Washington State Energy Strategy

With an emphasis on electric power resources

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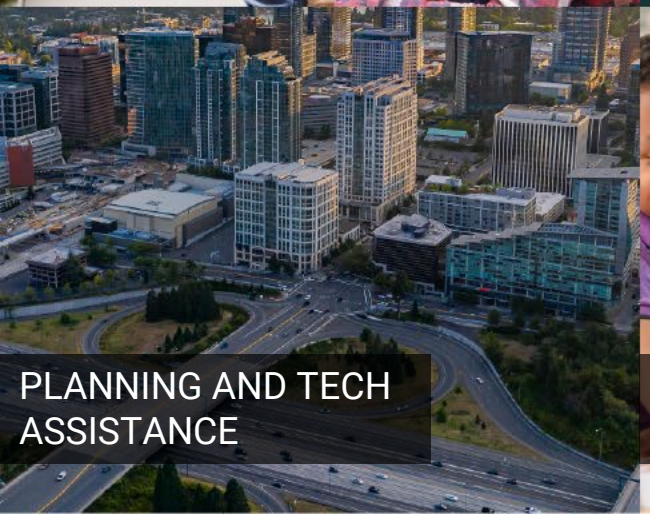
Washington State Department of Commerce

v1.4

We strengthen communities



Energy strategy goals and principles

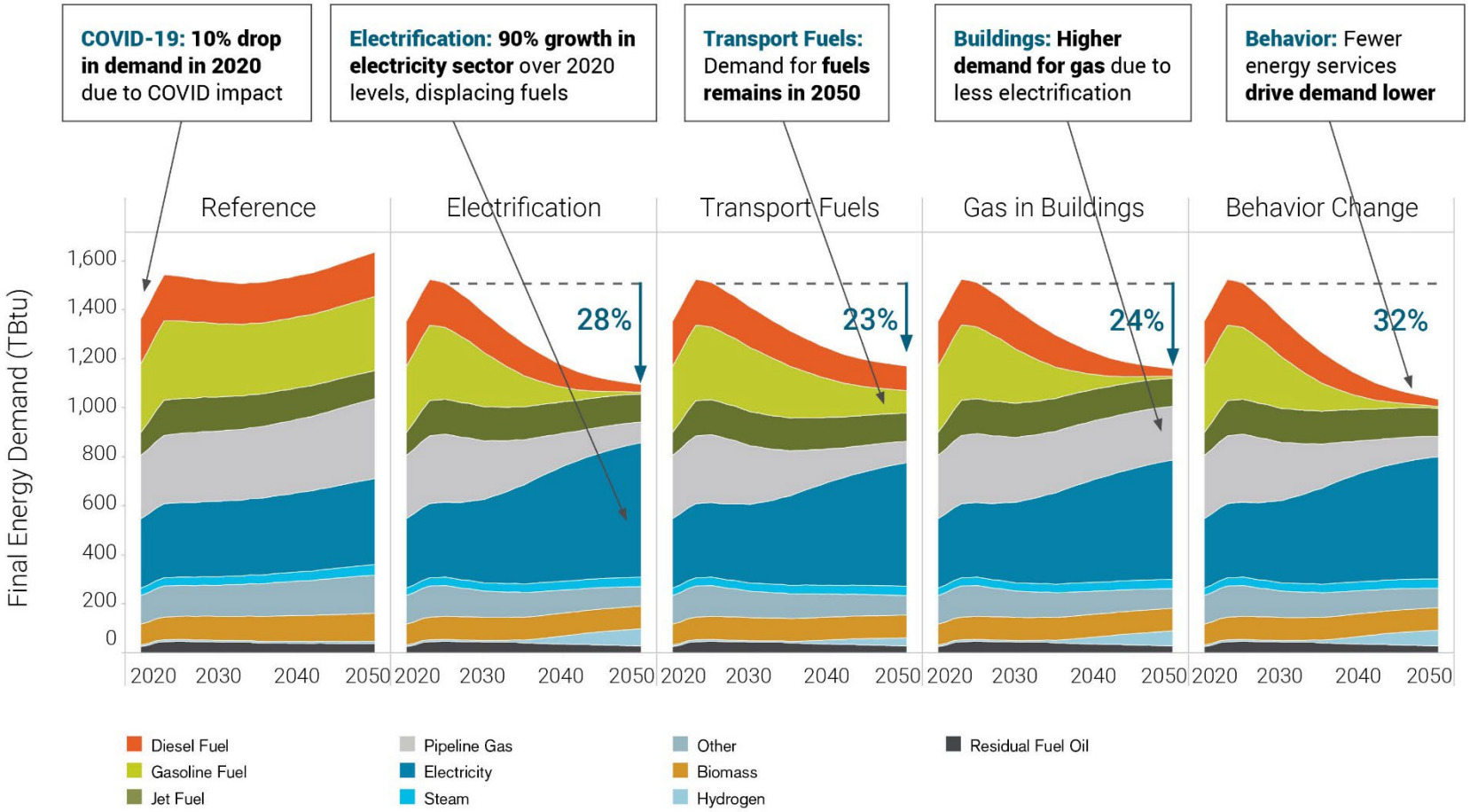
- Balance three goals (from RCW 43.21F.010):
  - Maintain competitive, fair and reasonable energy prices for consumers and businesses and support our state's continued economic success
  - Increase competitiveness by fostering a clean energy economy and jobs through business and workforce development
  - Meet the state's obligations to reduce greenhouse gas emissions
- Additional principles in RCW 43.21F.088
- Also align with requirements of CETA and statutory greenhouse gas emissions limits (Chapters 19.405 and 70A.45 RCW)
- Broad-based stakeholder advisory process

Ensure equitable transition for communities

Source: Washington State Department of Commerce

- Apply explicit equity principles
- Ensure impacted communities design solutions
- Invest in equitable and inclusive transition
- Support workers in transition
- Universal broadband access as foundation for transition

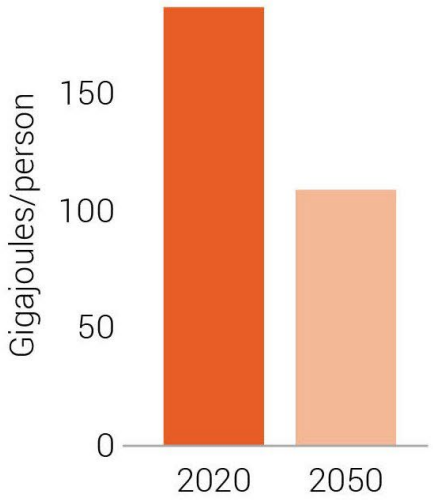
Multiple scenarios – all meet GHG limits and CETA



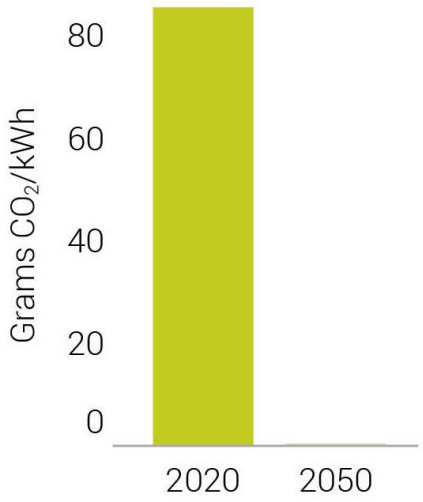
Source: Appendix A – Deep Decarbonization Pathways Modeling Report, December 11, 2020 (p. 28).

Five elements of decarbonization

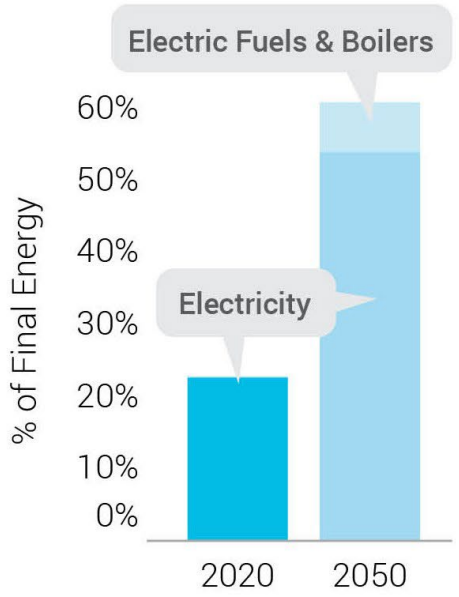
Energy Efficiency
Energy Consumption
(Gigajoules/person)



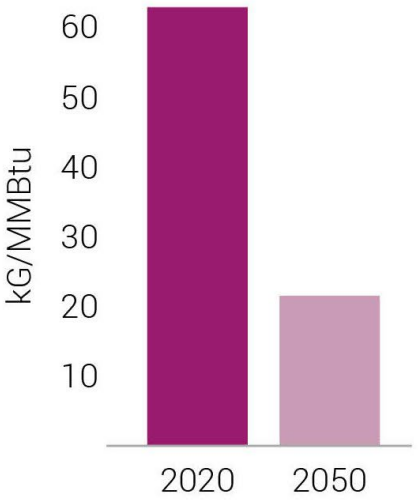
Clean Electricity
Electricity Carbon Intensity
(Grams CO_2 per kWh)



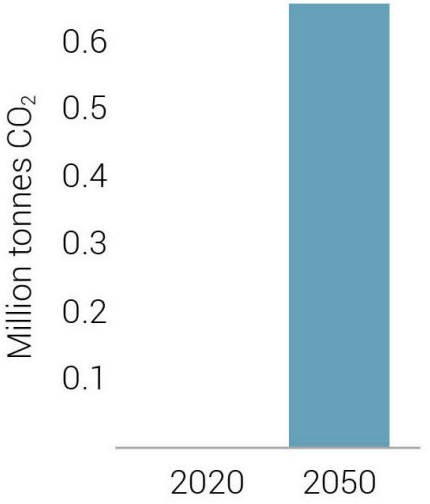
Electrification
Electricity Share of Total Energy
(% of Final Energy)



Clean Fuels
Fuels Carbon Intensity
(kG/MMBtu)

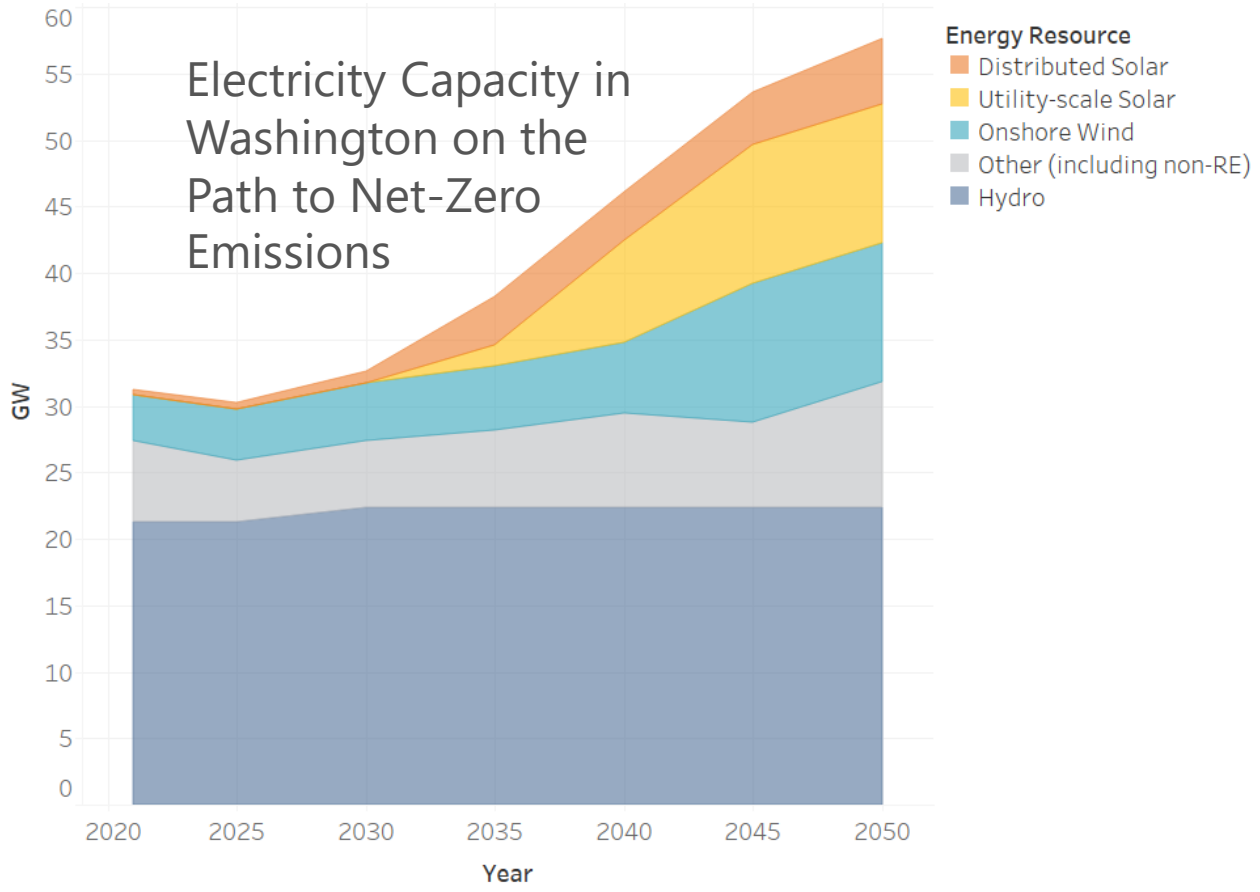


Carbon Sequestration
(Million tonnes CO_2)



Decarbonization requires clean electricity

- WA electricity demand doubles by 2050 under electrification scenario
- Model identified need by 2050 for in-state generation:
  - 15 GW solar
    - 10.4 GW utility-scale scale
    - 4.4 of distributed solar
  - 7 GW onshore wind
- New demands require additional resources
- Other clean resources may emerge to meet this need
- Demand-side flexibility reduces need for generation supply

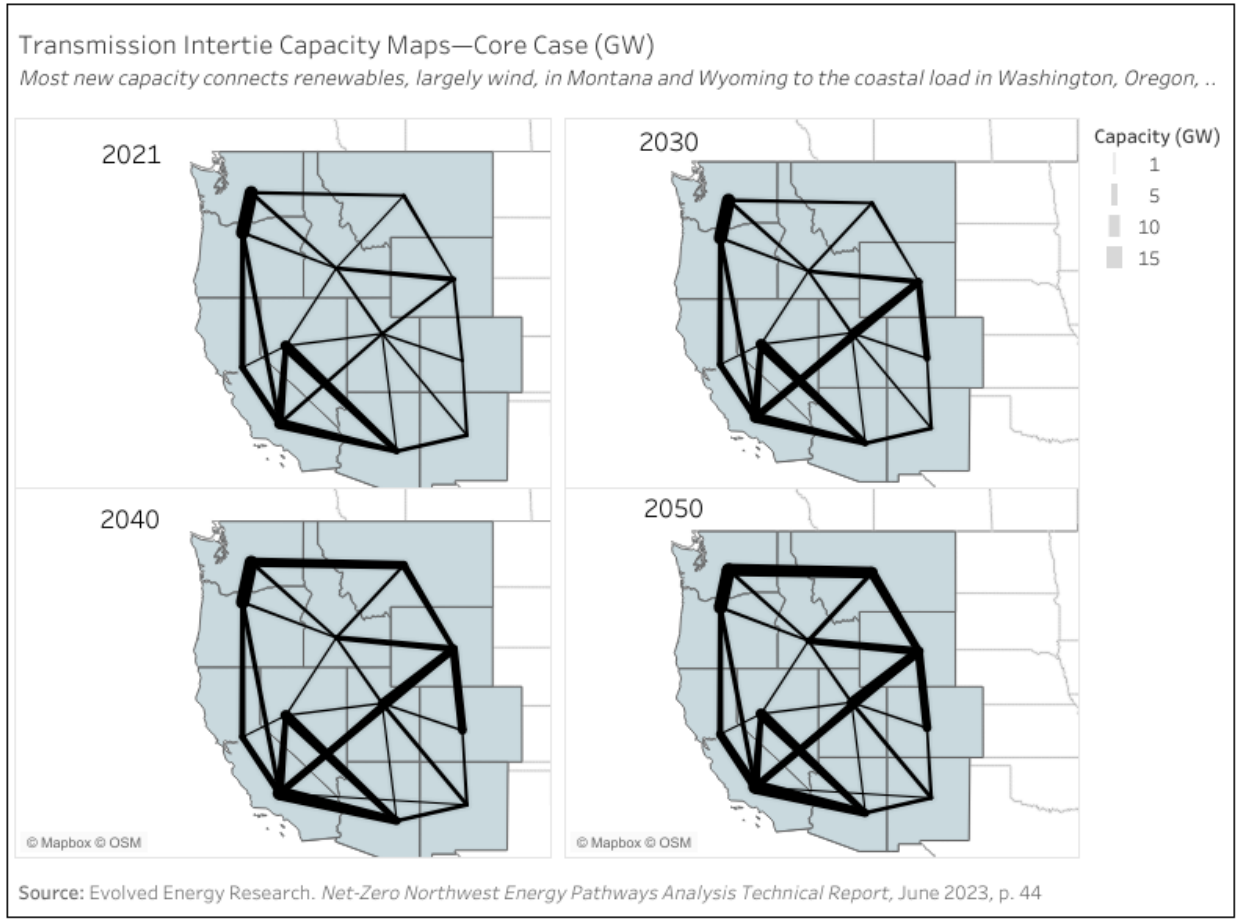


Source: Clean Energy Transition Institute, Net-Zero Northwest: Technical and Economic Pathways to 2050. June 2023. https://www.nznw.org/

New clean electricity requires transmission

Strong transmission grid:

- Increases reliability and resilience as weather variability increases
- Reduces need for shared reserves
- Allows reliance on high levels of variable resources
- Manages costs using wholesale power markets

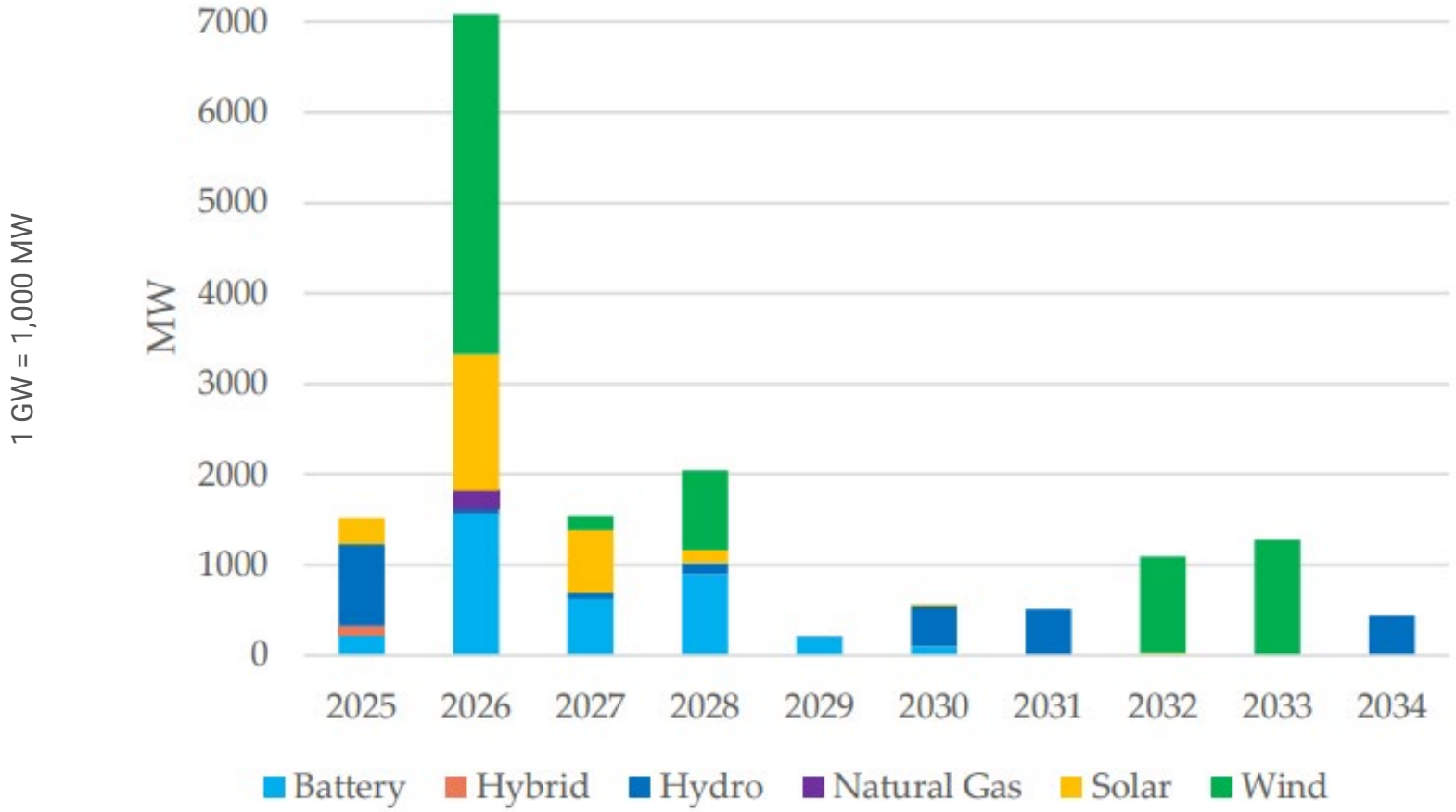


Land requirements for clean energy resources

- Onshore wind
  - 7.1 GW nameplate capacity
  - 8 MW/square kilometer
  - 888 square kilometers, or 343 square miles
- Utility-scale solar
  - 10.4 GW nameplate capacity
  - 32 MW/square kilometer
  - 327 square kilometers, or 126 square miles
- Distributed solar – none

Sources for land use requirements: National Renewable Energy Laboratory. "Residential Rooftop PV" and "Commercial Rooftop PV," State and Local Planning for Energy, accessed 9/17/2024, https://maps.nrel.gov/slope; NREL (National Renewable Energy Laboratory). Solar Supply Curve. https://www.nrel.gov/gis/solar-supply-curves.html; NREL (National Renewable Energy Laboratory). Wind Supply Curve. https://www.nrel.gov/gis/wind-supply-curves.html

Industry: 16 GW planned resource additions in PNW



Source: Western Resource Adequacy Assessment, Western Electricity Coordinating Council, December 2024. https://feature.wecc.org/wara/

Industry: Risks to planned resource additions

- Supply chain disruptions
  - Supply chain issues that surfaced during the COVID-19 pandemic continue to affect the industry, particularly construction of new projects and the interconnection of new generating resources. A survey found that supply chain issues remain a significant problem in 2024.
- Utility interconnection queues
  - The interconnection queue nationwide grew more than 30% in 2023 and has increased eightfold in the last decade. Planned additions over the next 10 years will exacerbate this issue, although FERC Order 2023 calls for reforms to reduce the backlog and address uncertainty.
- Siting delays
  - There has been increasing resistance to building new energy facilities, particularly wind, solar and battery projects. These projects have encountered opposition in at least 45 states, according to a report that found that local opposition to new energy facilities is widespread and growing.
- Increased costs
  - Increased costs of materials for new wind and solar construction, transmission expansion, and replacement of plant equipment have caused project delays and maintenance deferrals. The rise in interest rates has also substantially increased the cost of capital for all energy projects.

Source: Western Resource Adequacy Assessment, Western Electricity Coordinating Council, December 2024. https://feature.wecc.org/wara/

Thank you!

commerce.wa.gov/energystrategy

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