stakeholder feedback
- Refine cost estimates
- Additional analysis & economic sensitivities
- Project recommendation & staging
- 2021 ITP Report addendum

APPENDIX

APC DATA FOR TOP-RANKING SOLUTIONS

Description	40-yr NPV Cost	F1 Y5		F1 Y10		F1 40-Yr		F2 Y5		F2 Y10		F2 40-Yr	
		B/C	APC Benefits ($M)	B/C	APC Benefits ($M)	B/C	APC Benefits ($M)	B/C	APC Benefits ($M)	B/C	APC Benefits ($M)	B/C	APC Benefits ($M)
Crossroads-Phantom Dbl	$423M	3.14	$142.3	3.92	$196.3	6.65	$2,890	2.90	$131.4	4.16	$208.0	7.21	$3,136
Crossroads-Hobbs-Roadrunner Dbl	$408M	3.47	$149.7	4.34	$206.7	7.35	$3,044	3.18	$137.3	4.57	$218.0	7.94	$3,289
Crossroads-Hobbs-Phantom Dbl	$443M	2.92	$139.0	3.72	$195.2	6.32	$2,884	2.65	$126.0	3.95	$208.0	6.90	$3,150
Crossroads-Hobbs + Kiowa 300 MVAR SVC	$267M	3.56	$103.0	4.78	$152.6	8.20	$2,276	3.71	$107.3	5.05	$161.3	8.69	$2,412
Crossroad-Hobbs + SVC at Phantom	$271M	3.60	$103.0	4.82	$152.6	8.28	$2,276	3.75	$107.3	5.10	$161.3	8.78	$2,412
Crossroad-Hobbs Dbl + Phantom 150 MVAR SVC	$298M	4.34	$137.4	5.71	$199.7	9.77	$2,969	4.20	$132.9	5.97	$208.7	10.35	$3,143
Crossroads-Hobbs + Tuco-Roadrunner	$706M	2.13	$160.6	2.83	$235.1	4.85	$3,499	1.97	$148.6	2.99	$248.1	5.23	$3,772

115 kV Buses in Zones 1505-1509
Contingency Hobbs Unit 3 + Crossroads-Eddy County 345 kV



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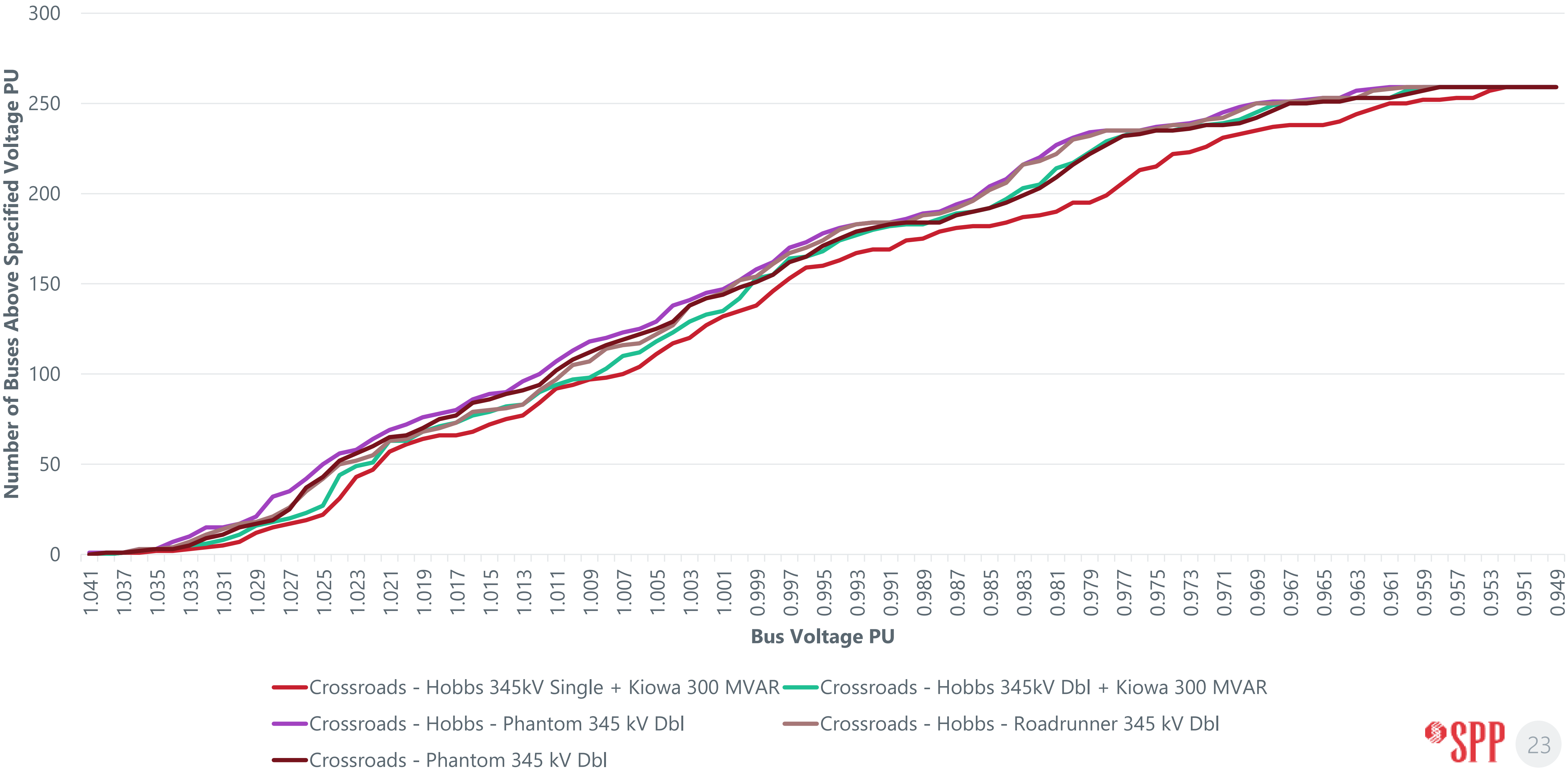
115 kV Buses in Zones 1505-1509
Contingency Hobbs Unit 3 + Yoakum-Hobbs 345 kV



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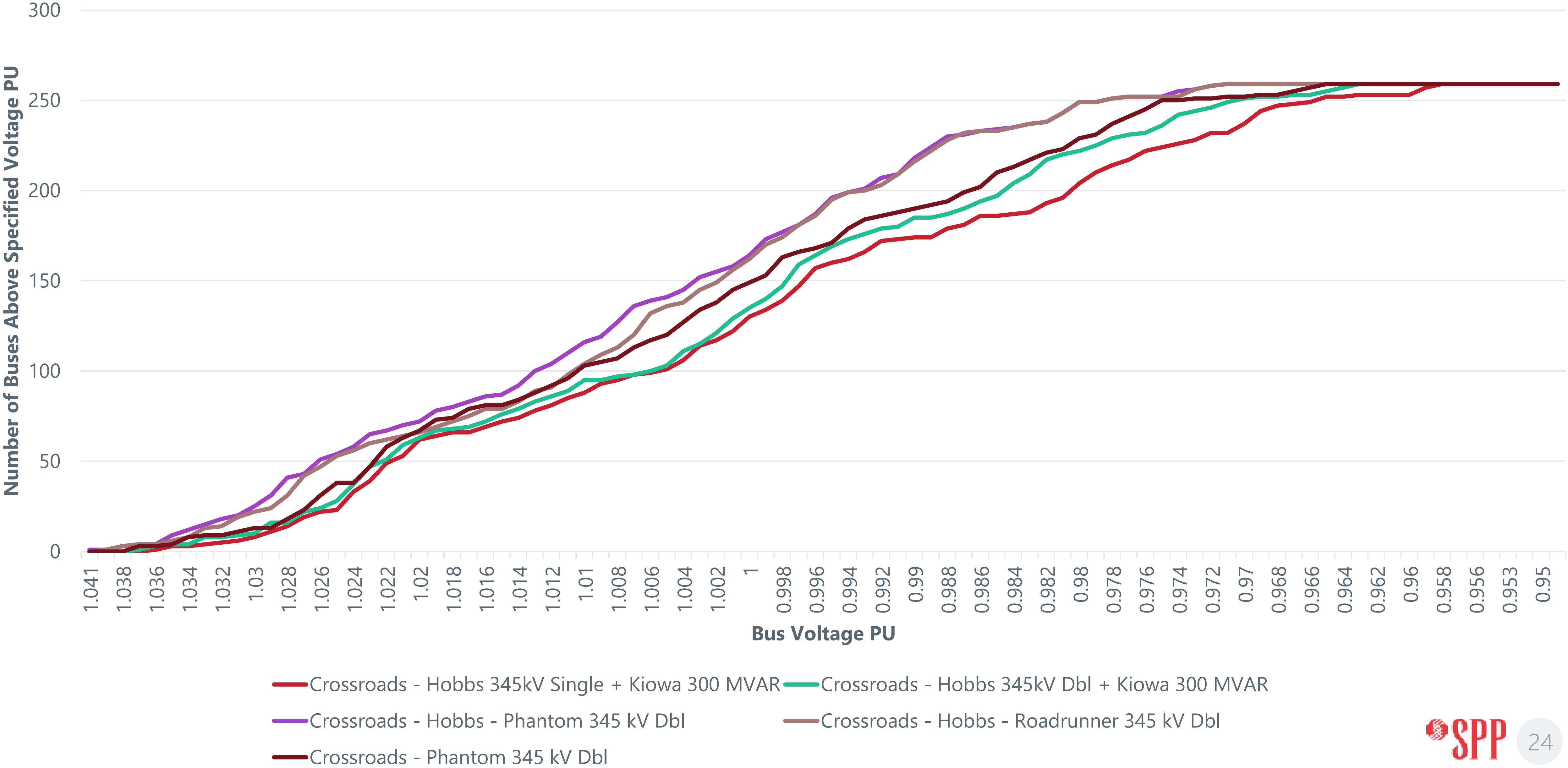
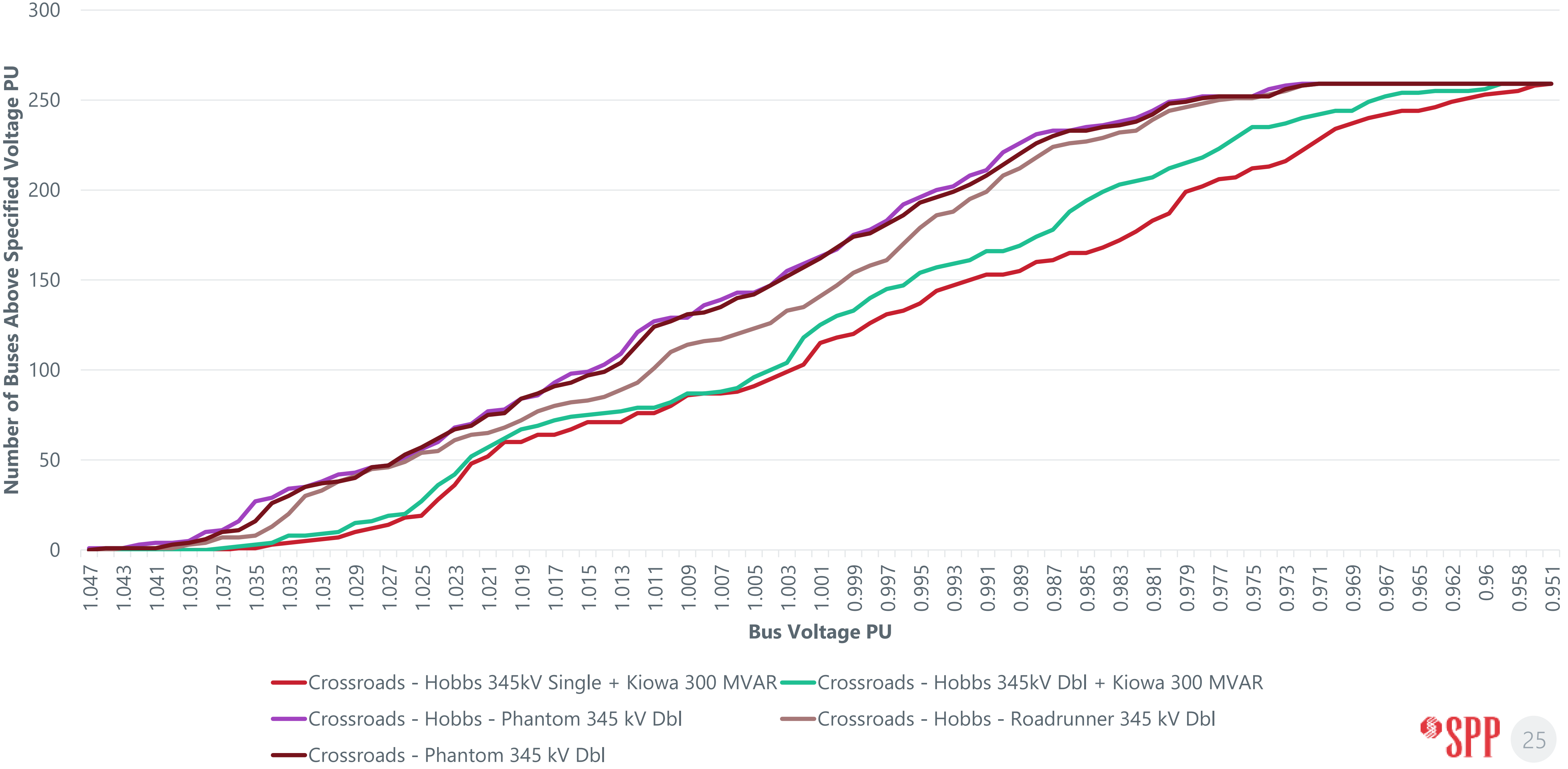
115 kV Buses in Zones 1505-1509
Contingency Hobbs Unit 3 + Hobbs-Kiowa 345 kV

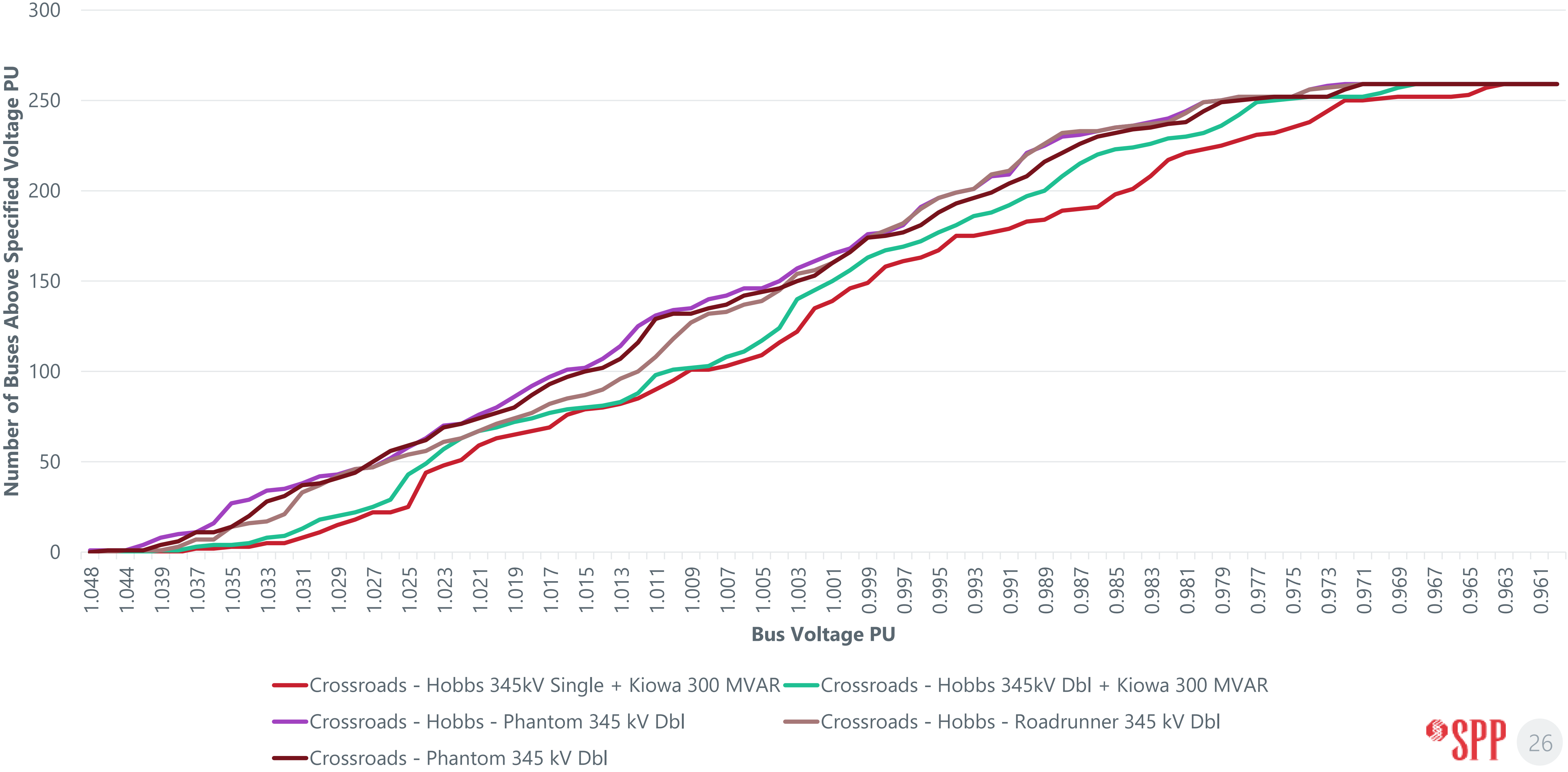


115 kV Buses in Zones 1505-1509
Contingency Hobbs Unit 3 + Kiowa-North Loving 345 kV



SPP

115 kV Buses in Zones 1505-1509
Contingency Hobbs Unit 3 + Kiowa-Roadrunner 345 kV



2023 **ITP**

RESOURCE PLAN PHASE 2 UPDATE

ANTONIO BARBER

ESWG

RESOURCE PLAN PHASE 2 UPDATE

- During the 2023 ITP Siting QA process, the following units required an accreditation correction
  - Year 10 (2032) both Futures
    - Black Hawk Station
    - Hobbs
    - Tolk
- Correction results in removal of SPS combined cycle (CC) unit in Year 10 (2032) as shown in 2023 ITP conventional siting plan
- No other zones affected

GI Queue # (Battery Requests)	Site Name	Site Bus
GEN-2015-095	DeGrasse 138kV	515853
	Stranger Creek 345kV	532772
	Woodward EHV 345kV	515375
GEN-2017-032	Finney-Lamar 345kV	523853
	Viola 345kV	532798
	Holt 345kV (NPPD)	640510
	Leland Olds 230kV	659106
	Leland Olds 345kV	659105
	Rhame 230kV	659266
	Treasure Island 345kV	511409
	Monolith 115kV	640591
GEN-2015-092	Terry Road 345kV	511568
	Valley City 115kV	652454
	Elm Creek 345kV	539805
GEN-2016-128	Woodring 345kV	514715
GEN-2016-157	West Gardner 345kV	542965
	Sooner-Spring Creek 345kV	514803
	Tobias 345kV	640525
	Open Sky-Rose Hill 345kV	515621
	New Underwood-Philip Tap 230kV	652484
	Cleveland-Sooner 345kV	514803
	Sunnyside-Hugo 345kV	515136
	Post Rock-Axtell 345kV	640065
	Post Rock-Spearville 345kV	531469
	Buckner-Spearville 345kV	531501
GEN-2017-183	Nashua 345kV	542980
	Hoskins-Antelope 345kV	640520
	Newhart 115kV	525460
	Oklaunion-Tuco 345kV	511456
	Brookline-Flint Creek 345kV	506935
	Holt 345kV (KCPL)	541510
	Ironwood 345kV	539803
	Fletcher Tap-Southwestern 138kV	511423
	North Loup-Spalding 115kV	640347
GEN-2018-043	Fort Calhoun 345kV	645451
	Mustang 230kV	527149
GEN-2018-049	Wichita 345kV	532796
GEN-2017-210	McCool 345kV	640271
	Benton-Wolf Creek 345kV	532797
	Sunnyside-Hugo 345kV	515136
	Woodward-Badger 345kV	515375
	Explorer Clark Tap 138kV	510401
	New Underwood 230kV	652484

	Snyder 138kV	521052
GEN-2021-053	Welsh 345kV	508359
	Plant X-Tolk 230kV	525481
	Mullen Creek 345kV	541197
	Antelope Valley-Leland Olds 345kV	659105
	Patentgate 345kV	659390
GEN-2015-055	Erick 138kV	520903
	Hoskins-Antelope 345kV	640520
	Muskogee 345kV	515224
	Stillwell 161kV	542969
	Oasis 230kV	524875
	103rd & Rokeby-Neb. City 345kV	650189
	Crossroads 345kV	527656
	Dry Gulch 161kV	512629
	Greenwood 138kV (OKGE)	515417
	Lieberman-North Benton 138kV	508811
	Reeds Spring-Aurora 161kV	547468
	West Main 161kV	512742
	Northeastern 345kV	510406
GEN-2021-089	Tuco-Yoakum 345kV	525832
	Dadeville 161kV	547478
	Fort Randal-Meadow Grove 230kV	652509
	Sedalia 161kV	541209
	Basin 230kV	659199
	Craig-West Gardner 345kV	542977
	Gerald Gentleman 345kV	640183
	GRDA-Tonnece 345kV	512750
	Hugo Power Plant 138kV	520948
	Patentgate 115kV	659391
	S3740-S3458 345kV	645740
	Sedalia Tap-Windsor 161kV	541217
	Sumner 138kV	532984

	Battery Capacity Sited (MW)			
Co-Located Resource	F1Y5	F1Y10	F2Y5	F2Y10
Wind	90	90	90	90
Wind	80	80	160	200
Wind	40	40	80	80
Wind	37.4	72	11	200
Wind	20	40	53	60
Wind	20	20	40	40
Wind	20	20	40	40
Wind	20	20	40	40
Wind	20	20	40	40
Wind	20	20	40	40
Wind	20	20	20	20
Wind	20	20	20	20
Wind	20	20	20	20
Wind	12.6	20	40	40
Wind	0	176	176	176
Wind	0	128	0	128
Wind	0	80	0	300
Wind	0	60	0	100
Wind	0	40	80	80
Wind	0	40	0	80
Wind	0	20	60	60
Wind	0	20	40	40
Wind	0	20	0	60
Wind	0	14	0	40
Wind	0	0	0	120
Wind	0	0	0	86
Wind	0	0	0	80
Wind	0	0	0	80
Wind	0	0	0	80
Wind	0	0	0	60
Wind	0	0	0	60
Wind	0	0	0	50
Wind	0	0	0	20
Wind	0	0	0	20
Solar	144.6	94	0	325
Solar	60	60	80	80
Solar	60	60	60	60
Solar	40	60	80	80
Solar	35.4	80	140	140
Solar	20	20	60	60
Solar	20	20	42	42
Solar	20	20	20	20
Solar	20	20	20	20

Solar	20	20	20	20
Solar	0	200	128	200
Solar	0	140	40	180
Solar	0	60	60	80
Solar	0	46	40	180
Solar	0	40	80	80
Solar	0	40	40	40
Solar	0	40	0	100
Solar	0	40	0	83
Solar	0	20	0	120
Solar	0	20	0	40
Solar	0	0	20	40
Solar	0	0	20	20
Solar	0	0	20	20
Solar	0	0	20	20
Solar	0	0	20	20
Solar	0	0	20	20
Solar	0	0	20	20
Solar	0	0	0	140
Solar	0	0	0	100
Solar	0	0	0	40
Solar	0	0	0	40
Solar	0	0	0	40
Solar	0	0	0	20
Solar	0	0	0	20
Solar	0	0	0	20
Solar	0	0	0	20
Solar	0	0	0	20
Solar	0	0	0	20
Solar	0	0	0	20
Solar	0	0	0	20
Solar	0	0	0	20

2032 values are cumulative

Site Bus Name	Site Bus	PROMOD Area
Welsh 345kV	508359	American Electric Power System West
Knox Lee 138kV	508548	American Electric Power System West
Lieberman 138kV	508806	American Electric Power System West
Wilkes 138kV	508840	American Electric Power System West
Wilkes 345kV	508841	American Electric Power System West
Tulsa Power Station 138kV	509788	American Electric Power System West
Northeastern 345kV	510406	American Electric Power System West
Weleetka 138kV	510902	American Electric Power System West
Southwestern 138kV	511477	American Electric Power System West
Riverside 138kV	509783	American Electric Power System West
Sibley 345kV	541201	Kansas City Power & Light Co.
Sedalia 161kV	541209	Kansas City Power & Light Co.
La Cygne 345kV	542981	Kansas City Power & Light Co.
Iatan 345kV	542982	Kansas City Power & Light Co.
Post Rock 345kV	530583	Midwest Energy Inc.
Sooner 345kV	514803	Oklahoma Gas & Electric Company
Spring Creek 345kV	514881	Oklahoma Gas & Electric Company
Horseshoe Lake 138kV	514941	Oklahoma Gas & Electric Company
Seminole 138kV	515044	Oklahoma Gas & Electric Company
Seminole 345kV	515045	Oklahoma Gas & Electric Company
Nebraska City 345kV	645458	Omaha Public Power District
Cass County 345kV	645740	Omaha Public Power District
Antelope Valley 345kV	659101	WAPA - Upper Great Plains East
Leland Olds 345kV	659105	WAPA - Upper Great Plains East
Leland Olds 230kV	659106	WAPA - Upper Great Plains East
Spirit Mound 115kV	659121	WAPA - Upper Great Plains East
Groton 345kV	659160	WAPA - Upper Great Plains East
Judson 345kV	659333	WAPA - Upper Great Plains East
Jeffrey 230kV	532852	Westar Energy
Hoyt 345kV	532765	Westar Energy
Jeffrey 345kV	532766	Westar Energy
Emporia 345kV	532768	Westar Energy
Wichita 345kV	532796	Westar Energy
Lawrence Energy Center 230kV	532853	Westar Energy
Anadarko 138kV	520814	Western Farmers Electric Cooperative
S1363 161kV	646281	Omaha Public Power District
S1209-S1252 161kV	646252	Omaha Public Power District
Mooreland 138kV	520999	Western Farmers Electric Cooperative
		Total

Future 1 (MW)				Future 2 (MW)			
2027		*2032*		*2027*		*2032*	
CC	CT	CC	CT	CC	CT	CC	CT
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	237	0	237
0	0	0	0	0	237	0	237
0	0	0	0	0	237	0	237
0	0	0	0	0	237	0	237
0	0	0	0	0	711	0	711
0	0	0	0	0	237	0	237
0	0	0	0	0	474	0	474
0	0	0	0	0	0	0	474
0	474	0	474	0	474	0	474
0	0	0	0	0	0	0	237
0	0	0	0	0	474	0	711
0	0	0	0	0	237	0	474
0	0	0	237	0	0	0	0
0	237	0	237	0	237	0	237
0	237	0	237	0	237	0	237
0	237	0	237	0	237	0	237
0	237	0	237	0	237	0	237
0	474	0	474	0	474	0	474
0	0	0	0	0	0	0	237
0	474	0	474	0	474	0	474
0	237	0	474	0	474	0	474
0	474	0	474	0	474	0	474
0	237	0	237	0	237	0	237
0	0	0	0	0	0	0	0
0	0	0	237	0	0	0	0
0	0	0	237	0	0	0	237
0	0	0	237	0	237	0	237
0	0	0	0	0	0	0	474
0	0	0	237	0	237	0	474
0	0	0	237	0	0	0	474
0	0	0	0	0	0	0	237
0	0	0	0	0	0	0	237
0	0	0	237	0	237	0	237
0	474	0	474	0	474	0	474
0	0	0	0	0	0	0	237
0	0	0	237	0	0	0	0
0	**3792**	**0**	**5925**	**0**	**7821**	**0**	**11376**

Previous Sited Amount	Correction Description
474MW	
237MW	
474MW	Replacing Knox Lee 138kV
0MW	Replacing Welsh 345kV
237MW	
0MW	Replacing Spirit Mound 115kV

Site	Unit	Type	Zone	Cap (MW)	Study Year In-Service	Owner 1 (Siting Zone)	Owner 1% share
Sibley 345kV	CT#1	CT	GMO	237	2027	GMO	100%
Sibley 345kV	CT#2	CT	GMO	237	2027	GMO	100%
Sooner 345kV	CT#3	CT	OKGE	237	2027	OKGE	100%
Spring Creek 345kV	CT#4	CT	OKGE	237	2027	OKGE	100%
Horseshoe Lake 138kV	CT#5	CT	OKGE	237	2027	OKGE	100%
Seminole 138kV	CT#6	CT	OKGE	237	2027	OKGE	100%
Seminole 345kV	CT#7	CT	OKGE	237	2027	OKGE	100%
Seminole 345kV	CT#8	CT	OKGE	237	2027	OKGE	100%
Cass County 345kV	CT#9	CT	OPPD	237	2027	OPPD	100%
Cass County 345kV	CT#10	CT	OPPD	237	2027	OPPD	100%
S1363 161kV	CT#11	CT	OPPD	237	2027	OPPD	100%
S1363 161kV	CT#12	CT	OPPD	237	2027	OPPD	100%
Antelope Valley 345kV	CT#13	CT	UMZ	237	2027	UMZ	100%
Leland Olds 345kV	CT#14	CT	UMZ	237	2027	UMZ	100%
Leland Olds 345kV	CT#15	CT	UMZ	237	2027	UMZ	100%
Leland Olds 230kV	CT#16	CT	UMZ	237	2027	UMZ	100%
Antelope Valley 345kV	CT#17	CT	UMZ	237	2032	UMZ	100%
Judson 345kV	CT#18	CT	UMZ	237	2032	UMZ	100%
Groton 345kV	CT#19	CT	UMZ	237	2032	UMZ	100%
Jeffrey 230kV	CT#20	CT	WERE	237	2032	WERE	100%
Jeffrey 345kV	CT#21	CT	WERE	237	2032	WERE	100%
Emporia 345kV	CT#22	CT	WERE	237	2032	WERE	100%
Anadarko 138kV	CT#23	CT	WFEC	237	2032	WFEC	100%
Mooreland 138kV	CT#24	CT	WFEC	237	2032	WFEC	100%
Post Rock 345kV	CT#25	CT	MIDW	237	2032	MIDW	100%

DO NOT MOD	CT	CT	
	CC	CC	
	SO	Solar	
	WI	Wind	
	2022	9	S:S
	2027	12	V:V
	2035	15	Y:Y

Owner 2	Owner 2% share	Owner 3	Owner 3% share	Owner 4	Owner 4% share

Site	Unit	Type	Zone	Cap (MW)	Study Year In-Service	Owner 1 (Siting Zone)
Northeastern 345kV	CT#1	CT	AEPW	237	2027	AEPW
Lieberman 138kV	CT#2	CT	AEPW	237	2027	AEPW
Wilkes 138kV	CT#3	CT	AEPW	237	2027	AEPW
Wilkes 345kV	CT#4	CT	AEPW	237	2027	AEPW
Tulsa Power Station 138kV	CT#5	CT	AEPW	237	2027	AEPW
Northeastern 345kV	CT#6	CT	AEPW	237	2027	AEPW
Northeastern 345kV	CT#7	CT	AEPW	237	2027	AEPW
Weleetka 138kV	CT#8	CT	AEPW	237	2027	AEPW
Southwestern 138kV	CT#9	CT	AEPW	237	2027	AEPW
Southwestern 138kV	CT#10	CT	AEPW	237	2027	AEPW
Sibley 345kV	CT#11	CT	GMO	237	2027	GMO
Sibley 345kV	CT#12	CT	GMO	237	2027	GMO
La Cygne 345kV	CT#13	CT	KCPL	237	2027	KCPL
La Cygne 345kV	CT#14	CT	KCPL	237	2027	KCPL
Iatan 345kV	CT#15	CT	KCPL	237	2027	KCPL
Sooner 345kV	CT#16	CT	OKGE	237	2027	OKGE
Spring Creek 345kV	CT#17	CT	OKGE	237	2027	OKGE
Horseshoe Lake 138kV	CT#18	CT	OKGE	237	2027	OKGE
Seminole 138kV	CT#19	CT	OKGE	237	2027	OKGE
Seminole 345kV	CT#20	CT	OKGE	237	2027	OKGE
Seminole 345kV	CT#21	CT	OKGE	237	2027	OKGE
Cass County 345kV	CT#22	CT	OPPD	237	2027	OPPD
Cass County 345kV	CT#23	CT	OPPD	237	2027	OPPD
S1363 161kV	CT#24	CT	OPPD	237	2027	OPPD
S1363 161kV	CT#25	CT	OPPD	237	2027	OPPD
Antelope Valley 345kV	CT#26	CT	UMZ	237	2027	UMZ
Leland Olds 345kV	CT#27	CT	UMZ	237	2027	UMZ
Leland Olds 345kV	CT#28	CT	UMZ	237	2027	UMZ
Leland Olds 230kV	CT#29	CT	UMZ	237	2027	UMZ
Antelope Valley 345kV	CT#30	CT	UMZ	237	2027	UMZ
Jeffrey 230kV	CT#31	CT	WERE	237	2027	WERE
Jeffrey 345kV	CT#32	CT	WERE	237	2027	WERE
Anadarko 138kV	CT#33	CT	WFEC	237	2027	WFEC
Riverside 138kV	CT#34	CT	AEPW	237	2032	AEPW
Riverside 138kV	CT#35	CT	AEPW	237	2032	AEPW
Sedalia 161kV	CT#36	CT	GMO	237	2032	GMO
La Cygne 345kV	CT#37	CT	KCPL	237	2032	KCPL
Iatan 345kV	CT#38	CT	KCPL	237	2032	KCPL
Nebraska City 345kV	CT#39	CT	OPPD	237	2032	OPPD
S1209-S1252 161kV	CT#40	CT	OPPD	237	2032	OPPD
Hoyt 345kV	CT#41	CT	WERE	237	2032	WERE
Hoyt 345kV	CT#42	CT	WERE	237	2032	WERE

Jeffrey 345kV	CT#43	CT	WERE	237	2032	WERE
Emporia 345kV	CT#44	CT	WERE	237	2032	WERE
Emporia 345kV	CT#45	CT	WERE	237	2032	WERE
Wichita 345kV	CT#46	CT	WERE	237	2032	WERE
Lawrence Energy Center 230kV	CT#47	CT	WERE	237	2032	WERE
Judson 345kV	CT#48	CT	UMZ	237	2032	UMZ

Owner 1% share	Owner 2	Owner 2% share	Owner 3	Owner 3% share	Owner4	Owner4 % share
100%						
100%						
100%						
100%						
100%						
100%						
100%						
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100%						
100%						
50%	MIDW	50%				
100%						
100%						
100%						
100%						

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2023 ITP SITING PLAN

GREG LAMPLEY

OVERVIEW

- High Level Siting Process
- Battery/Storage and Conventional
  - Review Preliminary Results
  - Preliminary results with corrections/exceptions impacts
  - Recommendation

BATTERY/STORAGE SITING PROCESS

- 50% Solar Sites, 50% Wind Sites
- Start with Solar and Wind sites with a Battery GI Queue Request (Roughly F1: 40% of scope, F2: 25% of scope)
- The rest of the sites are pulled from the Solar and Wind sites by the same ranking we used to create the renewable siting plans
- Battery sites are limited by request amount and/or renewable site capacity (No more than 33% of renewable site capacity)

CONVENTIONAL SITING PROCESS

- Approved F1 and F2 ownership amounts are the scope for this siting plan
- Using area and availability while also taking TO feedback into account (Ranked CT Sites, # of CTs that will fit on a given site, etc.)
- Sites picked for Y5 carry into that future's Y10, but not necessarily the other future's Y5 or Y10
- No CCs this year

SITING PLAN UPDATES AND EXCEPTIONS IMPACT

- The attached spreadsheet shows corrections to the preliminary wind/solar siting plan including the following:
  - POI corrections
  - Corrections to the amount of MW sited
- No exceptions submitted
- Sites removed or reduced by corrections are reflected shown in red
- Sites that were added or had added capacity sited are shown in green

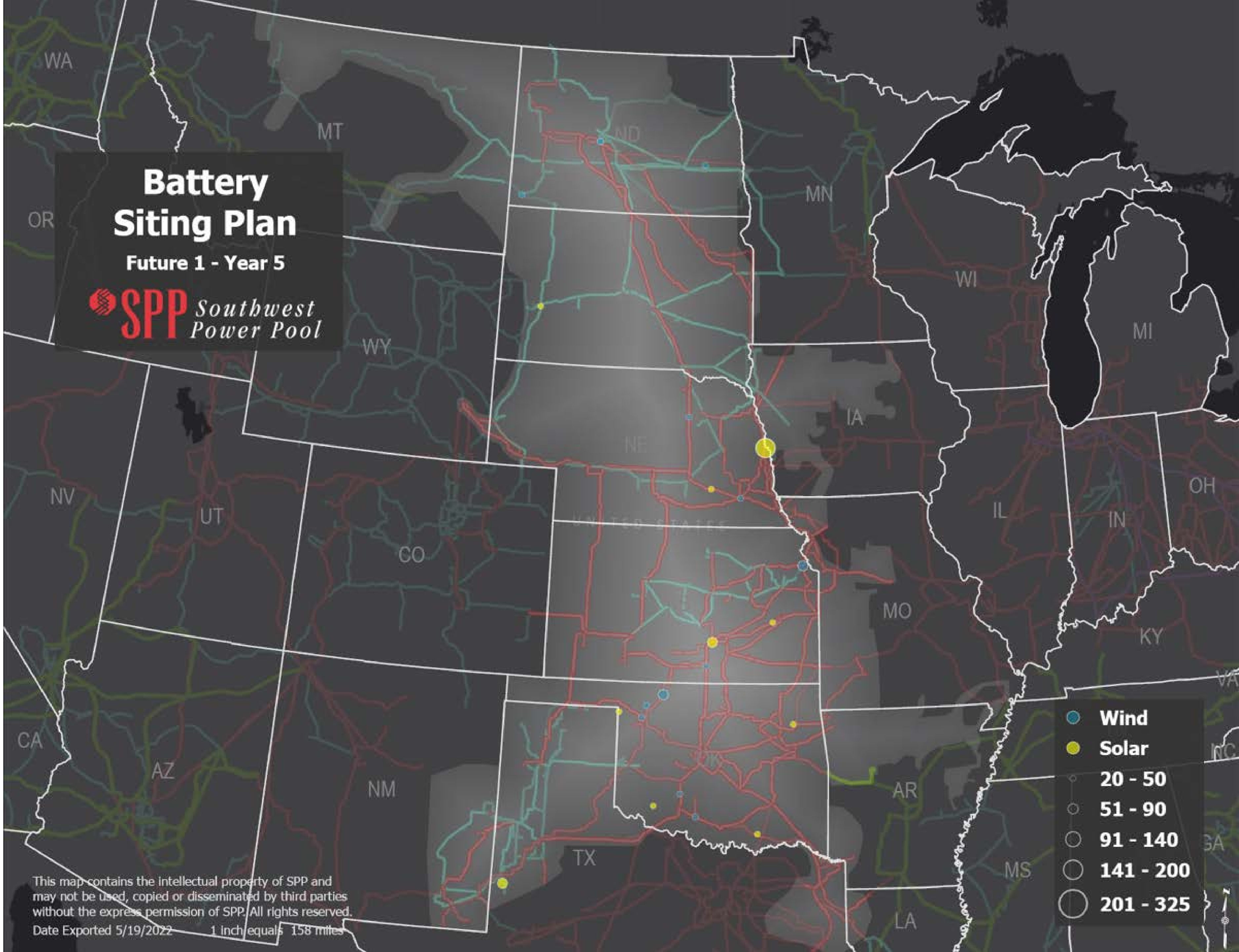
PRELIMINARY BATTERY RESULTS

- 2023 ITP Battery Scope (In Addition to Existing + RAR)
  - F1Y5: 880MW
  - F1Y10: 2200MW
  - F2Y5: 2100MW
  - F2Y10: 5300MW
- Wind Battery Sites – 34
- Solar Battery Sites – 41
- Scoped Amounts were met

F1 Y5

24 Sites Total

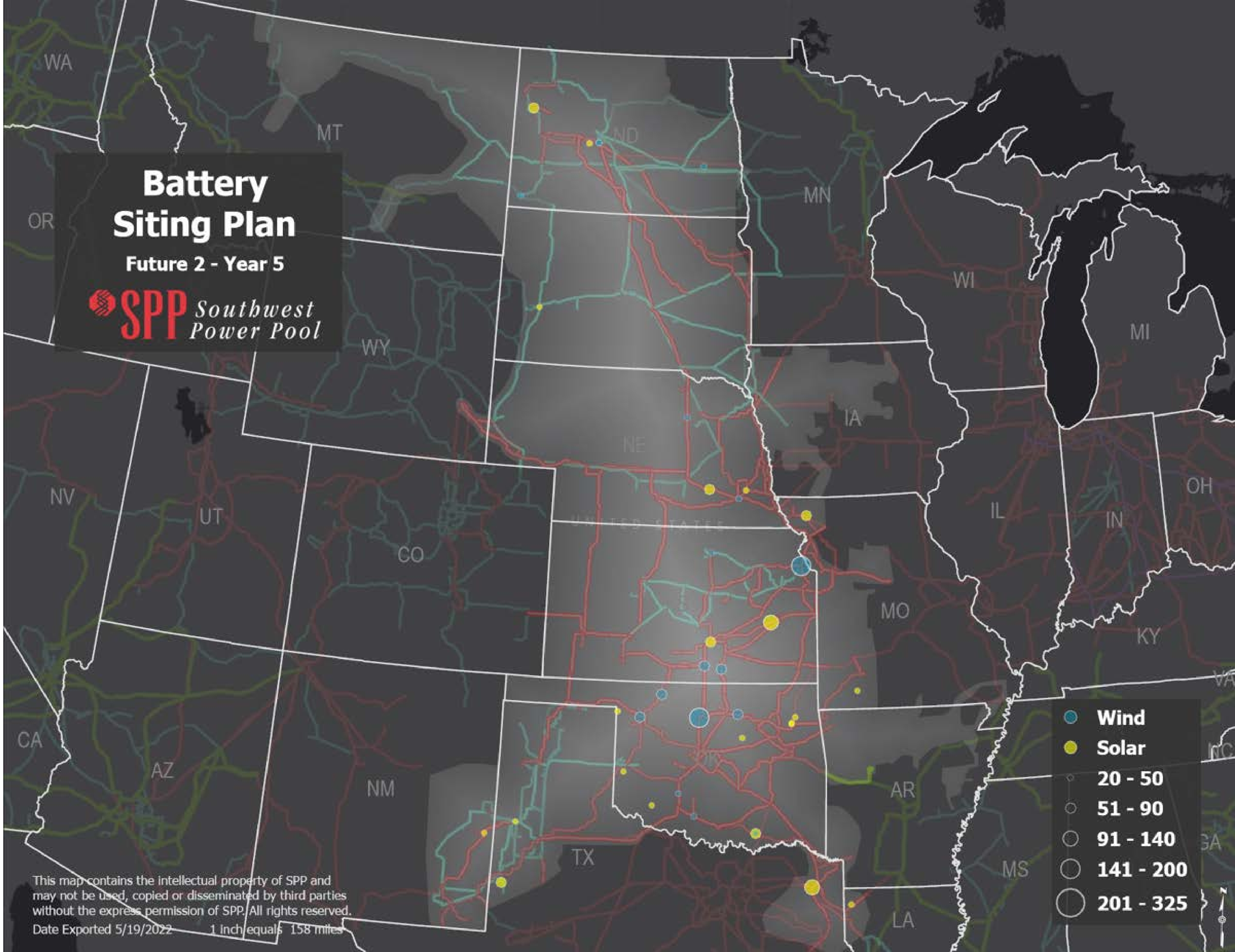
- Wind - 14
- Solar - 10



F2 Y5

40 Total Sites

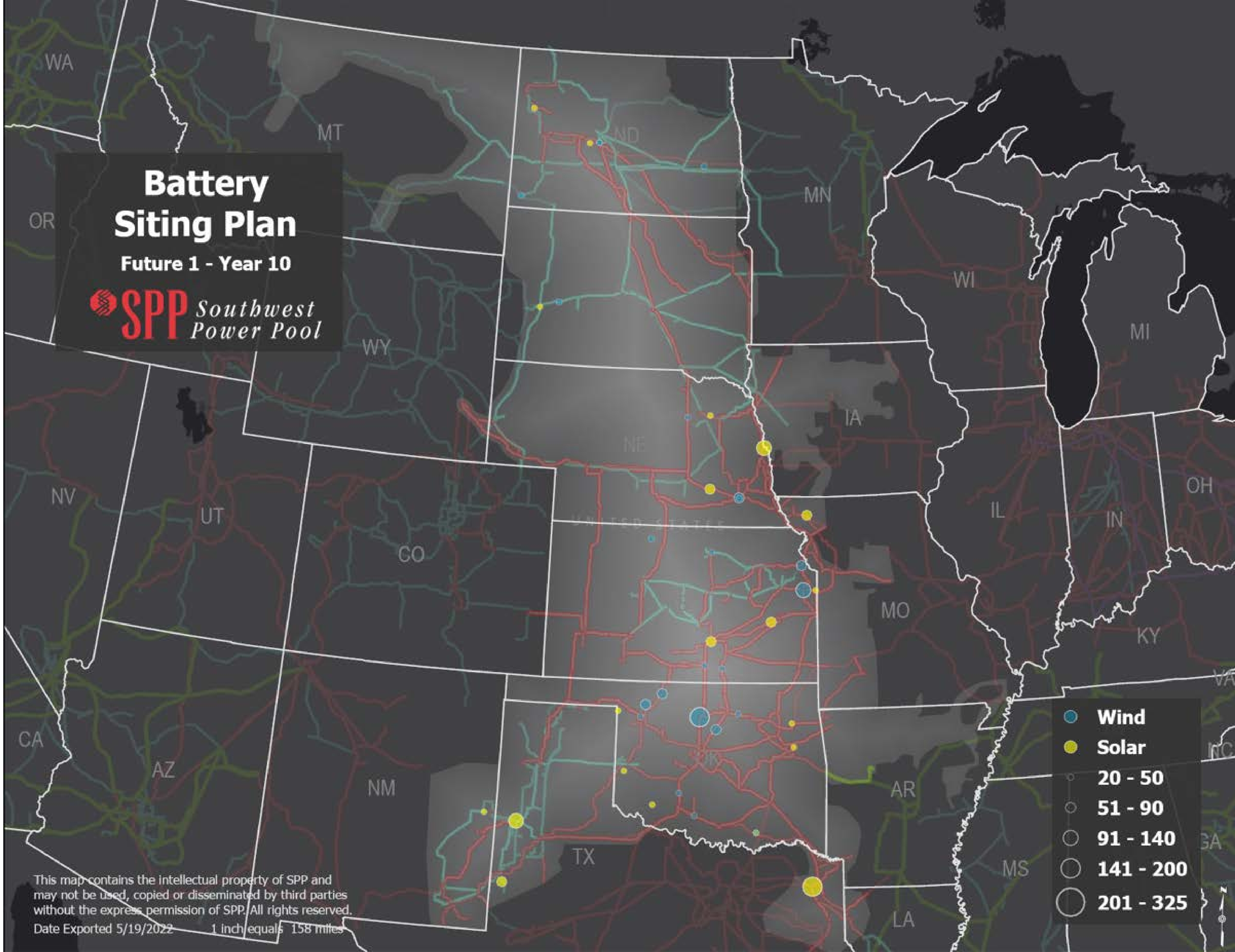
- Wind – 18
- Solar - 22



F1 Y10

44 Total Sites

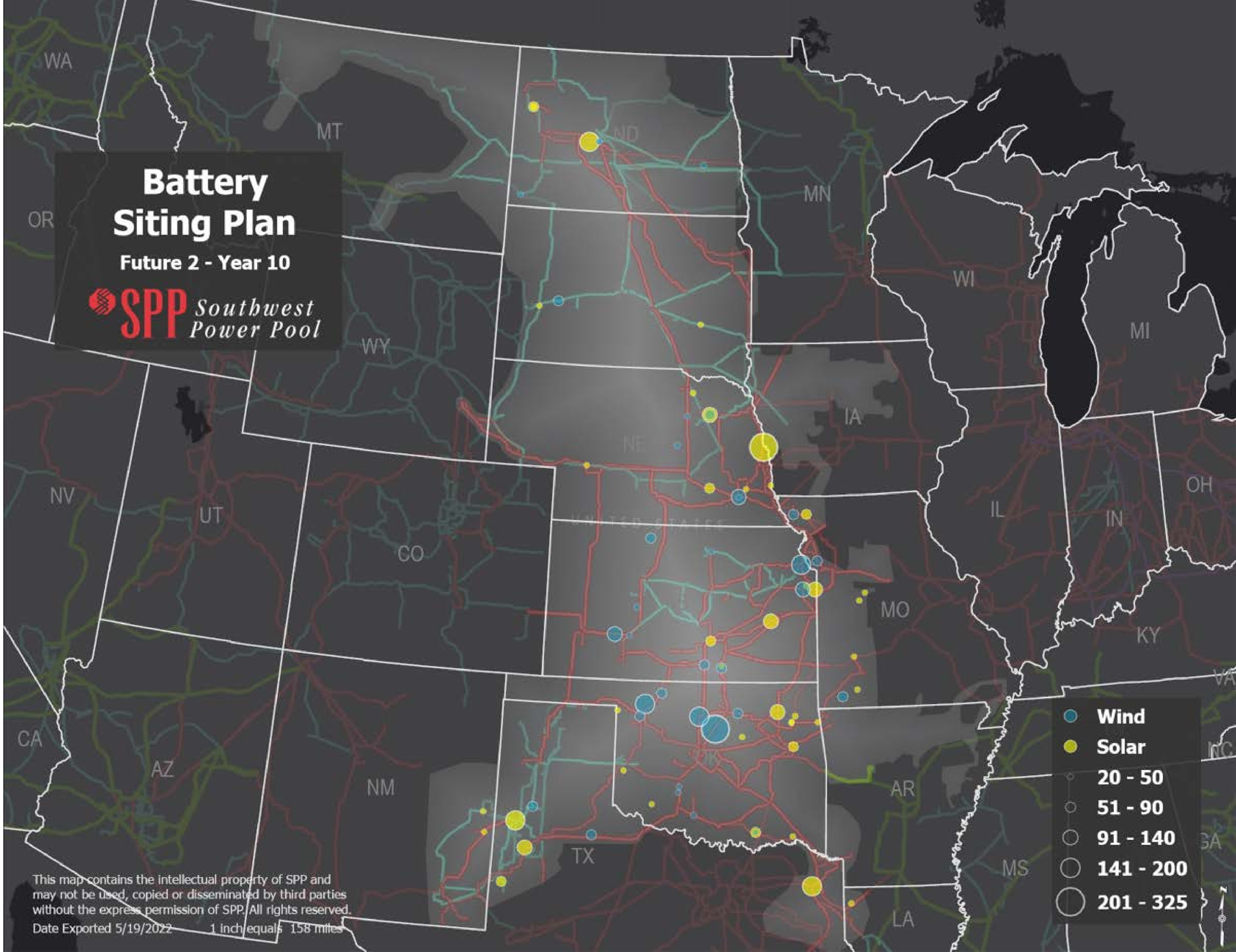
- Wind – 24
- Solar - 20



F2 Y10

75 Total Sites

- Wind – 34
- Solar - 41



RECOMMENDATION

- Approve the 2023 ITP Battery/Storage Siting Plan as it has been agreed upon today

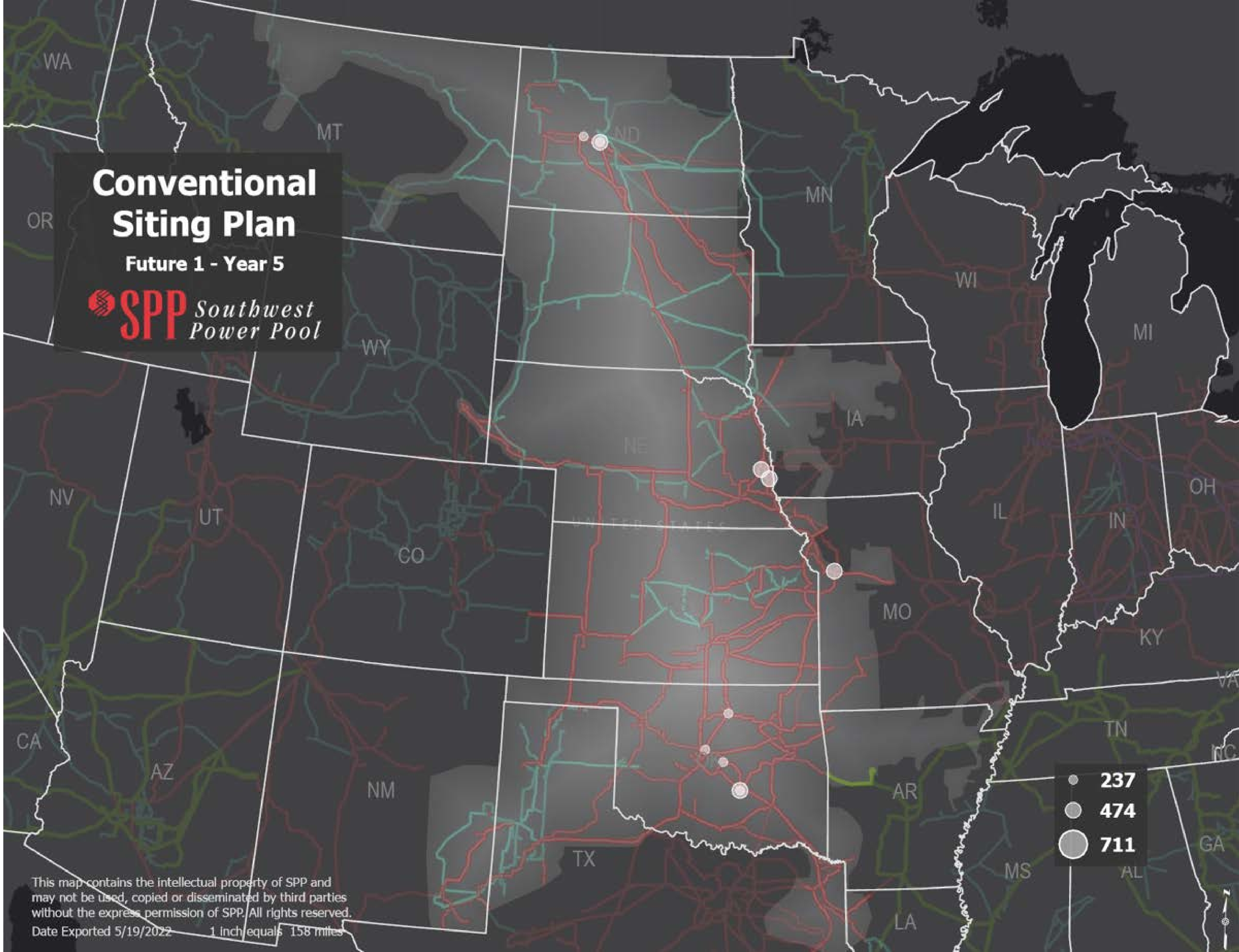
PRELIMINARY CONVENTIONAL RESULTS

- 2023 ITP Conventional Scope (From Resource Plan Phase 2)
  - F1Y5: 3792MW
  - F1Y10: 5925MW
  - F2Y5: 7821MW
  - F2Y10: 11376MW
- CTs– 48
- CCs– 0
- Amounts from RP2 were met

F1 Y5

RP2 Allocations

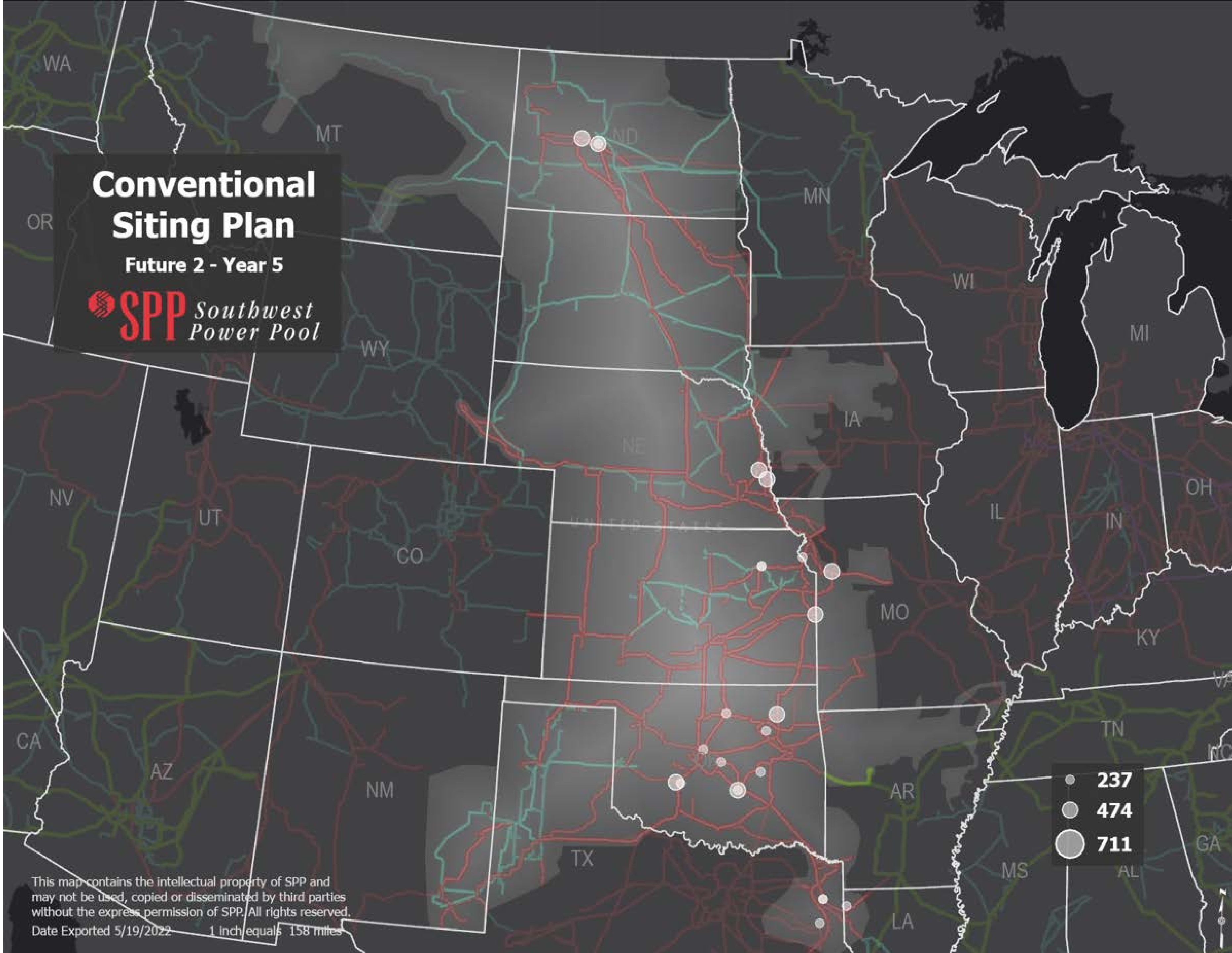
- CTs - 16



F2 Y5

RP2 Allocations

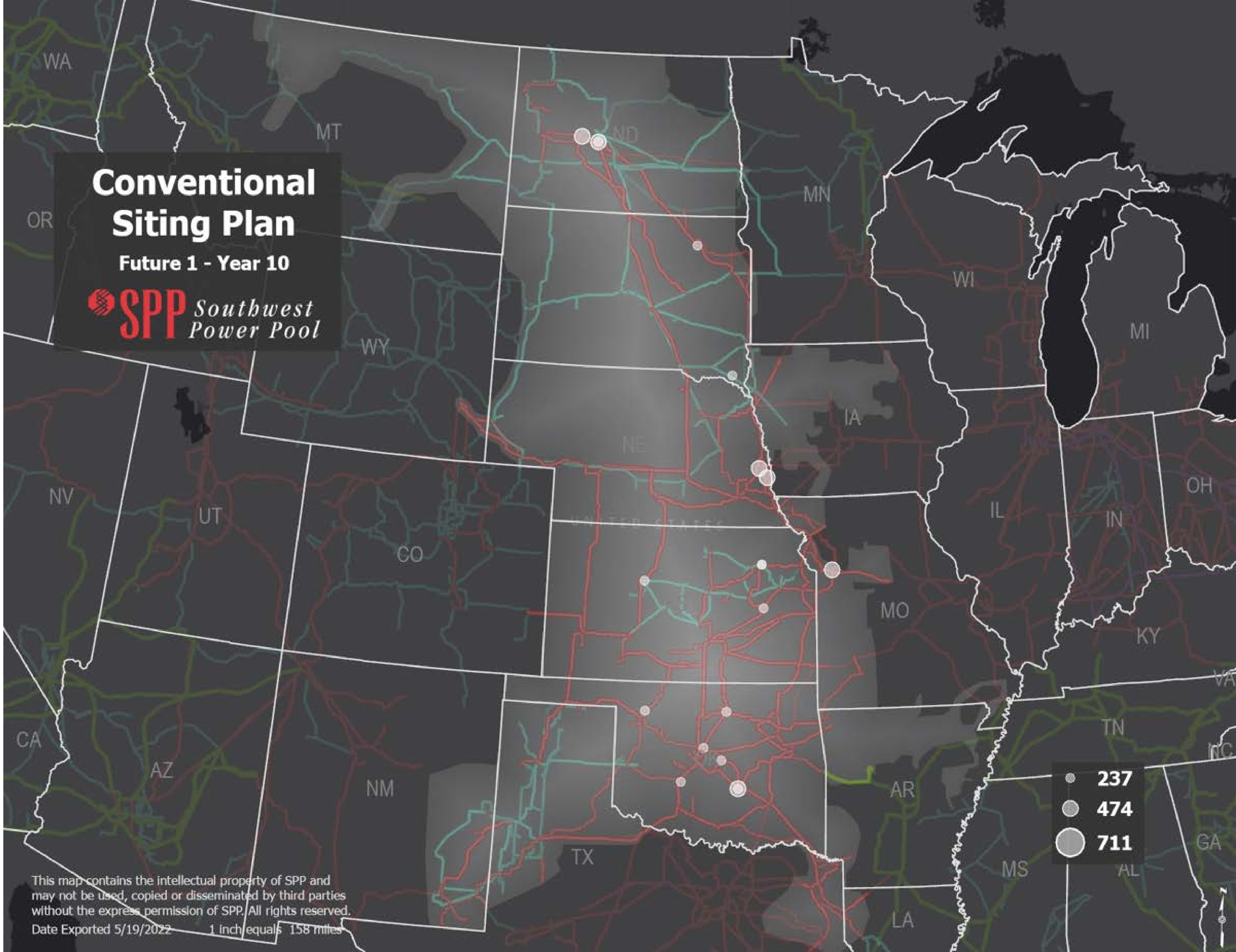
- CTs - 25



F1 Y10

RP2 Allocations

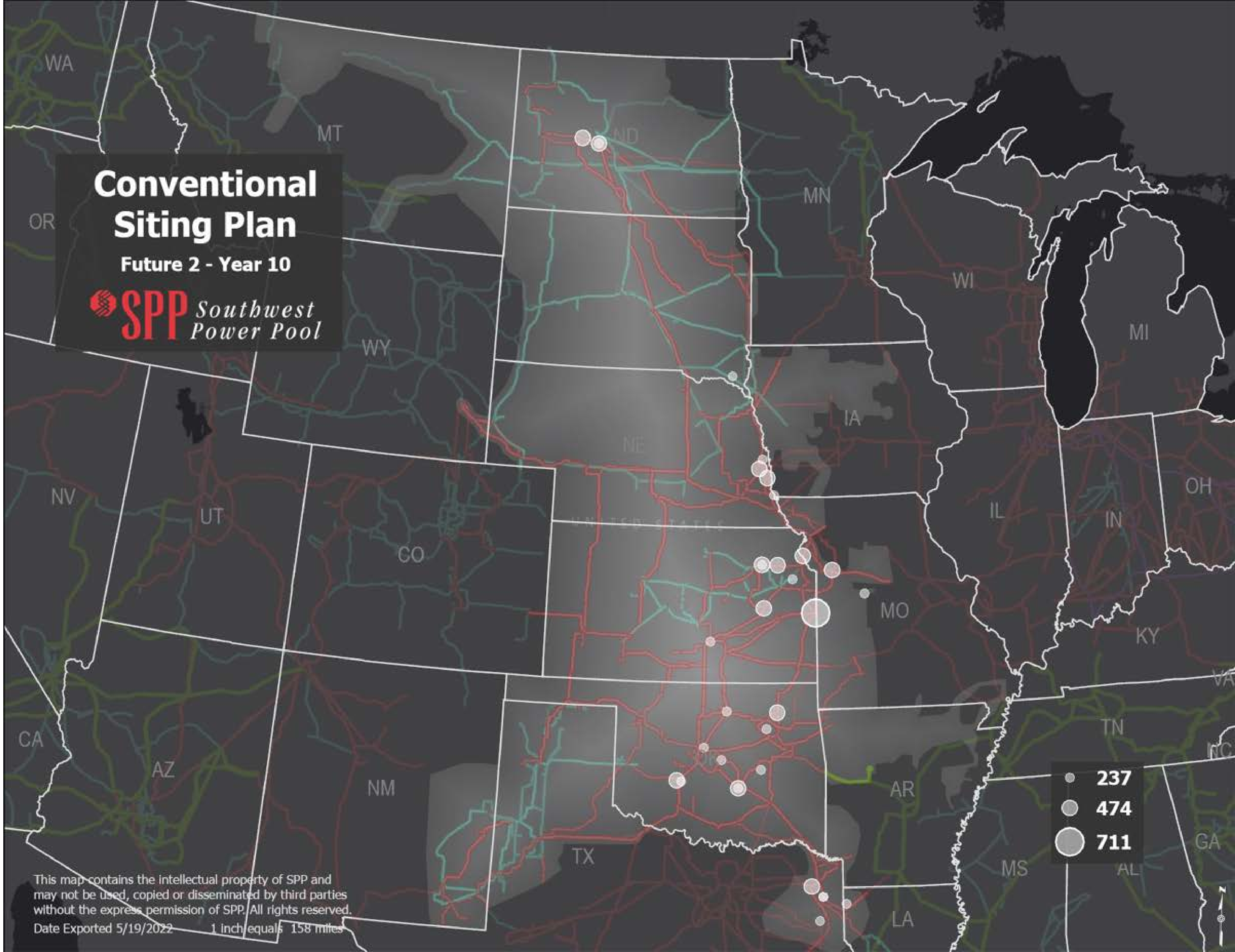
- CTs - 33



F2 Y10

RP2 Allocations

- CTs - 48



RECOMMENDATION

- Approve the 2023 ITP Conventional Siting Plan as it has been agreed upon today

NEXT STEPS

- Distributed solar review/approval via Globalscape and E-mail

APPENDIX

2023 ITP SITING PLAN HIGH LEVEL SCHEDULE

March 2022
Site Repository

April 2022
Renewable Siting Plan

May 2022
Battery/Storage & Conventional Siting Plans

June 2022
Final Siting Plan Complete

DISTRIBUTED SOLAR

- Top 10% load buses per demand group
- Scoped amounts added on pro rata basis
- Include stakeholder feedback from previous ITP cycles
- Stakeholder review window in May

EXCEPTIONS TO INITIAL SITING PLAN

- SPP to post preliminary look at siting plans
  - Stakeholders to confirm sites of interest selected for siting
  - Stakeholders to present sites not selected for siting as exceptions
  - Initial siting plan list will not ensure inclusion
  - Any capacity approved as an exception by ESWG removed from lowest ranked sites
- Stakeholder materials on requested exceptions must include:
  - Generation interconnection status
  - PPA, firm service, or utility ownership information
  - Status of necessary regulatory filings and/or approvals
  - Procurement of financing
  - PTC safe harbor eligibility
  - Additional supporting information (public announcements, etc.)
- Template to be sent with exception solicitation

GOVERNING DOCUMENTS - SITING

- ITP Resource Siting Manual
  - Updates approved by ESWG and TWG except for the baseline sites
- ITP Resource Siting Whitepaper
  - Contains Lessons Learned and Process Improvements
- 2023 ITP Scope-MOPC Approved

GREG LAMPLEY

Engineer II, Transmission Planning

Please feel free to contact us at
glampley@spp.org

2023 **ITP**

GENERATOR OUTLET FACILITIES - UPDATE

SPENCER MAGBY

JUNE 2022

OVERVIEW

- Preliminary Generator Outlet Facilities (GOFs)
- Next Steps

PRELIMINARY RAR/WAIVER GOF

Model Correction: Newhart – Plant X 230 kV (478/546 MVA Summer, 552.1/607.5 MVA Winter)		
POI	**MW Sited**	**GI Queue Details**
Roadrunner 115kV*	110 MW	Assigned 14.4% of original cost of the upgrade in DISIS-2016-002
*This upgrade was included in the 2022 ITP		

- Upgrade Cost: $697,514
- Included as a Section 10.3
  - This item was discussed in the May meeting

NEXT STEPS

- No renewable GOFs
- No Battery / Conventional GOFs as of now
  - Other GOF candidates have dropped due to siting adjustments
  - Analysis ongoing
- June 28 TWG approval
  - Potential email vote before this meeting

2023 **ITP**

SECTION 10.3 UPDATES

EDDIE WATSON

JUNE 2022

OBJECTIVE

- Provide TWG and ESWG information on submitted model change/waiver requests for the 2023 ITP planning models
  - SUNC - Facility ratings update

SECTION 10.3 REQUEST – SUNC

- Request Summary
  - Updated line/facility ratings
- Model Impact
  - Small set of line rating changes – 19 lines/facilities
  - Includes derates and uprates
- Schedule Impact
  - No schedule impact

DETAILS/DISCUSSION OF CHANGES BY SUNC

- Details and/of discussion of requested changes and waiver request, as applicable

10.3 IMPLEMENTATION

- Recommendation: Staff recommends implementing changes as part of proposed initial final 2023 ITP Base Reliability models
  - Changes will also be included in 2023 ITP Market Economic Models
  - There are no schedule impacts to accepting these changes
- SPP staff is able to reasonably accommodate these Section 10.3 waiver submissions in applicable model builds, as outlined, given TWG and/or ESWG approval

20YA – SITING PLAN

UPCOMING REVIEW

- 20-Year Assessment Site Repository
  - What's different from 2023 ITP site repository recently reviewed?
    - Adding ranking column for potential renewable sites (CF*FCITC)
    - Retiring conventional sites will be marked as potential renewable sites

NEXT STEPS

- Review Site Repository and provide feedback
- Review renewable siting plans (F1, F2, F3/4)

APPENDIX

SITING PLAN SCOPE ACTION ITEMS

ID	Description	Milestone(s)	Status Update (from December)
11	Determine resource addition strategy	Siting / Generator Outlet Facilities (GOFs) / Constraint Assessment	*In progress – goal is now Jan. ESWG*
12	EPRI transmission capacity hosting tool/SPP initiative for siting	Siting / GOFs / Constraint Assessment	*In progress – goal is now Jan. ESWG*
14	Hybrid Solar/Renewable and Battery Modeling and GI Surplus Capacity	Siting / MEM	*In progress – goal is now Jan. ESWG*

11 - DETERMINE RESOURCE ADDITION STRATEGY

- 2022 ITP sites as the 10-year plan
- remaining wind/solar sites added to the highest 10-20% capacity factor (CF)*FCITC potential sites in footprint
- Site repository expanded to include retiring conventional sites for wind/solar placement

12 - EPRI TRANSMISSION CAPACITY HOSTING TOOL/SPP INITIATIVE FOR SITING

- For the 20YA we will continue current FCITC process used in ITP assessments
- If schedule allows we will test the EPRI tool and benchmark against the FCITC process

14 - HYBRID SOLAR/RENEWABLE AND BATTERY MODELING AND GI SURPLUS CAPACITY

- Where applicable we will use PROMOD 11.4 hybrid modeling capabilities
- Surplus capacity utilization will be increasingly an area of focus in the 10-year ITP assessments, but not in this 20-year

SPP Southwest Power Pool

20-YEAR ASSESSMENT

RESOURCE PLAN PHASE II – EFFECTIVE LOAD CARRYING CAPABILITY (ELCC)

ANTONIO BARBER

JUNE 2022

OBJECTIVE

- Review Effective Load Carrying Capability (ELCC) assumptions 20-Year Assessment (20YA)

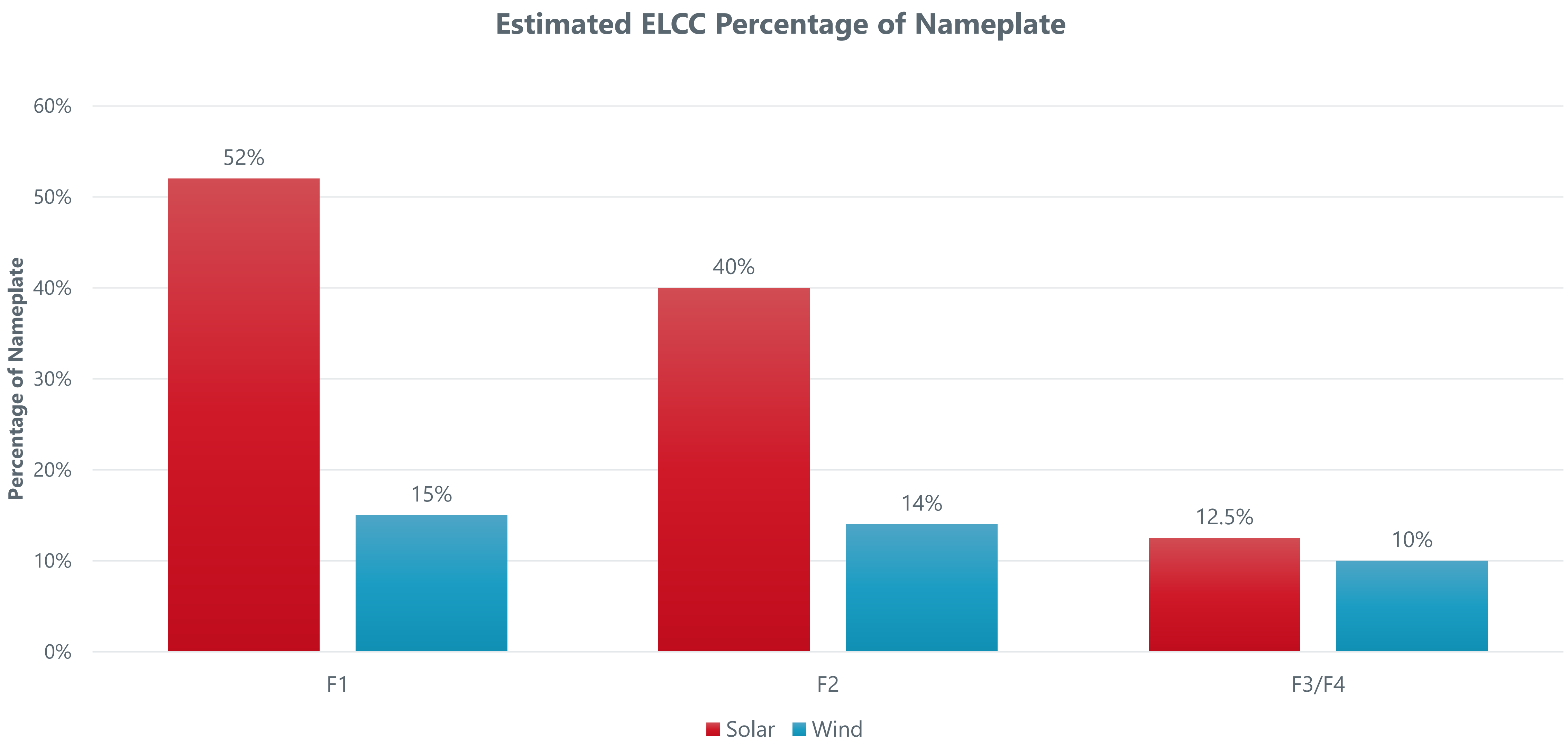
2022 20YA SCOPE

	DRIVERS			
KEY ASSUMPTIONS	Future 1 (F1) - 2022 ITP Reference Case	Future 2 (F2) - 2022 ITP Emerging Technologies	Future 3 (F3) - Accelerated Decarbonization (New administration and aggressive energy/ environmental policy change)	Future 4 (F4) - Based on SPP F3 with hurdle rate of zero between MISO and SPP
YEAR	20	20	20	20
Energy Efficiency	As submitted in load forecast	As submitted in load forecast	Increase in F2	Increase in F2
Storage	20% of projected solar	35% of projected solar	Increase from F2	Increase from F2
Total Renewable Capacity				
Solar (GW)	19	27	48 Additional capacity determined by resource planning software	48 Additional capacity determined by resource planning software
Wind (GW)	41	50	65 Additional capacity determined by resource planning software	65 Additional capacity determined by resource planning software
Additional Assumptions				

ACCREDITATION OVERVIEW

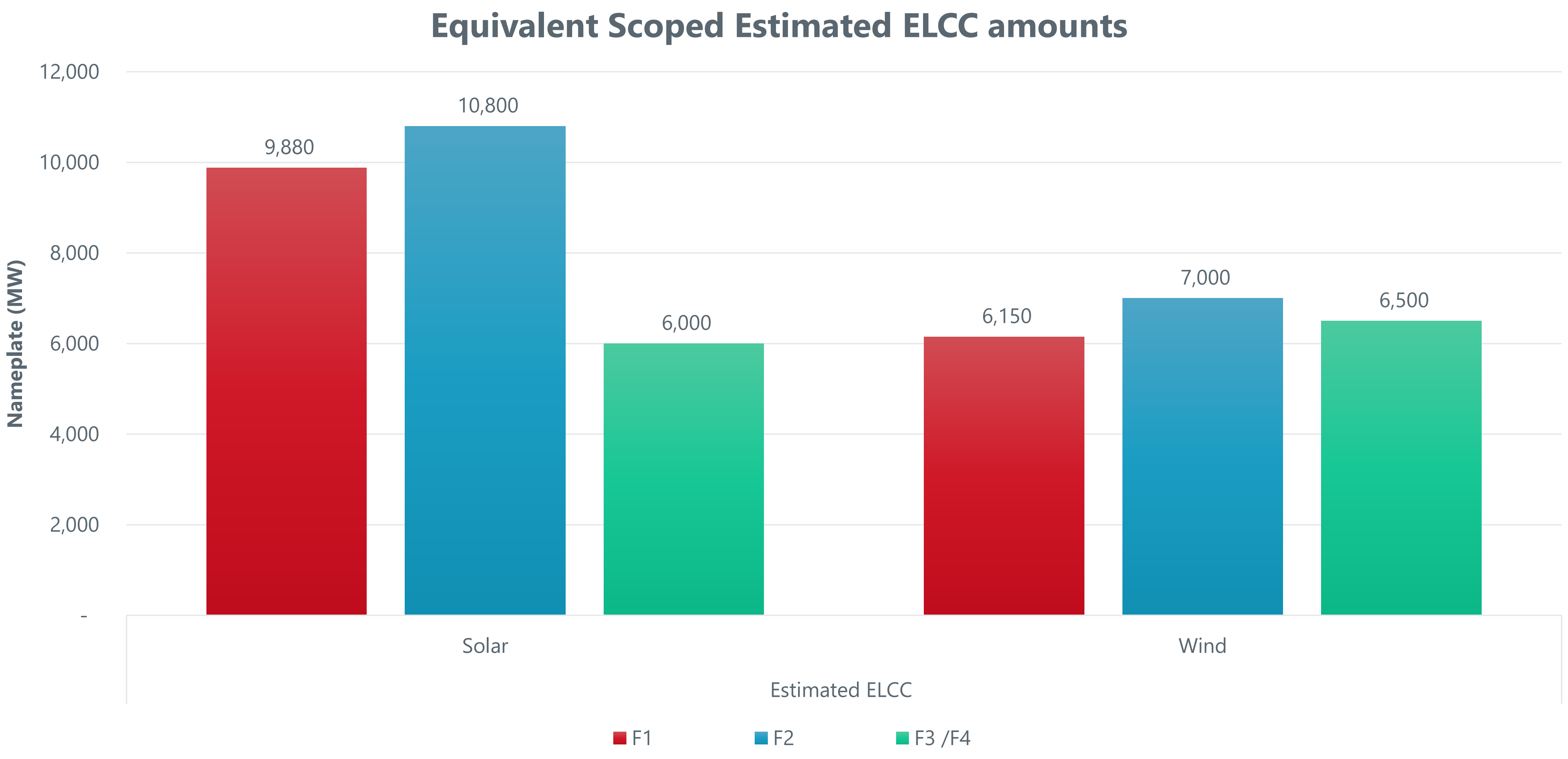
- Existing renewable units will follow SPP Planning Criteria 7.1.6.1
- Accredited renewable and ESR capacity will be based on the approximate average ELCC for the respective resource
  - Values based upon latest report
    - Solar and Wind
    - Energy Storage

EFFECTIVE LOAD CARRYING CAPABILITY (ELCC)



Disclaimer : Values are estimated for the 20-yr Assessment study only

EFFECTIVE LOAD CARRYING CAPABILITY (ELCC)



 Disclaimer : Values are estimated for the 20-yr Assessment study only

NEXT STEPS

- Staff will continue the 20YA Resource Plan Phase II for all Futures with the Estimated ELCC Percentages of Nameplate, as discussed on the previous slides.

SPP Southwest Power Pool

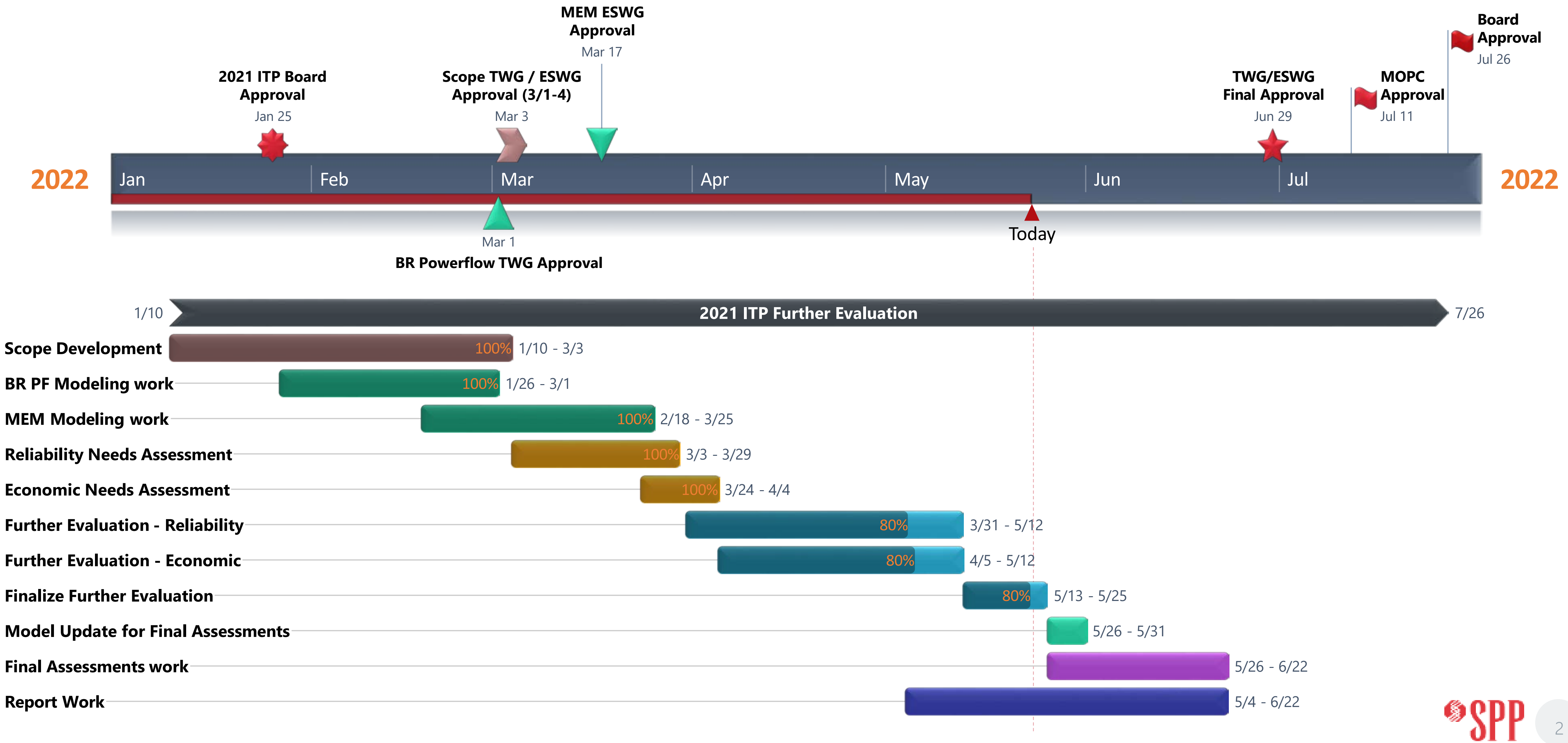
2021 ITP

FURTHER EVALUATION OF THE CROSSROADS-PHANTOM 345 KV PROJECT - SCHEDULE

DARA SOLOMON

JUNE 2022

2021 ITP FURTHER EVALUATION OF CROSSROADS-PHANTOM 345 KV PROJECT



SPP

FURTHER EVALUATION – RELIABILITY & ECONOMIC

- Start: 3/31/2022
- Finish: 5/25/2022

- Member Review Time:
  - June TWG / ESWG meetings:
    - 6/1-2 ESWG (Posting: 5/24/2022): 5/25/2022 – 6/01/2022 (5 days)
    - 6/7-8 TWG (Posting: 5/31/2022): 6/01/2022 – 6/07/2022 (5 days)

- Staff Leaders:
  - Reliability – Chris Davis (cdavis@spp.org)
  - Economic - Kirk Hall (khall@spp.org)
- Working Group Approval: TWG / ESWG

MODEL UPDATES FOR FINAL ASSESSMENT

- Start: 5/26/2022
- Finish: 5/31/2022

- Staff Leader: David Duhart (dduhart@spp.org)
- Working Group Approval: TWG

FINAL ASSESSMENTS WORK
(STAGING, APC BENEFIT METRIC, FINAL RELIABILITY ASSESSMENT & SENSITIVITY ANALYSIS, IF NEEDED)

- Start: 5/26/2022
- Finish: 6/22/2022
- Final Stakeholder Approval: 6/30/2022

- Member Review:
  - Final Approval (Posting Deadline: 6/22/2022): 6/23/2022 – 6/29/2021 (5 days)
  - Joint TWG / ESWG: 6/29-30/2022

- Staff Leader: Kirk Hall (khall@spp.org)
- Working Group Approval: TWG / ESWG

FINAL REPORT ADDENDUM

- Start: 5/17/2022
- End: 6/30/2022

- Member Review:
  - Final Approval (Posting Deadline: 6/22/2022): 6/23/2022 – 6/29/2021 (5 days)
  - Joint TWG / ESWG: 6/29-30/2022

- Staff Leader: Tammy Bright (tbright@spp.org)
- Working Group Approval: TWG / ESWG

TWG/ESWG FINAL APPROVALS

- Start: 6/03/2022
- End: 6/30/2022

- Member Review:
  - Final Approval (Posting Deadline: 6/22/2022): 6/23/2022 – 6/29/2021 (5 days)
  - Joint TWG / ESWG: 6/29-30/2022

- Staff Leaders:
  - TWG – Sherri Maxey (smaxey@spp.org)
  - ESWG – Joshua Norton (jnorton@spp.org)

MARKET & OPERATIONS POLICY COMMITTEE (MOPC), STRATEGIC PLANNING COMMITTEE (SPC) & SPP BOARD OF DIRECTORS

- MOPC: July 11-12, 2022
- SPC: July 13, 2022
- Quarterly Joint Stakeholder Meeting: July 25, 2022
- SPP Board of Directors: July 26, 2022

CONTACT INFO

Dara Solomon, SPP Staff

dsolomon@spp.org

SPP Southwest Power Pool

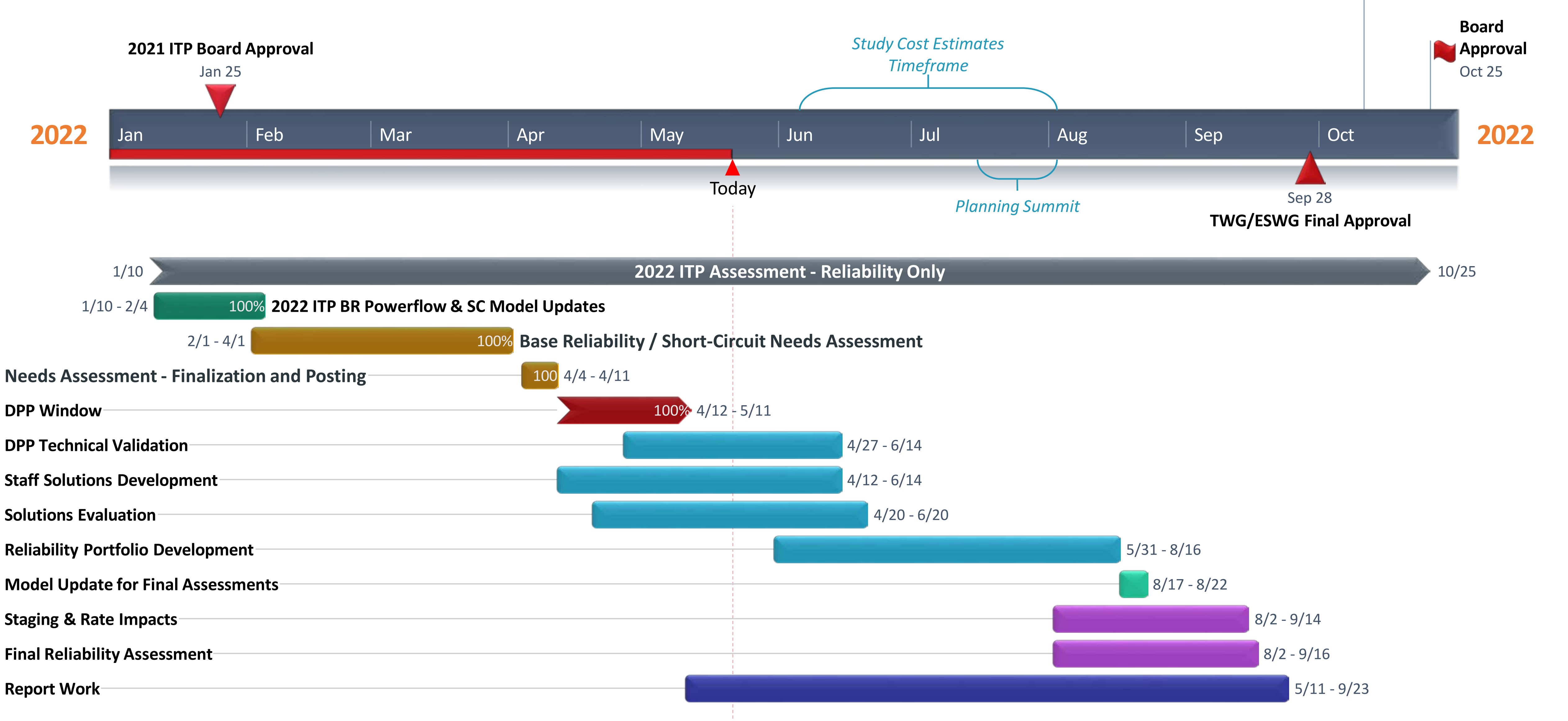
2022 **ITP**

SCHEDULE UPDATE

DARA SOLOMON

JUNE 2022

2022 ITP ASSESSMENT – RELIABILITY ONLY



DETAILED PROJECT PROPOSAL (DPP) WINDOW (COMPLETE)

- Start: 4/12/2022 12:00 a.m.
- End: 5/11/2022 11:59 p.m.

- Member Review Time:
  - Transmission-planning response window (30 calendar days)

- Staff Leader: Tammy Bright (tbright@spp.org)

DPP TECHNICAL VALIDATION

- Start: 4/27/2022
- End: 6/14/2022

- Staff Leader: Jake Pannell (jpannell@spp.org)

SOLUTIONS DEVELOPMENT

- Start: 4/12/2022
- End: 6/14/2022

- Staff Leader: Antonio Barber (abarber@spp.org)

SOLUTIONS EVALUATION

- Start: 4/20/2022
- End: 6/20/2022

- Staff Leaders:
  - Reliability: Ahmed Alazzawi (aalazzawi@spp.org)
  - Short Circuit: Nathan Bean (nbean@spp.org)

RELIABILITY PORTFOLIO DEVELOPMENT

- Start: 5/31/2022
- End: 8/16/2022

- Member Review Time:
  - TBD

- Staff Leader: Maurisa Hughes (mghughes@spp.org)

- Working Group Approval: TWG

STUDY COST ESTIMATES

- Start: June 9, 2022
- End: August 5, 2022

Batch	Day of Week	Date	Event
1	Thursday	6/9/2022	Study Cost Window opens/Batch 1 of requests is sent to T.O.s
	Friday	7/8/2022	Batch 1 estimates are due from T.O.s in TRAC
2	Thursday	6/23/2022	Batch 2 of requests is sent to T.O.s
	Friday	7/22/2022	Batch 2 estimates are due from T.O.s in TRAC
3	Thursday	7/7/2022	Batch 3 of requests is sent to T.O.s
	Friday	8/5/2022	Batch 3 estimates are due from T.O.s in TRAC

- Staff Leader: John O’Dell (jodell@spp.org)

PLANNING SUMMIT

- Start: July 2022 (specific date TBD)
- End: August 2022 (specific date TBD)

- Staff Leader: Tammy Bright (tbright@spp.org)

MODELING UPDATES FOR FINAL ASSESSMENTS

- Start: 8/17/2022
- End: 8/22/2022

- Staff Leader: David Duhart (dduhart@spp.org)

PROJECT STAGING

- Start: 8/2/2022
- End: 8/30/2022

- Member Review Time:
  - TBD

- Staff Leader: Antonio Barber (abarber@spp.org)
- Working Group Approval: TWG

FINAL RELIABILITY ASSESSMENT

- Start: 8/17/2022
- End: 9/16/2022

- Member Review Time:
  - TBD

- Staff Leader: Maurisa Hughes (mghughes@spp.org)
- Working Group Approval: TWG

RATE IMPACTS/ATRR

- Start: 9/1/2022
- End: 9/14/2022

- Staff Leader: Antonio Barber (abarber@spp.org)
- Working Group Approval: TWG

FINAL REPORT

- Start: 5/11/2022
- End: 9/22/2022

- Member Review Time:
  - Final Report (posting 9/23/22): 9/23/2022 – 9/28/2022 (5 days)

- Staff Leader: Tammy Bright (tbright@spp.org)

TWG/ESWG FINAL APPROVALS

- Start: 9/21/2022
- End: 9/28/2022

- Member Review Time:
  - Final Approval (posting 9/21/22): 9/22/2022 – 9/28/2022 (5 days)

- Staff Leaders:
  - TWG – Sherri Maxey (smaxey@spp.org)
  - ESWG – Joshua Norton (jnorton@spp.org)

MOPC AND SPP BOARD

- MOPC: 10/10-11/2022
- SPP Board: 10/25/2022

CONTACT INFO

Dara Solomon, SPP Staff

dsolomon@spp.org

SPP Southwest Power Pool

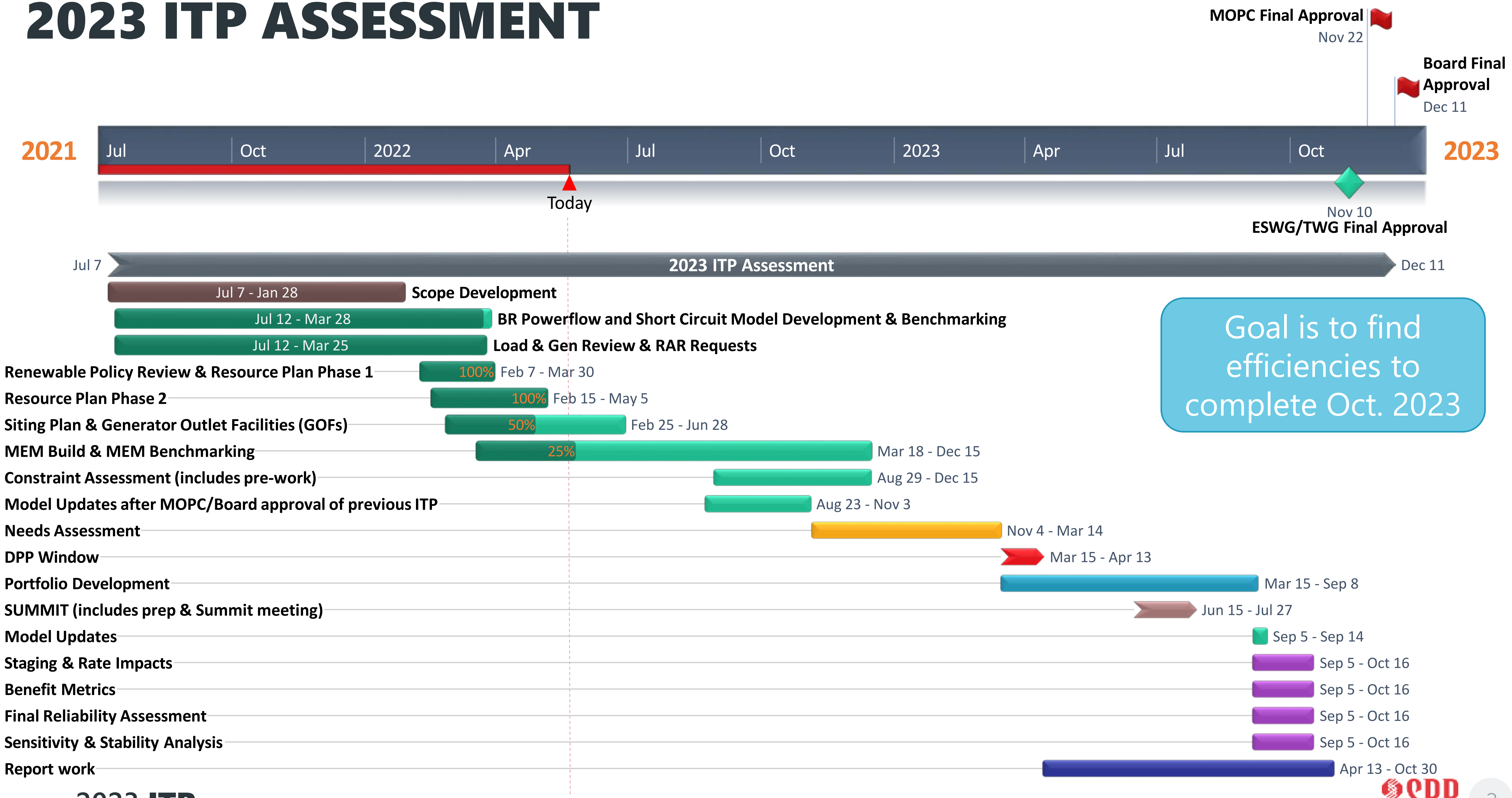
2023 **ITP**

SCHEDULE UPDATE

DARA SOLOMON

JUNE 2022

2023 ITP ASSESSMENT



BASE RELIABILITY POWERFLOW & SHORT CIRCUIT MODELS

- Start: 7/06/2020
- Initial Final Approval: 3/28/2022 (BR & Short-Circuit)
- BR Powerflow & SC – Initial Final Approval: 3/30-31/2022 (TWG)
- BR Power & SC – Final Final Approval: Nov. 2022 (TWG)

- Member Review Time:
  - *Pass 0 – Trial 1 (Posting: 7/12/2021): 7/12/2021 – 7/23/2021 (5 days)*
  - *Pass 1 – Trial 1 (Posting: 9/10/2021): 9/13/2021 – 10/1/2021 (15 days)*
  - *Pass 1 – Trial 2 (Posting: 10/29/2021): 10/29/2021 – 11/26/2021 (3 days)*
  - *Final Submission Deadline: 11/29/2021**
  - *Pass 2 – BR Powerflow (Posting: 1/28/2022): 1/28/2022 – 2/18/2022 (15 days)*
  - *Pass 2 – SC (Posting: 1/31/2022): 1/31/2022 – 2/18/2022 (14 days)*
  - *Pre-Initial Final Initial ITP (Posting: 3/4/2022): 3/4/2022 – 3/11/2022 (5 days)*
  - *Initial Final BR Powerflow TWG Approval (Posting: 3/18/2021): 3/21/2022 – 3/28/2022 (5 days)*
  - *Initial Final Short-Circuit TWG Approval (Posting: 3/18/2021): 3/21/2022 – 3/28/2022 (5 days)*
  - *Initial Final BR Powerflow TWG Approval requested via email: 3/28/2022*

- Staff Leader: Hugh Benfer (hbenfer@spp.org)
- Working Group Approval: TWG

* Data Submitters – Final Submission of Generator Additions, Retirements, Pmin & Pmax, Loads, and Interchange Corrections through MOD & EDST

RESOURCE PLAN PHASE 2 (COMPLETE)

- Start: 2/15/2022
- End: 5/05/2022

- Member Review Time:
  - ESWG Approval: 3/31/2022 – 4/06/2022 (5 days)

- **Staff Leader:** Antonio Barber (abarber@spp.org)
- Working Group Approval: ESWG

SITING PLAN

- Start: 2/07/2022
- End: 6/15/2022
- Member Review Time:
  - *Site Repository (posted 3/11): 3/12/2022 – 3/18/2022 (5 days) (Posting final Site Repository: 4/01/2022)*
  - *Site Assignments Review – Renewable (posting: 4/15): 4/18/2019 – 4/22/2019 (5 days)*
  - *Site Assignments Review for Approval – Renewable (posting: 4/27): 4/28/2022 – 5/04/2022 (5 days)*
  - *Site Assignments – Renewable Approval: 5/04-05/2022 ESWG Meeting*
  - *Site Assignments Review – Conventional & Battery/Storage (posting: 5/17): 5/18/2022 – 5/24/2022 (5 days)*
  - Site Assignments Review for Approval – Conventional & Battery/Storage (posting: 5/25): 5/25/2022 – 6/01/2022 (5 days)
  - Site Assignments – Conventional & Battery/Storage Approval: 6/01-02/2022 ESWG Meeting
  - Site Assignments Review – Distributed Solar (posting: 5/27): 5/28/2022 – 6/03/2022 (5 days)
  - Site Assignments Review for Approval – Distributed Solar (posting: 6/6): 6/7/2022 – 6/13/2022 (5 days)
  - Site Assignments – Distributed Solar for Approval via email vote: 6/13/2022 – 6/15/2022
- Staff Leader: Greg Lampley (glampley@spp.org)
- Working Group Approval: ESWG

GENERATOR OUTLET FACILITIES (GOFS)

- Start: 2/07/2022
- End: 6/28/2022

- Member Review Time:
  - *TWG Review (posting: 4/25): 4/26/2022 – 5/03/2022 (5 days)*
  - TWG Review (posting: 5/31): 6/01/2022 – 6/07/2022 (5 days)
  - GOFs Review for Approval (posting: 6/10): 6/13/2022 – 6/17/2022 (5 days)
  - GOFs Request for motion to approval via email: 6/20/2022 /OR/ seek approval at 6/29/2022 July Joint ESWG/TWG meeting

- Staff Leader: Spencer Magby (smagby@spp.org)
- Working Group Approval: TWG

MARKET ECONOMIC MODEL (MEM) BUILD

- Start: 3/18/2022
- End: 12/15/2022

- Member Review Time:
  - MEM Pass 1 – Year 2 for Review (Posting: 6/14/2022): 6/15/2022 – 6/21/2022 (5 days)
  - MEM Pass 1 – Year 2 for Approval (Posting: 6/30/2022): 7/01/2022 – 7/08/2022 (5 days)
    - Email vote for approval: 7/08/2022 – 7/13/2022
  - MEM – Years 5/10: TBD

- Staff Leader: Charlton Hill (chill@spp.org)
- Working Group Approval: ESWG

CONSTRAINT ASSESSMENT

- Start: 8/29/2022
- End: 12/15/2022

- Member Review Time:
  - TBD

- Staff Leader: Maurisa Hughes (mghughes@spp.org)
- Working Group Approval: ESWG

NEEDS ASSESSMENT

- Start: 11/04/2022
- End: 3/14/2023

- Member Review Time:
  - Needs Assessment scheduled to post 3/14/2023

- Staff Leaders:
  - Economic & Policy Needs: Spencer Magby (smagby@spp.org)
  - Reliability Needs: Greg Lampley (glampley@spp.org)
  - Short-Circuit Needs: Nathan Bean (nbean@spp.org)

DETAILED PROJECT PROPOSAL (DPP) WINDOW

- Start: 3/15/2023 12:00 a.m.
- End: 4/13/2023 11:59 p.m.

- Member Review Time:
  - Transmission-planning response window (30 calendar days)

- Staff Leader: Tammy Bright (tbright@spp.org)

DPP TECHNICAL VALIDATION

- Start: 3/30/2023
- End: 5/16/2023

- Staff Leader: Krishada Watson (kwatson@spp.org)

SOLUTIONS DEVELOPMENT

- Start: 3/15/2023
- End: 5/16/2023

- Staff Leader: Drake Hill (dhill@spp.org)

SOLUTIONS EVALUATION

- Start: 3/20/2023
- End: 5/22/2023

- Staff Leaders:
  - Reliability: Josh Pilgrim (jpilgrim@spp.org)
  - Economic & Policy: Ahmed Alazzawi (aalazzawi@spp.org)
  - Short Circuit: Nathan Bean (nbean@spp.org)

PORTFOLIO DEVELOPMENT (INCLUDING OPTIMIZATION AND CONSOLIDATION)

- Start: 5/5/2023
- End: 9/08/2023

- Member Review Time:
  - TBD

- Staff Leaders:
  - Reliability: Greg Lampley (glampley@spp.org)
  - Economic & Policy: Maurisa Hughes (mghughes@spp.org)
  - Consolidation: Antonio Barber (abarber@spp.org)

- Working Group Approval: ESWG/TWG

STUDY COST ESTIMATES

- Start: May 2023 (specific date TBD)
- End: July 2023 (specific date TBD)

- Staff Leader: John O’Dell (jodell@spp.org)

PLANNING SUMMIT

- Start: June 2023 (specific date TBD)
- End: July 2023 (specific date TBD)

- Staff Leader: Tammy Bright (tbright@spp.org)

MODELING UPDATES FOR FINAL ASSESSMENTS

- Start: 9/05/2023
- End: 9/08/2023

- Staff Leader: Hugh Benfer (hbenfer@spp.org)
- Working Group Approval: TWG

PROJECT STAGING

- Start: 9/09/2023
- End: 9/21/2023

- Member Review Time:
  - TBD

- Staff Leader: Krishada Watson (kwatson@spp.org)
- Working Group Approval: TWG/ESWG

FINAL RELIABILITY ASSESSMENT

- Start: 9/05/2023
- End: 10/16/2023

- Member Review Time:
  - TBD

- Staff Leader: Joshua Pilgrim (jpilgrim@spp.org)
- Working Group Approval: TWG

SENSITIVITY ANALYSIS

- Start: 9/05/2023
- End: 10/16/2023

- Member Review Time:
  - TBD

- Staff Leader: Spencer Magby (smagby@spp.org)
- Working Group Approval: ESWG

STABILITY ANALYSIS

- Start: 9/05/2023
- End: 10/16/2023

- Member Review Time:
  - TBD

- Staff Leader: Greg Lampley (glampley@spp.org)
- Working Group Approval: TWG

RATE IMPACTS/ATRR

- Start: 9/22/2023
- End: 10/16/2023

- Member Review Time:
  - TBD

- Staff Leader: Susanna Padilla (spadilla@spp.org)
- Working Group Approval: ESWG/TWG

FINAL REPORT

- Start: 4/13/2023
- End: 10/30/2023

- Member Review Time:
  - TBD

- Staff Leader: Tammy Bright (tbright@spp.org)
- Working Group Approval: ESWG/TWG

TWG/ESWG FINAL APPROVALS

- Start: TBD
- End: TBD

- Member Review Time:
  - *Note: Staff is reviewing for time-savings to pull in 2023 ITP to complete in October 2023*

- Staff Leaders:
  - TWG – Sherri Maxey (smaxey@spp.org)
  - ESWG – Joshua Norton (jnorton@spp.org)

MOPC AND SPP BOARD

- MOPC & SPP Board: TBD

- *Note: Staff is reviewing for time-savings to pull in 2023 ITP to complete in October 2023*

CONTACT INFO

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dsolomon@spp.org

SPP Southwest Power Pool

SOUTHWEST POWER POOL, INC.
ECONOMIC STUDIES WORKING GROUP

Action Items Status Report
March 2-3, 2022

	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.	10/12/17	On Hold	Working with SPP operations on additional APC benefit with outages included. Mar: Ops is planning to perform after RCAR III and Value of Transmission study. Sept 29: Estimated start date is 2022 Q2
201	Review the interchange methodology	07/01/19	In Progress	Goal: To complete for the 2021 ITP Assessment Mar 2021: 2021 portion considered complete. Outstanding long-term items: • Transactions between simulated and non-simulated regions • Benchmarking of pseudo-ties Feb: This item is included in the Planning Roadmap for prioritization May: Discuss testing results **June: Review updated results**
210	Create list of 20YA items to review	01/07/21	In Progress	June: Continue review of list and discussion of items Feb: Siting plan items were approved Mar: Emissions target analysis being discussed

211	Revisit the SPP Other bucket and how we use those resources in Resource Plan Phase II Accreditation	05/19/21	On hold	July: Review process in upcoming meeting Sept 29: Resource Accreditation is being discussed as part of 2023 ITP Scope. Feb: To be discussed as part of 2024 ITP Scope development ~June 2022
212	Review ELCC Accreditation	11/03/21	In Progress	Feb: To be discussed as part of 2024 ITP Scope development ~June 2022 May: Begin discussions
213	Discuss incorporation of Utility Integrated Resource Plans in the ITP	11/03/21	In Progress	Feb: To be discussed as part of 2024 ITP Scope development ~June 2022 May: Begin discussions
214	Review the retirement exception process	11/03/21	In Progress	Feb: To be discussed as part of 2024 ITP Scope development ~June 2022 May: Begin discussions
215	Review the RAR process	11/03/21	In Progress	Feb: To be discussed as part of 2024 ITP Scope development ~June 2022 May: Begin discussions
216	Address PROMOD battery modeling issues	03/30/22	In Progress	**Mar 30: Action Item added.**
217	Review modeling issues surrounding hybrid and co-located resources in economic models	05/05/22	In Progress	**May 5: Action Item added**

	MOPC Action Item	Date Originated	Status	Comments
314	As part of rebaselining ITP studies, staff to work with the ESWG and TWG to review Attachment O, the ITP Manual, and current ITP scope documents to look for further process improvements to ensure timely completion of current and future ITP assessments.	01/10/22	In Progress	Goal: bring update to April **(July)** MOPC focused on identifying ways to improve the clarity of ITP timing/scheduling, either in the scope or other documents. This would be an update and not the end of this action item. May: Agenda Item 7