

ENERGY SYSTEM “NEAR MISS”

OPALCO

February 2024



# Washington CETA, CCA and 2021 Energy Strategy

- Great aspirational objectives
- Olympia is doing a great job of eliminating GHGs  
Shutting down coal generation and electrifying transportation and heating

But!

# Washington CETA, CCA and 2021 Energy Strategy

*Washington is reducing generation faster than it is replacing it*

- To meet 2030 GHG reductions...
  - Agencies are eliminating dirty generation resources faster than they are building new clean energy
  - Building new renewable generation isn't keeping up with decommissioning of carbon-based generation
  - The Federal government is incentivizing new renewable generation through grants, while state and local agencies are becoming overly restrictive on renewable siting

# Washington CETA, CCA and 2021 Energy Strategy

*massive land intensive renewables needed fast*

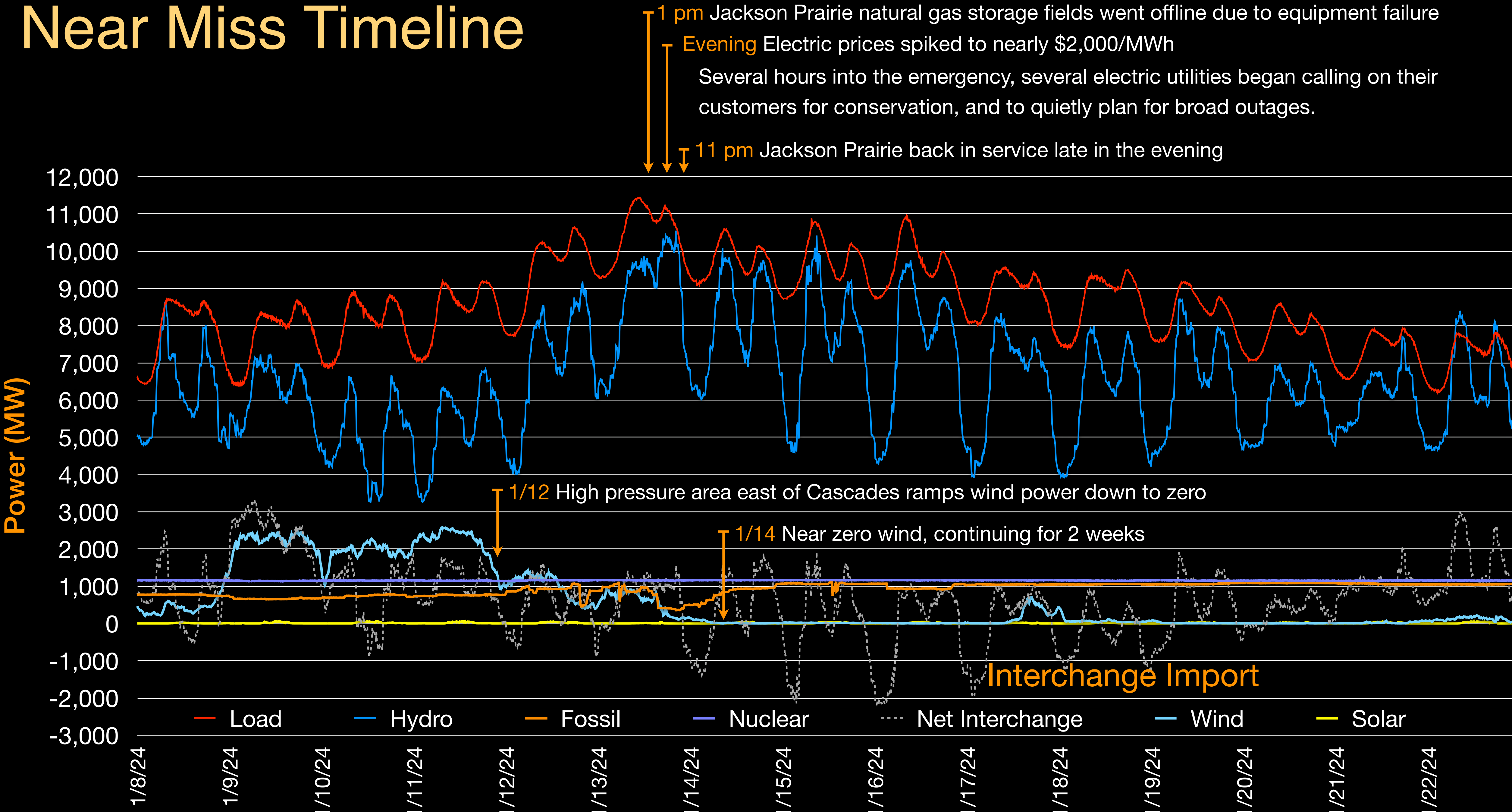
- Vacant land is required to site new renewable generation that performs well in winter - when the wind doesn't blow and the sun doesn't shine
  - Land is available, but land use challenges are increasing and holding up the building of new renewable generation
  - NIMBYism is pressuring Olympia to restrict the use of agriculture and vacant land to non-renewable generations uses

# Washington CETA, CCA and 2021 Energy Strategy

*rooftop solar diverts precious capital, inequitably*

- **Rooftop Solar Misconception**
  - Rooftop solar is not a silver bullet solution – The Northwest is not the Southwest
  - Even if you put solar on everyone's roof, it only provides a small portion of the ultimate solution – less than 1% by 2030
  - Having NEM customers pay their fair share of the grid will eliminate cost shifting. That is financially equitable and consistent with the CETA and CCA financial equity mandates
- The lack of permitting certainty will not allow utilities to meet grant schedule requirements
- Supply of energy is becoming less than demand – blackouts are coming

# Near Miss Timeline





# WRAP Cold Snap Regional Interchange Analysis

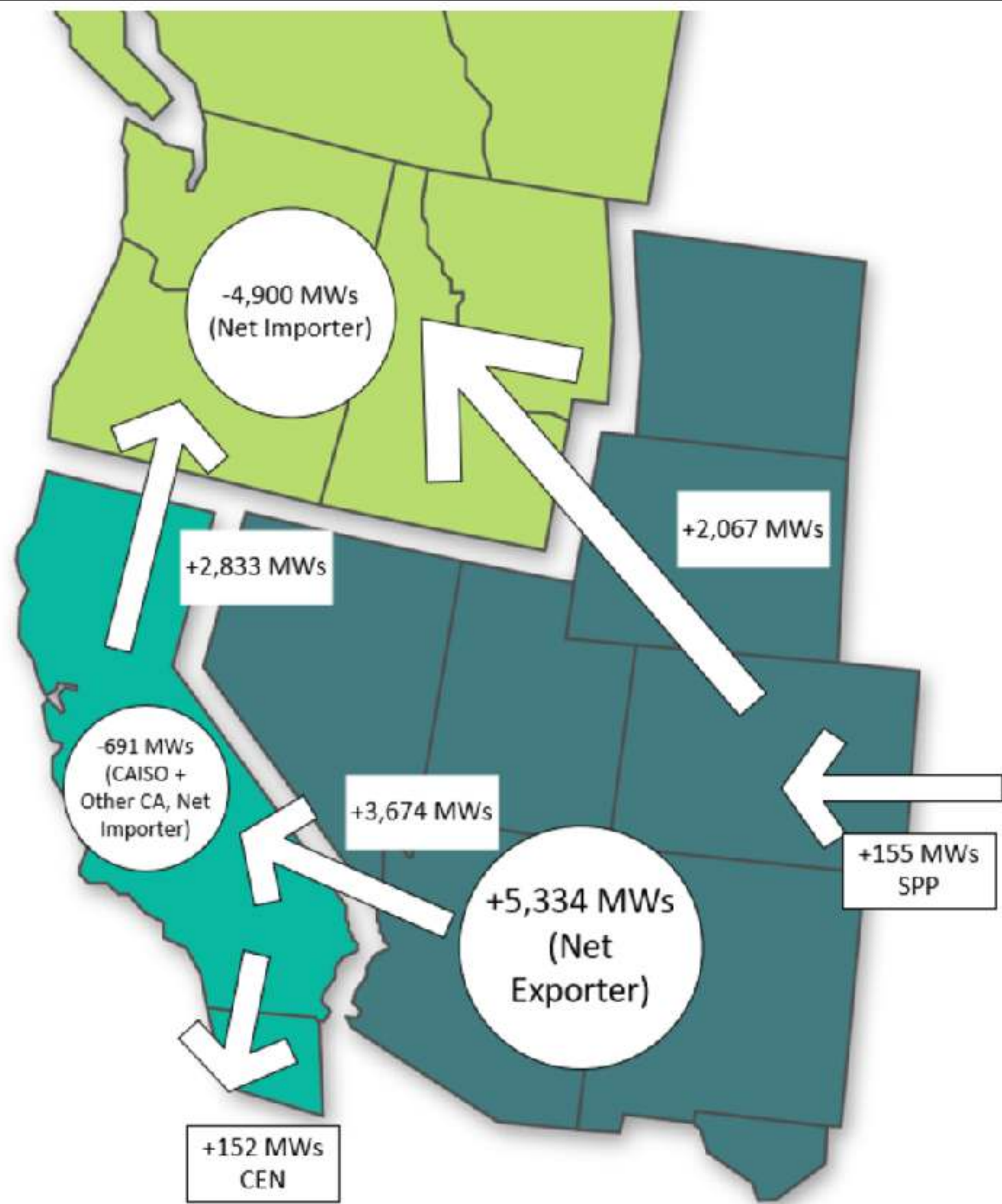


Figure 1 - Average net regional imports into the Northwest during January 12 through January 16, 2024.

*“The conditions experienced January 12 through January 16, 2024, highlighted a tipping point and demonstrated how close the region is to a resource adequacy crisis.”*

*“The Northwest was a net importer of an average of 4,900 MW per hour during the five days from January 12 – January 16, 2024.”*

## Notes

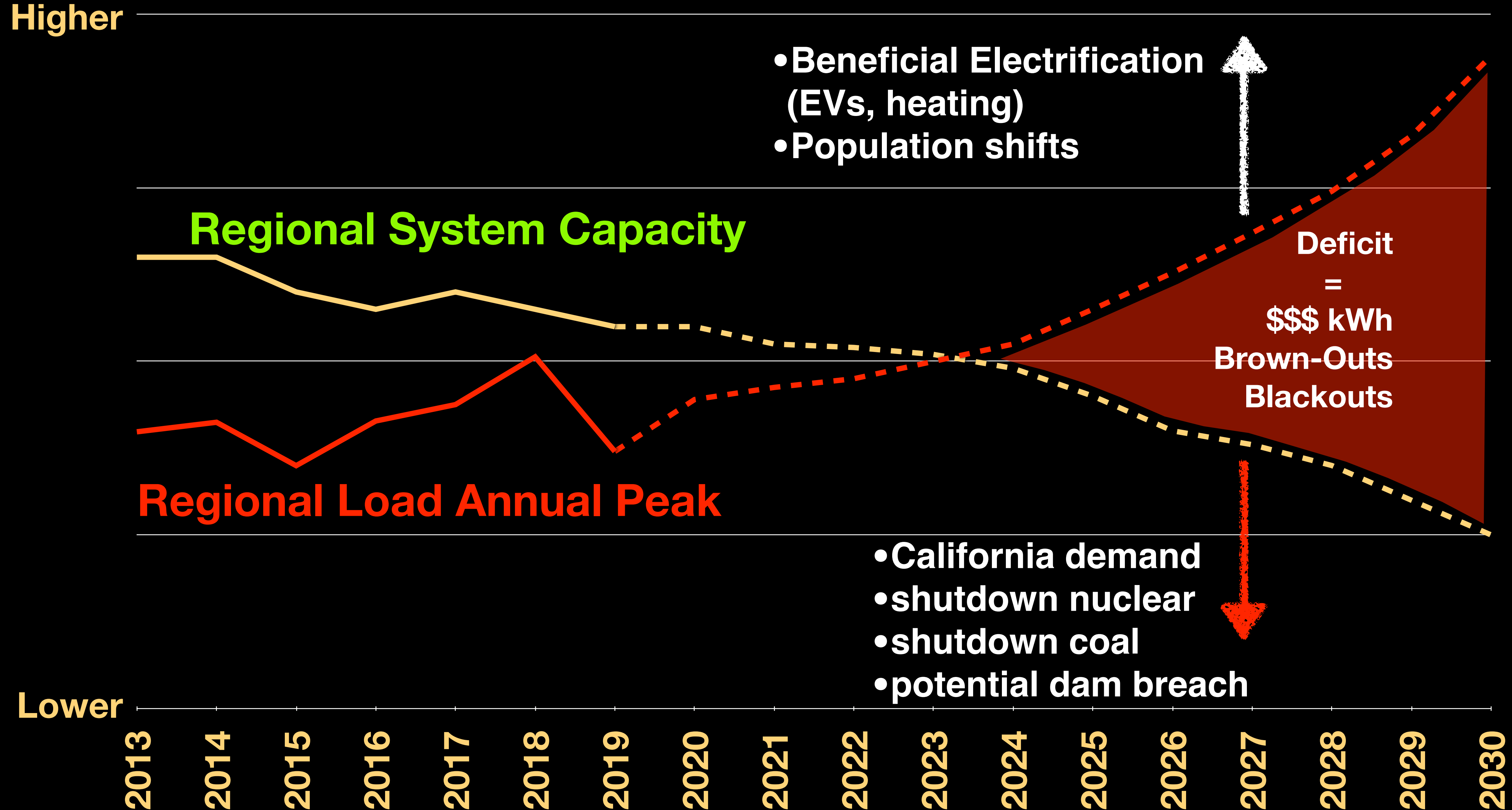
- Hourly interchange for the 15 Balancing Authorities in the Northwest region summed together
- Interchange between entities in the region excluded (neither an import into or export out of the region)
- Hourly values averaged

# Near Miss Timeline: Details and Implications

- While this event did not result in large-scale outages on either the electric or the natural gas systems, it does highlight the increasingly fragile state of our regional grid.
- Imagine if the same weather conditions apply in 2026, after Centralia removes its 750MW from the grid.
- We also anticipate that this event will result in market cost spikes as BPA has been forced to cover much of this winter storm with \$1,000+/MWh market conditions.
- Renewable Natural Gas (RNG) ITCs. Pacific northwest could benefit from natural gas as we transition to a carbon-free economy. As part of the infrastructure package, Congress and the Biden Administration clearly called for investment tax credits for all costs associated with the creation of renewable natural gas projects. Unfortunately, the IRS rulemaking has basically rendered unusable by cutting out nearly all of the largest cost drivers from that interpretation.
- Washington state CETA mandates discourage the use of natural gas in any form, which may be an essential transitional energy source for keeping the NW grid reliable until clean dependable alternatives can be developed.



# NW Energy Capacity is Declining, Load is Increasing



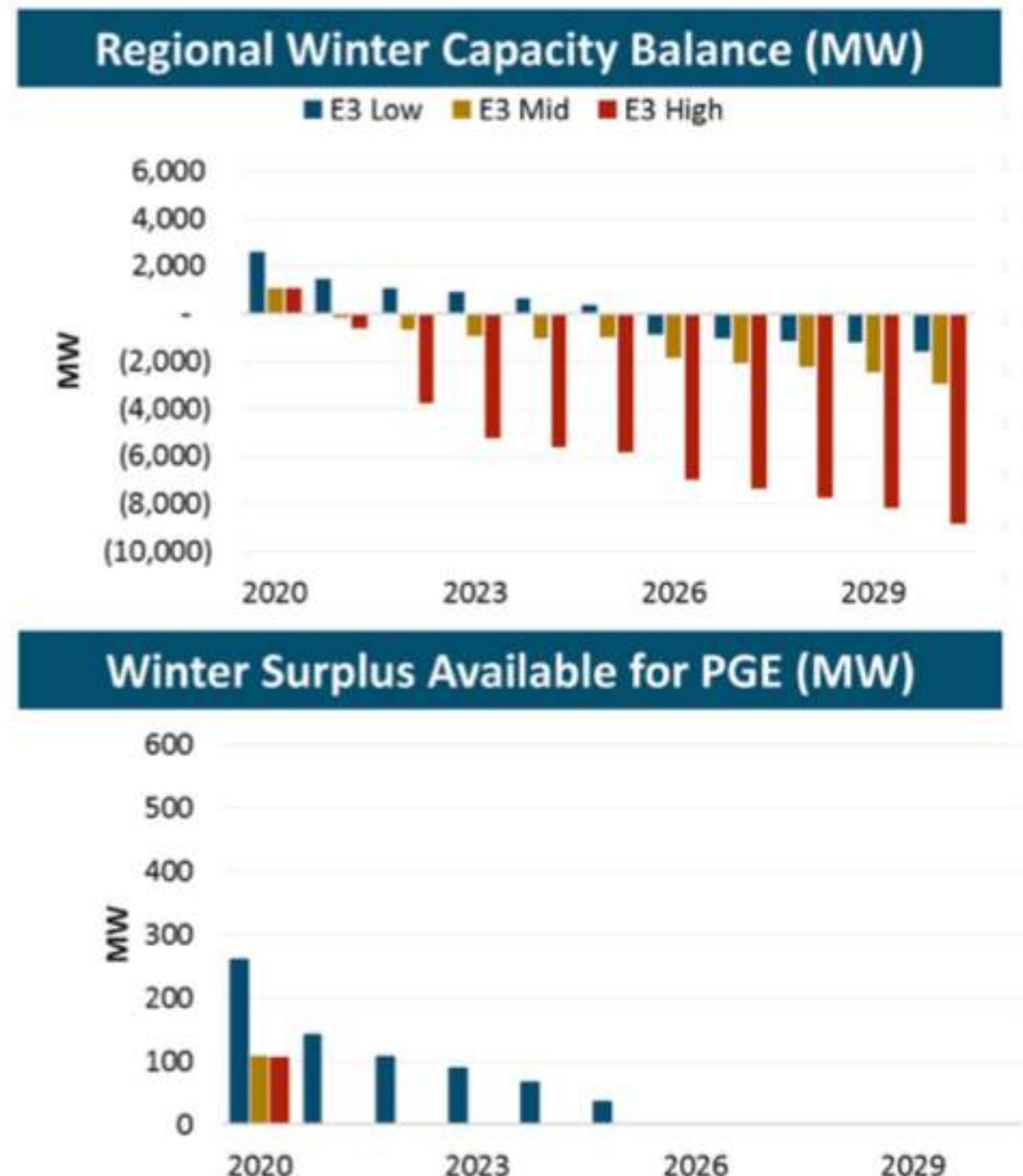
# Impending NW Regional Power Capacity Shortages: E3 2019 Study

*This analysis is pre-CETA. CETA accelerates capacity shortfalls.*

**+ Except for the Low need scenario, the region is capacity short in the winter starting in 2021**

- No market surplus available for PGE if region is net short

**+ For the Low need scenario, surplus capacity is available through 2025**





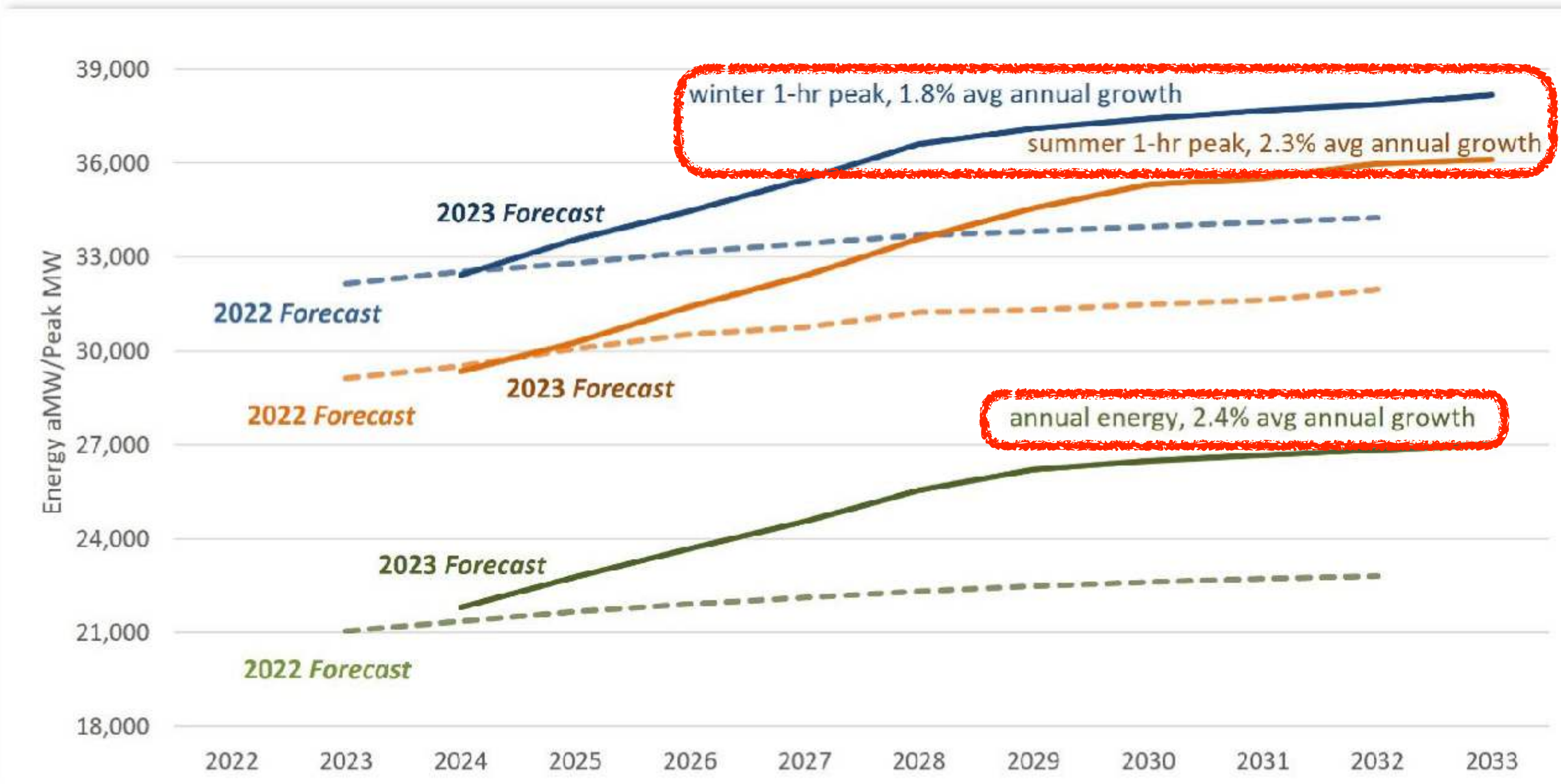
# Impending NW Regional Power Capacity Shortages: PNUCC 2023 Study

## Notes

- The 2023 Forecast reflects **accelerated and steeper regional load growth** compared to previous years.
- The 2023 loads reflect a markedly different trajectory than past forecasts, with a **20 percent increase in load growth in the first five years**.
- Much of this load growth is attributed to more certainty in prospective new **industrial loads** over the next five years.
- Only a portion of EV's, and no other beneficial electrification is included in load forecast. It will be included as it becomes more apparent what it is.

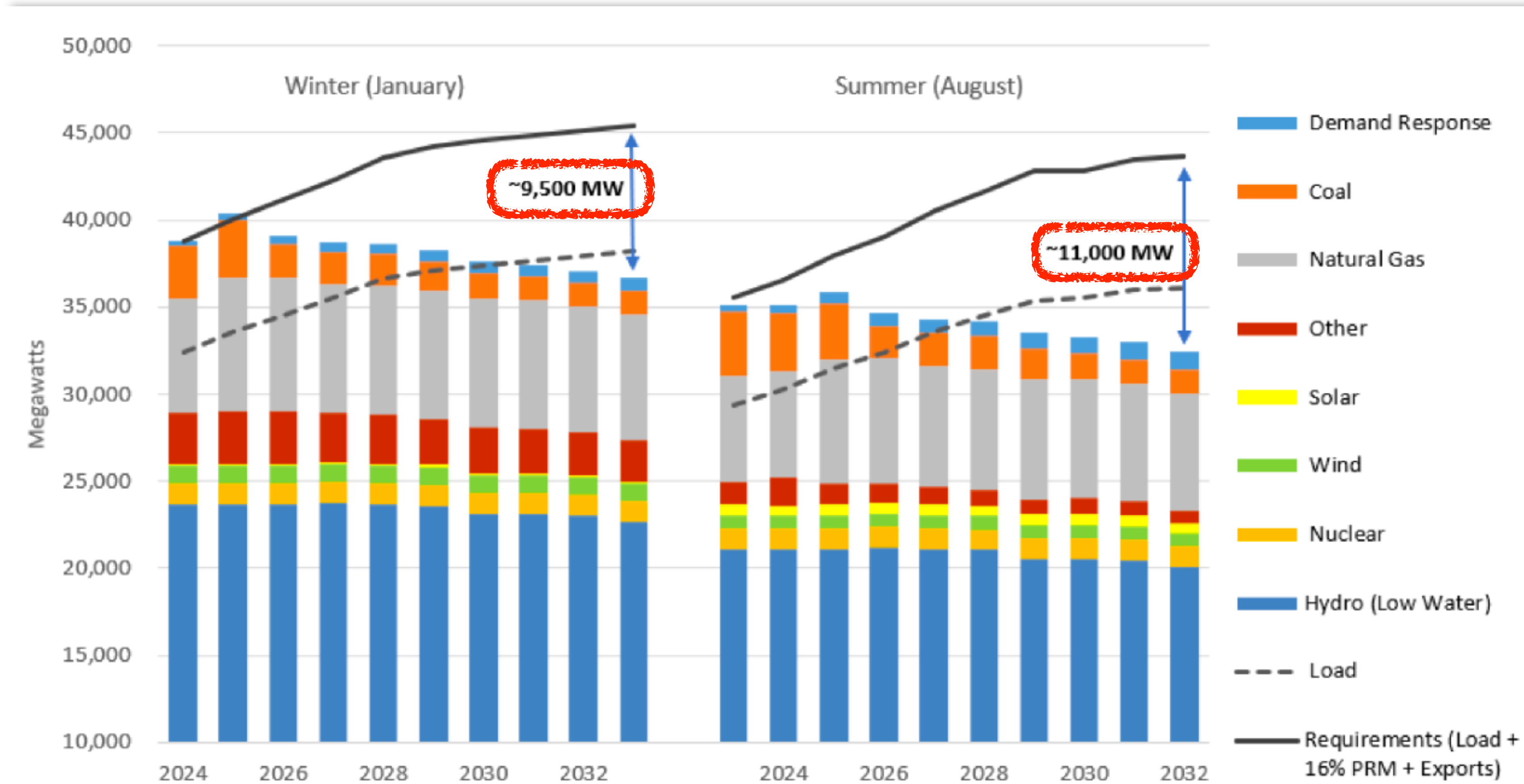
*“The overall effect of electrification and our understanding of it is expected to increase over the next several years.”*

Figure 1: Load Forecasts Comparison 2023 vs. 2022



# Impending NW Regional Power Capacity Shortages: PNUCC 2023 Study

Figure 6: Peak Capacity Load/Resource Picture



Requirements are expected load plus a 16% planning reserve margin plus exports. They are higher than the peak hour load to ensure that utilities have sufficient resources to count on when the weather is above normal and some resources are not generating. When forecast peak hour requirements exceed the forecast of existing resource peaking capabilities, a deficit is identified and when the opposite is true, a surplus is identified.

## Notes

- Summer and winter deficits starting in 2025 and growing
- Only committed new resources of generation are included
- PNUCC forecast shows deficits on the order of 9,500 to 11,000 MW without considering new electrification loads!



# Impending NW Regional Power Capacity Shortages: PNUCC 2023 Study

**Table 9. Planned Future Resources Timeline** displays the cumulative supply-side resource additions over time, combining the nameplate MW values of resources from Table 8 (NW utility owned/contracted only, IPP additions not included).

Nameplate MW	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Wind	1000	1,400	2,572	2,572	2,672	2,792	3,292	3,492	3,617	3,807
Solar	200	540	860	1,140	1,490	2,025	2,055	2,085	2,115	2,145
Storage	120	350	1,175	1,505	1,585	1,865	1,995	2,075	2,230	2,330
Renewables w. Storage	150	562	2,162	2,162	2,437	3,517	4,471	4,471	4,471	4,624
Natural Gas/Peaker	619	619	856	1,024	1,261	1,261	1,236	1,291	1,291	1,291
Generic Renewable Capacity	-	-	1,326	1,527	1,781	2,132	3,137	3,137	3,137	3,137
Upgrades	12	13	21	33	33	33	33	37	37	37
<b>TOTAL</b>	2,101	3,484	8,972	9,963	11,259	13,625	16,219	16,588	16,898	<b>17,371</b>
<b>Total renewables</b>	1,350	2,502	6,920	7,401	8,380	10,466	12,955	13,185	13,340	13,713

## Notes

- We need 17,371MW's, and only 868MW are committed
- The **planned** are just that. Not funded, designed, located, purchased, permitted, passed legal challenges and court cases, etc.

# Impending NW Regional Power Capacity Shortages: PNUCC 2023 Study

## Notes

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- Page 6 - Electrification and climate change effects still coming  
*"... electrification is a formidable task and hard to predict, which is why the potential impact of electrification is slight in this year's Forecast."*  
*"The overall effect of electrification and our understanding of it is expected to increase over the next several years."*
- Page 9 - PNUCC forecast shows deficits on the order of 9,500 to 11,000MW without considering new electrification loads!



# Impending NW Regional Power Capacity Shortages:

## WA 2023 State Transportation Electrification Strategy

### Notes

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- Page 83 - Electric Sector Impacts from Transportation Electrification

*“The total amount of electricity required to support transportation electrification will grow significantly this decade and beyond. In the **S1 Baseline scenario**, light-, medium- and heavy-duty EVs are estimated to require 1.4 terawatt-hours (TWh) of electricity by 2025, increasing tenfold to **14 TWh by 2035**. This represents 1.6% and 16%, respectively, of the state’s current annual electricity consumption of approximately 88 TWh.”*

- OPALCO Analysis: Generation required for the 2035 Baseline Scenario

14TWh if supplied by a 100% Capacity Factor (CF) generator, would require 1,598 MW.

Wind power, with 33% CF, would have 4,843 MW capacity, requiring 242,000 acres of land

Solar power, with 11% CF, would have 14,527 MW capacity, requiring 120,000 acres of land

- Compare 4,843 - 14,527 MW additional generation to the 9,500 to 11,000 MW deficit in the PNUCC forecast, which doesn’t include the EV load. This implies a 2035 load of 13,000 to 25,000 MW more than forecast today.

- This also does not include an estimate of Building Electrification!

# How Long Will it Take to Develop 25 GW of Renewable Resources?

*“Local governments are banning green energy faster than they’re building it.”*

2024 USA Today Study

There are over 300 wind power projects held up by court cases

25 years to develop

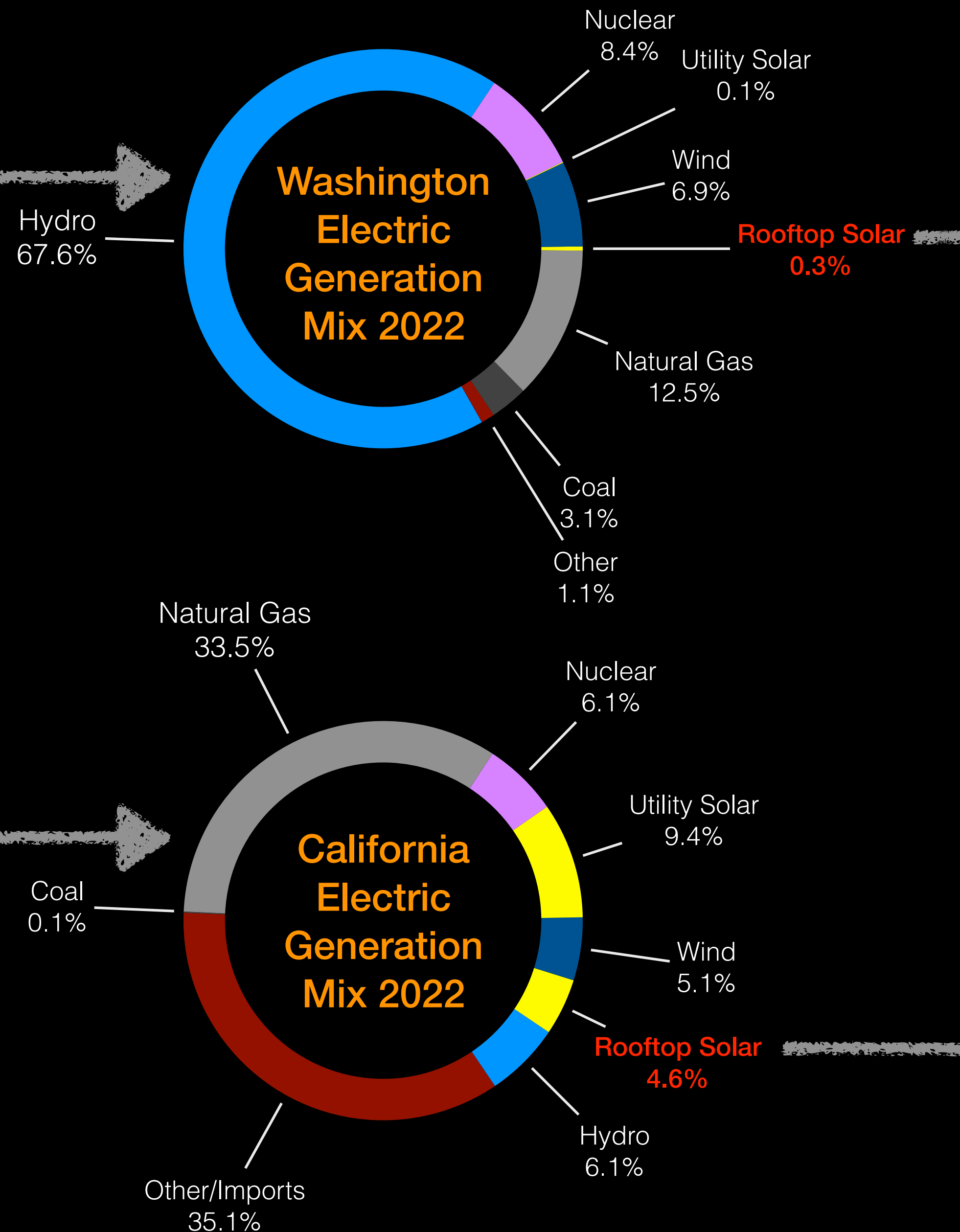
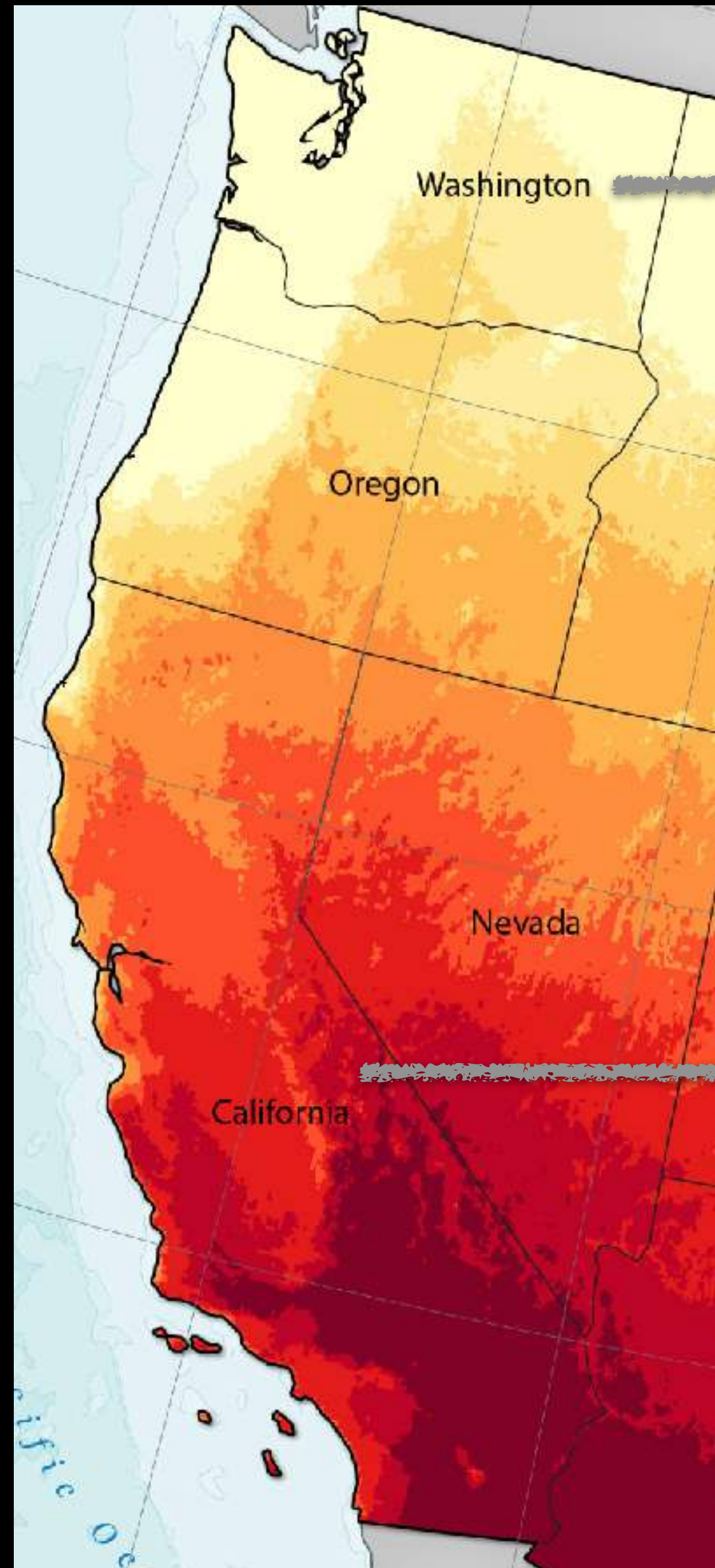
## BPA Wind Power (GW)



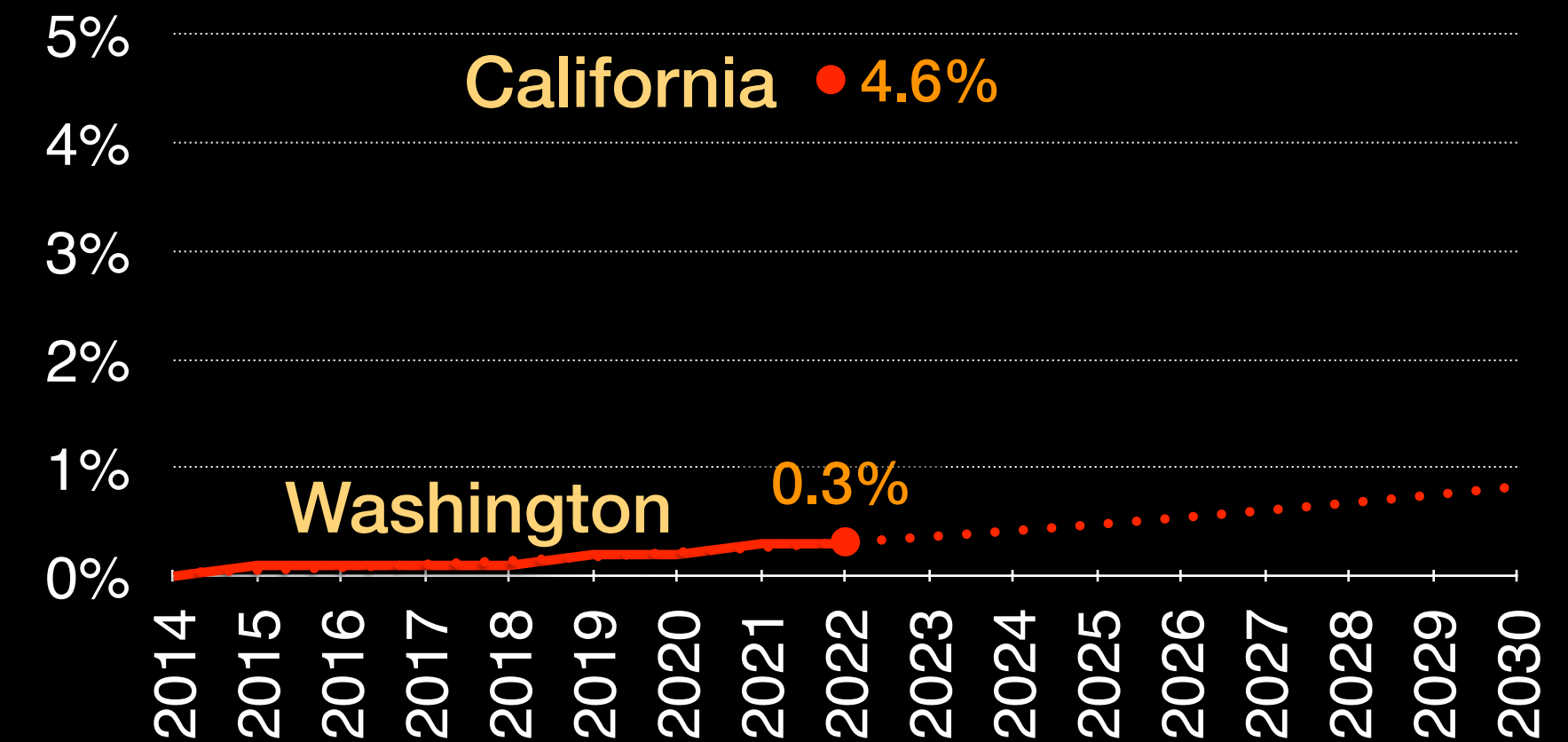


# The Winter Problem: Northwest is not the Southwest – NW winter solar production is less than one-third of the SW

## Annual Solar Irradiance



## Rooftop Solar % of Total



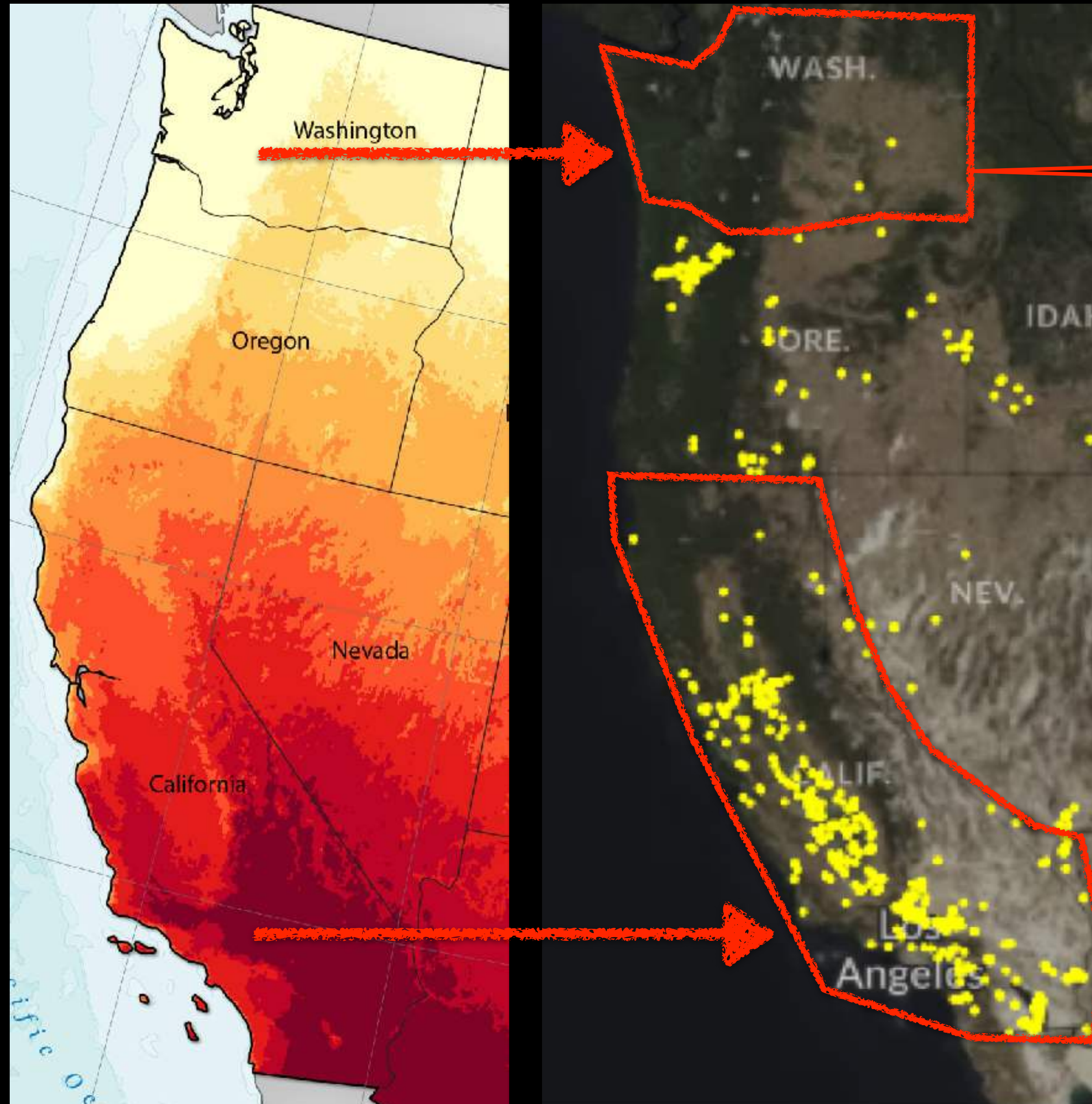
## Notes

- WA December production is 72% less than California
- WA solar capacity factor is about one-third of California's
- In California, rooftop solar is only 4.6% of the total state energy portfolio.
- WA solar irradiance is a small fraction of California, rooftop solar contributes only 0.3%, and is projected to be less than 1% by 2030.
- California utility-scale solar production is double rooftop. In Washington, it's one-third of rooftop. WA policy should incentivize utility-scale solar, which is more capital and production-efficient.



# The Winter Problem: Northwest is not the Southwest – Utility-Scale Solar Comparison

## Annual Solar Irradiance



**Washington**  
21 MW, from just two  
utility-scale solar projects

**California**  
13,000 MW, from 475  
utility-scale solar projects



# California Is Actively Pursuing Our Northwest Energy Supply

*If California was a country, it would be the fifth largest economy in the world!*

## Need a power line? That'll be \$3B and 18 years.

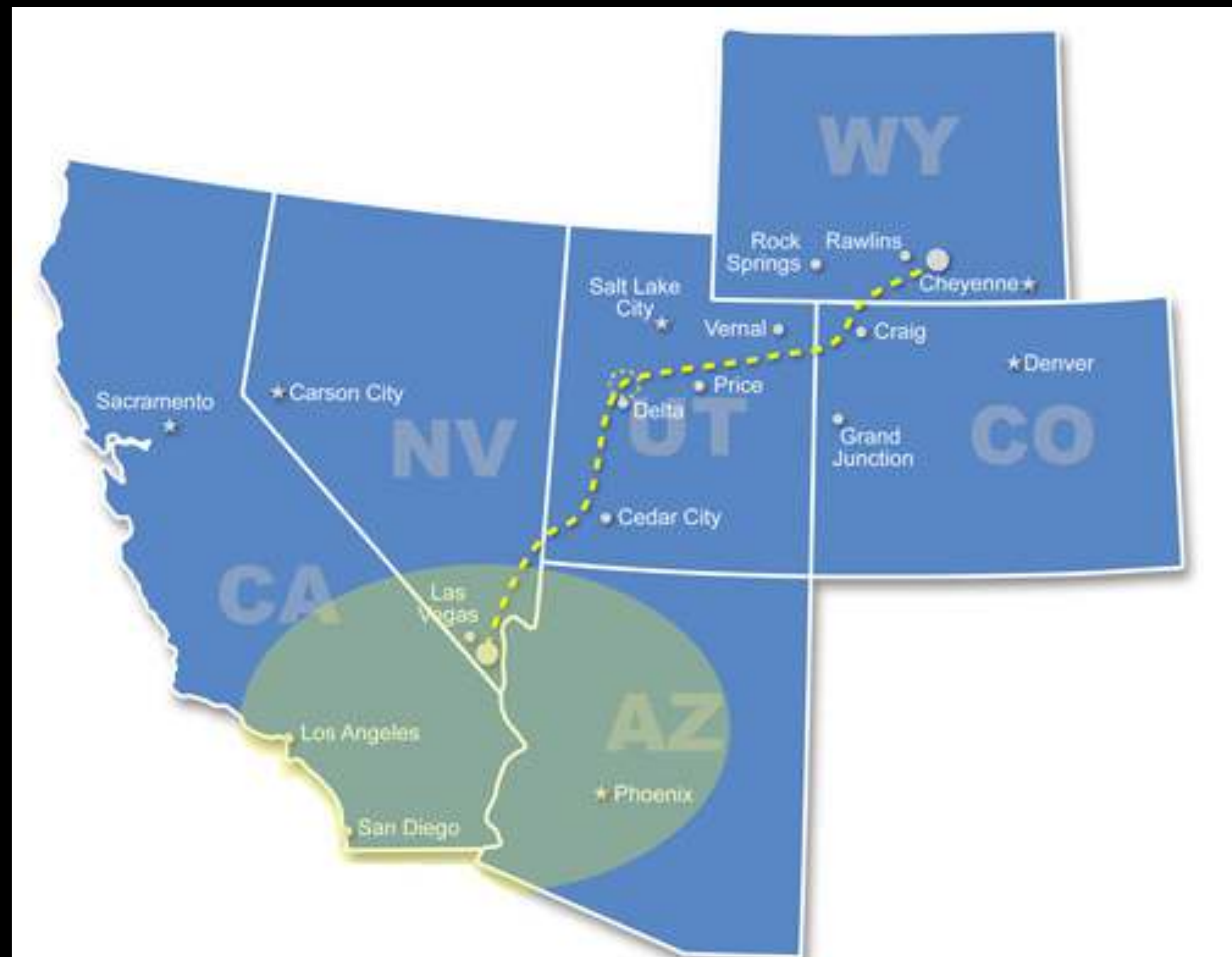
By ARIANNA SKIBELL | 06/21/2023 05:59 PM EDT



Interior Secretary Deb Haaland (center left) and Energy Secretary Jennifer Granholm (center right) arrive at a ceremony for the TransWest Express transmission line in Wyoming. | Jason Plautz/POLITICO's E&E News

A 732-mile power line broke ground in Wyoming this week, paving the way for the country's largest onshore wind project to send zero-carbon energy to California, Arizona and Nevada.

While the \$3 billion TransWest Express Transmission project marks a win for the Biden administration, it took nearly two decades to green-light, [writes Jason Plautz](#).





# NIMBY: *Not in my backyard* slowing new energy development

 Columbia Law School | COLUMBIA CLIMATE SCHOOL  
SABIN CENTER FOR CLIMATE CHANGE LAW

## Opposition to Renewable Energy Facilities in the United States: May 2023 Edition

U.S. NEWS  
**Tribes, environmental groups ask US court to block \$10B energy transmission project in Arizona**

FORBES > BUSINESS > ENERGY  
**Here's The List Of 317 Wind Energy Rejections The Sierra Club Doesn't Want You To See**

 Energy Markets & Policy  
BERKELEY LAB

January 24, 2024

## Large-scale wind and solar developers concerned about social factors affecting deployment

*New Berkeley Lab survey of large-scale wind and solar project developers highlights industry concerns with the social factors that contribute to project delays and cancellations.*

Large-scale wind and solar deployment is impacted by various technical, economic, and social factors. The social factors, such as community opposition and local ordinances and zoning, in particular remain under examined and are difficult to understand through existing data sources. This study surveyed industry professionals to gather insights from their experiences with project development and community engagement.

- **Projects Cancelled** Approximately one-third of wind and solar siting applications submitted in the last five years were canceled, while about half experience delays of 6 months or more.
- **Increased Cost** Project cancellations result in average sunk costs (expenses spent on the project that could not be recovered) of more than \$2 million per project for solar, and \$7.5 million for wind.
- **Projects Delayed** Local ordinances or zoning, grid interconnection, and community opposition are the top three leading causes of project cancellations for both wind and solar. These are also leading causes of significant delays.
- **NIMBY Accelerating** For both wind and solar, opposition is becoming more prevalent and is more expensive to address than it was five years ago.



# NW Regional Energy Strategy and Implications

*Decarbonization will nearly double demand for electricity,  
while reducing TOTAL energy demand by 28%*

*BUT - near term risk of load exceeding generation*

## Risk of major regional outages and public outrage

- Centralia coal plant shutdown in 2025 (comparable to about 10% of BPA Firm Energy)
- Significantly increased risk of major outages during cold snaps and heat waves (recent PSE, Jefferson Co. alerts)
- The public may force the state into over-reaction, creating environmentally harmful rapid energy resource development policy

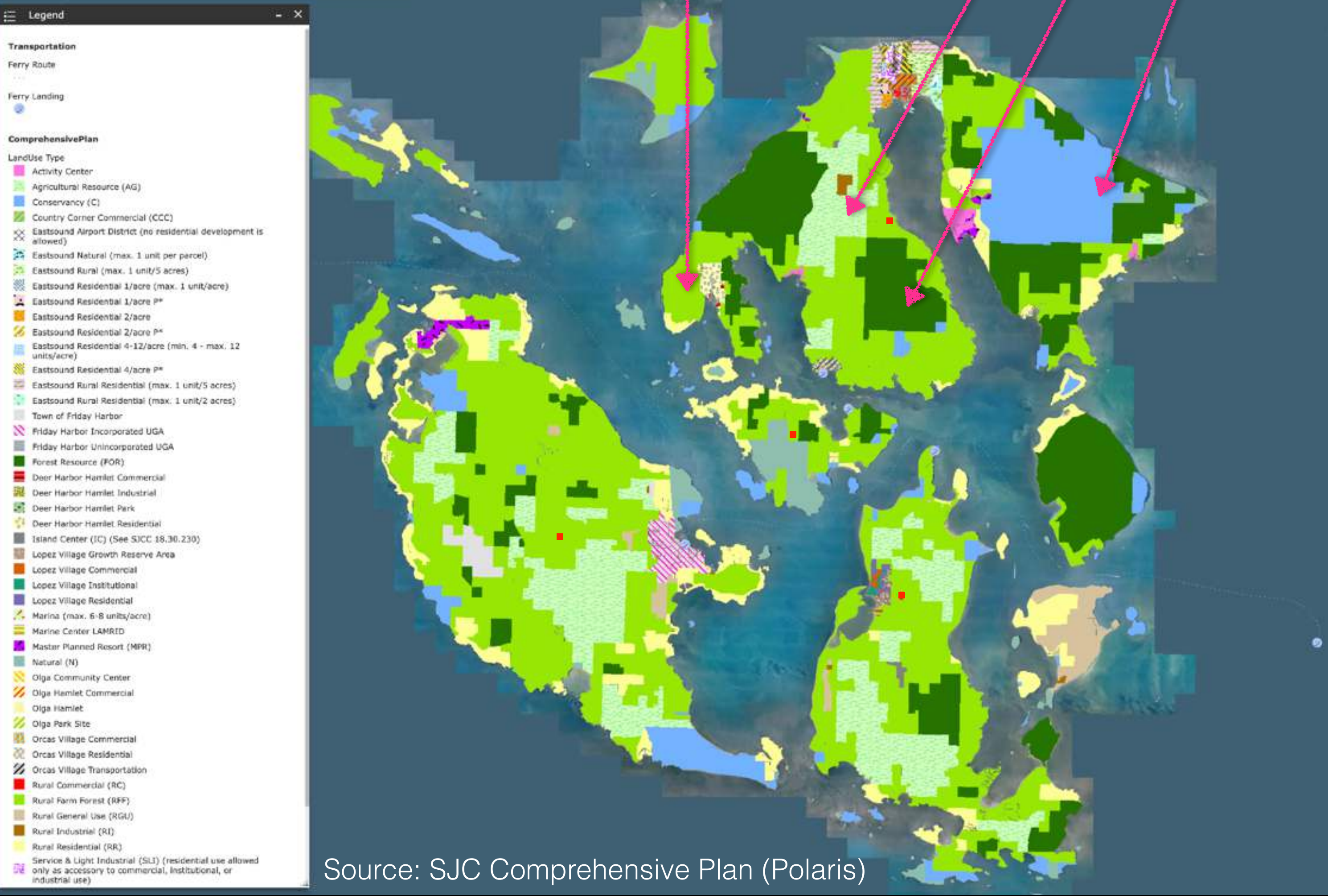




Why did OPALCO choose Bailer Hill Site? Not allowed in 65% of county's 109,000 acres!

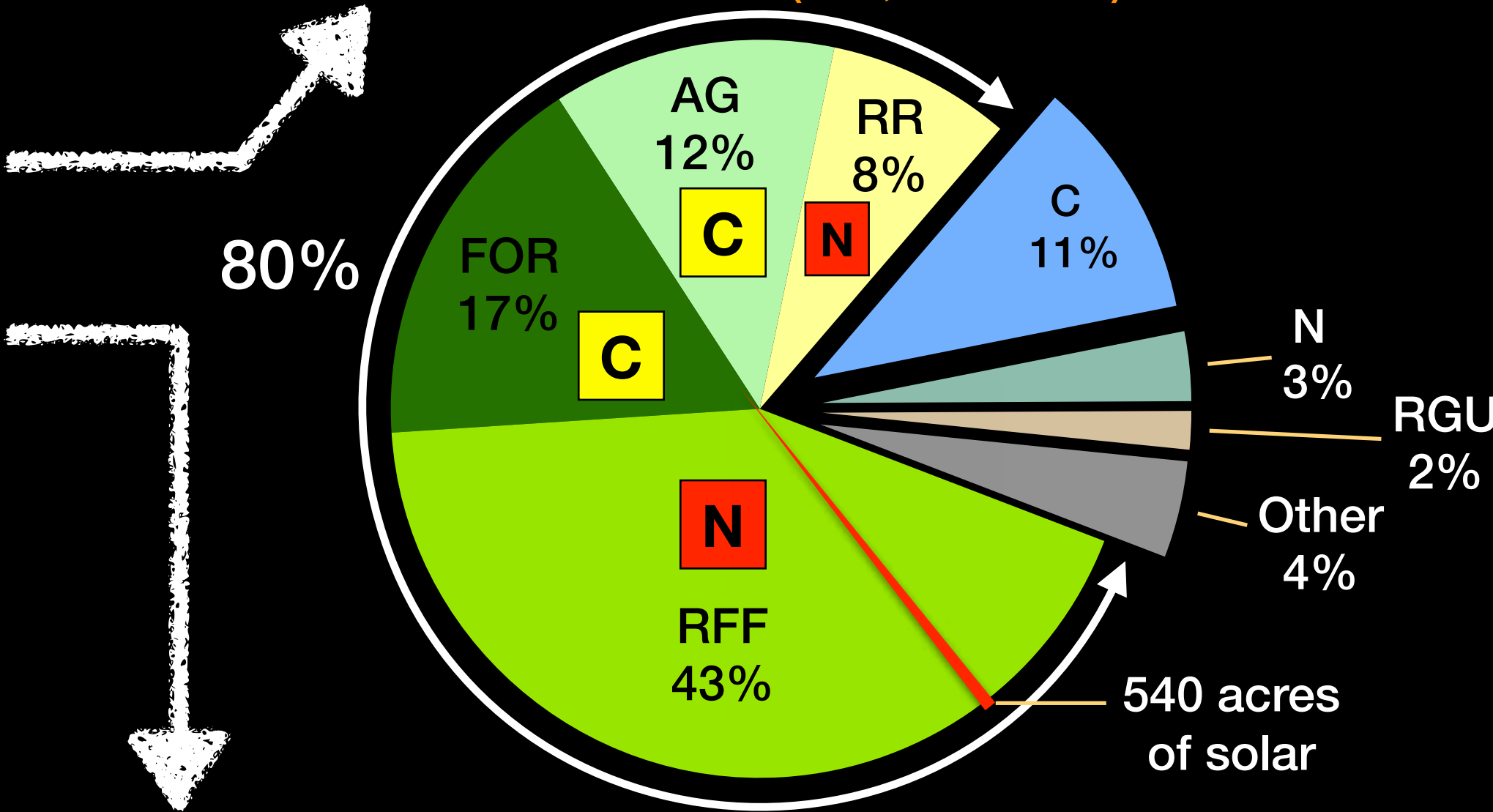
San Juan County Land Use Designations

Land Use Designations	RURAL					RESOURCE		SPECIAL	
	RGU	RR	RFF	RI	RC	AG	FOR	C	N
	Rural General Use	Rural Residential	Rural Farm-Forest	Rural Industrial	Rural Commercial	Agricultural	Forest	Conservancy	Natural
Commercial Power-generation Facilities	C	N	N	C	C	C	C	N	N



Source: SJC Comprehensive Plan (Polaris)

Land Distribution (109,000 acres)



Y	Use allowed outright, without project permit
P	Provisional use, subject to administrative consistency review for compliance
C	Conditional use, subject to public notice and permit hearing procedure
N	Prohibited use

Of the county's 109,000 acres, we only need 540 acres (0.5%) to produce 35% of our energy use.



*Thank You!*