



**Southwest Power Pool**  
**TRANSMISSION/ECONOMIC STUDIES WORKING GROUP MEETING**

**November 30, 2017**

**Net Conference**

**• Summary of Action Items •**

1. Approved the meeting agenda
2. Approved the 2019 ITP Voltage Stability Scope
3. Approved Resource Addition Requests



**Southwest Power Pool**  
**TRANSMISSION/ECONOMIC STUDIES WORKING GROUP MEETING**  
**November 30, 2017**  
**Net Conference**

• M I N U T E S •

**Agenda Item 1 – Administrative Items**

Call to Order

TWG Chair Travis Hyde called the meeting to order at 8:05 am. The following members were in attendance (Attachment 1a – Attendance):

**TWG**

Travis Hyde (Chair), Oklahoma Gas & Electric  
Daniel Benedict, City of Independence  
Scott Benson, Lincoln Electric System  
John Boshears, City Utilities of Springfield  
John Fulton, Southwestern Public Service Company  
Joe Fultz, Grand River Dam Authority (Phone)  
James Ging, Kansas Power Pool  
Kalun Kelley, Western Farmers' Electric Cooperative  
John Knofczynski, East River Electric Power Cooperative  
Dan Lenihan, Omaha Public Power District  
Randy Lindstrom, Nebraska Public Power District  
Jim McAvoy, Oklahoma Gas & Electric  
Matt McGee, American Electric Power  
Nathan McNeil, Midwest Energy Inc.  
Michael Mueller, Arkansas Electric Cooperative Corporation  
Alan Myers, ITC Great Plains  
Jason Shook, GDS Associates representing ETEC  
Matthew Stoltz, Basin Electric Power Cooperative  
Harold Wyble, Kansas City Power & Light

**ESWG**

Alan Myers (Chair), ITC Great Plains  
Randy Collier, City Utilities of Springfield  
Natasha Henderson, Golden Spread Electric Cooperative  
Jon Iverson, Omaha Public Power District  
Bethany King, Empire District Electric  
John Olsen, Westar Energy, Inc.  
Tim Owens, Nebraska Public Power District  
Jeremy Severson, Basin Electric Power Cooperative  
Anita Sharma, American Electric Power  
Kurt Stradley, Lincoln Electric System  
Michael Watt, Oklahoma Municipal Power Authority  
Bennie Weeks, Southwestern Public Service Company

Proxies

The following proxies (Attachment 1b – Proxy) were provided prior to the meeting for both the TWG and ESWG.

- Josie Daggett (WAPA) from Gayle Nansel (WAPA) – TWG/ESWG
- Wayne Penrod (Sunflower) from Al Tamimi (Sunflower) – ESWG

Kirk Hall and Amber Greb, SPP staff, informed their respective chair that the groups had achieved a quorum.

#### Agenda Review

Alan asked the ESWG members for any changes to the agenda (Attachment 1c – November 30, 2017 TWG Meeting Agenda). ESWG members had none.

**ESWG Motion: Kurt Stradley made a motion to accept the agenda seconded by Tim Owens. The motion passed with no opposition.**

Travis asked the TWG members for any changes to the meeting agenda. TWG had no changes.

**TWG Motion: Alan Myers made a motion to approve the agenda. Jason Shook seconded the motion. The motion passed unanimously.**

#### Agenda Item 2 – Consent Agenda (TWG-only item)

##### 2019 ITP Voltage Stability Scope

Dan Lenihan had some questions related to the Voltage Stability Scope (Attachment 2 – 2019 ITP Voltage Stability Assessment Scope) and asked some discussion prior to voting. The group agreed to revisions being made to Section A of the document

**TWG Motion: Joe Fultz made a motion to approve the modified scope document. Daniel Benedict seconded the motion. The motion passed unanimously.**

#### Agenda Item 3 – 2019 ITP

##### Consolidation

Amber presented staff's consolidation proposal (Attachment 3a – 2019 ITP Portfolio Consolidation) for a systematic approach to consolidation. Staff asked the TWG and ESWG for specific feedback related to the points possible for each consideration, thresholds for point calculations, and the minimum score requirement for instances when a project is not competing against a separate project selected in the opposite future. After some discussion on each item, the group took straw polls to identify whether the majority of the members felt staff's initial proposal was sufficient or if it should be modified. Based on the results of two straw polls, a majority of both the TWG and ESWG agreed with staff's recommendations for the points possible for APC and the thresholds for receiving points. Additionally, the TWG and ESWG voted to remove consideration of a solution's ability to address ARR Feasibility concerns and the solutions ability to rebuild existing infrastructure with a limited useful life (Considerations 7 and 8 in the meeting materials). Even though a majority of the members agreed with the concept of the systematic approach, they were not ready to approve until a calculation method for awarding points for APC had been developed and reviewed.

**Action Item: Staff to send out 3 options discussed during the meeting for the systematic approach to allow stakeholders to select their preference prior to the next joint meeting, and develop the formula for awarding points for the APC consideration.**

#### Resource Addition Requests



Tim Hall from Southern Power Company presented a Resource Addition Request (Attachment 3b – Southern Power Waiver Request). The TWG and ESWG requested some additional information from Tim and asked staff's recommendation for whether the resource should be included.

**ESWG Motion: Randy Collier made a motion to approve staff's recommendation. Jeremy Severson seconded the motion. The motion passed with 5 abstentions from Anita Sharma, Tim Owens, Bennie Weeks, Natasha Henderson, and John Olsen.**

**TWG Motion: John Boshears made a motion to approve staff's recommendation. Harold Wyble seconded the motion. The motion passed with one abstention from Randy Lindstrom.**

After the meeting Randy Lindstrom provided the following reasoning for his abstention:

*The reason that I abstained on this RAR was that this wind project did not have an executed GIA, it did not have an executed PPA, and it did not provide any significant construction progress to date. Therefore, this project did not meet the minimum requirements for a RAR waiver request from my perspective.*

Respectfully Submitted,

Kirk Hall  
TWG Secretary

Amber Greb  
ESWG Secretary

All sessions in Central Standard Time (Chicago, GMT-06:00)

Session detail for 'TWG/ESWG Net Conference':

Participant Name

Robert Safuto (Customized Energy Solutions)

gcharles1978

John Brodbeck

Steve Gaw

Michael Mueller

David Schmitt

Jason Davis

James Bailey (SPP)

Aaron Stewart (SPP)

Ross Hohlt

Joshua Pilgrim

Brian Johnson (AEP)

evan racine-johnson (GSEC)

Dan Lenihan

Jeremy Harris (Westar)

Sherri Maxey

Korey Wells

Steve Hohman

Kirk Hall

Jason Mazigian

John Knofczynski (EREPC)

Ben Elsey (SPS)

John Boshears (SPRM)

Jerry Bradshaw (SPRM)

Robert Safuto (Customized Energy Solutions)

Bob Tallman OG&E

Sam Zewdie

Ryan Yokley

Daniel Benedict (INDN)

Nathan McNeil

Jason Shook (GDS/ETEC)

Anita Sharma (AEP)

Natasha

Andy Berg (MRES)

John Olsen

Michael Watt (OMPA)

Bethany King

Korey Wells (OPPD)

Jeremy Severson

Chenal WebEx

eric burkey

Gimod Olapurayil

Nikki Roberts

Harold Wyble (KCPL)

Katie Southworth  
Derek Brown  
Michael Wegner (ITC)  
Alan Myers  
Travis Hyde  
Dona Parks (GRDA)  
reene miranda  
Kurt Stradley and Scott Benson  
ed pfeiffer (quanta)  
John Stephens  
Randy Lindstrom  
Tim Hall (Southern Power)  
Don Frerking (KCP&L)  
John Fulton  
Blaine Erhardt  
Jim Jacoby - AEP  
James Ging(KPP)  
Kevin Kingsley  
Randy Collier (CUS)  
Ryan Yokley  
David Sargent  
Zac Hager  
Wayne Penrod  
Scott Mijin  
Jim McAvoy  
Ryan Baysinger  
Marisa Choate  
Kalun Kelley (WFEC)  
Olu Fagbemi  
Shawnee Pinto  
Thadd Barker  
Bill Leung (NPRB)  
Aaron Vander Vorst  
Meena Thomas  
Jim Jacoby (AEP)  
Derek Johnson (SPP)  
Josh Verzal  
Joe Fultz (GRDA)  
Brian Rounds (AESL)  
Jordan Schmick (SPS)  
Josie Daggett (WAPA)  
Kevin Foflygen (SPRM)  
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Rodney Massman  
Matt McGee

Stevee Kennard  
Tim Owens (NPPD)  
Aaron Vander Vorst (TWE)  
Yohan Sutjandra (TEA)  
Bennie Weeks (SPS)  
Ellen Bailey (SPP)  
Scott Benson (LES)  
matthew stoltz  
Calvin Daniels (WFEC)

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## Kirk Hall

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**From:** Nansel, Gayle  
**Sent:** Thursday, November 16, 2017 10:30 AM  
**To:** Kirk Hall; Amber Greb  
**Cc:** Josephine Daggett WAPA  
**Subject:** \*\*External Email\*\* FW: [EXTERNAL] ESWG/TWG Joint 11/30/17 Net Conference Meeting Registration

Kirk / Amber:

I have a MRO BOD meeting that day and won't be able to attend this call. Josie Daggett will have my proxy for both groups.

**Gayle R. Nansel | Transmission Planning Manager**  
Western Area Power Administration | Upper Great Plains Region  
(O) 406.255.2830 | (M) 406.698.6714 | [nansel@wapa.gov](mailto:nansel@wapa.gov)



Western Area Power Administration

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**From:** Audrey White [mailto:[awhite@spp.org](mailto:awhite@spp.org)]  
**Sent:** Friday, November 10, 2017 7:21 AM  
**To:** SPP ESWG (Exploder) <[eswg@spplist.spp.org](mailto:eswg@spplist.spp.org)>; SPP ESWG (Members Only) <[SPPESWGMembersOnly@spp.org](mailto:SPPESWGMembersOnly@spp.org)>; SPP TWG (EXPLODER) <[twg@spplist.spp.org](mailto:twg@spplist.spp.org)>; SPP TWG (Members Only) <[SPPTWG@spp.org](mailto:SPPTWG@spp.org)>  
**Subject:** [EXTERNAL] ESWG/TWG Joint 11/30/17 Net Conference Meeting Registration

**ESWG/TWG Joint 11/30/17 Net Conference meeting registration:**

**TIME:** November 30, 2017 8:00AM - 12:00PM

[ESWG/TWG Joint 11/30/17 Online Registration](#)

Audrey White | Administrative Assistant | [awhite@spp.org](mailto:awhite@spp.org) | 501-688-2531 (O) | 501-350-1158 (C)  
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*Helping our members work together to keep the lights on...today and in the future*

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**From:** [Myers, Alan](#)  
**To:** [Amber Greb](#); [Owens, Tim](#)  
**Subject:** \*\*External Email\*\* FW: [EXT] Wayne Penrod has my proxy for today's meeting  
**Date:** Thursday, November 30, 2017 11:45:02 AM

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FYI

Thanks,  
Alan

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**From:** Tamimi, Al [mailto:[atamimi@sunflower.net](mailto:atamimi@sunflower.net)]  
**Sent:** Thursday, November 30, 2017 12:44 PM  
**To:** Myers, Alan K. <[amyers@Itctransco.com](mailto:amyers@Itctransco.com)>  
**Subject:** [EXT] Wayne Penrod has my proxy for today's meeting

**Caution - External Sender**

Contact the ITC Helpdesk with any questions or concerns.

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Sent from my iPhone

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## TWG/ESWG JOINT MEETING

November 30<sup>th</sup>, 2017


### Net Conference

#### • A G E N D A •

1. Administrative Items
  - a. Call to Order, Introductions.....Alan Myers/Travis Hyde (5 minutes)
  - b. Receipt of Proxies .....Amber Greb/Kirk Hall (1 minute)
  - c. Review of Agenda<sup>1</sup> ..... Alan Myers/Travis Hyde (1 minute)
2. Consent Agenda (Approval Item) .....All (5 min.)
  - a. 2019 ITP Voltage Stability Scope<sup>1</sup>
3. 2019 ITP<sup>1</sup> ..... Staff (105 min.)
  - a. Consolidation<sup>1</sup> (Approval Item) - Staff
  - b. Resource Addition Requests<sup>1</sup> (Approval Item) - All
4. Closing Items ..... All (5 minutes)
  - a. Summary of Action Items
  - b. Future Meetings
    - i. Summit: December 6, 2017 (now a Net Conference)
    - ii. December 13<sup>th</sup>, 2017: Net Conference (TWG only)
    - iii. December 14<sup>th</sup>, 2017: 8<sup>th</sup> Floor AEP Offices, Dallas, TX (ESWG only)
    - iv. December 20<sup>th</sup>, 2017: Net Conference (TWG only)

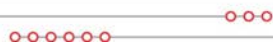
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<sup>1</sup> Background Material Included



**2019 ITP**  
**2019 Integrated Transmission Planning**  
**Voltage Stability Scope**

November 30, 2017  
Engineering



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## Revision History

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Date or Version Number	Author	Change Description	Comments
11/22/2017	Staff	Initial Draft	Posted for TWG review November 22, 2017.

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## **Overview**

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This document presents details in the scope of work for the 2019 Integrated Transmission Planning Voltage Stability Assessment. This document will be reviewed by the Transmission Working Group (“TWG”). The stability assessment begins August 2019 and is a 1-month study scheduled to be finalized in September 2019.

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## Voltage Stability Assessment

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A voltage stability assessment will be conducted on Future 1 and 2 using the final consolidated portfolio to assess the transfer limit (MW) from renewables in SPP to conventional thermal generation in SPP and from renewables in SPP to conventional thermal generation in external areas. The transfer limit will be determined by examining voltage performance during power transfers across SPP. The stability assessment consists of a dispatch analysis to determine if the dispatched generation in the 2019 ITP 2029 summer and light load models can be dispatched without the occurrence of voltage collapse or thermal violations.

## Data inputs

The 2019 ITP voltage stability assessment will use the final consolidated portfolio and the year 10 SPP BA powerflow models.

### A. Zone Definitions

The following table identifies the transfer zones and boundaries that will be used for the analysis.

Transfer Zones	Zone Boundaries
SPP renewables	SPP conventional thermal generation
SPP renewables	First Tier and Second Tier thermal generation

Commented [AG1]: Staff to clear this up

### B. Transfers

Transfers will be performed by scaling online generation from Source Zone to the Sink Zone (excluding Nuclear generation). If the Sink Zone minimum generation (Pmin) capacity causes the transfer to stop then selected Sink zone participating generation may be turned off to allow the transfer to continue as needed. If the Source Zone maximum generation (Pmax) capacity causes the transfer limit to stop then available offline generation may be turned on as needed to allow the transfer to continue.

Source Zone	Sink Zone
SPP renewables	SPP conventional thermal generation
<a href="#">SPP renewables</a>	First Tier and Second Tier thermal generation

### C. Contingencies

Single contingencies (N-1) will include all SPP branches, transformers, and ties at 345kV and above.

### D. Monitored facilities

SPP facilities, ties, and first tier elements 100 kV and above will be monitored.

Type	Voltage	Thermal
Pre-contingency	Below 0.95 PU, above 1.05 PU	Rate A = 100%
Post-contingency	Below 0.90 PU, above 1.05 PU	Rate B = 100%

### E. Voltage Stability Assessment Control Mode Settings

Adjust ULTCs for voltage control = Pre-contingency only  
 Adjust phase-shifters for MW flow control = Pre-contingency only  
 Adjust discrete switched shunts = Pre-contingency only

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## Results

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Relevant thermal overloads, low and high voltage violations, and voltage collapse for incremental transfer limits will be reported for SPP plus first tier areas.



HELPING OUR MEMBERS WORK TOGETHER  
TO KEEP THE LIGHTS ON... TODAY AND IN THE FUTURE.

# 2019 ITP Portfolio Consolidation

SPP Staff

November 30, 2017

# Objective

## Goal of the Final Portfolio:

- Develop a regional plan that provides reliable and economic delivery of energy and facilitates achievement of public policy objectives, while maximizing benefits to the end-use customer

## Goal for today:

- Approve consolidation methodology

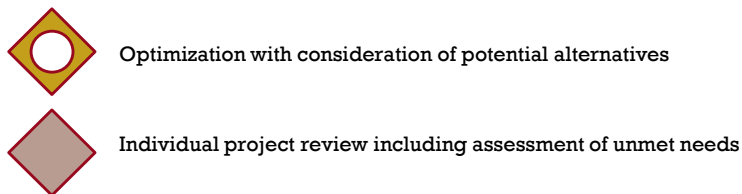
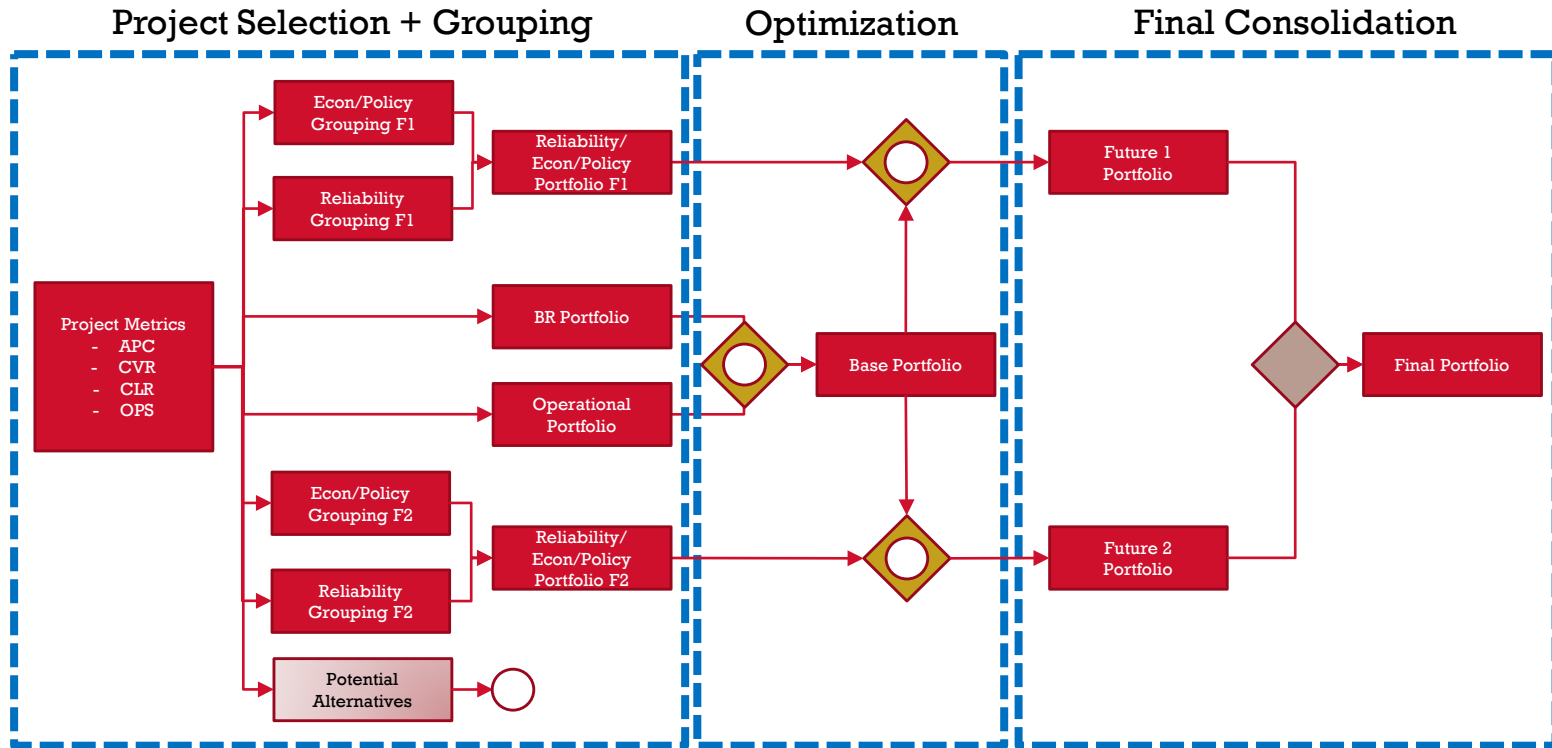
# ITP Manual Language

## Section 6.2 Portfolio Consolidation

To determine a recommended plan, the portfolios of potential projects must be consolidated. SPP and stakeholders will discuss, determine and document details of the study-specific consolidation criteria during each study scope development.



# Portfolio Development Summary



# Portfolio Consolidation

## Scenarios

Scenarios	F1	F2
Same project in each future	Project A	Project A
Competing Projects	Project B	Project C
Projects in one Future	Project D	N/A

# Consolidation Considerations Survey Results

<b>Consideration</b>	<b>Rank</b>
40-year NPV project benefit or B/C	<b>1</b>
Larger-scale solutions that provide more robustness and additional qualitative benefits	<b>2</b>
The potential for a project to mitigate operational issues	<b>3</b>
Long-term viability	<b>4</b>
One-year project benefit or B/C	<b>5</b>
ARR Feasibility Issues	<b>6</b>
The potential for a project to address non-thermal issues	<b>7</b>
Congestion relief/Project overlap	<b>8</b>
Minimum design standards	<b>9</b>
Facility age	<b>9</b>

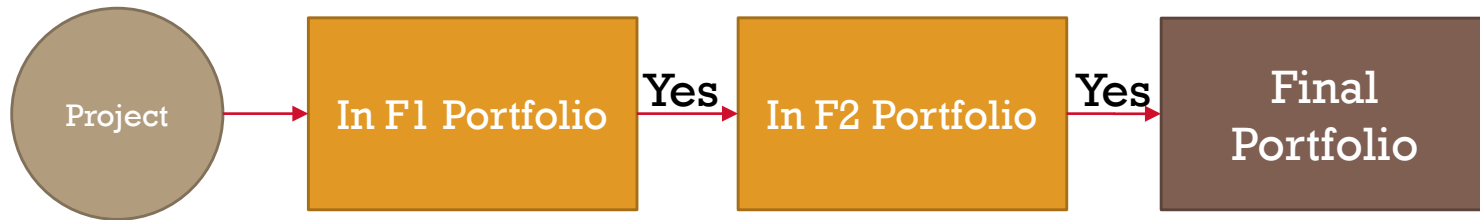
Note: SPP Staff has not yet determined the time and cost associated with each of these considerations

# Consolidation Considerations Survey Results

	Average Confidence Level (Scale of 0 to 5, with 5 being the most confident)
Future 1	3.06
Future 2	2.56

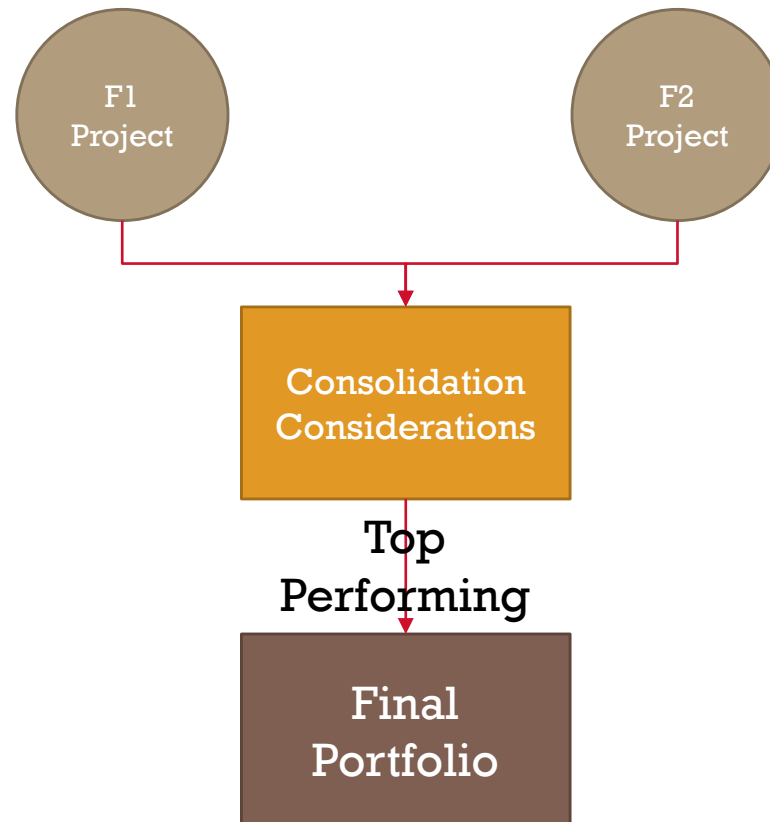
# Portfolio Consolidation

## Same project in both portfolios



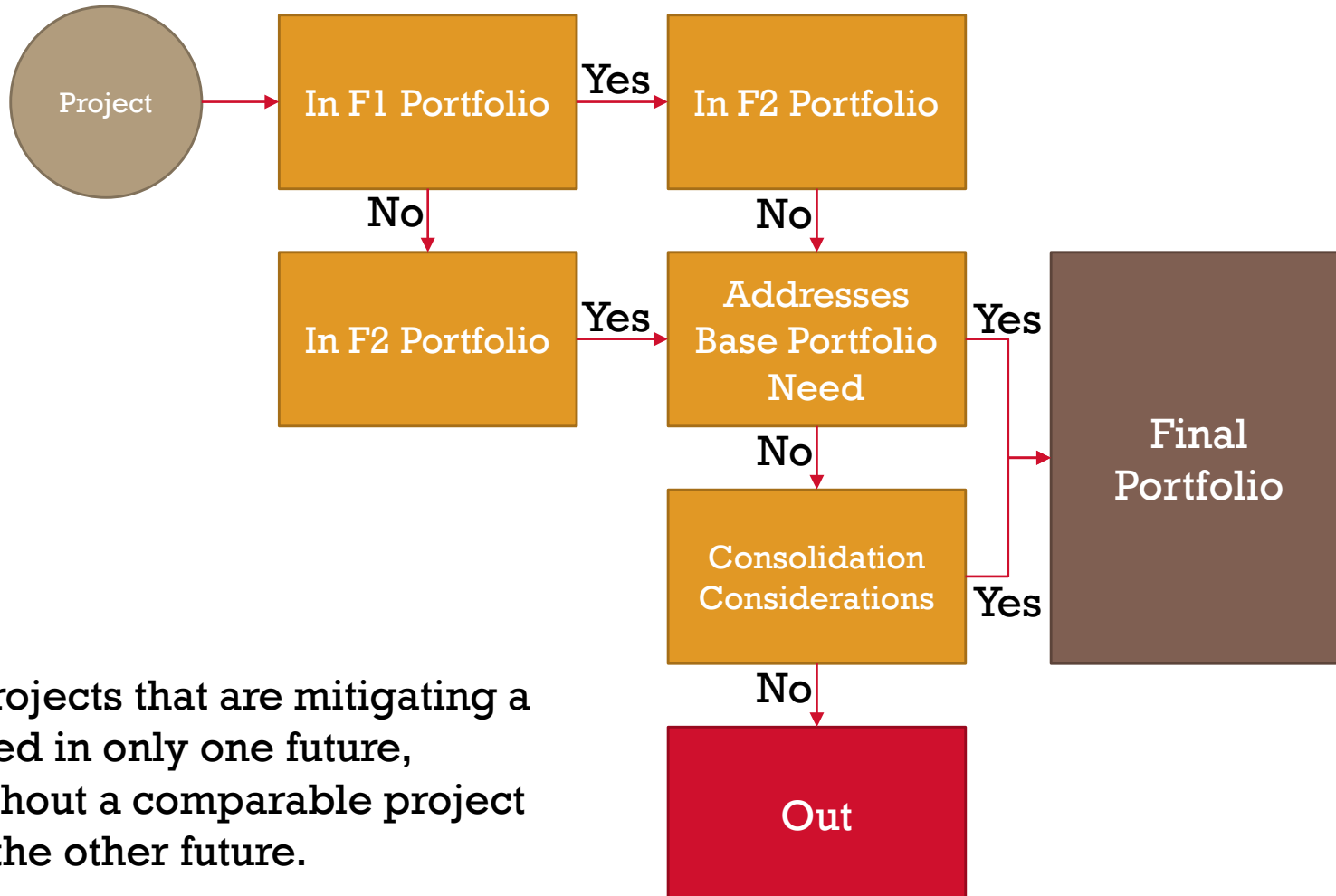
# Portfolio Consolidation

## Competing Projects



# Portfolio Consolidation

## Projects in one future's portfolio



\*Projects that are mitigating a need in only one future, without a comparable project in the other future.

# Discussion of Considerations

- Systematic approach to begin determination of the final portfolio
  - Possible Points per consideration
  - Threshold per consideration
  - Scenario 3 minimum score requirement
  - Awarding points per consideration (future discussion)
- Project narrative to augment project scores



No.	Scenario 2 (Competing Projects) Considerations	Possible Points	Threshold	138 kV Rebuilds (P1)	New 345 kV line (P2)	P1 Score	P2 Score	Exceptions
1	40-yr (1-year) APC B/C in Selected Future	50	1.0 (0.9)	1.4	1.9	50.0	43.2	Or 1-Year
	40-yr (1-year) APC B/C in Opposite Future		0.8 (0.7)	1.6	0.9			
	40-yr (1-year) APC Net Benefit in Selected Future (\$M)		N/A	4.1	67.5			
	40-yr (1-year) APC Net Benefit in Opposite Future (\$M)		N/A	6.2	-7.5			
2	New EHV	10	Y/N	N	Y	0.0	10.0	
3	Mitigate Non-Thermal Issues	10	Y/N	N	Y	0.0	10.0	
4	Operational Congestion Costs or Reconfiguration (\$M/yr or hrs/yr)	10	>0	\$3.7	\$5.8	3.7	5.8	
5	Long Term Viability (Eg 2013 ITP20)	5	Y/N	N	N	0.0	0.0	
6	Congestion Relieved in Selected Future (by need(s), all years)	5	N/A	100%	100%	5.0	5.0	Or Per Year
	Congestion Relieved in Opposite Future (by need(s), all years)	5	N/A	90%	100%	4.5	5.0	Or Per Year
7	ARR	2.5	Y/N	N	N	0.0	0.0	
8	Addresses existing facility useful life/Minimum Design Standards	2.5	Y/N	Y	N	2.5	0.0	
<b>Total Score</b>						<b>65.7</b>	<b>79.0</b>	

NOTE: Project score calculations are still under development. Project scores listed are for discussion purposes only.

No.	Scenario 3 (Non-Competing Projects) Considerations	Possible Points	Threshold	Example 1		Example 2		Exceptions
				138 kV Rebuilds	Score	New 345 kV line	Score	
1	40-yr (1-year) APC B/C in Selected Future	50	1.0 (0.9)	1.9	0.0	1.9	50.0	Or 1-Year
	40-yr (1-year) APC B/C in Opposite Future		0.8 (0.7)	0.75		0.9		
	40-yr (1-year) APC Net Benefit in Selected Future (\$M)		N/A	9.3		67.5		
	40-yr (1-year) APC Net Benefit in Opposite Future (\$M)		N/A	-2.6		-7.5		
2	New EHV	10	Y/N	N	0.0	Y	10.0	
3	Mitigate Non-Thermal Issues	10	Y/N	N	0.0	Y	10.0	
4	Operational Congestion Costs or Reconfiguration (\$M/yr or hrs/yr)	10	>0	\$4.5	4.5	\$8.0	8.0	
5	Long Term Viability (Eg 2013 ITP20)	5	Y/N	N	0.0	N	0.0	
6	Congestion Relieved in Selected Future (by need(s), all years)	5	N/A	80%	4.0	100%	5.0	Or Per Year
	Congestion Relieved in Opposite Future (by need(s), all years)	5	N/A	30%	1.5	40%	2.0	Or Per Year
7	ARR	2.5	Y/N	N	0.0	N	0.0	
8	Addresses existing facility useful life/Minimum Design Standards	2.5	Y/N	Y	2.5	N	0.0	
<b>Total Score (70 Pass)</b>					<b>12.5</b>		<b>85.0</b>	

NOTE: Project score calculations are still under development. Project scores listed are for discussion purposes only.

## Waiver Request – Southern Power

- 200MW jointly-developed wind facility located within SPP
- Projected July 2019 COD
- Completed GI study process with executable GIA – target Q1 2018
- Shortlisted for several RFP's with creditworthy counterparties
- Significant investment in development activities
- 100% land under lease
- Most avian, raptor, wildlife, and FAA studies complete or nearing completion
- Turbines have been purchased for the project to safe harbor 100% PTC's

