Southwest Power Pool

ECONOMIC STUDIES WORKING GROUP

September 17, 2013

Web Conference

• SUMMARY OF ACTIONS TAKEN •

1. SPP staff will provide more details about the needs and projects assessment timeline.

Southwest Power Pool

ECONOMIC STUDIES WORKING GROUP

September 17, 2013

Web Conference

• MINUTES •

Agenda Item 1 – Administrative Items

Agenda Item 1a - Call to Order, Introductions

Chair Alan Myers (ITC Great Plains, LLC) called the meeting of the Economic Studies Working Group (ESWG) to order at 1:35 p.m., welcomed those in attendance, and asked for introductions. (Attachment 1 – Attendance List)

There were 42 web conference participants representing 9 of 12 members.

Agenda Item 1b – Receipt of Proxies

Juliano Freitas (SPP staff) requested proxy statements. Two proxies were identified, Bennie Weeks proxy to Roy Boyer (Xcel Energy) and Kip Fox proxy to Wayman Smith (AEP) for the last 2.5 hours of the meeting. (Attachment 2 – Proxies)

Agenda Item 1c – Review of Agenda

Chair Alan Myers (ITC Great Plains, LLC) presented the agenda for review and asked for any additions or corrections. The agenda was approved unanimously. (Attachment 3 – Agenda)

Agenda Item 2 – 2015 ITP10 Schedule

Antoine Lucas (SPP staff) presented the 2015 ITP10 schedule including milestones, member review/feedback and also the ESWG approval dates. The intention of this presentation was to show members the impact of the Resource Planning milestone on the 2015 ITP10 Study schedule. Antoine explained that due to a tight schedule (15 months until MOPC pre-approval 10/2014) each approval date is critical to avoid reducing time from modeling/review tasks. The ESWG goal is to present a final 2015 ITP10 Scope document to the MOPC/BOD in October. Tom DeBaun (KCC) requested to SPP Staff to adjust the schedule in the 2015 ITP10 Scope document regarding the RSC involvement with cost and benefit allocation and also final report approval. Roy Boyer (Xcel Energy) also requested more clarification about the needs assessment timeline. (Attachment 4 – 2015 ITP10 Schedule)

Agenda Item 3 – 2015 ITP10 Scope

Juliano Freitas (SPP Staff) presented and asked for member's feedback, regarding items that need to be included in the final 2015 ITP10 Scope. Also, some of these items are crucial to start the conventional resource plan. The topics discussed were:

1) Future's resource plan assumptions
2) Wind assumptions including capital costs and capacity factors
3) Existing DC Ties assumptions
4) Sensitivity analysis including Tres Amigas and Clean Line Plains & Eastern
5) Economic needs and projects definition

For the first topic discussed, SPP Staff asked for clarification about the Future 3 conventional resource plan. The question was should the resource plan produced by Strategist be used without modification, or should members modify the Strategist resource plan decide what to use based on their own choice. ***ESWG members decided to run Strategist for Future 3 conventional resource plan and adjust the resource plan according to their own choice. Also, if members decide to use a different prototype***

from the EAI list, they must provide all the data necessary to input the information in the economic model.

The second topic was crucial for the 2015 ITP10 conventional resource plan, especially the determination of the capital cost to be used for the wind generation prototype. The main point in the discussion was related to production tax credit (PTC) and its duration. Some members believed that PTCs should be assumed to be available for next ten years while some members saw some risk in keeping this assumption. The PTC incentive of $23 was originally included in the wind levelized cost of energy at $31/MWh for ten years. This value was supposed to be used in the wind generation prototype. The levelized cost of energy is a combination of PTC, levelized capital cost and levelized fixed O&M cost. After a long discussion the members decided to not extend the PTC for ten years. Instead, stakeholders asked SPP Staff to decrease it gradually over the ten years study.

> **A motion to approve the use of wind levelized cost of energy at $31/MWh in year 1 (2015), escalating in a uniform manner to achieve $51/MWh in year 10 (2024) to reflect a phase out of PTCs was made by Paul Dietz (Westar) and seconded by Greg Sweet (EMDE). The motion was approved unanimously.**

The expected life of wind turbines (20 years) and cost of capital is being used as levelized fixed charge rate. Another important decision made was about the capacity factor to be used in the new wind prototypes. ***ESWG members decided to use a 15% increase to NREL site data for new wind***. As a result, the new average for the SPP region will be a 49.4 % capacity factor. The $31/MWh wind levelized cost of energy was based on 42% capacity factor, members decided to keep the $31/MW, but also utilize the new average capacity factor. This change will impact only the yearly overnight cost and fixed O&M cost.

The third topic discussed was related to the modeling of existing DC Ties in the economic model. The TWG recommendation is to model historical hourly profile transactions on ties within bounds of existing long-term firm transmission service. SPP Staff will model the historical hourly average of operational data from January 2010 to June 2013. For economics, SPP Staff is recommending assuming no curtailment price for the long-term firm service profile; also, this hourly firm service amount will be added to each owner's generation total. Hourly cost will be based on average zonal LMP. ***ESWG members approved the TWG and SPP Staff recommendations for the existing DC Ties***.

The fourth topic was related to the process that will be used to conduct sensitivity analysis on the Tres Amigas DC tie and the Clean Line Plains and Eastern DC line. Stakeholders questioned the detail of how the sensitivity will be performed. It was determined that this topic will need more discussion. As a result, the ***ESWG members recommended SPP Staff keep the scope generic***. The group will discuss this issue again during the economic model development and input details for this process.

In the last topic, members discussed the economic needs selection and also the economic projects screening. For the economic needs in the 2013 ITP20 SPP Staff considered the top fifteen most congested flowgates and recommended the ESWG consider using the top twenty for the 2015 ITP10. For economic projects screening, SPP Staff used a one year B/C ratio threshold of one or greater in the 2013 ITP20 to select the economic projects. SPP Staff's recommendation is to decrease the one year B/C ratio to 0.9 for project screening. This is because the forty year B/C ratio will likely be greater than the one year B/C ratio. As a result, SPP Staff would have a larger range to evaluate economic projects. ***ESWG members decided to use the top twenty congested flowgates, but focus the analysis on the congestion cost not specifically about the amount of needs, the selected economic needs will be subjected to be reviewed by the ESWG. ESWG members approved the 0.9 B/C ratio as the new threshold for economic projects screening***. (Attachment 5 – 2015 ITP10 Scope)

Agenda Item 4 – 2015 ITP10 Consolidation Methodology

Kelsey Allen (SPP Staff) presented the SPP Staff recommendation to consolidate the 2015 ITP10 final portfolio. The two options are: consolidation of projects or consolidation of needs. SPP Staff presented the advantages of each approach, the main difference between the options is the amount tests needed for each option, the consolidation of needs reduces this number by 20%. Staff explained an expectation that the consolidation of needs would decrease the number of projects tests conducted in the 2015 ITP10 and allow Staff more time to focus on the needs determined to be the most important across all futures. Also, Staff stated an expectation that the needs approach would produce a very flexible portfolio as projects would be tested across each future in which the need it is addressing is observed rather than pulling a consolidated project portfolio together from 3 individual portfolios based solely on a selected weighting methodology. Staff also notified the ESWG of the TWG recommendation on this topic. The TWG recommended the consolidation of projects on September 6th. (Attachment 6 – 2015 ITP10 Consolidation Methodology)

A motion to approve the consolidation of projects was made by Paul Dietz (Westar) and seconded by Roy Boyer (Xcel Energy). The motion was approved unanimously.

Staff notified the ESWG of the TWG recommendation on project weighting. The TWG recommended the following weighting process: Future 1 - 50%, Future 2 - 25% and Future 3 - 25%. The threshold to be selected is 50%.

A motion to approve the weighting process proposed by the TWG was made by Greg Sweet (EMDE) and seconded by Paul Dietz (Westar). The motion was approved unanimously.

Agenda Item 5 – 2015 ITP10 Project Staging Methodology

ESWG members decided to vote this item by email based on the TWG recommendation. The ESWG meeting will take place on September 18th 2013, one day after this ESWG web conference. (Attachment 7 – 2015 ITP10 Project Staging Methodology)

Closing Items

Antoine Lucas (SPP Staff) asked members to review and vote on the modifications made to the generation review after it had been approved at September 5th 2013 ESWG meeting.

A motion to approve the changes made in the generation review was made by Tim Owens (NPPD) and seconded by Kurt Stradley (LES). The motion was approved unanimously.

The resource plan results will be posted on September 26th and be discussed on October 2nd via web conference.

The final 2015 ITP10 Scope will be proposed for ESWG on the October 2nd web conference.

Chair Alan Myers ((ITC Great Plains, LLC) requested if any other items merited discussion.

The meeting was adjourned at 5:09 p.m.

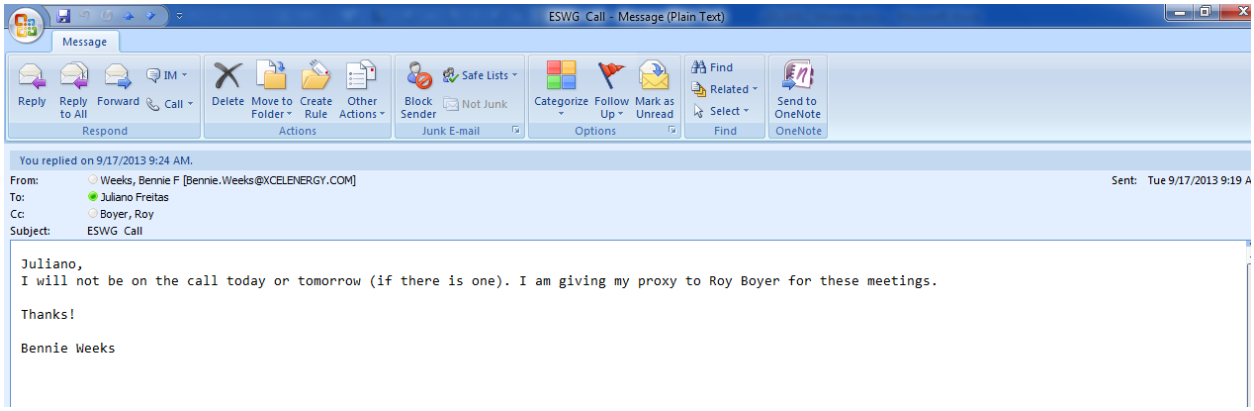
Respectfully Submitted,

Juliano Freitas,

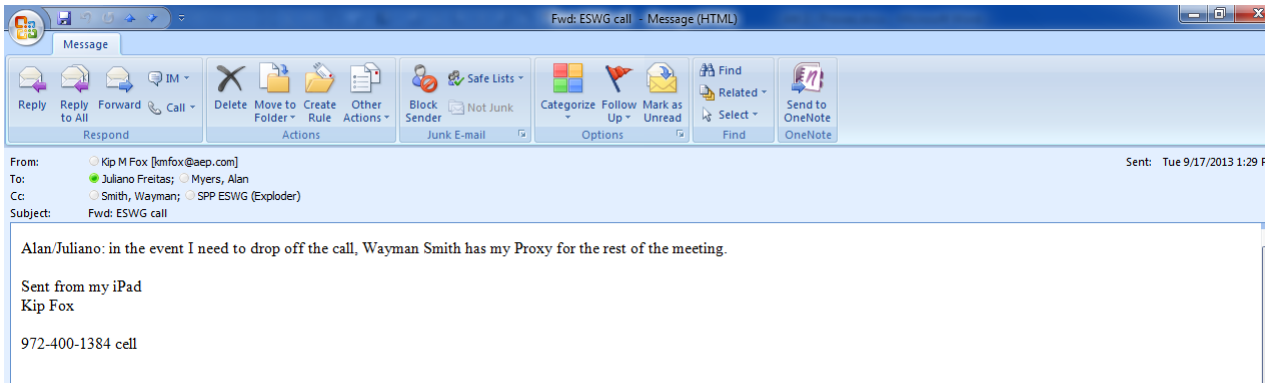
Secretary

Name	Email
Al	atamimi@sunflower.net
Alan Myers	amyers@itcgreatplains.com
Amber Greb (SPP)	agreb@spp.org
Antoine Lucas	alucas@spp.org
Cindy Ireland	cireland@psc.state.ar.us
Clayton Mayfield	cmayfield@spp.org
Denise Buffington (KCP&L)	denise.buffington@kcpl.com
Dennis Reed	dennis.l.reed@westarenergy.com
G Sweet (EDE)	gsweet@empiredistrict.com
James Sanderson	j.sanderson@kcc.ks.gov
Jeremy Harris (WERE)	jeremy.harris@westarenergy.com
Jerry Bradshaw	jerry.bradshaw@cityutilities.net
Jody Holland	jholland@spp.org
John Krajewski	jk@jkenergyconsulting.com
Jon Iverson	jiverson@oppd.com
Juliano Freitas	jfreitas@spp.org
Kaustubh Deshmukh	kdeshmukh@itctransco.com
Kelsey Allen	kallen@spp.org
Kip Fox (AEP)	iphone_test@webex.com
Kirk Hall	khall@spp.org
Kurt Stradley (LES)	kstradley@les.com
Meena Thomas	meenathomas@puc.texas.gov
Michael Watt - OMPA	mwatt@ompa.com
Mike Proctor	mproctor910@sbcglobal.net
Nathan McNeil	nmcneil@mwenergy.com
Noumvi Ghomsi	noumvi.ghomsi@psc.mo.gov
Pat McCool	patrick.mccool@kcpl.com
Paul Dietz	paul.dietz@westarenergy.com
Randy Collier 9CUS)	randy.collier@cityutilities.net
Rosemary Mittal	rmittal@spp.org
Roy Boyer	roy.d.boyer@xcelenergy.com
Sandeep Baidwan	sbaidwan@lspower.com
Steve Gaw	rsgaw1@gmail.com
Ted Bell, SPP	tbell@spp.org
Tim Owens (NPPD)	tjowens@nppd.com
Tim Soles	tim_soles@oxy.com
Todd Tadych (DATC)	ttadych@atcllc.com
Tom DeBaun	t.debaun@kcc.ks.gov
Trent A. Campbell	t.campbell@occemail.com
Vince V - SPRM	vince.vandaveer@cityutilities.net
Walt Cecil	walter.cecil@psc.mo.gov
Wayman Smith (AEP)	wlsmith1@aep.com

Bennie Weeks proxy to Roy Boyer (Xcel Energy).



Kip Fox proxy to Wayman Smith (AEP) for the last 2.5 hours of the meeting.



Southwest Power Pool

ECONOMIC STUDIES WORKING GROUP

September 17th, 2013

• A G E N D A •

1:30 pm – 4:30 pm

1. Administrative items
    a. Call to Order, Introductions ..... Alan Myers (5 minutes)
    b. Receipt of Proxies ..... Juliano Freitas (1 minute)
    c. Review of Agenda ..... Alan Myers (1 minute)
2. 2015 ITP10 Schedule ..... Antoine Lucas (15 minutes)
3. 2015 ITP10 Scope (Approval Item) ..... SPP Staff (30 minutes)
    a. Futures Resource Plan Assumptions
    b. Wind Assumptions
    c. DC Tie Assumptions
    d. TWG Approved DC Project Sensitivities
    e. Economic Needs/Projects Definition
4. 2015 ITP10 Consolidation Methodology (Approval Item) ..... SPP Staff (30 minutes)
5. 2015 ITP10 Project Staging Methodology (Approval Item) ..... SPP Staff (30 minutes)
6. Closing Items ..... All

2015 ITP10 Schedule

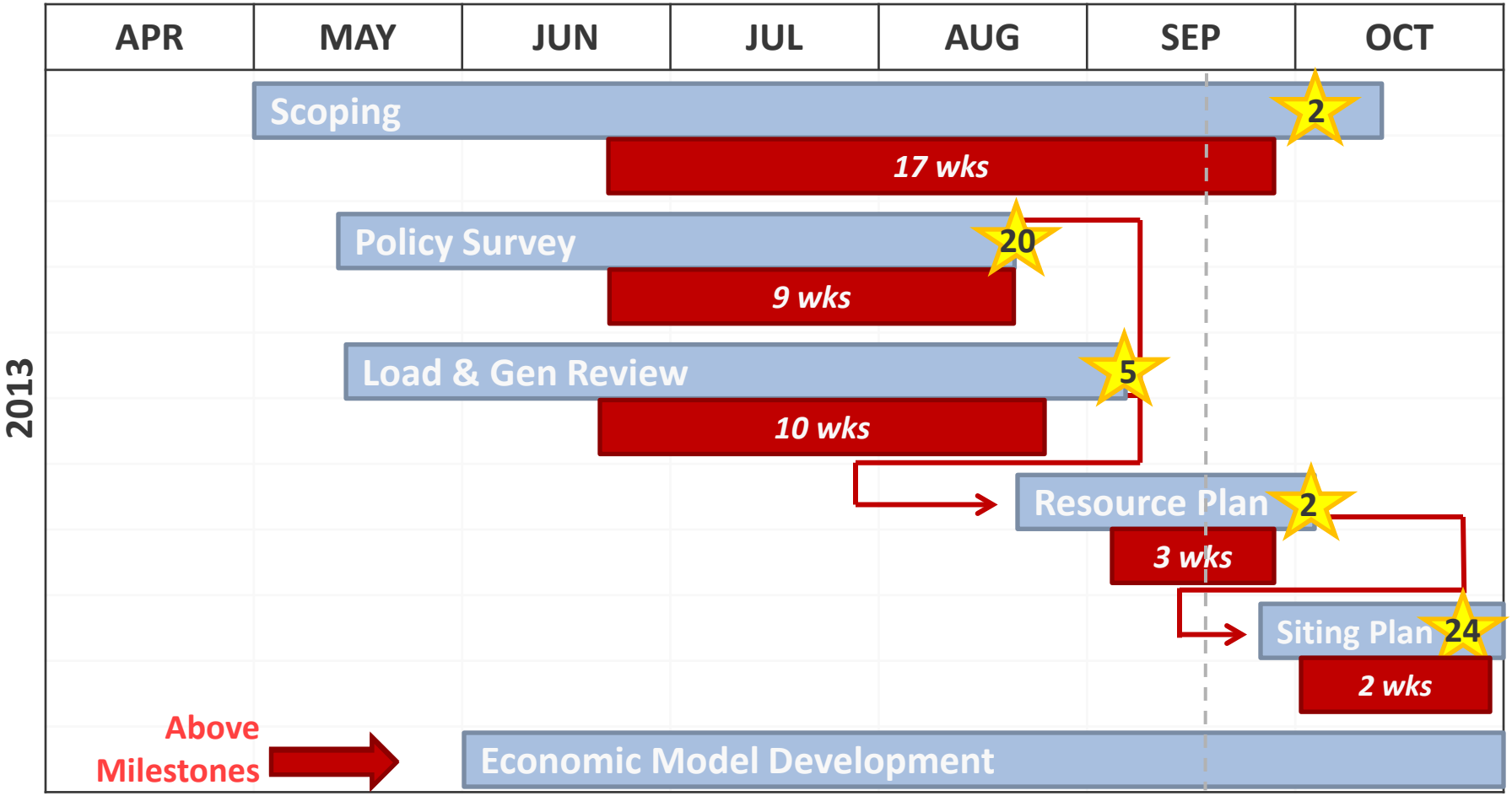
September 17th, 2013

Southwest Power Pool

Important Items Upcoming (Approvals)

- Required by Mid-September
  - Consolidation Methodology
  - Project Staging
- Required by End of September
  - Full scope document

ITP10 Milestone Schedule (Apr-Oct 2013)

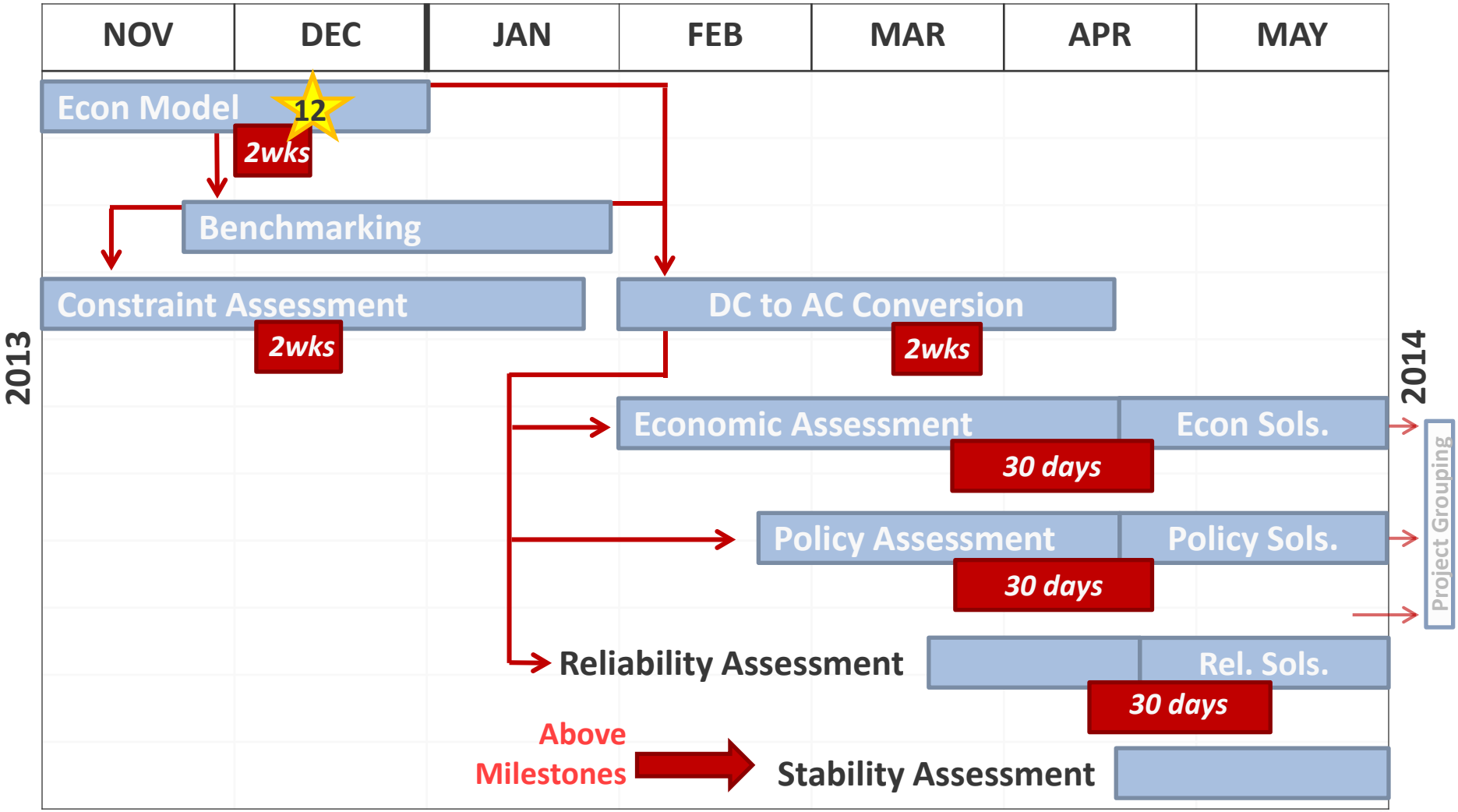


ESWG Approval

Member Review/Feedback Period

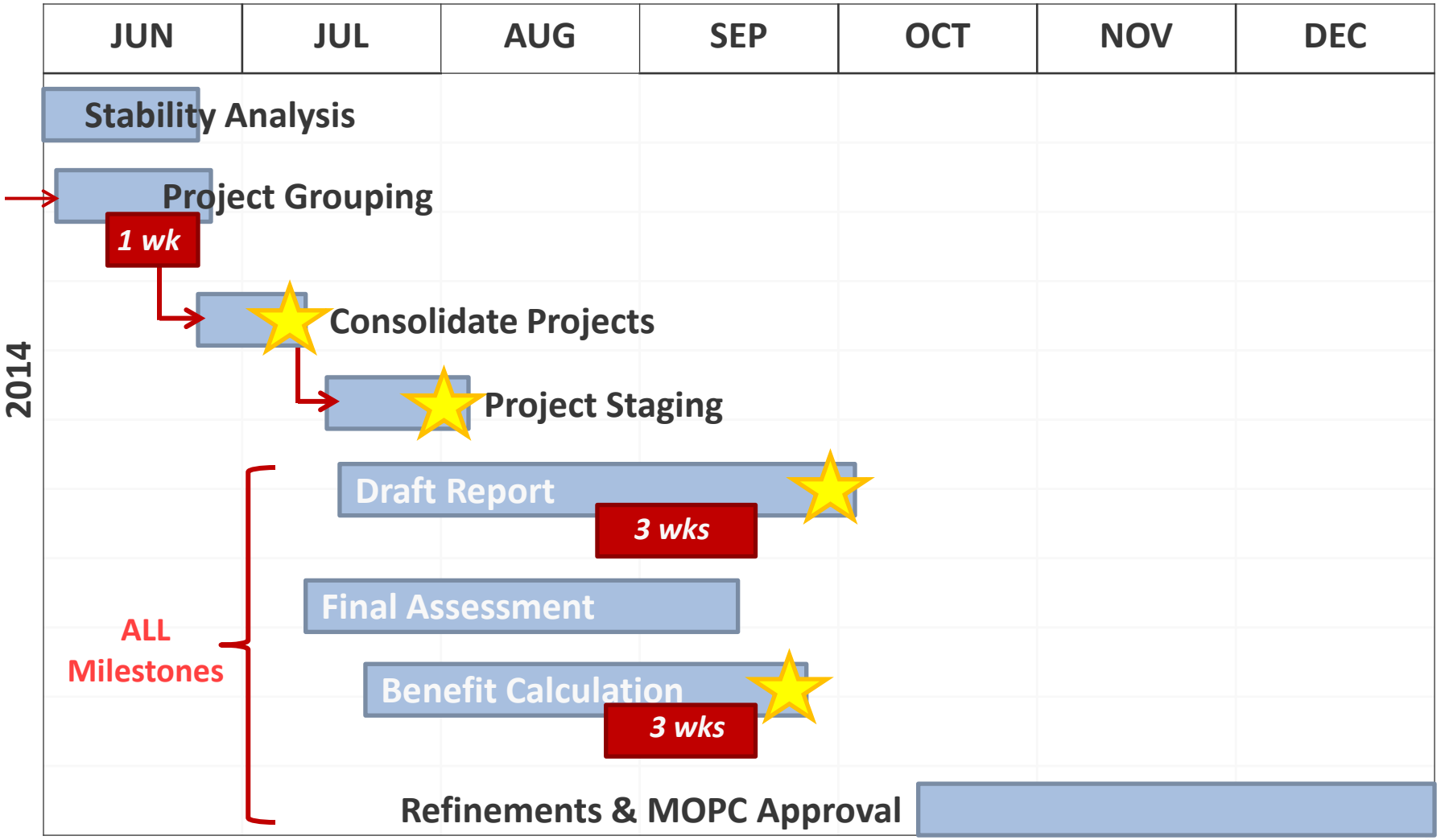
Milestone Period

ITP10 Milestone Schedule (Nov 2013-May 2014)



ESWG Approval | Member Review/Feedback Period | Milestone Period

ITP10 Milestone Schedule (Jun-Dec 2014)



ESWG Approval

Member Review/Feedback Period

Milestone Period

ITP10 Milestone Schedule - Summary

Task Name	Start	Finish	Member Feedback	ESWG Approval	
Scoping	April	October	17 weeks	10/2	
Policy Survey	May	August	9 weeks	8/20	
Load and Generation Review	May	September	10 weeks	9/5	
Resource Plan	August	October	3 weeks	10/2	2013
Siting Plan	September	October	2 weeks	10/24	
Economic Model development	June	December	2 weeks	12/12	
Benchmarking	November	January '14			
Constraint assessment - TWG Approval	November	January '14	2 weeks		
DC to AC Conversion of Peak Hours	January	April	2 weeks		
Reliability Assessment	March	April	30 days		
Reliability Solutions	April	May			
Economic assessment	February	April	30 days		
Economic Solutions	April	May			
Policy Assessment	February	April	30 days		
Policy Solutions	April	May			
Stability Assessment	April	June			2014
Project Grouping	June	June	1 week		
Consolidate Projects	June	July		TBD	
Project Staging	July	August		TBD	
Draft Report	July	October	3 weeks	TBD	
Final Assessment	July	September			
Benefit Calculation	July	September	3 weeks	TBD	
Refinements and MOPC Presentation	October	January '15			

2015 ITP10 Scope

September 17th, 2013

SPP Southwest Power Pool

Helping our members work together to keep the lights on... today and in the future

Overview

- Today
  - Futures Resource Plan Assumptions
  - Wind Assumptions
    - Wind Costs
    - Wind Capacity Factors
  - DC Tie Assumptions
  - TWG Approved DC Project Sensitivities
  - Economic Needs/Projects Definition

Resource Plan Assumptions

- Future 2: Decrease In Base Load Capacity
  - Base Load Reductions Update

- Future 3: Increased Input Prices
  - Staff will run Strategist using approved prototypes
  - Discussion
    - Determining resource mix and siting

Wind Assumptions

- Prototypes
  - Capital Costs / Fixed O&M
    - $31/MWhr
- Capacity Factors
  - NREL adjustments for new wind
  - 10% Increase
    - Average – 47.3%, Maximum – 49.4%
  - 15% Increase
    - Average – 53.5%, Maximum – 55.9%

DC Tie Assumptions

- Flows
  - TWG Motion
    - Model historical hourly profile transactions on ties within bounds of existing long-term firm transmission service
  - Hourly average of operational data 1/2010 – 6/2013
- Economics
  - Assume no curtailment price for the long-term firm service profile
  - Hourly firm service amount will be added to owner's gen total
    - Hourly cost based on average zonal LMP

DC Project Sensitivities

- TWG Motion
  - Approve Tres Amigas and Clean Line Plains & Eastern facilities be studied as a sensitivity with Economic analysis only
- Tres Amigas
  - Economic Analysis: Study with tie at max import/export
- Clean Line Plains & Eastern
  - Discussion

Economic Needs/Projects Definition

- Economic Needs
  - Considered 15 most congested flowgates in 2013 ITP20
  - Staff Recommendation: Consider 20 most congested

- Economic Projects Criteria: B/C Threshold
  - Used a 1-year B/C threshold of 1.0 or greater in 2013 ITP20 to define an economic project
  - Staff Recommendation: Set threshold to 1-year B/C of 0.9

Scope Document

- Need to review scope document language

- Goal for October MOPC approval

2015 ITP10 Consolidation Methodology

September 17th, 2013

SPP Southwest Power Pool

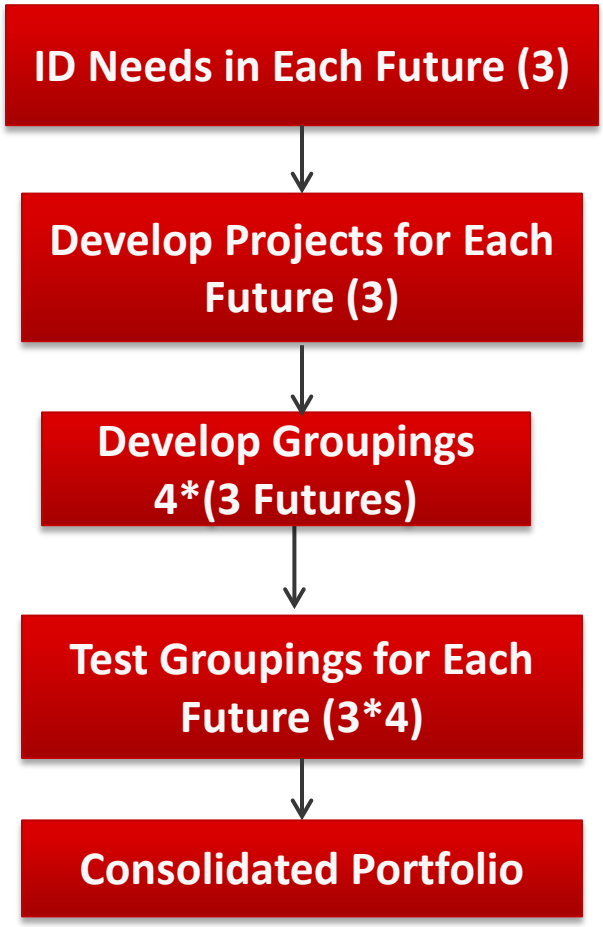
Helping our members work together to keep the lights on... today and in the future

Consolidation Methodology – Options

1. Consolidation of Projects
   - Develop portfolio per future
     - Portfolio weighting methodology, or
     - Engineering criteria
2. Consolidation of Needs
   - Determine, up front, the needs we want to plan for across all futures
     - Based on engineering criteria

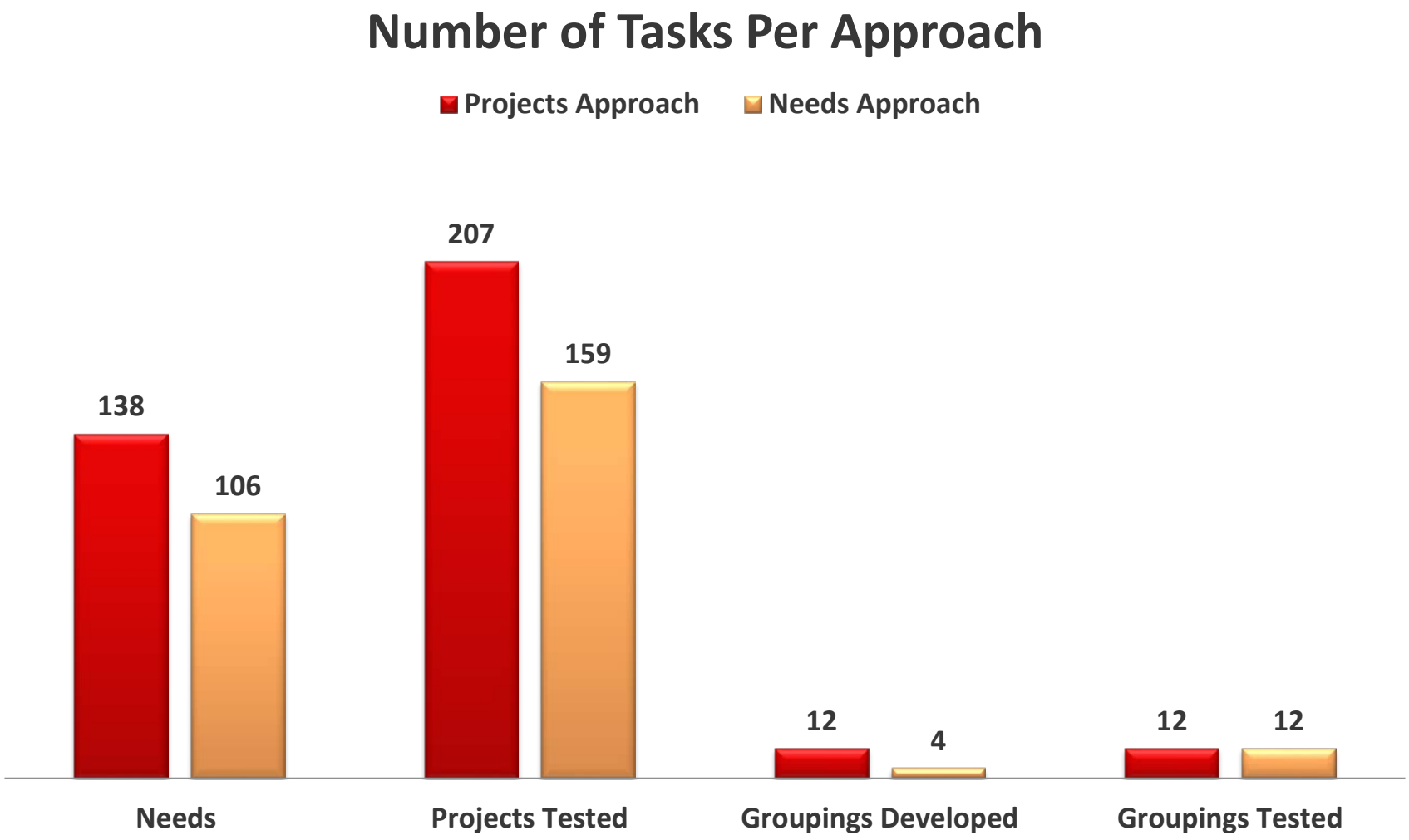
Differences in Methodologies (Three Futures)

Projects



Needs

Comparison Using 2013 ITP20 Needs



Advantages of Each Approach

- Consolidation of Projects
  - More emphasis is placed on each future
  - Toolbox for future studies

- Consolidation of Needs
  - Build project and portfolio flexibility into the process early on
  - Allow for more time for project development and analysis

TWG Approved Motion

- TWG recommends the projects approach for consolidation in 2015 ITP10.

Portfolio	Weighting
Future 1	50%
Future 2	25%
Future 3	25%
Consolidation Criteria	50%

2015 ITP10 Project Staging

September 17th, 2013

SPP Southwest Power Pool

Helping our members work together to keep the lights on... today and in the future

Project Staging - History

- 2010 ITP20 and 2013 ITP20
  - All projects staged for year 20
- 2012 ITP10 Reliability Projects
  - Staged only if 100% in both futures
    - Simple interpolation between 5 and 10 year models (Future 1)
- 2012 ITP10 Economic Projects
  - B/C ratios interpolated between 5 & 10 years models to identify when it exceeds 1.0 in Future 1
- 2012 ITP10 Policy Project
  - Staged to have policy project in-service in time to meet renewable requirements

Project Staging – Staff Recommendation

- **Reliability Projects**
  - **Need in Future 1: Linear interpolation between 2019 and 2024 based on the hour(s) the need originated**
    - **PAT will be used for staging projects required for thermal violations**
    - **Projects required for voltage violations will be staged in 2024**
  - **Need in Future 2/Future 3: Stage in 2024**

Project Staging – Staff Recommendation

- Economic Projects
  - Need in Future 1: Linear interpolation of B/C ratios between 2019 and 2024
  - Need in Future 2/Future 3: Stage in 2024
- Policy Projects
  - Staged to have policy project in-service in time to meet renewable requirements in future(s) the need originated

Project Staging – Staff Recommendation

- Project Classified as: Reliability/Economic
  - Stage by earlier of reliability date or when 1-year B/C ratio crosses 1.0
- Project Classified as: Reliability/Policy
  - Stage by earliest need date
- Project Classified as: Policy/Economic
  - Stage by earlier of policy date or when 1-year B/C ratio crosses 1.0
- Project Classified as: Reliability/Policy/Economic
  - Stage by earlier of reliability/policy date or when 1-year B/C ratio crosses 1.0