WestTEC
POWERED BY WPP

WEST-WIDE TRANSMISSION STUDY

10-YEAR HORIZON REPORT

Western Transmission Expansion Coalition

February 2026

ACKNOWLEDGEMENTS

We would like to acknowledge all of the regional partners and team members whose expertise, dedication, and professionalism contributed to the successful development of this report. *WestTEC is a voluntary, informational effort, and that inclusion of projects in this report does not imply endorsement by participants of any specific project, sponsor, or routing.*

PROJECT SPONSOR TEAM

Western Power Pool

Energy and Environmental Economics, Inc.

Energy Strategies

GDS Associates, Inc.

REC (REGIONAL ENGAGEMENT COMMITTEE)

Consumer-Owned Utilities

Whatcom County PUD

Northwest Requirements Utilities

Colorado River Energy Distributors Association

PNGC Power

New Mexico Renewable Energy Transmission Authority

The Public Generating Pool

Ratepayer Advocacy Organization Representatives

Wyoming Office of Consumer Advocate

Public Advocates Office at the California Public Utilities Commission

Tribes

From the Light Consulting

Navajo Transitional Energy Company

Public Interest Organizations

Western Resource Advocates

Natural Resources Defense Council

Clean Energy Transition Institute

NW Energy Coalition

Independent Transmission Companies

Grid United

GridLiance

Pattern Energy

LS Power

Independent Power Producers

Avangrid Renewables

EDF Renewables

Savion

Aypa Power

Industrial Customer Representatives

Clean Energy Buyers Association

Steering Committee Leadership

PacifiCorp

Bonneville Power Administration

Western Electricity Coordinating Council

WATT (WESTTEC ASSESSMENT TECHNICAL TASKFORCE)

Bonneville Power Administration

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Western Area Power Administration

Salt River Project

Xcel

California ISO

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Pacific Northwest National Laboratory

Northwest Power and Conservation Council

GridLab

Pattern Energy

GridLiance

Cascade Renewable Transmission

Clean Energy Buyers Association

WSC (WESTTEC STEERING COMMITTEE)

GridWorks

Western Interstate Energy Board

Western Electricity Coordinating Council

WestConnect

Arizona Public Service

Public Service Company of New Mexico

Western Area Power Administration

Salt River Project

Xcel Energy

Connected Grid Initiative

Bonneville Power Administration

Portland General Electric

PacifiCorp

Avista

Snohomish PUD

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Idaho Power Company

Colorado River Energy Distributors Association

Interwest Energy Alliance

Renewable Northwest

Northwest & Intermountain Power Producers Coalition

Public Power Council

Warm Springs Power & Water Enterprises

NorthWestern Energy

NV Energy

Southwest Power Pool

Invenergy

LS Power

Tacoma Power

Clean Energy Buyers Association

Grant County PUD

Pacific Northwest Utilities Conference Committee

Pattern Energy

Cascade Renewable Transmission

Washington Department of Commerce

EXECUTIVE SUMMARY

WestTEC
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10-YEAR HORIZON REPORT: EXECUTIVE SUMMARY

The Western power system faces escalating challenges including capacity shortfalls, the need to deliver new generation to rapidly growing loads, greater resilience required to guard against extreme events, and mounting pressure to support strong economic growth with affordable electricity. A common thread running through these challenges is transmission – the mission-critical network of lines and electrical equipment that enables the day-to-day operation of the West's interconnected energy grid. While Western transmission companies have processes to expand transmission *within* planning jurisdictions (e.g., States, individual balancing authority areas, or FERC Order 1000 Planning Regions), many entities across the Western interconnection recognize that current planning frameworks do not produce sufficient transmission *between* these entities which harness the considerable power of an integrated Western grid.

The Western Transmission Expansion Coalition (WestTEC) is an unprecedented partnership between diverse sectors of the energy industry, States, and Tribes focused on closing this **interregional planning gap.** WestTEC's work identifies *actionable* transmission projects that enhance reliability, improve economic efficiency, and support state goals. Its scope includes planning analysis across the Western Interconnection to develop two studies: this **10-year Horizon Study** focused on identifying near-term transmission upgrades needed by 2035, and a **20-year Horizon Study** (to be issued later in 2026) exploring long-term planning scenarios and transmission roadmaps supporting the region through 2045. WestTEC aims to produce well-defined, broadly supported transmission upgrades with clear technical descriptions, and preliminary analyses of alternatives, costs, benefits, and potential corridors. Given the cost, complexity, and long timelines of major transmission development, large-scale interregional planning is critical to meeting multiple regional needs, avoiding duplicative investment, and ensuring a reliable, adaptable system.

WestTEC launched from a Concept Paper released for public comment in October 2023, and work formally began in 2024 to establish the governance structure and develop a Study Plan[1]. What sets WestTEC apart from other Western transmission planning efforts is its committee-based governance, which includes representatives from a broad array of regional interests and from across the entire West—utilities, planning bodies, States, Tribes, public interest organizations, and independent power producers, among others. The governance structure consists of three main committees: the Steering Committee, the WestTEC Assessment Technical Taskforce (WATT), and the Regional Engagement Committee (REC). The desired outcome of this effort is to identify transmission solutions that reflect broad regional consensus, balance diverse interests, and create a repeatable framework for future planning.

[1] https://www.westernpowerpool.org/private-media/documents/WestTEC_Study_Plan_-_V5_Final.pdf

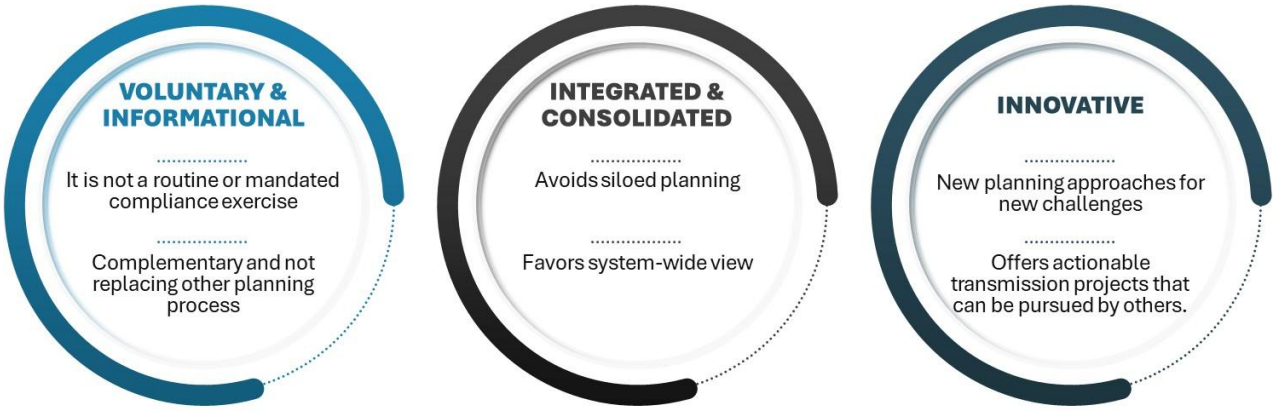

FIGURE E-1. KEY ATTRIBUTES OF WESTTEC

TRANSMISSION DRIVERS

The *10-year Horizon Study* offers a holistic, integrated evaluation of Western interregional transmission needs, with a focus on identifying transmission gaps and filling them with actionable projects. In performing the assessment, drivers of the growing need for transmission over the approaching 10 years became clear:

- **Unprecedented Load Growth.** WestTEC's forecasts show Western peak electric demand increasing by 30% in the next decade. This increase is more than three times greater than what the West experienced over the last decade.
- **Resource Additions to Meet Demand and State Goals.** Nameplate generation capacity is anticipated to increase by 76% in the next decade, more than twice the historical rate. Plans to procure intermittent resources by several Western entities will increase reliance on transmission to manage supply variability.
- **High Interregional Transfers During Time of Need.** By 2035 the Western grid will increasingly depend on the geographic diversity of load and generation to maintain reliability, which drives high-volume power flows across and between regions. Extreme events requiring transfers between entities occur during summer and winter peaks, cold snaps, and periods of high generation output. This highlights how diversity strengthens the system but requires transmission capacity to do so.

The bottom line is that the pace of interregional transmission expansion has not kept up with these drivers: load is growing faster than ever, the region must add more resources to keep up with resource adequacy and state policy needs, and the diverse Western system demands the transfer of large amounts of power over long distances to maintain reliability. WestTEC's ***10-year Horizon Study*** offers a portfolio of actionable projects that help meet these interregional needs.

STUDY RESULTS: TRANSMISSION PORTFOLIO AND FINDINGS

Through its committee structure and independent consultant support, WestTEC has identified a portfolio of transmission expansion projects that meets the region's forecasted needs through 2035. The total portfolio is estimated to add or upgrade **12,600 miles of high-voltage transmission** and will cost an estimated **$60 billion**.[2] The map below details the portfolio, which consists of planned projects and new project concepts identified by WestTEC. "Planned" projects are those transmission facilities that have already been identified by transmission owners, developers, or regional planning bodies and that exhibit a credible path to implementation — for example, inclusion in utility/regional planning documents, permitting or funding progress, or construction underway. These planned projects, together with WestTEC-identified upgrades, form the 10-year portfolio. Importantly, this portfolio includes some projects that have line routings and technical scopes that are conceptual in nature and may change as projects are developed.

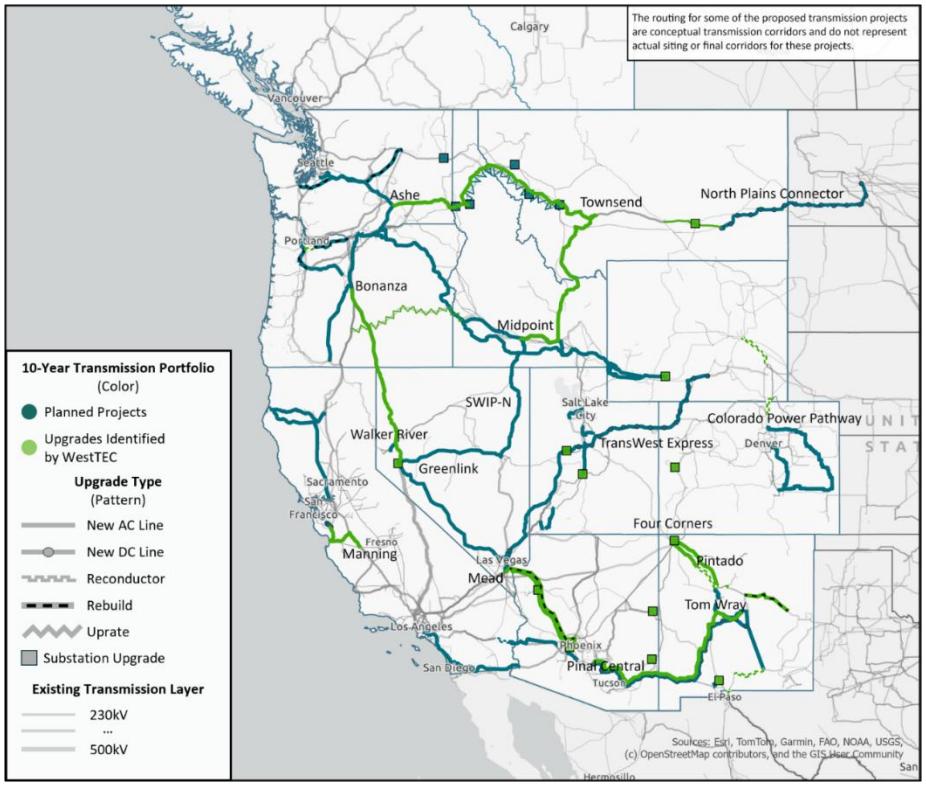

FIGURE E-2. WESTTEC 10-YEAR HORIZON TRANSMISSION PORTFOLIO

This 10-year horizon transmission portfolio includes **9,400 miles of major planned projects** representing approximately **$47 billion** in investment. Roughly 20% of these projects are under or nearing construction today with the rest at varying stages of development. Reconductoring and rebuild projects represent about 10% of planned transmission in terms of both line miles and costs. If these sponsors do not complete these in-flight projects, the total transmission gap will grow and needs identified in this study will not be met.

In addition to these planned projects, the portfolio identified approximately **3,300 miles of further upgrades needed to address interregional reliability, deliverability, and efficiency concerns**. These projects, totaling approximately **$14 billion**, include both new transmission concepts and lines currently in development. Approximately 1 in every 4 line-miles of WestTEC-identified upgrades represent reconductors or rebuilds along existing corridors.

[2] All dollar values in this report are expressed in 2025 real dollars unless otherwise noted.

TABLE E-1. SUMMARY METRICS OF WESTTEC 10-YEAR TRANSMISSION PORTFOLIO

Transmission Project Category		Project Count	Total Line Miles	Total Estimated Cost ($M)
Planned upgrades in Portfolio		73	9,358	$46,648
Upgrades identified by WestTEC in Portfolio	Reliability-driven	21	1,156	$6,050
	Deliverability-driven	8	1,742	$7,239
	Economic-driven	3	394	$391
10-Year Horizon Portfolio Total		**105**	**12,650**	**$60,328**

Together, this portfolio of planned and newly identified projects offers the Western region:

- The ability to accommodate over **30% growth in electricity demand** with a portfolio of resources consistent with Western Utility resource plans, ensuring that the Western grid can support 10-years of sustained economic growth.
- Reduced threat of reliability-driven power supply disruptions through the **mitigation of over 75 steady-state power flow violations** on the high-voltage system that would occur but for the construction of upgrades identified by WestTEC.
- Significant operational improvements relative to planned lines alone, including a **$500 million per year decrease** in power production costs, with grid congestion costs and generation curtailment falling by 20% and 17%, respectively, as contributors to these savings. These metrics are inherently conservative and do not reflect the full extent of savings and efficiencies that could occur.
- The ability to reliably transfer an additional **~10 GW** of power across key interregional interfaces during times of system need, which can reduce the risk of power shortages and enable lower planning reserve margins.

In lieu of a net-benefit assessment exploring the wide-ranging savings the portfolio will provide—which would offer the most comprehensive framework for evaluating the 10-year horizon portfolio but was not included in the study scope—WestTEC believes that the considerations outlined above offer a compelling picture of what the Western region receives in return for this transmission buildout. Based on typical financing and cost recovery models used to evaluate transmission investments (*see* Appendices Section 5.4), the annualized cost of the entire 10-year horizon portfolio – including both planned and newly identified projects – is approximately at $5.3 billion per year. This value represents an annualized cost typically recovered over the useful life of the asset, which can exceed 40 years for transmission. While transmission requires significant up-front capital investment, it is paid back over decades, with benefits often increasing throughout the asset's life.

Importantly, this $5.3 billion annual cost is quite small relative to total electric-sector spending and other investments. For example, the annualized fixed cost of the generation resources the West is expected to add over the same 10-year period is projected to be roughly **eight times larger** than the transmission cost of the WestTEC 10-year horizon portfolio. Electric customers of all types in the West spent roughly $117 billion on electricity in 2024, a figure more than 20 times greater than the cost of the WestTEC 10-year transmission portfolio.

These benchmarks and others presented in Table E-2 below demonstrate that WestTEC's 10-year horizon transmission portfolio, while substantial, has a cost that is not unprecedented and is comparable to other large public works, remaining a feasible investment for the region.

TABLE E-2. TRANSMISSION PORTFOLIO COST CONTEXT

WestTEC 10-year Horizon Transmission Portfolio Cost Metrics	Cost Benchmarks	WestTEC Transmission Cost vs Benchmark
Capital cost = $60 billion	Comparable to other megaprojects, such as California's high-speed rail system[3] and three Portland-area bridge replacements[4]	~60% of California high-speed rail cost ~5x the Portland bridge program cost
Levelized cost = $5.3 billion per year	Western U.S. customers spend roughly $117 billion annually GDP of Western States exceeds $7.4 trillion.[5] The annualized fixed cost of new generation deployment in the WestTEC 2035 Reference Case is ~$44 billion per year	~4.5% of today's annual electricity spending 0.1% of regional GDP 17% of the annualized fixed cost of new generation
Cost per kWh of electric demand in 2035 = $0.004/kWh	The load-weighted average retail price in the West is ~$0.16/kWh.	~2.5% of today's average retail electricity price

Despite the study's technically robust and transparent approach, it has limitations. For example, the transmission analyses evaluated only high-voltage transmission infrastructure greater than 200 kV, did not account for contract path considerations, modeled the West as a single optimized day-ahead market footprint, and did not explore dynamic stability issues or contingency events in production cost simulations (which could cause additional congestion beyond what was captured). There are also limitations to what the study found in terms of transmission needs and solutions. For example, while best attempts were made to consider all viable and technically feasible transmission solutions for a given need – relying on both independent analysis by consultants and operational expertise – future planning assessments may reveal superior or alternative project configurations. In addition, while the study sought to resolve in-scope transmission deficiencies with upgrades, in some cases doing so may exacerbate or create new transmission issues on lower voltage (<200-kV) infrastructure. Thus, as upgrades in the WestTEC 10-year horizon portfolio are implemented, thorough assessments will be required to identify and mitigate any local issues that were not considered in this study. Finally, the costs presented here are planning-level estimates only with illustrative routes – ***the illustrative routes identified by this report do not constitute siting recommendations***. It is expected and should be understood that project configurations and design details will evolve as they are implemented and as entities

[3] https://hsr.ca.gov/about/high-speed-rail-business-plans/2024-business-plan/
[4] Public cost estimates from I-5, Burnside, and Abernethy bridge projects, combined. Available at: https://www.columbian.com/news/2025/sep/22/i-5-bridge-replacement-slogs-through-permitting-as-costs-rise/
[5] U.S. Bureau of Economic Analysis (BEA). Gross Domestic Product by State, 2024. U.S. Department of Commerce. Available at: https://www.bea.gov/data/gdp/gdp-state

work with impacted communities. These limitations, while notable, were necessary and reflect the study's intentional focus on broad interregional transmission needs.

WHAT'S NEXT FOR WESTTEC

At the end of this report, WestTEC offers recommendations designed to support the implementation of this 10-year horizon transmission portfolio. WestTEC recognizes that many hurdles must be overcome to successfully implement these projects, and that many of the projects are likely to evolve over time. These recommendations include:

- **Prioritize execution** of planned transmission projects in the 10-year horizon portfolio, ensuring their timely, coordinated, and cost-effective delivery by utilities, regulators, and regional stakeholders.
- **Encourage project sponsors** to advance the remaining mission-critical upgrades, with expedited development timelines to ensure they are in-service by 2035.
- **Frame the costs** of the 10-year horizon portfolio in proper context, emphasizing that, while substantial, these investments are both necessary and manageable given the benefits they unlock.
- **Employ all available tools** to address development challenges, including early procurement of long-lead equipment, regulatory incentives for early-stage development activities, streamlined permitting coordinated among States and permitting agencies, proactive outreach to communities impacted by potential routing, continued refinement of cost allocation frameworks, and the increased use of innovative business models advanced by transmission planning entities, individual developers, through partnerships, or by organizations like The Western Transmission Consortium.

WestTEC now turns its attention to its *20-year Horizon Study*, using these 10-year results as a starting point. This longer-term view of the Western system will offer solutions to address the daunting amount of uncertainty facing planners. To address this uncertainty, WestTEC has designed three long-range planning scenarios that will help it understand what additional long-lead transmission investments are "least regrets", and how our transmission needs change in response to wide-ranging planning variables. These scenarios and needs identified in the 20-year horizon will also afford WestTEC the opportunity to reevaluate and potentially right-size upgrades identified in the 10-year portfolio. In addition, this 20-year horizon will provide a more robust analytical foundation to forecast benefits of least regrets transmission portfolios, addressing a gap from the 10-year horizon study. Even though WestTEC is not a compliance-driven process, aspects of this effort can be a model for future FERC Order No. 1920 compliance, and our study aligns with many of these future requirements.

Together, the WestTEC partnership is advancing a shared vision: *a resilient, efficient, and future-ready grid where interregional transmission enables all Western communities to access reliable and affordable electricity.*

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