

Western Transmission Expansion Coalition

**Update to Washington State Legislature Joint Committee on
Energy Supply, Energy Conservation, and Energy Resilience**

December 3, 2025

Western Transmission Expansion Coalition – “WestTEC”

- » *West-wide 10 and 20-year transmission study*
- » *Industry-led with unprecedented regional partner inclusion*
- » *Goal is to produce an actionable transmission study that addresses interregional planning gap*

Voluntary and Informational

- It is not a routine or mandated compliance exercise
- Complementary and not replacing other planning process

Integrated and consolidated

- Avoids siloed planning
- Favors system-wide view

Innovative

- New planning approaches for new challenges
- Offers actionable transmission projects that can be pursued by others.



WestTEC Project Timeline

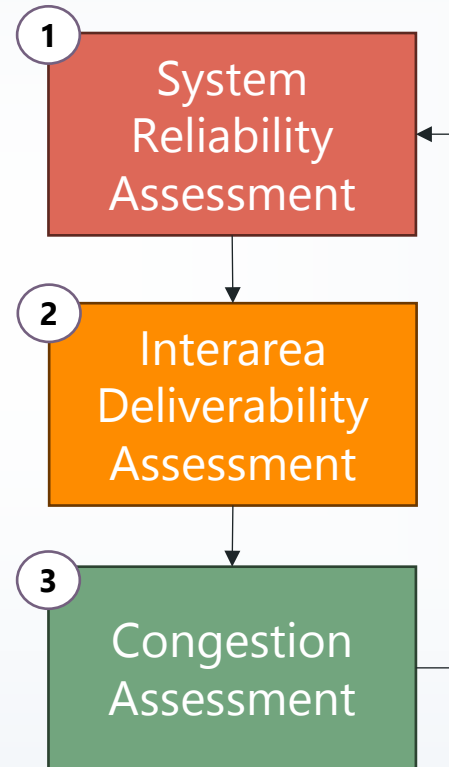
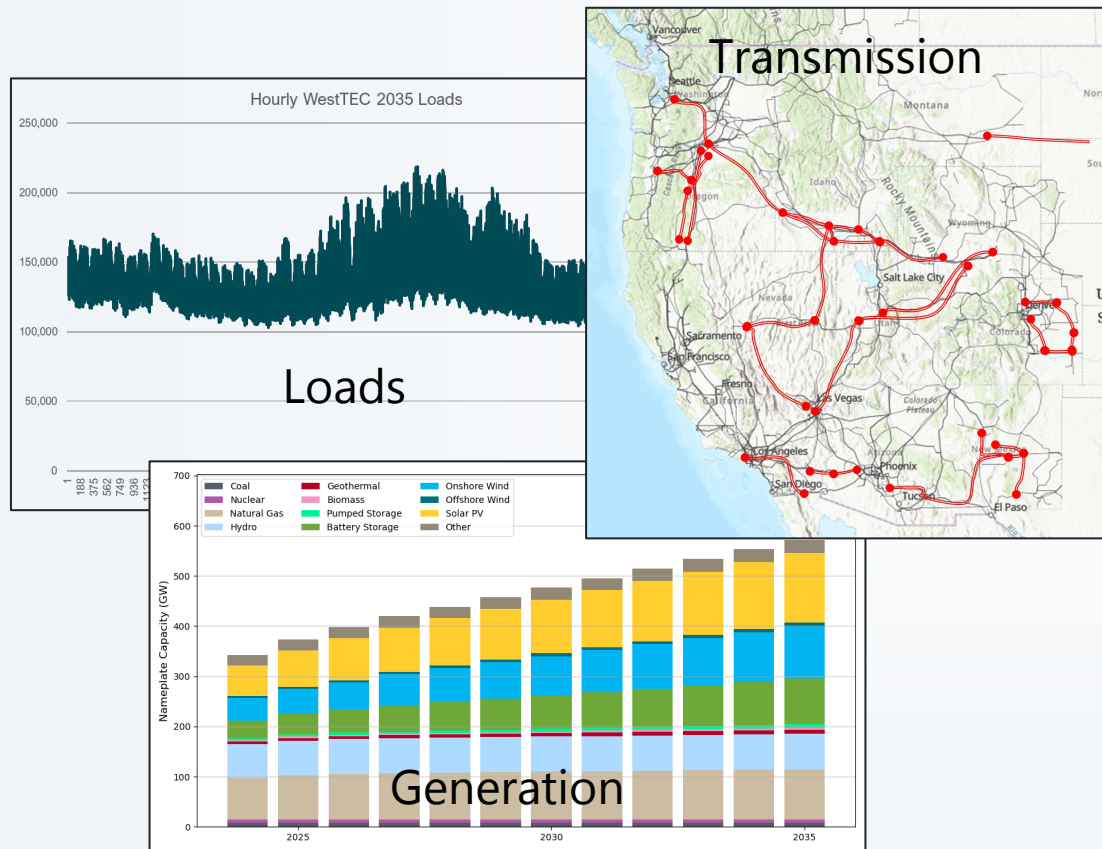


WestTEC Study Participants

- Western Interstate Energy Board - GridWorks - Western Electricity Coordinating Council - Connected Grid Initiative - Wyoming Office of Consumer Advocate - Public Advocates Office at the California Public Utilities Commission - Bonneville Power Administration - Grid United - Clean Energy Buyers Association - Amazon Energy - PacifiCorp - Puget Sound Energy - Portland General Electric - Renewable Northwest - Snohomish PUD - Tucson EPC - Grant County PUD	- InterWest - Invenergy - Idaho Power Company - NorthWestern - NV Energy - Salt River Project - Arizona Public Service - Public Service Company of New Mexico - Western Area Power Administration - WestConnect - NRDC - Northwest & Intermountain Power Producers Coalition - Public Power Council - Colorado River Energy Distributors Association - LS Power - Tacoma Power - Northwest Requirements Utilities - PNGC	- Western Resource Advocates - Clean Energy Transition Institute - NW Energy Coalition - From the Light Consulting - Navajo Transitional Energy Company - Warm Springs Power & Water Enterprises - Avangrid Renewables - EDF Renewables - Aypa Power - Grid Strategies - PG&E - Southern California Edison - Seattle City Light - Black Hills Energy - LADWP - GridLab - California ISO - Southwest Power Pool - Washington Department of Commerce	- Avista - Xcel Energy - Powerex - BC Hydro - GridLiance - Pacific Northwest Utilities Conference Committee - Pattern Energy - Cascade Renewable Transmission - Chelan County PUD - Pacific Northwest National Laboratory - Northwest Power and Conservation Council - Whatcom County PUD - Savion - Western Power Pool - E3 - GDS Consulting - Energy Strategies
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WestTEC 10-year Horizon Study Framework

Regionally consistent forecasts of....



**WestTEC 2035
transmission
portfolio**

*Initial portfolio subject to
revision based on 20-year
results in 2026*

*Performed serially with bespoke
methods on consistent database*

10-year Horizon: Study Purpose and Transmission Drivers

» Why we are doing this?

- » Need for a credible, holistic, and integrated evaluation of Western transmission needs
- » Focus on identifying critical interregional transmission gaps and actionable projects
- » Prepare starting point for 20-year horizon with tailored models and methods

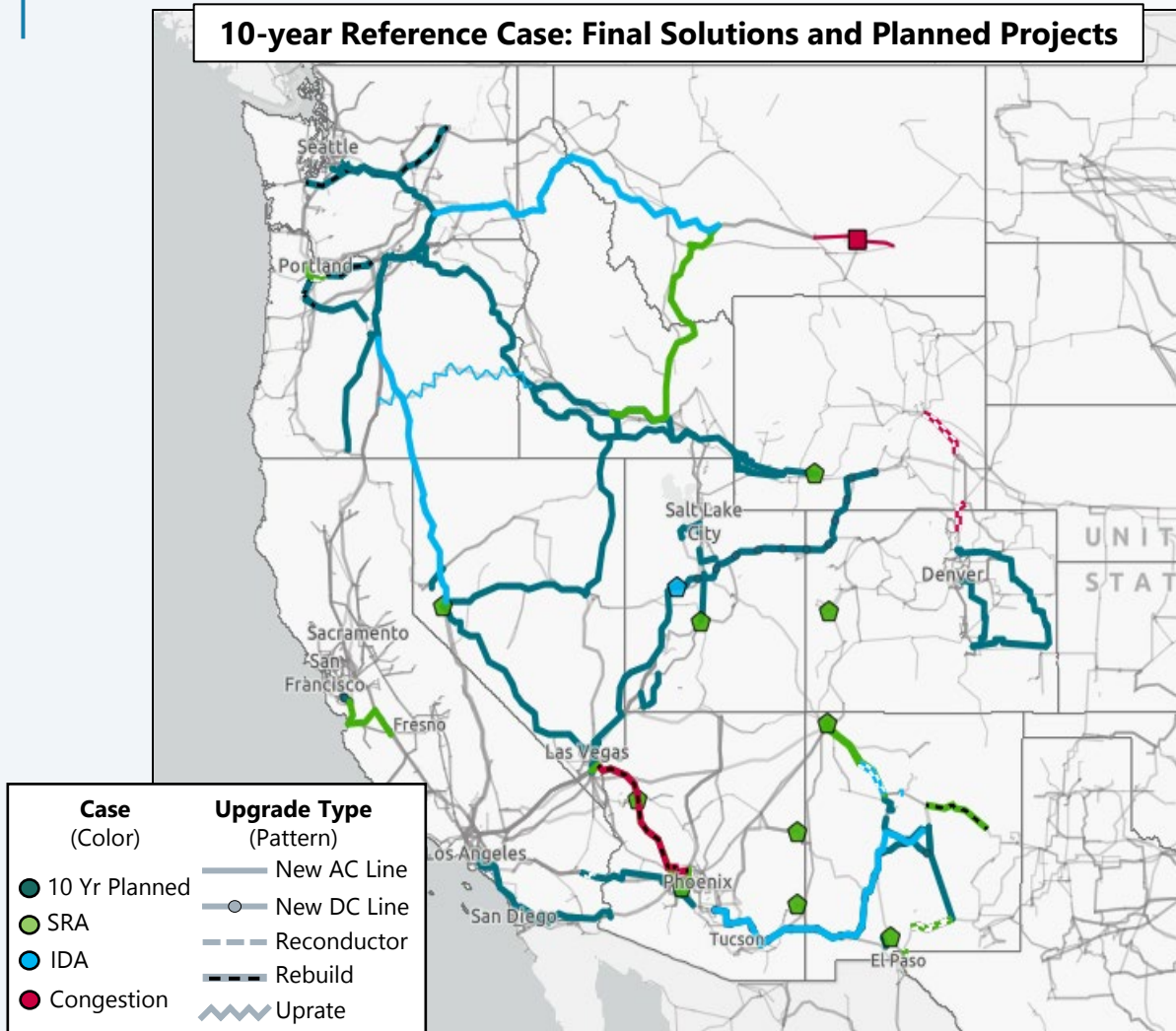
» Drivers of transmission challenges we see over the approaching 10-years:

- » Anticipated west-wide peak demand increase of approximately 30% (3x of prior decade)
- » Resource additions of 20 GW per year doubling historical rate
- » >10 GW of interregional power transfers during critical peaks, cold snaps, etc.

TABLE 1: WESTTEC 2035 REFERENCE CASE VS. TODAY'S SYSTEM (WECC SYSTEM)

Metric	2024 ¹	WestTEC 2035 Reference Case	Change (%)
Peak Load (GW)	168	219	+30% (2.4% per year)
Energy Demand (TWh)	926	1,246	+35% (2.7% per year)
Generation (GW)	322	567	+76% (5.3% per year)
Transmission (230kV+) (Miles)	~98,000	~111,000 ²	+13% (1.1% per year) ¹

10-year Horizon Final Transmission Portfolio



Developing themes of WestTEC 10-year Horizon Report:

- » Transmission needs are being driven by load growth and the need to integrate and deliver generation resources
- » Region must construct **planned projects** on schedule or reliability issues will be exacerbated
- » Additional **reliability upgrades** are required to assure system reliability under a range of probable operating conditions
- » Projects **enhancing interregional connectivity** allow for the system to realize diversity benefits the future grid will rely on for system adequacy
- » Relieving highly congested constraints provides **increased resource access** to the interconnection

Major PNW Transmission Projects Included in 10-year Base Case

Project Name	Upgrade Type	Line Miles	Estimated Cost (\$M)	Project Sponsor(s)
Montana to Washington (M2W)	Reconductor	90	\$138	BPA
Bonanza to Lower Columbia 500kV Reinforcement Project - Six Mile Substation	Substation	NA	\$250	BPA
Bonanza to Lower Columbia 500kV Reinforcement Project - Longhorn to Bonanza Line	New Line	226	\$1,071	BPA
Bonanza to Lower Columbia 500kV Reinforcement Project - Bonanza Substation	Substation	NA	\$300	BPA
Rebuild Big Eddy - Ostrander-Pearl 500kV Line	Rebuild	91	\$670	BPA
Rebuild Pearl - Chemawa 230kV Line	Rebuild	25	\$50	BPA
New Bonanza - Lapine 230kV Line	New Line	53	\$150	BPA
Cross Cascades North Upgrade TSEP 2022	Reconductor	77	\$400	BPA
Rebuild Grand Coulee - Columbia - Schultz 500kV Line	Rebuild	98	\$1,079	BPA
North of Marion: Rebuild Marion-Chemawa-Pearl 500kV Line	Rebuild	47	\$225	BPA
North of Pearl 500kV Upgrade (incl. Pearl-Keeler #2 500kV)	New Line	19	\$88	BPA
Reconductor Ostrander - Pearl #1 500kV Line	Reconductor	20	\$21	BPA
Raver -Paul: Chehalis - Cowlitz Tap 230kV	Reconductor	35	\$95	BPA
Rebuild Schultz - Olympia 500kV Line	Rebuild	131	\$508	BPA
South of Allston: Rebuild Ross-Rivergate 230kV Line	Rebuild	8	\$50	BPA
South of Knight: Reconductor Rock Creek-John Day 500kV Line	Reconductor	14	\$37	BPA
Longhorn to Hemingway (B2H)	New Line	290	\$1,200	IPCo/PAC, BPA
New Corral - Grassland Annex 500kV Line	New Line	159	\$659	PacifiCorp
New Corral - Snow Goose 500kV Line	New Line	161	\$763	PacifiCorp
New Grassland Annex - B2H Tap Substation 500kV Line	New Line	16	\$76	PacifiCorp
Energy Gateway	New Line	2300	\$8,200	PacifiCorp, IPCo
New Harborton - Trojan #3 & #4 230kV Line	New Line	33	\$135	PGE
New Bethel-Round Butte 500kV Line	New Line	100	\$857	PGE, Confederated Tribes of Warm Springs
Cross-Cascades Project	New Line	235	\$3,700	PSE

10-year Horizon Final Transmission Portfolio

10-year Reference Case: Final Solutions and Planned Projects



» **10-Year Portfolio includes over 12,200 miles of regionally-significant upgrades or additions. Total estimated cost around \$56B.**

- » About two-thirds of these projects meet the criteria of **Planned projects** according to the WestTEC study plan
- » The remaining one-third of lines represent upgrades conceptualized as part of WestTEC transmission solutioning efforts (**SRA**, **IDA**, or **Congestion**)

Drivers and Upgrade Type	Count	Total Line Miles	Total Estimated Cost (\$M)
Planned	71	8,910	\$41,872
SRA	22	1,214	\$6,266
IDA	8	1,742	\$7,239
Congestion	3	394	\$391
Total	104	12,259	\$55,768

10-year Horizon Final Transmission Portfolio

10-year Reference Case: Final Solutions and Planned Projects



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- » The remaining one-third of lines represent upgrades conceptualized as part of WestTEC transmission solutioning efforts (**SRA**, **IDA**, or **Congestion**)
- » About 1 in every 8 miles of transmission in the 10-year portfolio are upgrades to existing rights of way
- » About 1 in every 8 miles of transmission in the 10-year portfolio are under construction today
- » Estimates include only regionally-significant lines
 - » In-scope transmission solutions include roughly 230kV+ transmission between states or balancing authorities (BAs) and 345kV+ within BAs

Draft Study Conclusions are Being Socialized with Stakeholders

The 10-year portfolio positions the West to meet growing demand, integrate new resources, and strengthen reliability

Trying to meet the projections for load growth and resource procurement envisioned in utility IRPs without interregional transmission investment on this scale would likely have significant reliability and resilience implications for the West.

Timely completion of planned projects is essential

The coordinated and cost-effective delivery of these 8,900 miles of planned transmission should be prioritized by utilities, developers, regulators, and regional stakeholders.

Uncommitted projects require sponsorship and support

Several high-value projects identified in this study are unsponsored or are at conceptual planning states. These conceptual or unsponsored upgrades address critical interregional needs and require active development on an ambitious timeline.

Transmission costs are manageable in context

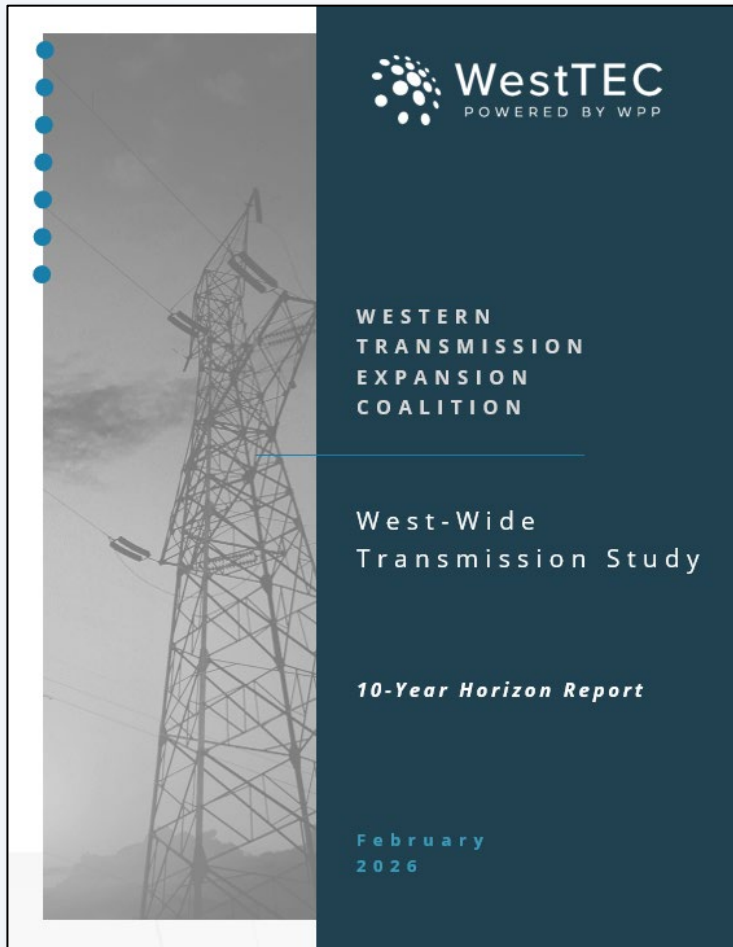
Interregional transmission costs are likely to be a fraction of new resource costs in this future. The 10-year horizon portfolio can be considered a **cost-containment measure against future cost increases**, ensuring access to the lowest cost generation while avoiding inefficient dispatch and system congestion.

Coordinated action can overcome development challenges

Report recommends collaboration on long-lead equipment procurement, regulatory support for early-stage activities, innovative business models, streamlined permitting, and transparent cost allocation and engagement on business case development.



10-year Report and Next Steps



- » *10-year Horizon Report* will be published in early February, 2026
 - » Review process ongoing at WestTEC committees
- » Report offers “actionable” set of projects to industry that...
 - » ...meet a specific need, are broadly supported, and include preliminary analyses exploring alternatives, costs, benefits, and potential corridors
- » Focus of 2026 is 20-year horizon assessment, concluding in ~Q3 with publication of report detailing long-term interregional transmission needs for the West

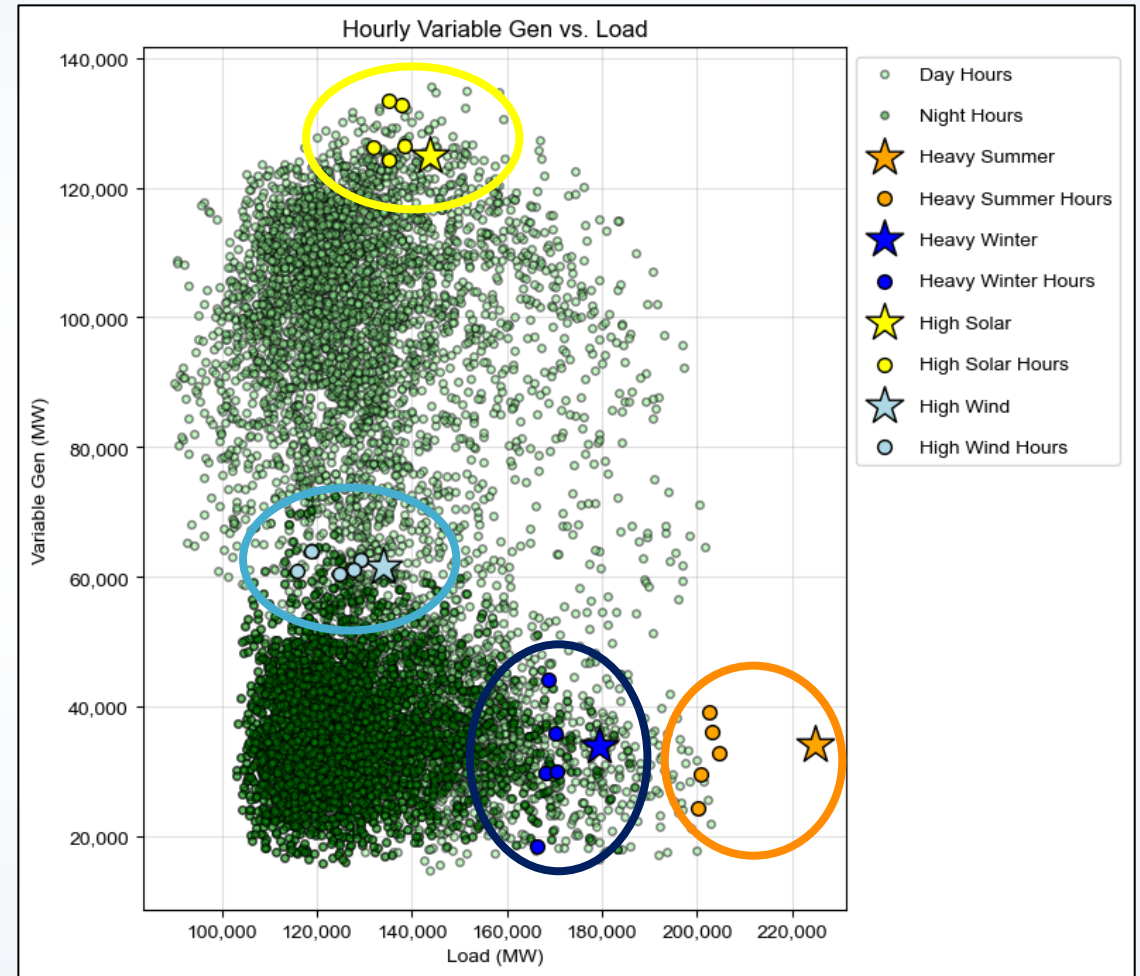


Appendix

10-year Horizon: System Reliability Assessment Summary

- » Developed **four reliability models** representing stressed yet credible conditions that challenge the Western transmission system
 - » Coincident Heavy Summer Peak
 - » Coincident Heavy Winter Peak
 - » High Solar conditions
 - » High Wind conditions
- » Extensive work with members to:
 - » Vet conditions being studied
 - » Develop a 1-in-10 load forecast
 - » Update transmission topology to capture utility transmission plans
 - » Adjust hydro generation dispatch to match seasonal operations
 - » Revise study contingencies to align with those used by utilities for transmission planning
 - » Update location of conceptual generation added to match utility IRPs

2035 WestTEC Load vs. Variable Generation 2035



Production cost modeling results were used to derive load and dispatch conditions that are likely to stress high-voltage grid. These data points already reflect curtailments, so economic tradeoffs are partially accounted for.

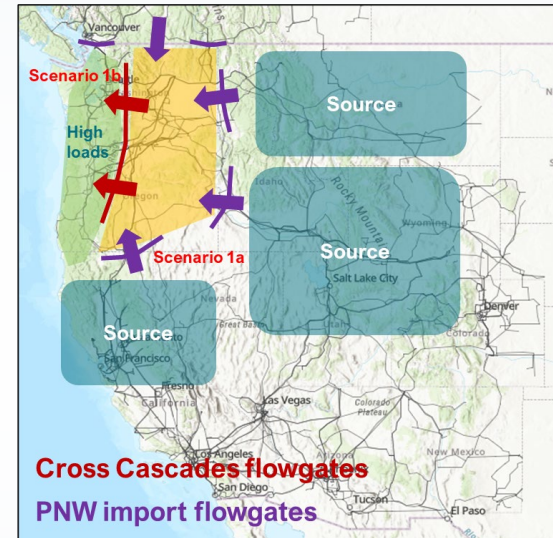


10-year Horizon: Interarea Deliverability Assessment Summary

- » Adapted SRA models to determine if interregional capacity is sufficient to support delivery of resources when areas require significant imports or exports during stressed conditions
- » Study is critical to ensuring that the power system can maintain resource adequacy and operational reliability under **evolving but credible** regional generation and load patterns that are *not* captured in the SRA conditions.
- » IDA scenarios selected based on results from:
 - » SRA studies
 - » Identification of areas with high curtailment or zones being reliant on imports/exports
 - » Observed high interregional transfers, identification of zones being reliant on import capability.
- » This analysis led WestTEC to explore two conditions that have target transfers established by observations from the dispatch study.

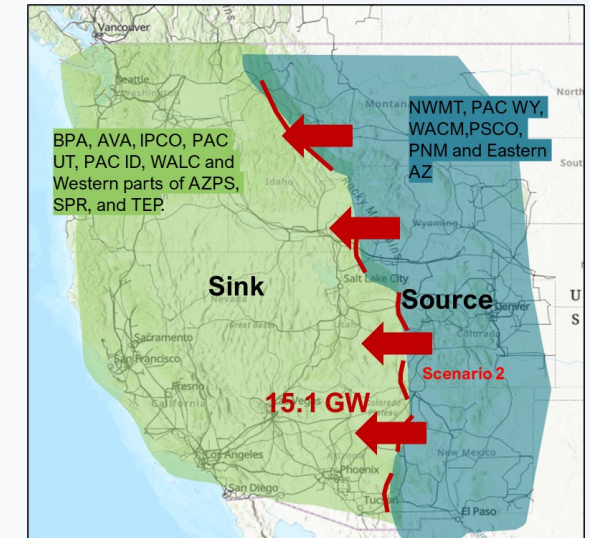
IDA Transfer Scenarios

Northwest Import



- Target transfers of 14.1 GW and 17.3 GW of PNW imports and across Cascades (respectively)
- Occurs during winter peak load conditions

East to West



- Target transfers of 15.1 GW
- Occurs when there is high renewable generation conditions

