

CONNECTED WEST

**More Transmission.
Greater Savings.
Planned Wisely.**

A plan to reliably and cost-effectively help serve the growing energy needs in the West

The West can achieve its goal of a reliable grid to support a strong economy at a manageable cost if we work together to plan and build the transmission we need. If we do not, we will have a more expensive grid.

GridLAB



GRIDWORKS

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Conducted by Energy Strategies for GridLab and Gridworks

FINDINGS

✓ FINDING 1

If load grows significantly as forecasted in the next twenty years — the result of extreme weather, electrification, expanded manufacturing, new data centers, or some of each — the transmission we have now will not be enough. The grid would be unreliable, even after \$30B in planned transmission investment.

✓ FINDING 2

Connected West recommends 15,600 new line miles of high-voltage transmission over 20 years, 85% of which is reconductoring or expanding the existing transmission corridors. The capital costs of doing so will be about \$75B.

✓ FINDING 3

Connected West shows total benefits from new transmission over the lifetime of the assets to be \$250B to \$275B, including: up to \$150B in avoided investment in power plants, \$50B in avoided losses stemming from extreme weather, at least \$35B in reduced energy costs, and other benefits such as avoided loss of load, avoided emissions, and reduced transmission losses.

✓ FINDING 4

Connected West shows how to build needed transmission with minimal impact on land and wildlife. Only 2,400 miles of new greenfield transmission would be needed for this proposed transmission system (an increase of just 2% compared to the existing system).

✓ FINDING 5

Building a reliable grid for a strong economy in the West begins with new cooperation in transmission planning, including the challenges of reconductoring, and re-learning how to share the cost of shared infrastructure.

ABOUT THE STUDY

Connected West is a study of the transmission needed in the West to ensure reliability and lower costs to meet a high demand future over the next 20-years.

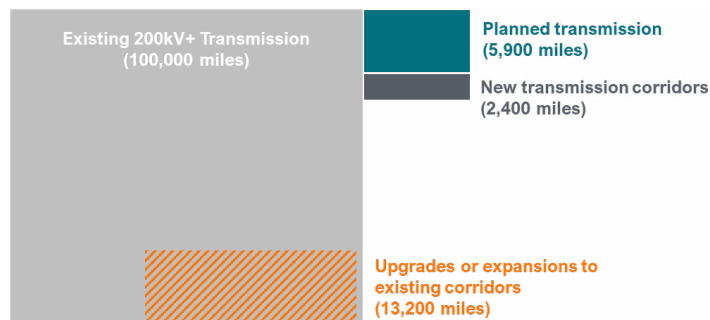
GUIDING QUESTIONS

1. How far do planned and anticipated transmission projects get the West toward meeting 2045 transmission needs?
2. How large are any remaining gaps in terms of investment and line miles of transmission?
3. Where would new transmission provide the greatest benefit?
4. How do new greenfield corridors fare in this prioritization versus upgrades to existing lines?
5. What portfolio of transmission corridors make the most sense for this Western future?

KEY ASSUMPTIONS

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|---|---|---|--|---|
| 20-year assessment (~2045 study year) | Focused on US portion of WECC system | Detailed representation of grid | Candidate transmission upgrade concepts sourced from <i>Power of Place</i> study | Assumes West-wide day-head nodal market |
| WECC 2032 ADS serves as "seed case" | Nodal dispatch modeling (GridView™) | Powerflow analysis (PowerWorld) | Modernized transmission benefit assessment | Portfolio-based transmission approach |
| Resource plan per <i>Power of Place: West</i> study | Consideration of electrification-driven demand growth | Assumes planned and "anticipated" transmission is built | Three technology portfolios | Forecast of offshore wind in CA and OR |

TRANSMISSION GAP IDENTIFIED BY CONNECTED WEST



Note: Transmission solutions identified in Connected West portfolios focus on high-voltage and inter-regional transmission needs. Line-mile estimates do not capture all transmission necessary to facilitate the future envisioned in this study.

CONNECTED WEST IDENTIFIES MANY COMMON RECONDUCTORING UPGRADES THAT CAN MEET NEEDS



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