WestConnect
2022 Annual Interregional Information

Annual Interregional Coordination Meeting
March 4, 2022

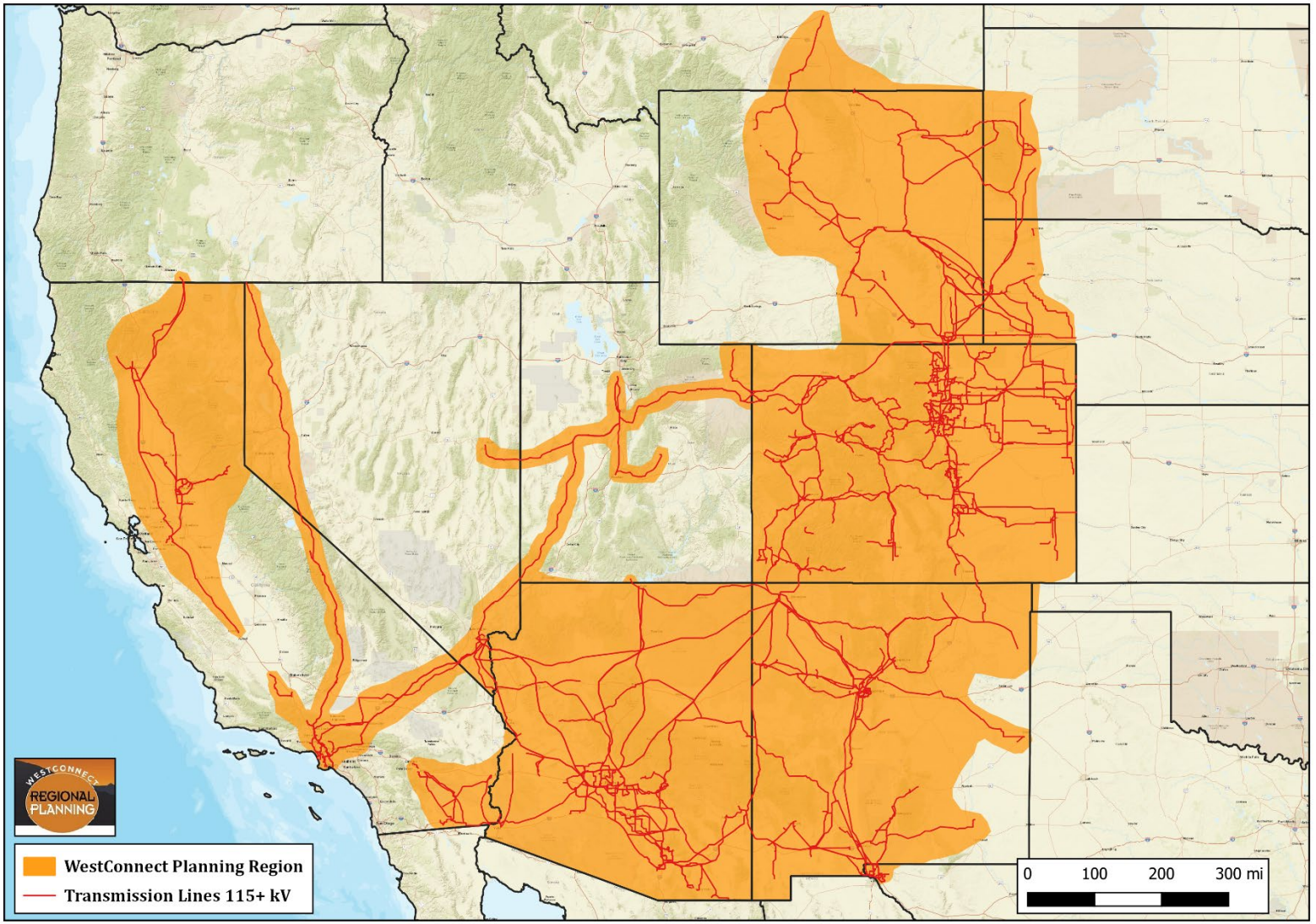
Topics

- WestConnect Regional Planning Overview
- 2020-21 Regional Planning Cycle
  - Summary of Regional Plan Report
- 2022-23 Regional Planning Cycle
  - Study Plan Status
  - Scenario Submittals
- Interregional Transmission Project Submittals
- Upcoming Meetings

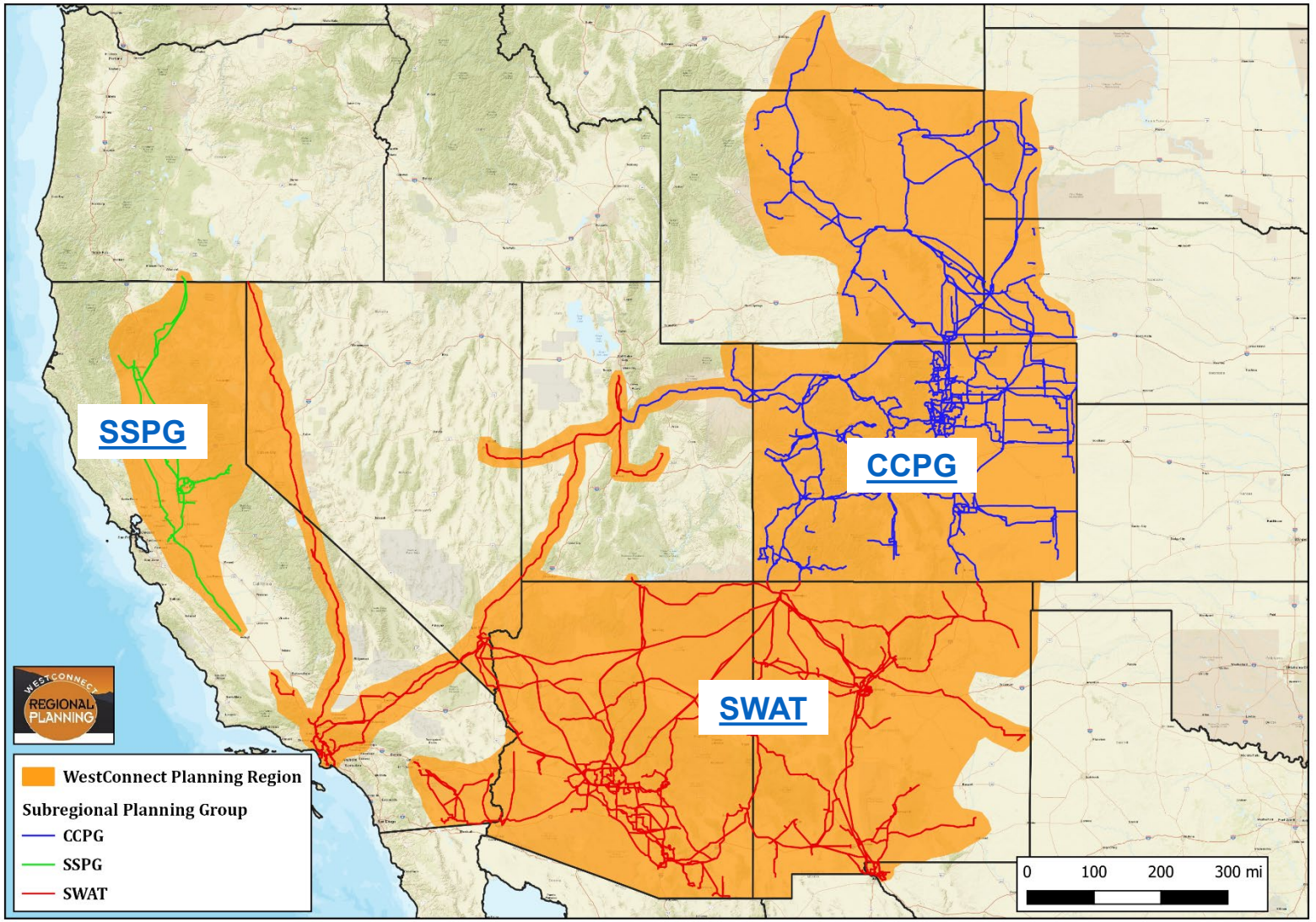
WestConnect Regional Planning Overview

Heidi Pacini, WestConnect Project Manager

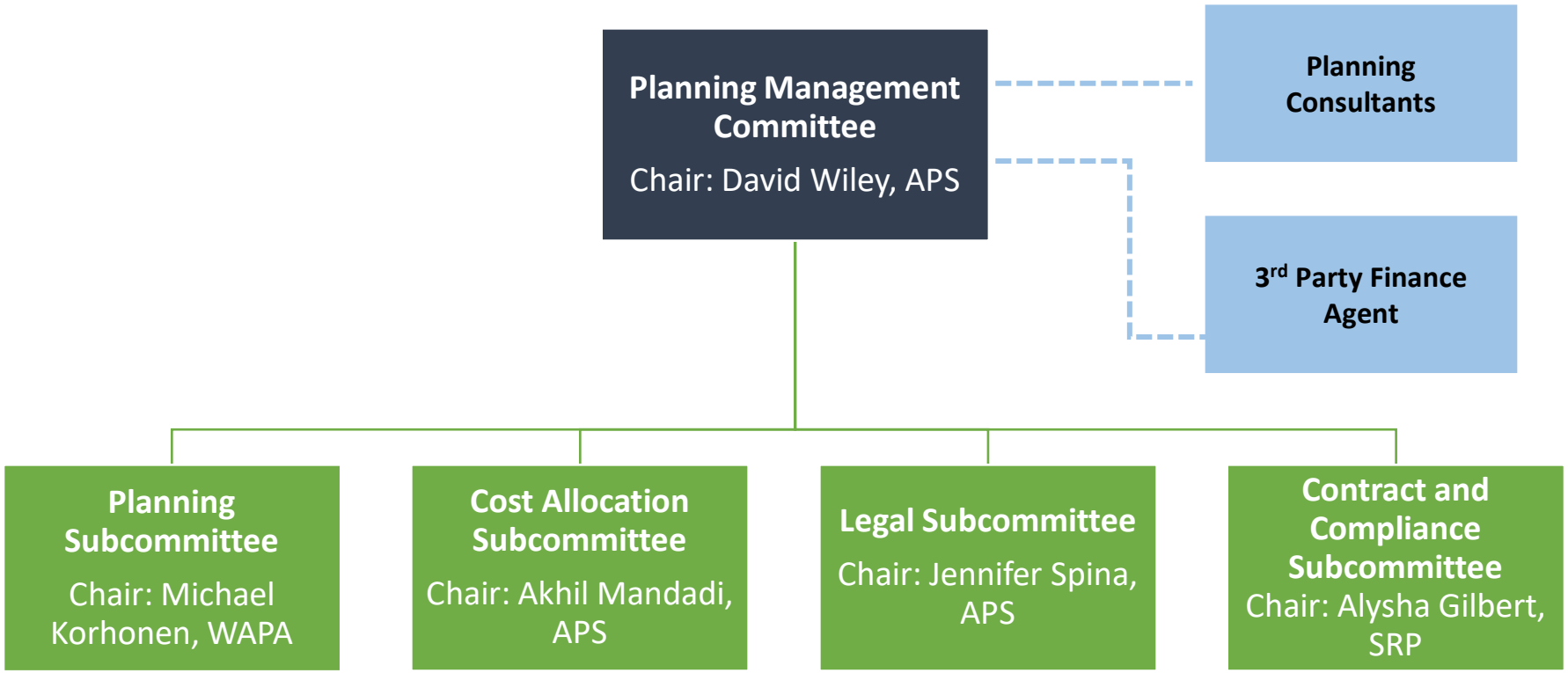
WestConnect Planning Region



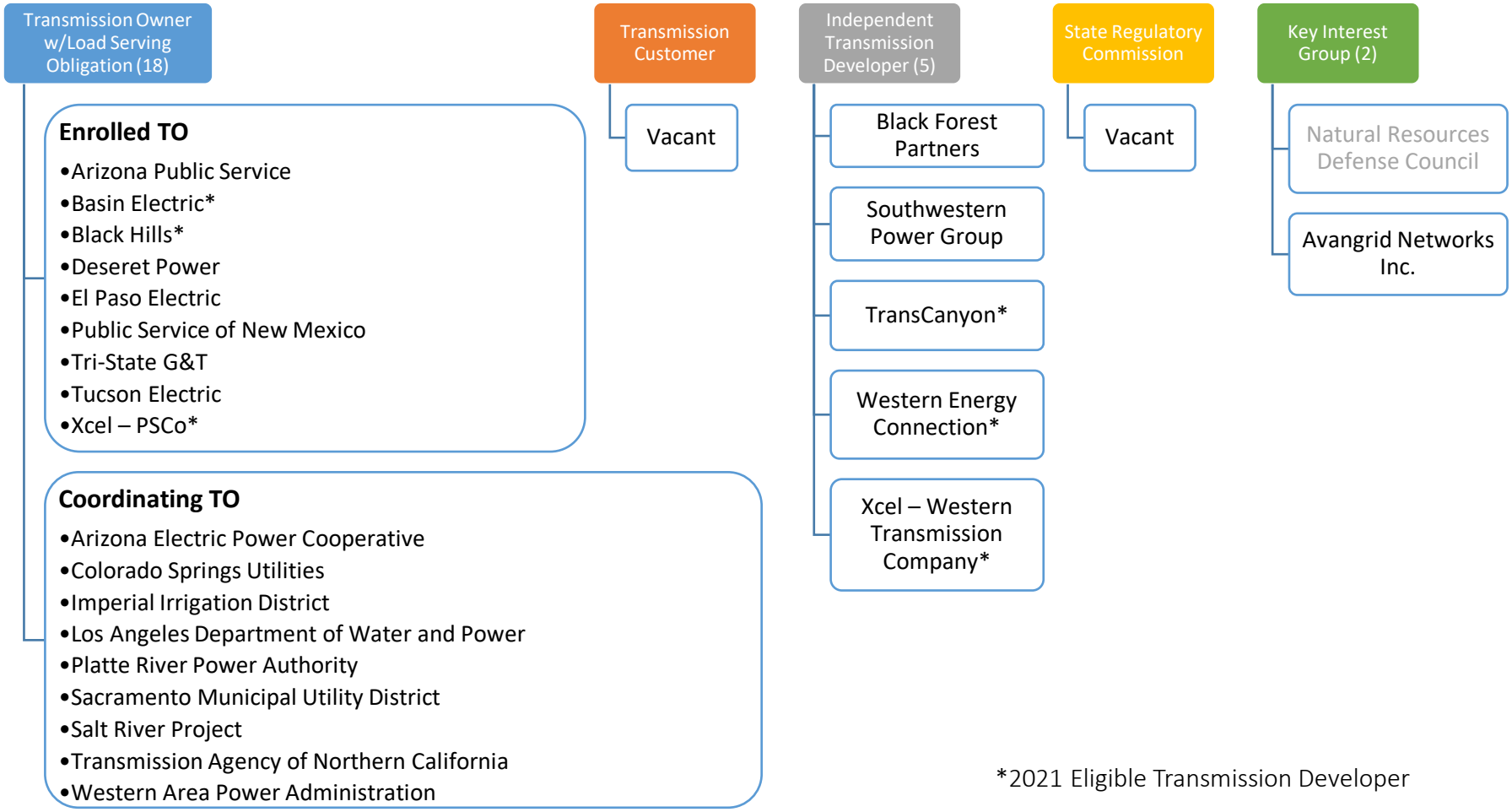
Subregional Planning Groups



PMC Organization



PMC Membership as of 1/1/2022



*2021 Eligible Transmission Developer

Inactive member

Updated 1/3/2022

PMC Activities

- Manages the Regional Transmission Planning Process
- Currently finalizing the 2022-23 Regional Study Plan and preparing for model development
  - PMC will approve the Final 2022-23 Regional Study Plan on March 16, 2022
- Monthly meetings held via webinar or at rotating member facilities
- Meetings are posted to the WestConnect Calendar

2020-21 Regional Transmission Plan

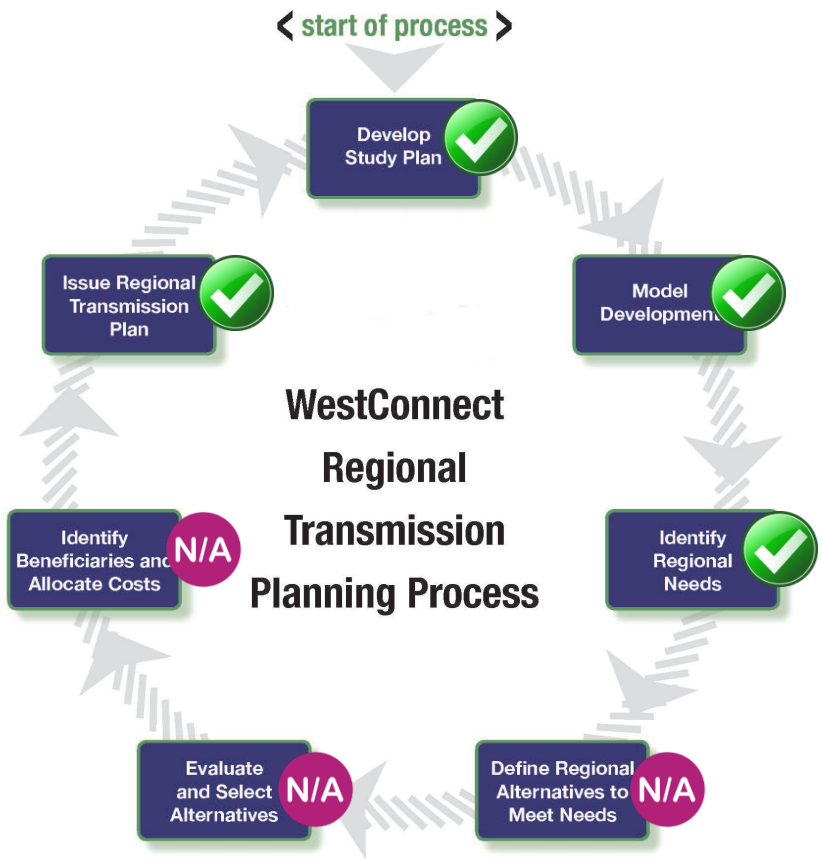
Ben Brownlee, WestConnect Planning Consultant,
Energy Strategies

2020-21 Regional Process Overview

Third biennial Order 1000 regional planning process for WestConnect

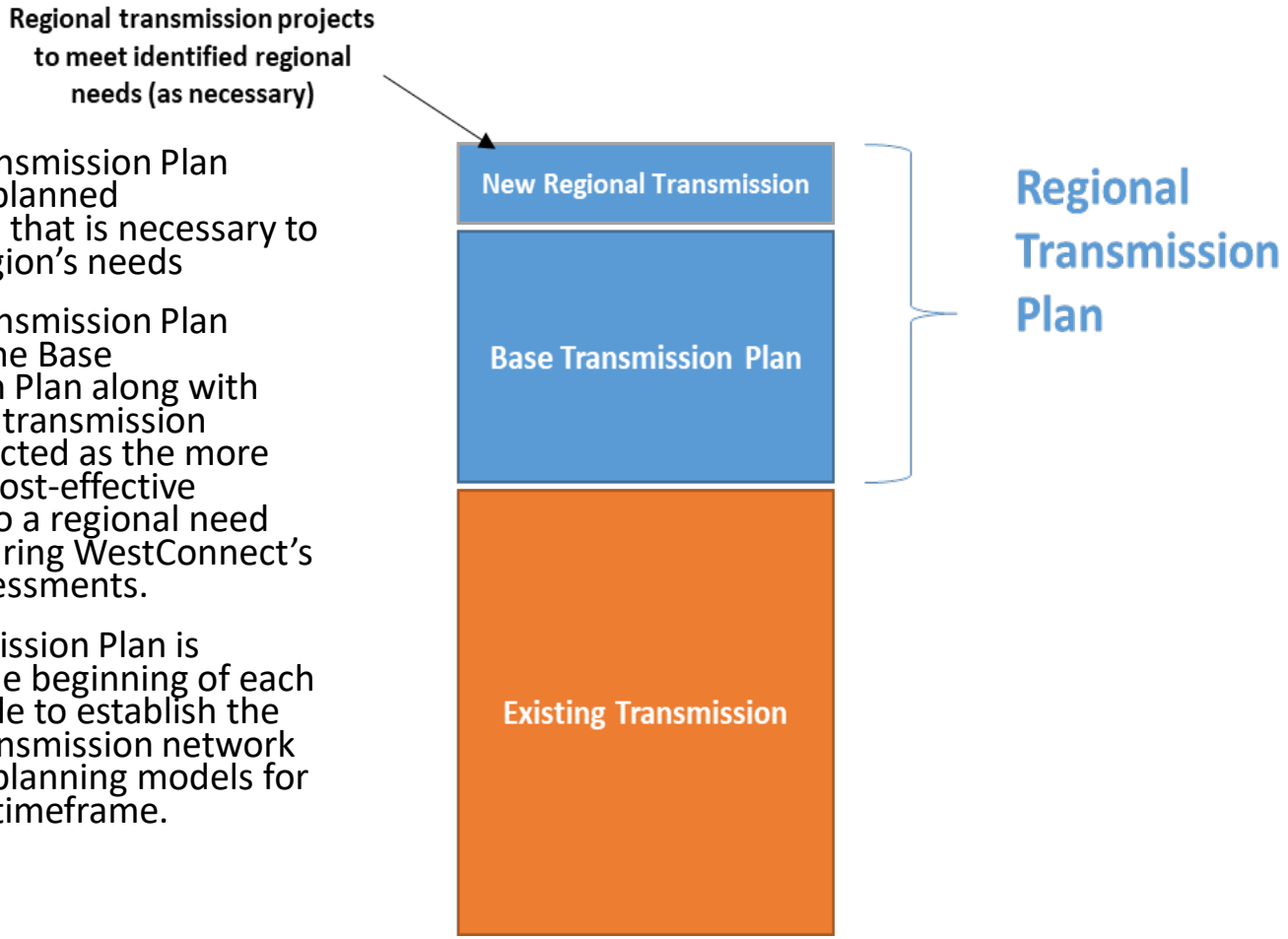
Key outcomes:

- Based on the reliability, economic, and public-policy base case analyses conducted, the PMC did not identify any regional transmission needs
  - Because there were no regional needs, there was not an evaluation of alternatives, cost allocation, and developer selection
- Information-only scenario studies were performed investigating a Committed Uses Scenario and New Mexico Export Stress Scenario

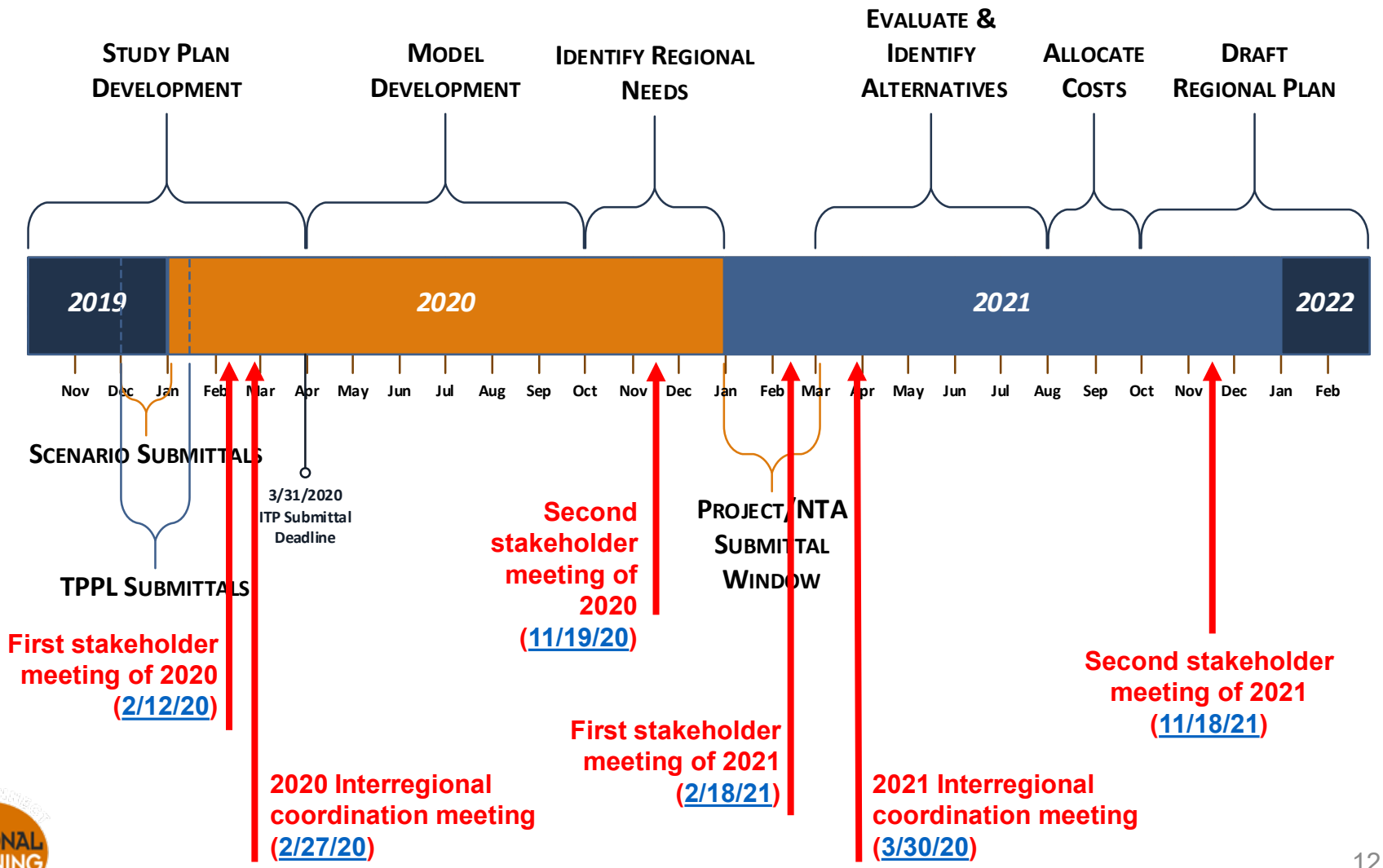


Regional Transmission Plan Background

- Regional Transmission Plan reflects the planned transmission that is necessary to meet the region's needs
- Regional Transmission Plan consists of the Base Transmission Plan along with any regional transmission projects selected as the more efficient or cost-effective alternative to a regional need identified during WestConnect's regional assessments.
- Base Transmission Plan is created at the beginning of each planning cycle to establish the assumed transmission network reflected in planning models for the 10-year timeframe.



2020-21 Planning Cycle Recap



Regional Assessments

2020-21 Regional Transmission Plan

Study Models Prepared for 2020-21 Regional Transmission Needs Assessment

WestConnect Base Case Name	Study Type	Case Description
2030 Heavy Summer	Reliability	Summer peak load conditions during 1500 to 1700 MDT, with typical flows throughout the Western Interconnection.
2030 Light Spring	Reliability	Light load conditions during 1000 to 1400 MDT in spring months of March, April, and May with solar and wind serving a significant but realistic portion of the Western Interconnection total load. Case includes renewable resource *capacity* consistent with any applicable and enacted public policy requirements.
2030 Base Case	Economic	Business-as-usual, expected-future case with median load and hydro conditions and representation of resources consistent with enacted public policies.

Full model details are available in
2020-21 Model Development Report

Regional Reliability Assessment

- Assessment for regional needs was based on reliability standards adopted by the North American Electric Reliability Corporation (NERC) TPL-001-4 Table 1 (P0 and P1) and TPL-001-WECC-CRT-3.2 (Transmission System Planning Performance WECC Regional Criterion)
- Steady state contingency analysis:
  - Limited to N-1 contingencies for elements 230-kV and above, generator step-up transformers for generation with at least 200 MW capacity, and member-requested N-2 contingencies.
  - Monitoring and violation reporting was performed for elements above 90-kV outside of the WestConnect footprint and member-identified elements within WestConnect footprint
- Transient stability analysis:
  - Limited to contingencies to member-selected disturbances that could have a regional impact: Ten disturbances across the WestConnect footprint.

Regional Economic Assessment

- Objective was to arrive at a set of congested elements that warranted testing for the economic potential for a regional project solution, recognizing that the presence of congestion does not always equate to a regional need for congestion relief at a particular location
- The congestion analysis was limited to:
  - Transmission elements (or paths/interfaces) between multiple WestConnect member TOs;
  - Transmission elements (or paths/interfaces) owned by multiple WestConnect member TOs; and
  - Congestion occurring within the footprints of multiple TOs that has potential to be addressed by a regional transmission project or non-transmission alternative.
- Congestion within a single TO's footprint (and not reasonably related or tied to other TO footprints) is out of scope of the regional planning effort and is alternatively subject to Order 890 economic planning requirements
- The assessment included a sensitivity analysis to better understand whether regional transmission congestion may be impacted by adjusting certain input assumptions subject to significant uncertainty. Four sensitivities of interest were selected:
  1. High Load: WestConnect-wide total coincident annual peak load and load energy increased by 14% and 15%, respectively
  2. Low Hydro: WECC's 2001-based hydro modeling, system-wide hydro lowered by 17%
  3. High Gas Price: All the natural gas prices increased to 140% of their value in the 2030 Base Case
  4. System-Wide Carbon Emission Cost: Applied CO2 emission charges to all generators in WECC

Public Policy Assessment

- WestConnect begins evaluation by identifying a list of enacted public policies that impact local TOs (see study plan)
- Enacted public policies were incorporated into the base models through the roll-up of local TO plans and their associated load, resource, and transmission assumptions.
- Regional public policy needs can be identified one of two ways:
  - New regional economic or reliability needs driven by enacted Public Policy Requirements; or
  - Stakeholder review of local TO Public Policy Requirements-driven transmission projects and associated suggestions as to whether one or more TO projects may constitute a public policy-driven regional transmission need.
- No regional public policy needs were identified in the 2020-21 planning cycle:
  - ***No regional reliability or economic needs, so none driven by enacted Public Policy Requirements.***
  - ***Stakeholders did not suggest or recommend the identification of regional public policy-driven transmission needs during the comment period between November 19 and December 3, 2020.***
    - ***The stakeholder meeting on November 19, 2020 kicked off a stakeholder comment period in which stakeholders were asked to suggest potential regional public policy-driven transmission need based on the enacted public policies driving local transmission needs and the associated list of local public policy-driven transmission projects.***

2020-21 Regional Assessment Results

PMC concluded that there were no regional transmission needs in the WestConnect footprint. Conclusion was based on:

- Reliability analyses: Neither the Heavy Summer nor the Light Spring assessments identified reliability issues that were between two or more WestConnect members or impacted two or more WestConnect members
- Economic analysis: There was no regionally significant congestion identified in the base case, and thus, there were no identified regional economic needs
- Public Policy Assessment: No regional public policy needs were identified
  - No regional reliability or economic needs, so none driven by enacted Public Policy Requirements.
  - Stakeholders did not suggest or recommend the identification of regional public policy-driven transmission needs during the comment period between November 19 and December 3, 2020.

Study results supporting these findings are documented in the Regional Transmission Plan Report

Scenario Studies

2020-21 Regional Transmission Plan

2020-21 Scenario Studies

- In addition to the regional needs assessment, WestConnect also conducts information-only scenario studies that look at alternate but plausible futures.
- Scenarios represent futures with resource, load, and public policy assumptions that are different in one or more ways than what is assumed in the Base Cases.

Committed Uses Scenario Study

Purpose: Improve PCM results.

Assumptions: WestConnect Members will work to explicitly model existing contracts – based on OASIS and member-submitted data – for both generator off-take and transmission uses to determine impacts on WestConnect economic study findings. May involve removal or adjustment of certain wheeling charge assumptions. Only firm long-term (month or longer) commitments that are under contracts should be included, such that any requests under study or received (and not currently under contract) would be excluded.

New Mexico Export Stress Study

Purpose: Evaluate the reliability of the WestConnect regional system when power flows east-to-west from New Mexico

Assumptions: Simulation results from the WestConnect 2030 Base Case PCM with New Mexico exports high levels of east-to-west flow across WestConnect will be exported into a reliability model for evaluation.

Committed Uses (CU) Scenario Study

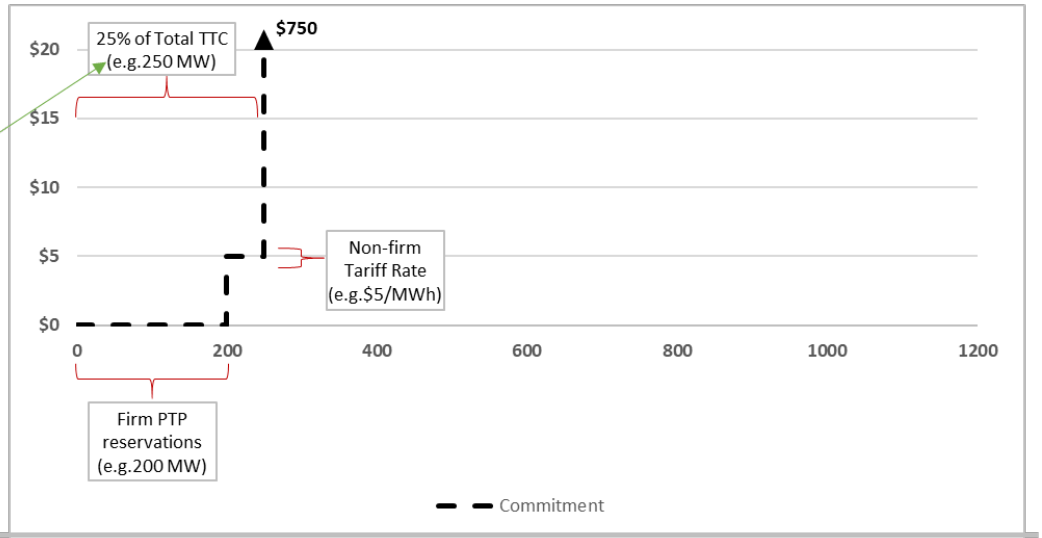
- **Problem Statement**: The WestConnect Base Production Cost Model (PCM) does not take into account existing long-term reservations and other "committed uses" on the system. The Committed Uses (CU) Scenario attempt to address this shortcoming.
  - The WestConnect Base PCM assumes that 100% of inter-area branch thermal rating is available for inter-market transfer, which may result in an over-optimized commitment and/or dispatch due to exaggerated levels of interchange capacity availability
- **Case Development**: Using Open Access Same-Time Information System ("OASIS") and Energy Imbalance Market ("EIM") Energy Transfer System Resources ("ETSRs") data, assumptions were developed to represent firm transmission capacity reservations, firm available transfer capability ("FATC"), total transfer capability ("TTC"), and additional inter-BA transfer flexibility provided by the EIM. These assumptions, as well as those below, were used to enhance the wheeling path modeling of the 2030 Base Case PCM.
  - To focus resource commitment on serving local BA load, the inter-area flow was limited to the greater of the Firm Transmission Rights or 25% of TTC value during commitment optimization
  - Future EIM participating areas' EIM capacity was based on the proportion of inter-area capacity used by existing EIM areas
- **Analysis**: Same as the Regional Economic Assessment to assess the impact to congestion, as well as:
  - Review and historical benchmarking of generation commitment and dispatch within and power flows between WestConnect's Balancing Authority Areas

Example of Applying the CU Assumptions to Wheel Path

Hurdle rate ($/MWh) vs transfer capability (MW) for one direction of an example wheeling path in the CU PCM cases assuming 1,000 MW of TTC, 800 MW of FATC, 200 MW of Firm Transmission Rights or Firm PTP reservations, and 200 MW of EIM Capacity

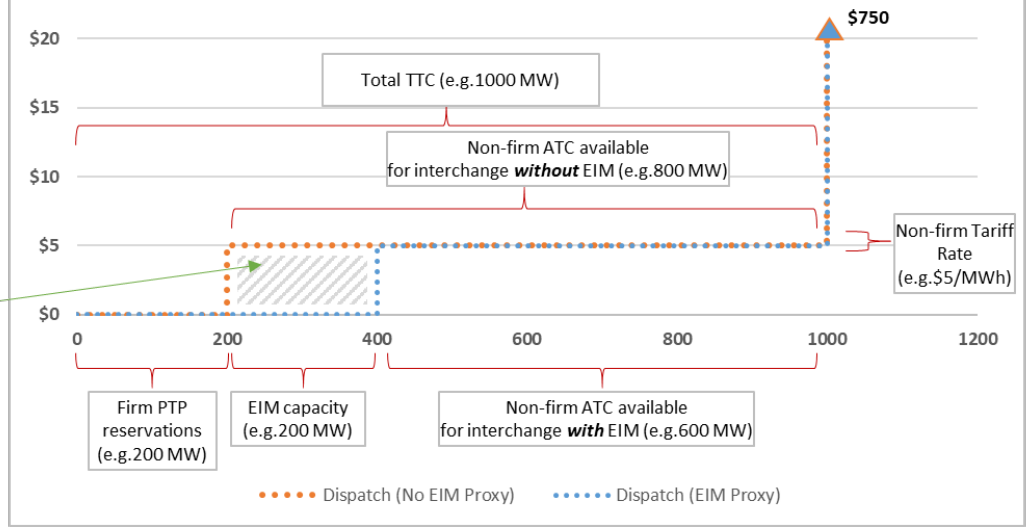
Just Commitment Stage in PCM Simulation

Commitment primarily focused on serving local load



Just Dispatch Stage in PCM Simulation

Representation of the additional inter-BA transfer flexibility between EIM participants before the final dispatch is set.



Findings of the CU Scenario Study

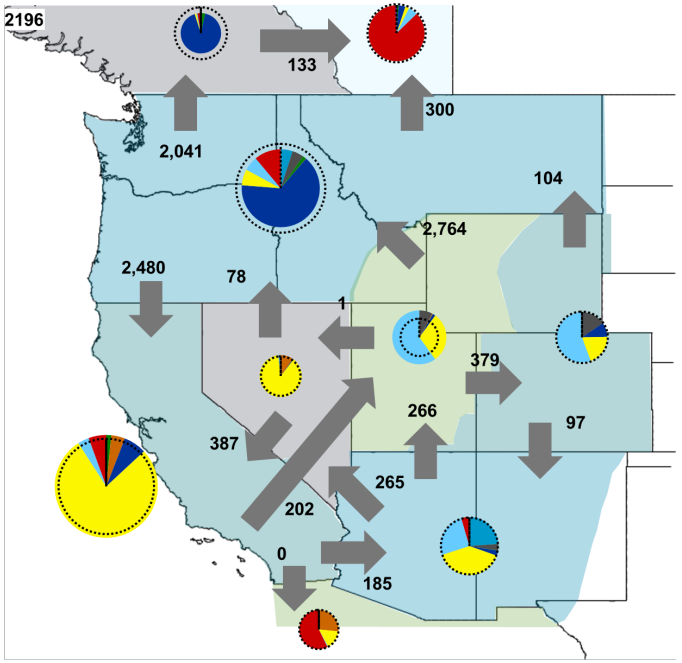
The Planning Subcommittee came to the below conclusions based on their oversight of the study and review of the study's results:

- The study's process of leveraging OASIS data was an effective way to develop the initial CU assumptions, and the subsequent review by WestConnect members and stakeholders – including the California Independent System Operator – ensured the final CU assumptions were a reasonable forecast of inter-BA contractual transmission rights in and bordering the WestConnect footprint in the 2030 future.
- The Planning Subcommittee concluded that both CU PCM simulations ("with EIM" and "without EIM") produced improved results compared to the WestConnect 2030 Base Case PCM and the results of the "without EIM" CU PCM were most reasonable.

New Mexico Export Stress (NME) Study

- **Problem Statement**: evaluate the reliability of the WestConnect regional system when power flows east-to-west from New Mexico
- **Case Development**: simulation results from the WestConnect 2030 Base Case PCM with New Mexico exports high levels of east-to-west flow across WestConnect will be exported into a reliability model for evaluation.
  - Planning Subcommittee selected Hour 12 on April 2, 2030 since it had the highest New Mexico export during the WestConnect 2030 Base Case PCM simulation
- **Analysis**: same as the Regional Reliability Assessment

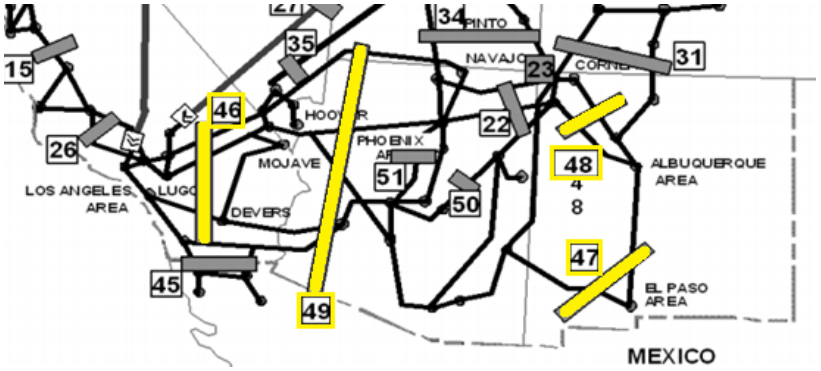
Highest NM Export: 4/2/30 12:00 MST



Summary of Final NME Scenario Study Assumptions

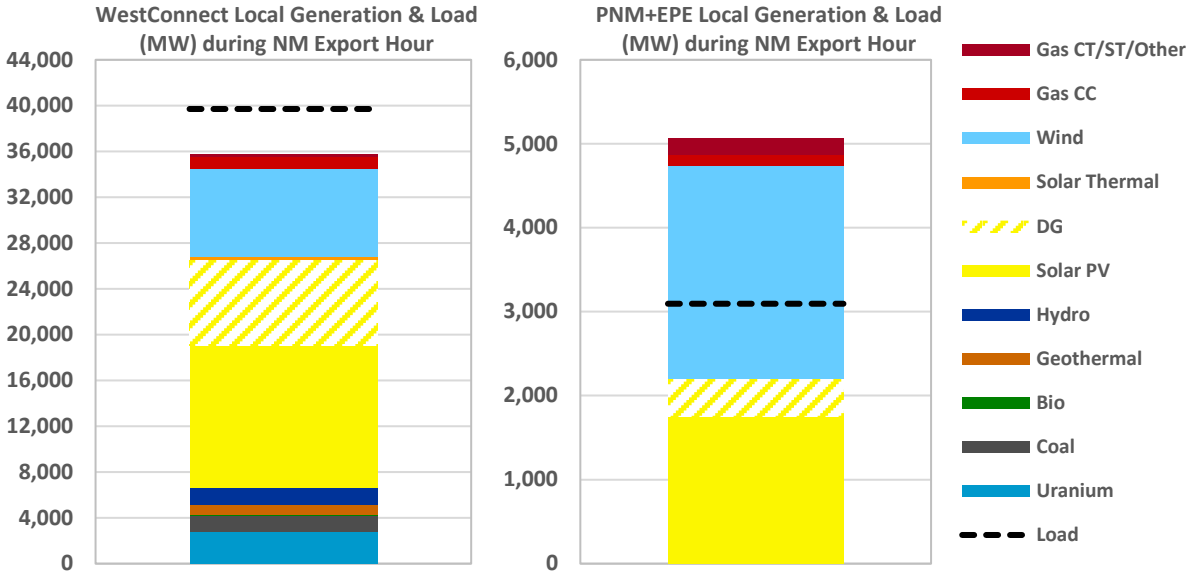
NM Export and WECC Transfer Path Flow on April 2nd Hour 12

Time (MST)		Flow (MW)				
Date	Hour	NM Export	Path 48 – North New Mexico (NM2)	Path 47 – Southern New Mexico (NM1)	Path 46 – West of Colorado River (WOR)	Path 49 – East of Colorado River (EOR)
4/2/2030	12	2,046	2,606 Southeast →Northwest	346 Southeast →Northwest	6,482 East→West	20 West→East



WestConnect & PNM+EPE Local Generation & Load During Selected NM Export on April 2nd Hour 12

("Load" includes transmission losses as well as any generators pumping, charging, or otherwise pulling power from the system)



Findings of the NME Scenario Study

- The scenario as modeled overstates the number of solar resources located near the Albuquerque area which results in overloaded lines between the Albuquerque area and the Four Corners area under contingency conditions. Since establishing the model, a portion of the generic renewable resources included in the model near Albuquerque have been defined and located in the Four Corners area which is on the other side of the constraints identified in the scenario case.
- The analysis also does not consider that a significant portion of the solar resources would not be available for export because of co-located battery storage as well as other local battery storage that has yet to be defined. It is expected that low load high solar hours as modeled in the scenario case will be key hours for battery charging. Both of these reduce the available resources leading to overloads identified in the scenario case.
- PNM believes the case does model flows approaching the transfer capability limits for resources located in central and eastern New Mexico. It is not, however, clear whether this represents a likely dispatch of such resources. To the degree the case's assumed solar resources in New Mexico do not develop, they still represent a reasonable renewable dispatch given they can be considered a proxy for additional wind resources with no co-located battery storage.

Findings of the NME Scenario Study

- The WestConnect 2030 Light Spring Base Case's dynamic data required many updates outside of the WestConnect footprint to achieve a flat no disturbance transient simulation
- These issues may still exist in the WECC master dynamics file (MDF) and, if so, will adversely impact WestConnect's next planning cycle.
- WestConnect has developed the below recommendations for WECC's consideration and will provide WECC, upon request by WECC, with the details of the dynamic data updates implemented outside of WestConnect during this assessment so WECC can coordinate with the associated data submitters to resolve similar issues in future WECC Base Cases.

1. The issues flagged in the "Steady-State and Dynamics Dashboard" and "Annual Base Case Compilation and Data Check Log" reports provided with each WECC Base Case should be resolved prior to finalizing the case.

2. For generators capable of negative dispatch (e.g., batteries, pumped-storage hydro, motor loads), the WECC MDF should include dynamic data that works with both positive and negative dispatch and associated comments indicating which set of models is appropriate for each mode of operation.

3. The MVA base of the models in the WECC MDF data should match the MVA base of the models in the WECC Base Cases.

4. As part of finalizing a WECC Base Case, the dynamic data should be tested and validated for all generators in the case that are not retired prior to the represented snapshot, including the generators that may be turned off in the particular snapshot (i.e., it could be dispatched in a sensitivity of the system condition).

5. The MDF should indicate any known operational limitations of the dynamic data being used. For instance, the WECC Wind Power Plant Dynamic Modeling Guide indicates that Phase I wind models only provide reasonable representation of the generator when its dispatch is within 25% to 100% of its rated power and this limitation should accompany the use of any these models in the MDF.

Regional Transmission Plan

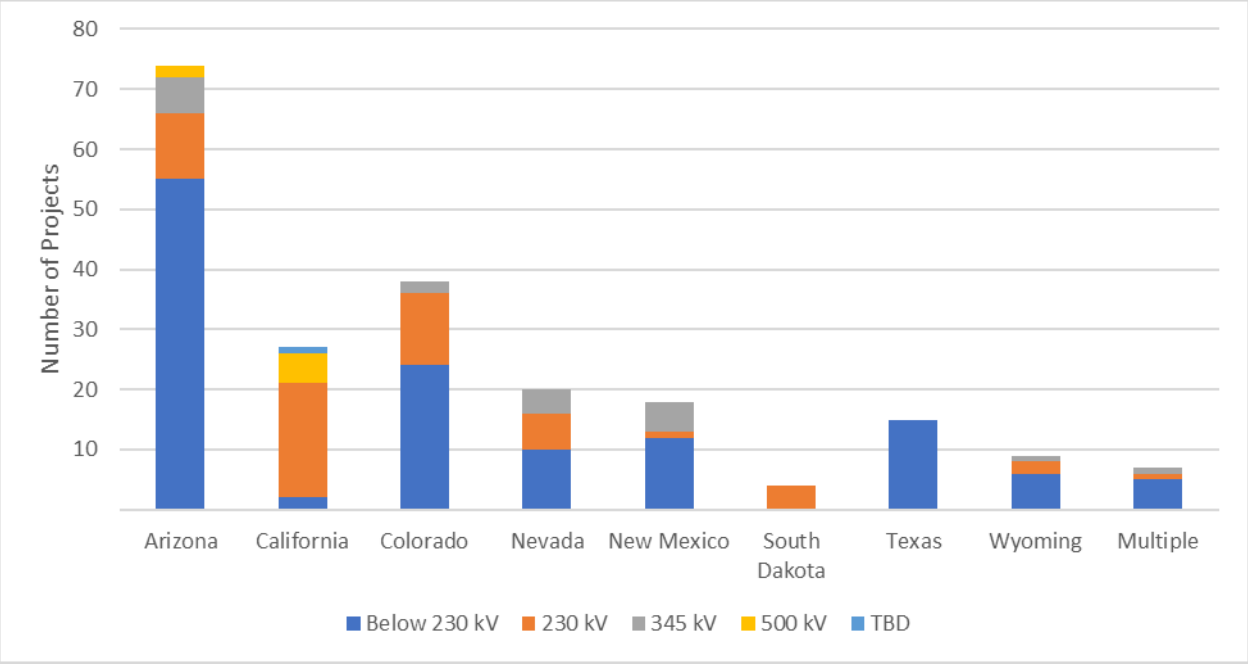
2020-21 Regional Transmission Plan

2020-21 Regional Transmission Plan Report

- Document summarizes entire planning process and is available here on the WestConnect website
- Appendices provide:
  - Planned Projects included in 2020-21 Regional Transmission Plan
  - Results of Reliability Assessment
  - Results of Economic Assessment

Overview of 2020-21 Regional Transmission Plan Projects

- Includes 212 planned transmission projects, spanning 821 miles with a total estimated capital investment of $799.3 Million.
  - 61% of these projects involve facilities below 230 kV
  - 45% of the transmission line projects did not report line mileage in the TPPL data and 70% of the projects did not report cost information in the TPPL data
- Since the 2018-19 WestConnect Regional Transmission Plan, the WestConnect region has 99 new planned projects, 35 previously planned projects have gone into service, 14 previously planned projects began construction, and 28 previously planned projects were no longer planned



2022-23 Regional Planning Cycle Overview and Draft Study Plan

Ben Brownlee, WestConnect Planning Consultant, Energy Strategies

Draft 2022-23 Study Plan Overview

- Study Plan identifies the scope and schedule of the study work to be performed during the planning cycle
- The subsequent slides review:
  - Study Plan outline
  - Summary of key planning activities and schedule
  - Base Transmission Plan
  - Regional Need Assessments (including key models)
  - Scenario Studies
  - Opportunities for participation and next steps
- Note that the Study Plan does not explain every aspect of the process and the BPM should be consulted for details not provided (especially when referenced)

Draft 2022-23 Study Plan Outline

- Organized by assessment type
  - Model Development & Key Assumptions
  - Study Methodology and Criteria
  - Hope each type of regional need will be determined
- Entire document refers to the Regional Needs assessment, except for Section 8 which covers scenario studies
- ***Document was sent out for Stakeholder review following the February 2022 Stakeholder meeting***
  - Comments requested by 5pm MST on February 25, 2022

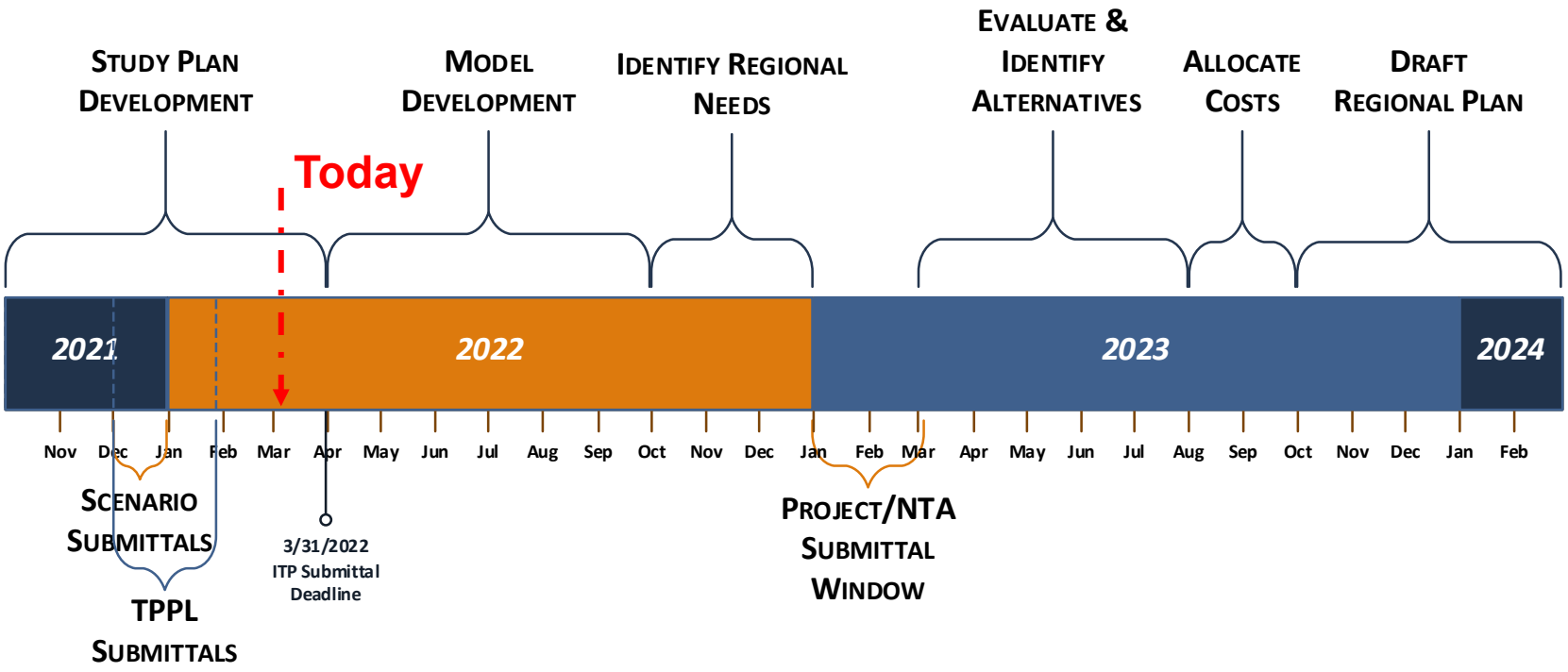
Contents

Draft 2022-23 Schedule

Due Date	*Quarter*	*Activity*
February 10, 2022	Q1	WestConnect Stakeholder Meeting to present draft Regional Study Plan
February 11, 2022	Q1	Draft Regional Study Plan posted to WestConnect website
March 4, 2022	Q1	Interregional Coordination Meeting
March 16, 2022	Q1	Final Regional Study Plan approved by PMC
March 31, 2022	Q1	Interregional Transmission Project ("ITP") submittal deadline*
September 2022	Q3	Regional models finalized
November 2022	**Q4**	**Stakeholder meeting to discuss identified regional needs**
December 2022	Q4	Regional transmission needs posted to WestConnect website
January 2023	Q5	Submittal window opens for projects to meet the posted regional needs. Submittal window lasts for no less than 30 days
September 2023	Q7	WestConnect posts listing of projects meeting an identified regional need selected for the purposes of cost allocation
November 2023	Q8	Draft Regional Plan Report posted to WestConnect website
November 2023	**Q8**	**Stakeholder meeting to discuss the draft Regional Plan Report**
Three weeks prior to PMC December 2023 meeting	Q8	Stakeholder comments on draft Regional Plan Report due to WestConnect
December 2023	Q8	Final 2022-23 Regional Plan Report posted to WestConnect website

*Western Planning Regions' coordination activities require, no later than March 31st, an identification of ITPs submitted into the regional processes of all relevant planning regions. For the WestConnect region, the PMC will not begin evaluating whether an ITP may satisfy an identified regional transmission need in the WestConnect region until after the PMC identifies regional transmission needs at year-end 2022.

2022-23 Process Timeline



Base Transmission Plan

2022-23 Regional Planning Cycle Overview and Draft Study Plan

Base Transmission Plan Overview

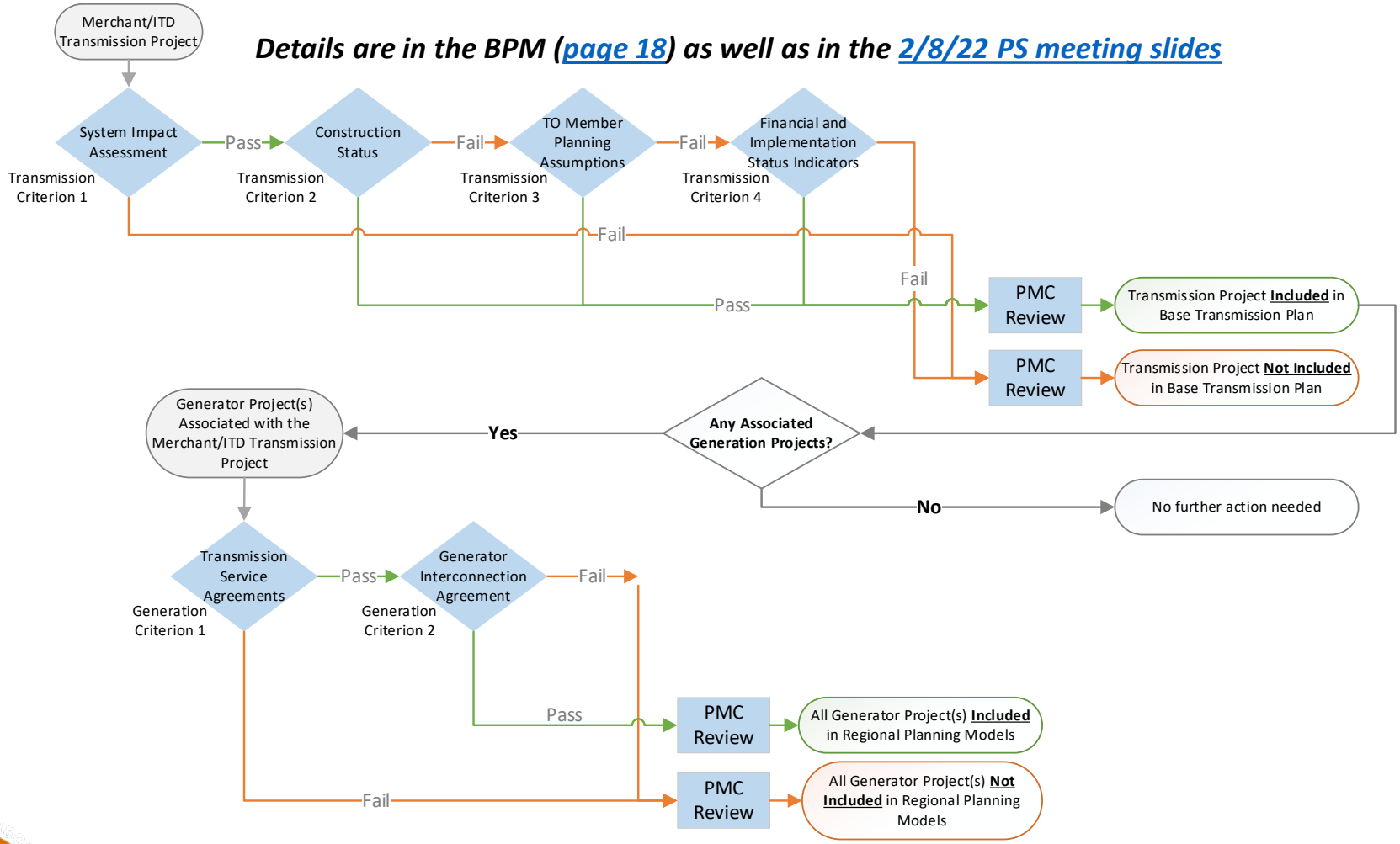
- See 2020-21 Study Plan (page 11) or BPM (page 18)
- Base Transmission Plan: transmission network topology that is to be reflected in each of the regional planning models
  - Base Transmission Plan = ***Planned* TO Projects** + ***High probability* ITD Projects**
- Based on project information gathered in TPPL for 2022-23 cycle
- Will document Base Transmission Plan in 2022-23 Study Plan (which will be approved by PMC), and **ensure this transmission is included in base models**

Planned TO Projects	"High Probability" Merchant/ITD Projects

All TO projects designated with a "planned" project status are included in the base transmission plan:
• Expected to be in-service during the approaching 10-years and meets the below criteria within that timeframe:
  • Project is required to meet public policy requirements; OR
  • Project has a sponsor and is incorporated in an entity's regulatory filings or capital budget; OR
  • Project has an agreement committing entities to participate and construct.
	• BPM lays out set of criteria to identify "high probability" independent transmission developer (ITD) projects for inclusion in base transmission plan
	  • Criteria uses information gathered in TPPL
	• PS compiles initial list and includes it in Study Plan for review and approval by PMC
	• Inclusion means that WestConnect has high certainty that the project will be built
	  • Would remove project from any evaluation against a regional need since it would be included in Base Transmission Plan

ITD Inclusion Criteria: Process for Evaluating Non-TOLSO Transmission Projects *and* Associated Generation ***(updated for 2022-23 cycle)***

Details are in the BPM (page 18) as well as in the 2/8/22 PS meeting slides



Current Status of reviewing projects to include in Base Transmission Plan

- Current draft of 2022-23 Study Plan contains a **draft Base Transmission Plan**
- Subregional Planning Groups are reviewing member-submitted projects to confirm their "planned" development status
  - Changes to the Base Transmission Plan that occur based on this review will be discussed at the PMC meeting in March
- Planning Subcommittee reviewed projects on the verge of meeting the Base Transmission Plan ITD inclusion criteria during its 2/8/2022 meeting
  - No ITD projects currently recommended for inclusion in the Base Transmission Plan
- **Interregional Coordination**: WestConnect is interested in any updates to WECC models CAISO or NorthernGrid identify on their border with WestConnect.
  - Reached out to CAISO to confirm how their board-approved projects are represented in the WestConnect seed cases: WECC 2032 Heavy Summer Base Case and the WECC 2033 Light Spring Specialized Base Case.

ITD Projects in TPPL

SPG	Sponsor	Project Name
CCPG	Wyoming-Colorado Intertie, LLC	Wyoming-Colorado Intertie
CCPG and SWAT	TransWest Express, LLC	TransWest Express Project
REGIONAL	Southwest Transmission Partners, LLC	North Gila - Imperial Valley #2
REGIONAL	TransWest Express, LLC	TransWest Express AC and DC Project - DC Segment
SWAT	Cal-Mex TX	Cal-Mex TX
SWAT	Central Arizona Project	Harcuvar Transmission Project (HTP)
SWAT	Clean Line Energy Partners	Centennial West Clean Line
SWAT	Lucky Corridor, LLC	Mora
SWAT	Lucky Corridor, LLC	Vista Trail
SWAT	San Luis River Colorado Project	SLRC Power Center, Transmission Line
SWAT	Southline Transmission, L.L.C.	Southline Afton-Apache
SWAT	Southline Transmission, L.L.C.	Southline Apache-Vail
SWAT	SunZia Transmission, LLC	SunZia Southwest Transmission Project
SWAT	TransWest Express, LLC	TransWest Express AC and DC Project - AC Crystal to Eldorado Segment
SWAT	TransWest Express, LLC	TransWest Express AC and DC Project - AC IPP to Crystal Segment
SWAT	Tres Amigas LLC	Tres Amigas Superstation

Current Status of Evaluating ITD projects for inclusion in the Base Transmission Plan

1. On February 8, 2022, the Planning Subcommittee reviewed the application of the ITD inclusion criteria against the ITD project data in the TPPL
2. Based on the ITD project data currently in the TPPL, there are no ITD projects close to meeting the ITD Inclusion Criteria, so there are no ITD projects included in the Draft 2022-23 Base Transmission Plan.
3. The ITD sponsors that did not submit updates will be contacted to check whether or not they wish to submit any updates.
4. If no response is received from a particular ITD sponsor by March 16 (approval of the Study Plan), then their project data will be removed from the TPPL.

Regional Assessments

2022-23 Regional Planning Cycle Overview and Draft Study Plan

Regional Needs Assessment Background

- The PMC will conduct assessments using models developed for year 2032
- Cases from WECC will be used as seed cases and they will include the systems of all transmission facilities in the Western Interconnection.
  - Members will update the WECC models to ensure the WestConnect footprint is properly represented.
- The PMC will not evaluate regional transmission needs for systems outside of the WestConnect planning region
- Public discussions will be hosted to determine whether identified transmission Issues are local vs. regional issues
- Based on the regional transmission assessments, the Planning Subcommittee (PS) will identify a list of transmission issues resulting from the studies and make a recommendation to the PMC as to which, if any, issues should constitute regional economic, reliability, or public policy transmission needs.
  - Includes development of a Regional Transmission Needs Assessment Report (which will allow for stakeholder comment and input)
- The Regional Transmission Needs Assessment Report will be delivered to the PMC for final review and approval, and it will contain the PS's recommendation on regional transmission needs for the study cycle. The regional transmission needs will be finalized pending the PMC's approval of the report.

Reliability Assessment

- Conducted to ensure the WestConnect planning region as a whole is in compliance with applicable North American Electric Reliability Corporation (NERC) standards and WECC regional criteria for the 2032 planning horizon.
- Assessment will include steady state contingency analysis and transient stability analysis.
- Monitoring and violation reporting will be performed for transmission elements above 90-kV outside of the WestConnect footprint and member-identified elements within or bordering the WestConnect footprint.

WestConnect Base Case Name	Case Description	Seed Case
2032 Heavy Summer	Summer peak load conditions during 1500 to 1700 MDT in summer months of June, July, and August, with typical flows throughout the Western Interconnection.	WECC 2032 Heavy Summer 1 Planning Base Case (32HS1)
2032 Light Spring	Light load conditions during 1200 to 1400 MDT in spring months of March, April, and May with solar and wind serving a significant but realistic portion of the Western Interconnection total load.	WECC 2033 Light Spring 1 Specialized Base Case (33LSP1S)

Reliability Assessment Regional vs Local Needs Matrix

- New for the Draft 2022-23 Study Plan, the Reliability Assessment portion of the document includes a "Regional vs Local Needs Matrix"
- This matrix was initially developed last year as a product of the PMC Issue 39 Work Group, which was the group tasked with helping the PMC resolve Issue 39 of the "WestConnect Issues List" (below)
  - Issue 39: Review definition for regional need and consider need for further definition, i.e., consider developing and documenting metrics for reviewing and determining regional needs to achieve continuity and transparency across planning cycles
  - Link to the "Latest Issues List" (spreadsheet)
- This "Regional vs Local Needs Matrix" is intended to provide transparency about how the reliability issues are initially categorized as part of the Reliability Assessment, during the course of identifying any regional reliability needs

Ownership[1] of the Element(s)[2] with Reliability Issue(s)	Example of Reliability Issue(s) and Affected Element(s)	Regional or Local?
…	…	Local
…	…	Regional Potential
…	…	Flag for Further Review

[1] "Ownership" refers to the entity or entities whose permission is needed to replace, update, or remove the affected element(s)
[2] "Line" and "Transformer" are inclusive of adjacent facilities not explicitly modeled in the power flow case (e.g., breakers, bus-ties, wave traps)

Economic Assessment

- To create the 2032 Base Case production cost model (PCM) , the PS will initiate and coordinate a review of the data and assumptions contained within the WestConnect 2030 PCM by the WestConnect members, participants, and stakeholders. The WECC 2032 ADS PCM will be used to inform the 2032 Base Case PCM if/when available during WestConnect's model development.
- Assessment will include review metrics such as congested hours and congestion cost for regional transmission elements greater than 90-kV and WECC transfer paths (or other defined interfaces in the WestConnect footprint) along with any TOLSO member-specified lower voltage BES elements
- Regional transmission with significant congestion will be identified and verified through PS review, historical benchmarking, and follow-up study
  - Transmission (or paths/interfaces) between multiple TOLSO member systems;
  - Transmission (or paths/interfaces) owned by multiple TOLSO members; and
  - Congestion occurring within the footprint of multiple TOLSO members (congestion in one TOLSO Member footprint reasonably related or tied to congestion in another TOLSO Member footprint)
- WestConnect will also conduct sensitivity studies on the 2032 Base Case, as necessary

WestConnect Base Case Name	Case Description	Seed Cases
2030 Base Case	Business-as-usual, expected-future case with (1) median load, (2) median hydro conditions and (3) representation of resources consistent with TOLSOs' approved resource plans as of March 2022	WECC 2032 Heavy Summer 1 Planning Base Case (32HS1) and WestConnect 2030 Base Case from the 2020-21 planning cycle

REGIONAL PLANNING

Public Policy Assessment

Public Policy Requirements: requirements enacted by state or federal laws or regulations, including those enacted by local governmental entities, such as a municipality or county

Regional needs driven by Public Policy Requirements can be proposed in two ways:

1. New regional economic or reliability needs identified during the regional economic and reliability needs assessments are further evaluated to determine if they were driven by Public Policy Requirements; and
    - Regional base models will reflect the Public Policy Requirements, to the extent a plan for compliance with the Public Policy Requirements has been completed by the TOLSO member
2. Stakeholders are given an opportunity to review a list of Public Policy Requirements impacting the WestConnect region and a map representation of the local projects driven by those Public Policy Requirements. Stakeholder can then suggest to WestConnect which Public Policy Requirements may result in possible regional public policy-driven transmission needs.
    - WestConnect will provide stakeholders with (1) the list of Public Policy Requirements impacting the WestConnect region and (2) a list of local public policy-driven transmission projects and a map representation of the projects. Stakeholders review the information and make suggestions

If any regional needs driven by Public Policy Requirements are proposed, then the PMC will select which, if any, of the proposed regional needs driven by Public Policy Requirements will be evaluated in the 2022-2023 planning cycle by considering factors, including, but not limited to several factors (more details in February 2022 Stakeholder Meeting slides).

Current List of Public Policy Requirements

Arizona Renewable Energy Standard	Colorado SB 19-077 (“Electric Vehicles Bill”)
California AB398/SB32	Colorado SB 19-236 ("PUC Sunset Bill”)
California SB100	Colorado SB 21-246
California SB350	Colorado SB13-252
Colorado HB 18-1270 (“Energy Storage Procurement Act”)	Colorado SB21-072
	Colorado SB21-272
Colorado HB 19-1261 and SB 1261 (“GHG Reduction Bills”)	Executive Order 14057 (EO 14057), Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability (Dec. 8, 2021)
Colorado HB10-1001	
Colorado HB10-1365	New Mexico Efficient Use of Energy Act
Colorado HB21-1238	New Mexico Energy Transition Act (2019 SB 489)
Colorado HB21-1266	SRP Sustainable Energy Goal
Colorado SB 07-100	Texas RPS
Colorado SB 18-009 (“Energy Storage Rights Bill”)	Texas Substantive Rule 25.181 (Energy Efficiency Rule)

Scenario Studies

2022-23 Regional Planning Cycle Overview and Draft Study Plan

2022-23 Cycle Scenario Submissions

- WestConnect received a total of 14 scenarios submissions involving 39 analyses from Clean Energy Advocate (CEA), Lucky Corridor, Ron Belval, and Xcel Energy. These were reviewed and discussed by the PS.
- Discussion led to several thematic scenario concepts:
    1. Evaluating study years beyond a 10-year future
    2. Carbon neutral and/or carbon free futures.
    3. Futures compliant with clean energy targets and requirements applicable to the study year
    4. Large renewable build-out in and export from New Mexico based on NM RETA assumptions to evaluate impacts outside of New Mexico
    5. Futures with no new gas, retirement of all coal and majority of thermals, replaced with a target mix of hydro, wind, solar, EE/DER, and batteries
    6. Futures with increased electrification
    7. Futures with new fully organized wholesale energy markets
    8. Future with broad, direct-current (DC) connectivity between the North America interconnections
    9. Impact of replacing the typically conservative transmission line ratings with ambient-based ratings (i.e., impact of FERC Order No. 881)
- Members were asked to prioritize their top scenario concepts
- Ultimately the PMC decided to include a multi-case scenario study in the draft Study Plan

Summary of "High Clean Energy Penetration Scenario Study"

- Purpose: evaluate the regional congestion in and reliability of a 2032 future in which the renewable and clean energy target-focused Public Policy Requirements of that study year are satisfied within the WestConnect footprint, as well as use the models representing this future to understand the gap between this future and a future in which the WestConnect footprint is carbon free.
  - Exclusions of Public Policy Requirement will include, but are not limited to, requirements to join an organized market, requirements for energy efficiency or demand response, or requirements for electric vehicles. Members will review each Public Policy Requirement and decide the appropriate inclusions and exclusions.
  - This scenario study presumes there will be gaps to fill given that the 2032 Base Case PCM will only reflects plans for compliance with the Public Policy Requirements if such plans have been completed by the TOLSO members, but this study should be revisited if that turns out to not be the case.
- PCM case will be developed through several iterative rounds of review by the WestConnect Members. WestConnect will look to leverage WestConnect Members' internal studies or other recent assessments that have investigated strategies for compliance with Public Policy Requirements
- PCM case results will be evaluated in two ways:
  - Congestion in the case will be evaluated using the same method as the Regional Economic Assessment
  - "Carbon free gap analysis": accounting of the carbon emissions attributed to the WestConnect footprint in the PCM case in order to approximate the amount of further carbon reduction that would be necessary to make the WestConnect footprint carbon free by 2032.
- A reliability model will be made based a WestConnect Member-selected system condition from the PCM case
  - Reliability will be evaluated using the same steady state contingency analysis as the Regional Reliability Assessment

Next Steps

2022-23 Regional Planning Cycle Overview and Draft Study Plan

Next Steps for 2022-23 Regional Draft Study Plan

- 2022-23 Study Plan will be finalized and approved by the PMC by the end of March
- A summary matrix of stakeholder comments will be posted to the WestConnect website, along with a final approved version of the Study Plan.
- The PS will then proceed with developing the regional planning models

Interregional Transmission Project (ITP) Submittals

Heidi Pacini, WestConnect Project Manager

2020 Interregional Transmission Project Submittals

Project Name	Company	Project Submitted To	Submitted in 2018? Lead Planning Region	Seeking Cost Allocation from WestConnect
Cross-Tie Project	TransCanyon, LLC	WestConnect CAISO NTTG & NorthernGrid (NG)	Yes WestConnect	Yes
Northwest Tie Upgrade	GridLiance West	WestConnect CAISO	No WestConnect	Yes
SWIP North	Western Energy Connection, LLC	WestConnect CAISO NTTG (transferred to NG)	Yes NorthernGrid	Yes
TransWest Express – Multiple configurations	TransWest Express, LLC	CAISO NTTG (transferred to NG)	In-part CAISO	No

ITP Evaluation Process Plans from the 2020-21 planning cycle can be reviewed here

WestConnect did not identify any regional transmission needs in the 2020-21 regional planning cycle, and as such, did not evaluate any ITPs in 2020-21.

2022-23 ITP Submittals

- Proponents of an ITP for which WestConnect is a Relevant Planning Region must submit the project to WestConnect by March 31, 2022
- Link to project submittal form
  - $25k study deposit is not required at this stage
- The project will need to be resubmitted following the needs identification stage of the 2022-23 planning cycle, at which time the study deposit is required
- WestConnect has received no ITP submittals to-date

Upcoming Meetings

- WestConnect Planning Meetings:
  - March 15, 2022: Planning Subcommittee
  - March 16, 2022: Planning Management Committee
- Next Stakeholder Meeting:
  - November 17, 2022
    - Primary topic will be the regional needs assessment results

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

www.WestConnect.com

Questions?

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