



WestConnect Overview and Recent Planning Activities

ACC 9th BTA Workshop

Phoenix, AZ

June 01, 2016

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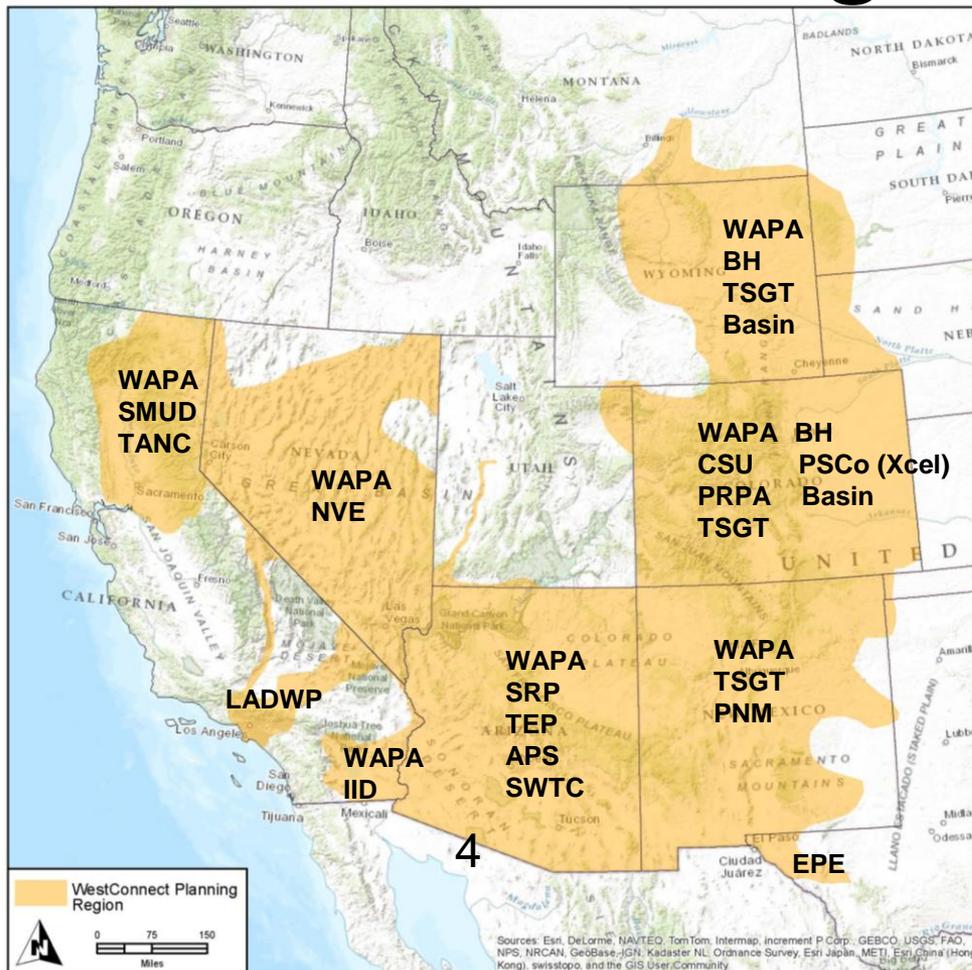
Outline

- WestConnect Overview
- 2015 Regional Transmission Plan
- 2016-17 Planning Cycle Schedule and Overview
- Interregional Transmission Projects

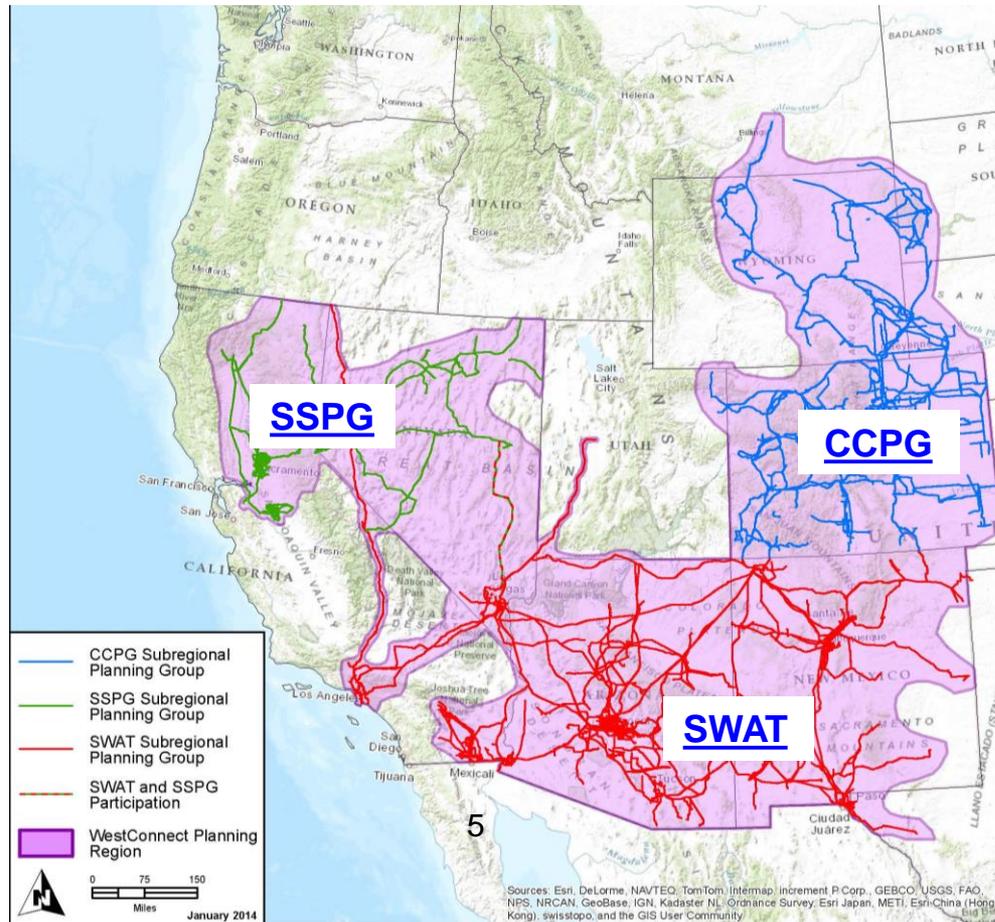


WestConnect Regional Planning Overview

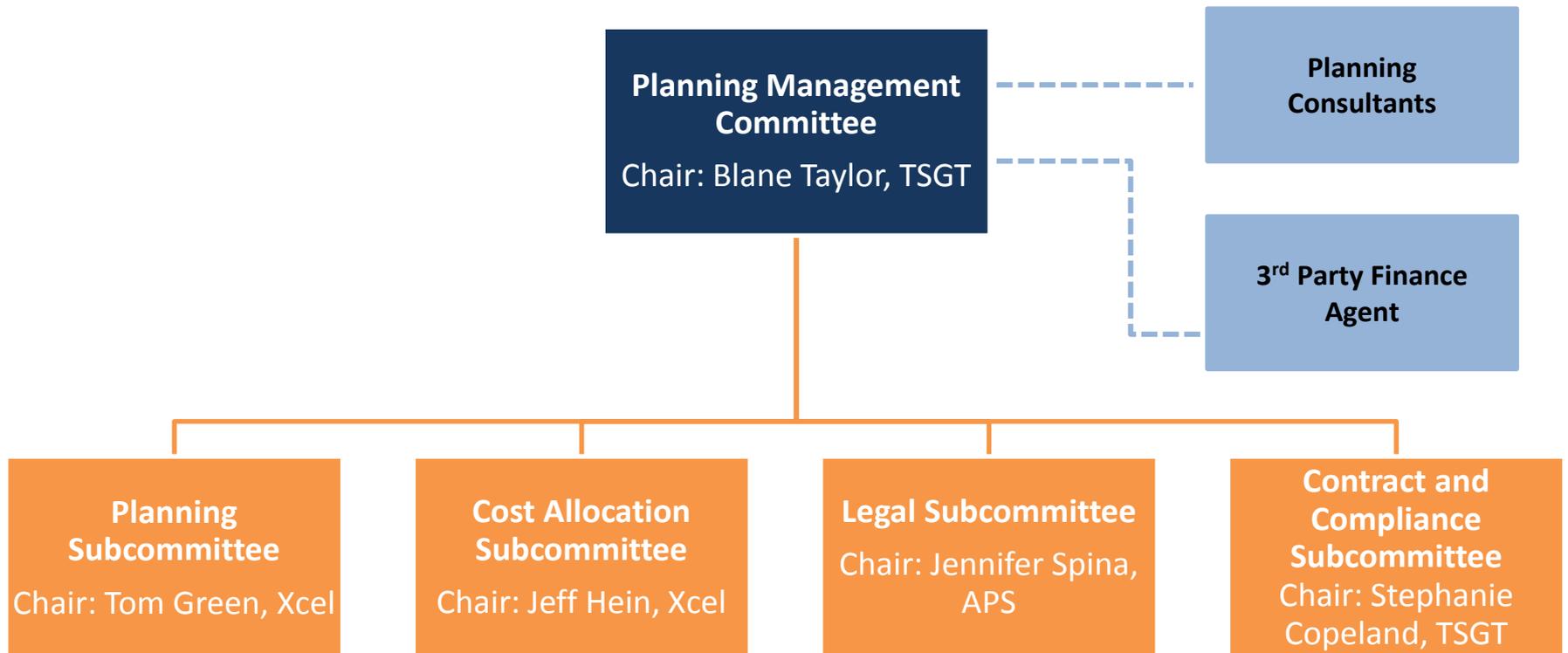
WestConnect Planning Region



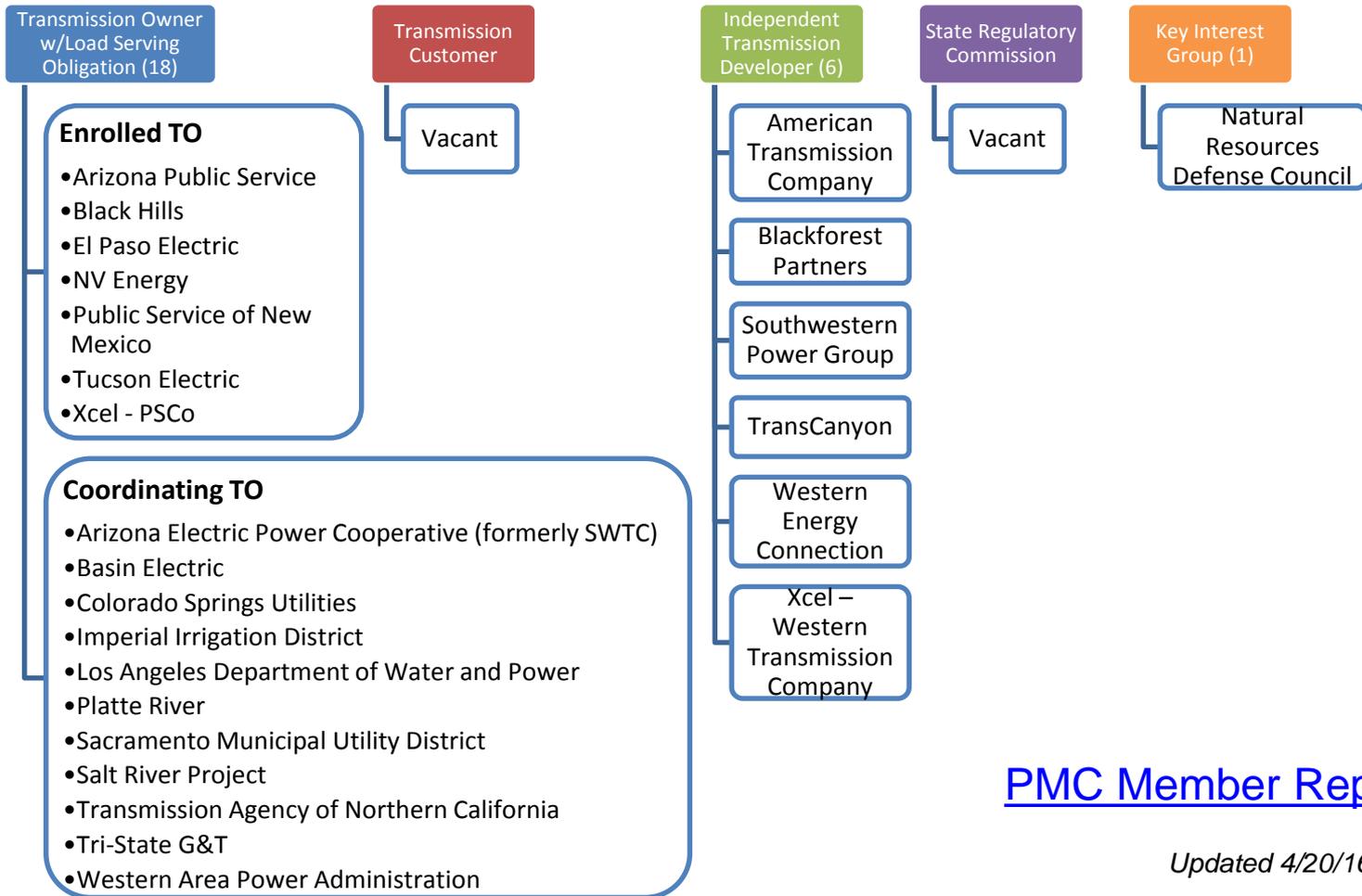
WestConnect Subregional Planning Groups



PMC Organization

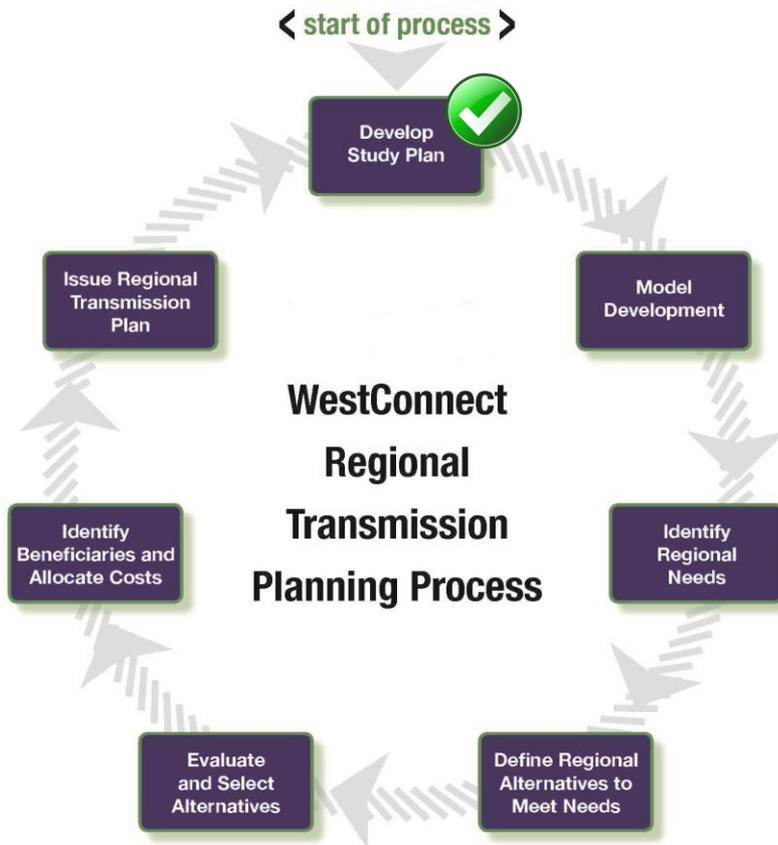


PMC Membership as of 5/1/2016



[PMC Member Reps](#)

WestConnect Regional Planning Process



- 8 quarters
- [2016-17 Regional Study Plan](#)
- Q2-Q3 Model Development
- Q4 Identify Needs
- Q5-Q6 Evaluate and Select Alternatives
- Q7 Cost Allocation
- Q8 Issue Regional Plan
 - [2015 Regional Plan](#)

Opportunities for Stakeholder Participation

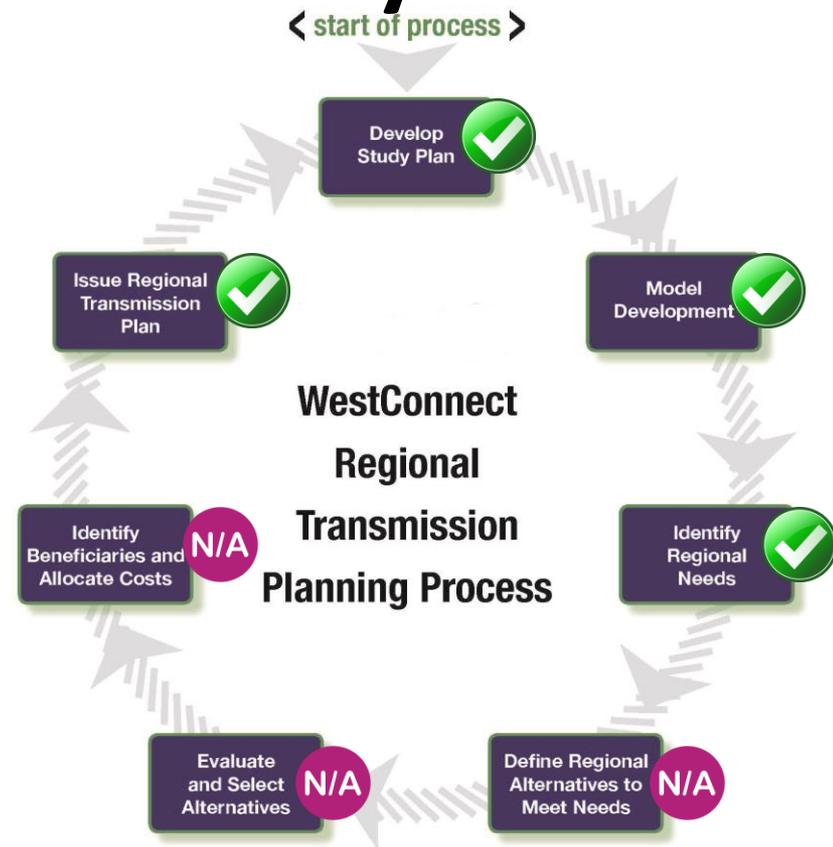
- WestConnect held three stakeholder meetings during 2015
- All PMC & Subcommittee meetings are open with opportunity for stakeholder input
- Written comment on interim reports and draft 2016-17 Regional Transmission Plan
- Future WestConnect Stakeholder Meetings at key points of planning cycle – for example:
 - Draft Regional Transmission Plan Report
 - Draft Study Plan
 - Determination of Regional Transmission Needs
 - Selection of Projects to meet Regional Needs
 - All as determined by the PMC
- [Request](#) to be added to WestConnect stakeholder email distribution list



2015 Regional Transmission Plan

2015 Process Summary

- Initial regional planning effort for WestConnect
 - Technical differences between Order 890 versus Order 1000
 - Shake-down cruise for full cycle
- 2015 Abbreviated Cycle
 - Based on studies conducted in needs assessment, no regional transmission needs identified in 2015
 - PMC elected not to have project solicitation window based on this finding



2015 Regional Model Development

- Developed 2024 Heavy Summer Regional powerflow case
 - Performed RPS (public policy) assessment for each WestConnect TO
- Conducted preliminary review of 2024 Common Case (production cost) data
- WestConnect approved Model Development Report on May 19th ([link](#) to report)

Modeling Type	Case Name	Description
Power Flow Model (PFM)	2024 HS Regional PFM	10-year, 2024 heavy summer (HS) regional PFM based on the WECC 2024 Heavy Summer 1 Scenario Base Case (24HS1SA) and created with assistance from the SPGs and TOs
Production Cost Model (PCM)	2024 Regional PCM	10-year, 2024 regional PCM dataset based on the WECC TEPPC 2024 Common Case and, per areas of improvement identified by the Planning Subcommittee, was developed throughout 2015

2015 Regional Transmission Needs Assessment

- Reliability assessment performed using PMC-approved 2024 Heavy Summer Regional powerflow base case
 - Any issues driven by RPS resources in powerflow model could drive Public Policy need
- Explored congestion metrics for Economic-driven Needs
- Based on studies conducted in needs assessment, no regional transmission needs identified in 2015
 - Open window for alternatives to meet identified needs not necessary
- WestConnect PMC approved Needs Assessment Report on [August 17th](#)

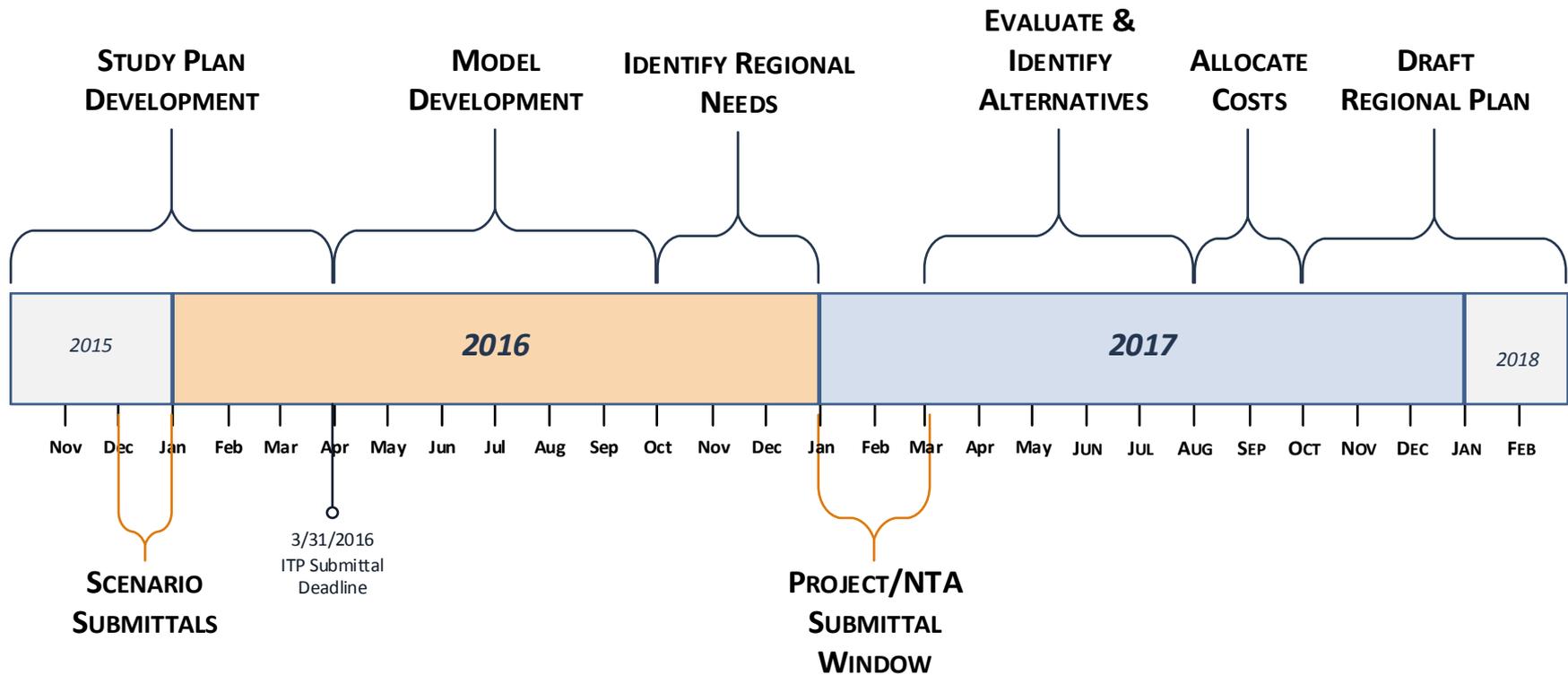
2015 Regional Transmission Plan

- Individual reports from 2015 compiled and enhanced to create 2015 Regional Transmission Plan
- Appendices worth noting:
 - Appendix B – Results of 2015 Reliability Needs Assessment: Final Issues Flagged in the Steady-State Analysis
 - Appendix C – Incremental Projects in the 2024 Regional Base Transmission Plan (2015-2024 Projects)
 - Appendix D – 2024 Public Policy Documentation
- **Based on assessment (10-year heavy summer powerflow base case), no regional transmission needs were identified**
- **[2015 Regional Transmission Plan](#)** approved on 12/16/2015

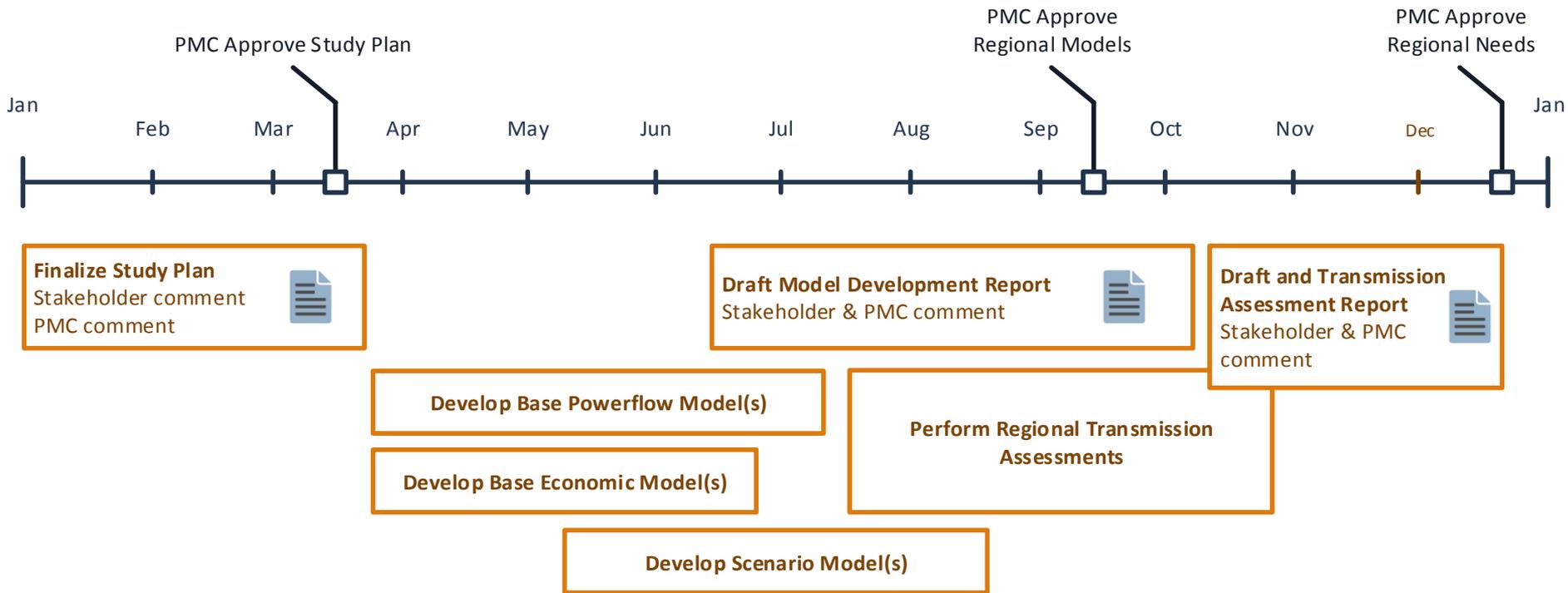


2016-17 Planning Cycle Schedule and Overview

2016-17 Planning Cycle Schedule



2016 Technical Schedule





2016-17 Regional Study Plan

2016/17 Regional Models

- Three assessments will be performed using two regional models
 - Assessments: reliability, economic, public policy
 - Models: powerflow (reliability) and production cost (economic)
 - Public policy assessments are handled via spreadsheet models, leveraging data from powerflow and production cost as needed
- Models developed for 2026 timeframe, use WECC models as starting point
- Regional Base Transmission Plan will be consistent among all models
 - Anticipated 10-year network topology used as starting point for planning purposes

2016/17 Economic Studies

Case Name	Case ID	Case Description and Scope
2026 Base Case	WC26-PCM-REF	Business-as-usual case based on WECC 2026 Common Case with additional regional updates from WestConnect members.
High Renewables	WC26-PCM-HR	California 50% RPS with regional resources (Wyoming wind and New Mexico wind) <u>and</u> increase WestConnect state RPS requirement beyond enacted with other resources
CPP – WestConnect Utility Plans	WC26-PCM-CPP1	Reflect individual WestConnect member utility plans for CPP compliance
CPP – Market-based Compliance	WC26-PCM-CPP2	Model CO ₂ price in WestConnect to achieve mass-based regional CPP compliance
CPP – Heavy RE/EE Build Out	WC26-PCM-CPP3	Additional coal retirements, additional RE/EE, minimal new natural gas generation

2016/16 Reliability Studies

Case Name	Case ID	Case Description and Scope
2026 Heavy Summer Base Case	WC26-HS	Summer peak load conditions during 1500 to 1700 MDT, with typical flows throughout the Western Interconnection – <i>traditional case build</i>
2026 Light Spring Base Case	WC26-LS	Light load conditions with high wind generation – <i>traditional case build</i>
CPP – WestConnect Utility Plans	WC26-CPP1	Reflect individual WestConnect member utility plans for CPP compliance - <i>export stressed hour from PCM</i>
CPP – Heavy RE/EE Build Out	WC26-CPP3	Additional coal retirements, additional RE/EE, minimal new natural gas generation – <i>export stressed hour from PCM; include transient study for frequency response check</i>

Regional Base Transmission Plan

- Base transmission plan is the transmission network topology that is reflected in regional models
- **TO Projects:** Included all “planned” projects, including those proposed to meet NERC TPL standards
 - Planned = sponsor + regulatory filings + commitment to construct + permitting has or will be sought
- **Independent Transmission Developer (ITD) projects:** Based on information provided, the PS did not identify any ITD projects that warranted inclusion in the base transmission plan. Inclusion criteria is outlined in the WestConnect [BPM](#).
- **CAISO projects:** Included Delaney – CR 500 kV and Harry Allen – Eldorado 500 kV based on CAISO BOD approval and inclusion in CAISO planning models

2026 Base Transmission Plan Summary

TOLSO	230 kV	345 kV	500 kV	Total
Arizona Public Service	3		1	4
Black Hills Power	2			2
El Paso Electric Company		1		1
Imperial Irrigation District	1			1
Los Angeles Department of Water and Power	11		2	13
NV Energy		1		1
Platte River Power Authority	3			3
Public Service Company of Colorado/ Xcel Energy	5	1		6
Public Service Company of New Mexico		3		3
Salt River Project	5		1	6
Southwest Transmission Cooperative	2			2
Tri-State Generation and Transmission Association	3			3
Tucson Electric Power		2	1	3
Western Area Power Administration - DSW	1			1
Western Area Power Administration - RMR		1		1
Western Area Power Administration - SNR	4			4
Grand Total	40	9	5	54

2026 Base Transmission Plan Summary

500 kV Projects

Sponsor	Project Name	Development Status	Voltage	SPG
Arizona Public Service	Morgan - Sun Valley 500kV Line	Planned	500 kV AC	SWAT
Los Angeles Department of Water and Power	Victorville 500/287 kV auto-transformer installation	Planned	500 kV AC	SWAT
Los Angeles Department of Water and Power	Upgrade Toluca 500/230 kV Bank H	Planned	500 kV DC	SWAT
Salt River Project	Hassayampa - Pinal West #1 Jojoba line loop	Planned	500 kV AC	SWAT
Tucson Electric Power	Tortolita 500 kV Switchyard	Planned	500 kV AC	SWAT

*Plus NV Energy Harry Allen 500/230 kV Transformer



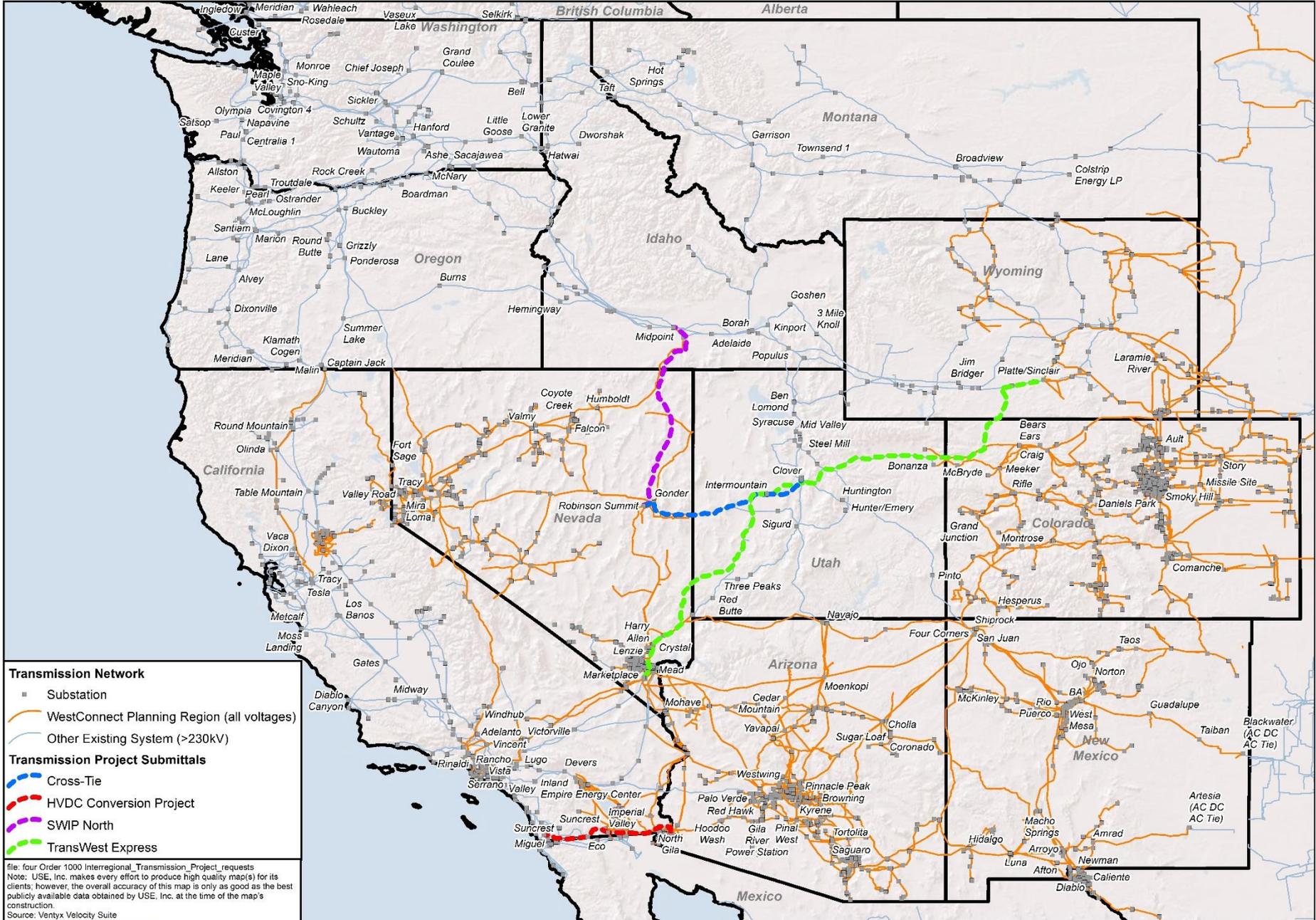
2026 Base Transmission Plan Summary

345 kV Projects

Sponsor	Project Name	Development Status	Voltage	SPG
Public Service Company of Colorado/ Xcel Energy	Pawnee - Daniels Park 345 kV Transmission Project	Planned	345 kV	CCPG
Western Area Power Administration - RMR	Ault 345/230 kV XFMR Replacement	Planned	345 kV	CCPG
NV Energy	Carlin Trend 120 kV Separation Scheme (RAS) to mitigate thermal overloading	Planned	345 kV	SSPG
El Paso Electric Company	Afton North Autotransformer	Planned	345 kV	SWAT
Public Service Company of New Mexico	Second Yah-Ta-Hey 345/115 kV Transformer	Planned	345 kV	SWAT
Public Service Company of New Mexico	Guadalupe SVC	Planned	345 kV	SWAT
Public Service Company of New Mexico	Cabazon Switching Station	Planned	345 kV	SWAT
Tucson Electric Power	South Loop 345 kV, Conversion to breaker-and-a-half substation	Planned	345 kV	SWAT
Tucson Electric Power	Greenlee 345 kV, Conversion to breaker-and-a-half substation	Planned	345 kV	SWAT

The background of the slide features a stylized landscape. In the foreground, a dark silhouette of a transmission tower stands against a bright orange and yellow sunset sky. Behind the tower, a range of dark blue mountains stretches across the horizon. The sun is a large, glowing yellow circle on the right side of the image.

WestConnect Interregional Transmission Project (ITP) Proposals



**WestConnect Order 1000 2016-17
 Interregional Transmission Project (ITP) Submittals**



Interregional Transmission Project Submittals

Project Name	Company	Project Submitted To	Relevant Planning Regions	Seeking Cost Allocation from WestConnect
SWIP North	Western Energy Connection, LLC	WestConnect CAISO NTTG	WestConnect NTTG*	Yes
Cross-Tie Project	TransCanyon, LLC	WestConnect CAISO NTTG	WestConnect* NTTG	Yes
TransWest Express	TransWest Express, LLC	WestConnect CAISO NTTG	WestConnect CAISO* NTTG	Yes
HVDC Conversion Project	San Diego Gas & Electric	WestConnect CAISO	WestConnect CAISO*	No

* = Indicates lead planning region. The lead planning region will organize and facilitate interregional coordination meetings and track action items and outcomes of those meetings.

ITP submittal summaries are posted to the WestConnect website [here](#).

ITP Evaluation Process Plan

- Planning Regions are currently drafting an ITP Evaluation Process Plan for each ITP submitted
 - Single document for each ITP, drafted in cooperation with each Relevant Planning Region
 - The goal of the coordinated ITP evaluation process is to achieve consistent planning assumptions and technical data of an ITP to be used in the *individual regional evaluations* of an ITP
 - Plans will be completed and posted by June 14, 2016
- WestConnect's analysis of the ITPs will first depend on a need being identified in the current planning cycle
 - Needs assessment will be conducted in Q4 2016

Upcoming Meetings

➤ PMC Meetings:

- June 22 - 9:00 a.m. to 3:00 p.m. (MDT), Denver, CO (Xcel)
- July 20 - 9:00 a.m. to 3:00 p.m. (PDT), Los Angeles, CA (LADWP)
- August 17 - 9:00 a.m. to 3:00 p.m. (MDT), Westminster, CO (TSGT)

**Additional Information Regarding the
Regional Planning Process can be
Accessed at:**

www.WestConnect.com



Thank You!

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