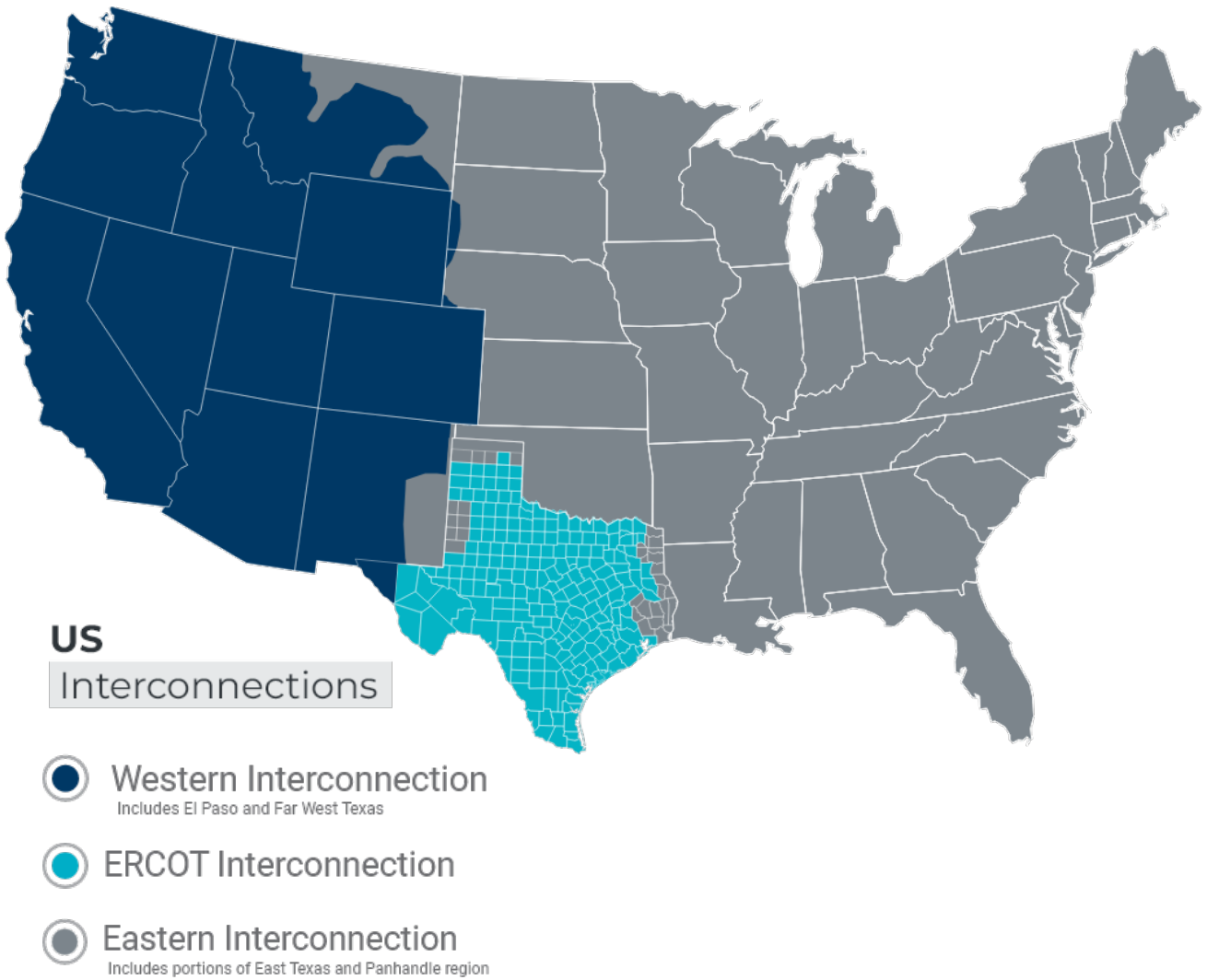
American Association of Professional Landmen

Woody Rickerson
ERCOT Chief Operating Officer

January 16, 2026

The ERCOT Region



The ERCOT grid is the interconnected electrical system serving most of Texas with limited external connections.

ERCOT highlights include:

- 90% of Texas electric load
- 75% of Texas land
- More than 54,000 mi. of transmission lines
- 1,250+ generation units (including PUNs)
- ERCOT's connections to other grids are limited to ~1,220 MW of direct current (DC) ties, which allow control over the flow of electricity

Current Records

All-time Peak Demand Record: 85,508 MW

- August 10, 2023 (5-6 p.m.)

Weekend Peak Demand Record: 85,116 MW

- Sunday, August 20, 2023 (4-5 p.m.)

Winter Peak Demand Record: 80,525* MW

- February 20, 2025 (7-8 a.m.)

Renewable Records (instantaneous)

Wind

- Wind generation: 28,550 MW March 3, 2025 (8:42 p.m.)
- Wind penetration: 69.15% April 10, 2022 (1:43 a.m.)

Solar

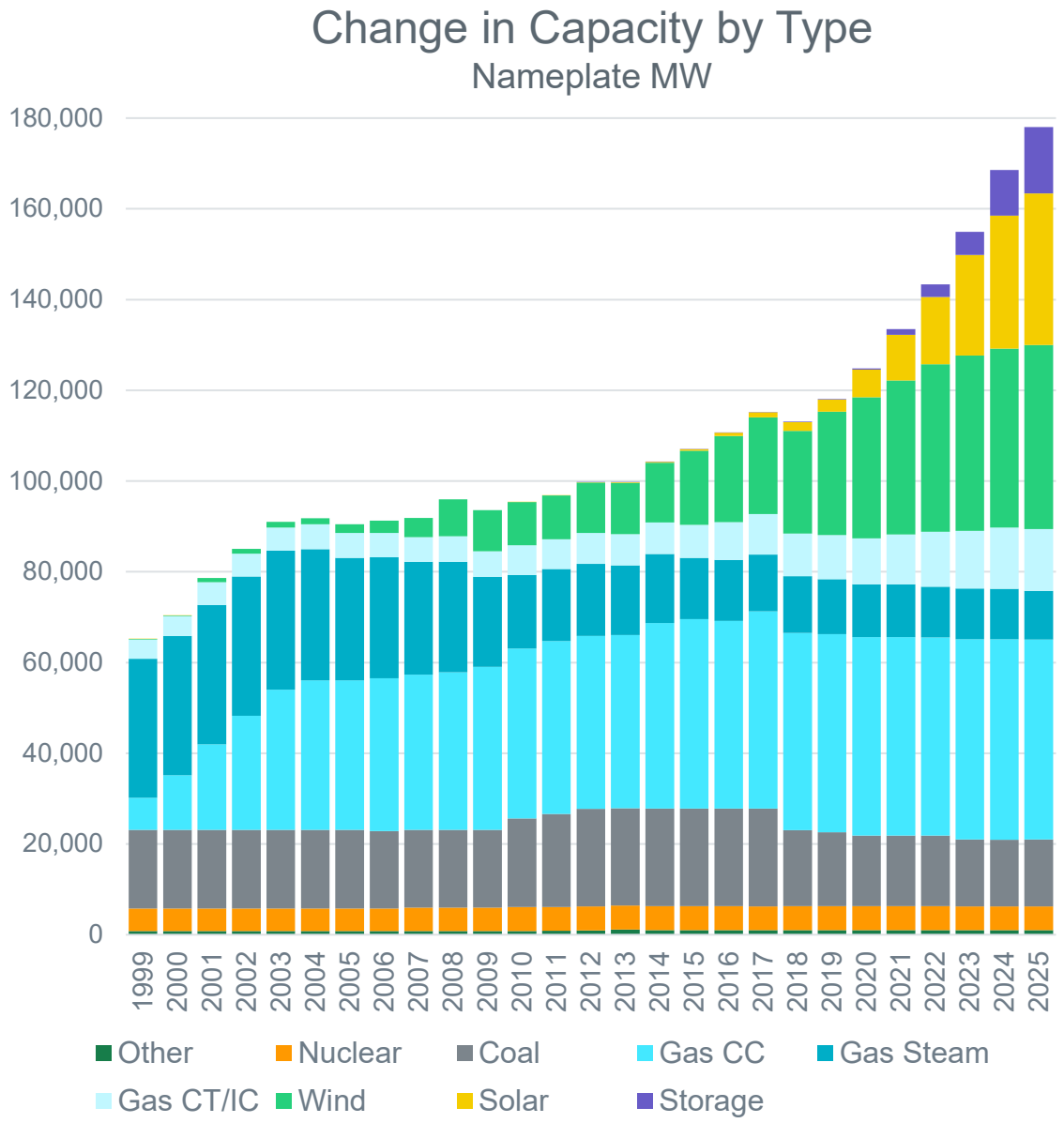
- Solar generation: 29,887 MW September 9, 2025
- Solar penetration: 56.80% October 30, 2025

Renewables combined

- Generation: 46,966 MW June 21, 2025 (1:00 p.m.)
- Penetration: 76.11% March 2, 2025 (2:45 p.m.)

Battery Discharge Record: 9,737 MW

- December 23, 2025 (5:25 p.m.)



Texas Competitive Model

The Texas Legislature restructured the Texas electric market in 1999.

ERCOT plays an integral role in all areas.

Generation

Competitive Production

- Generation resources are owned by privately owned companies, with the exception of municipal and cooperative resources. They operate and compete in the ERCOT market to serve load.

Transmission & Distribution

Regulated Open Access

- Transmission and distribution lines and related facilities are owned and operated by regulated utilities. They operate in the ERCOT market.

Retailers

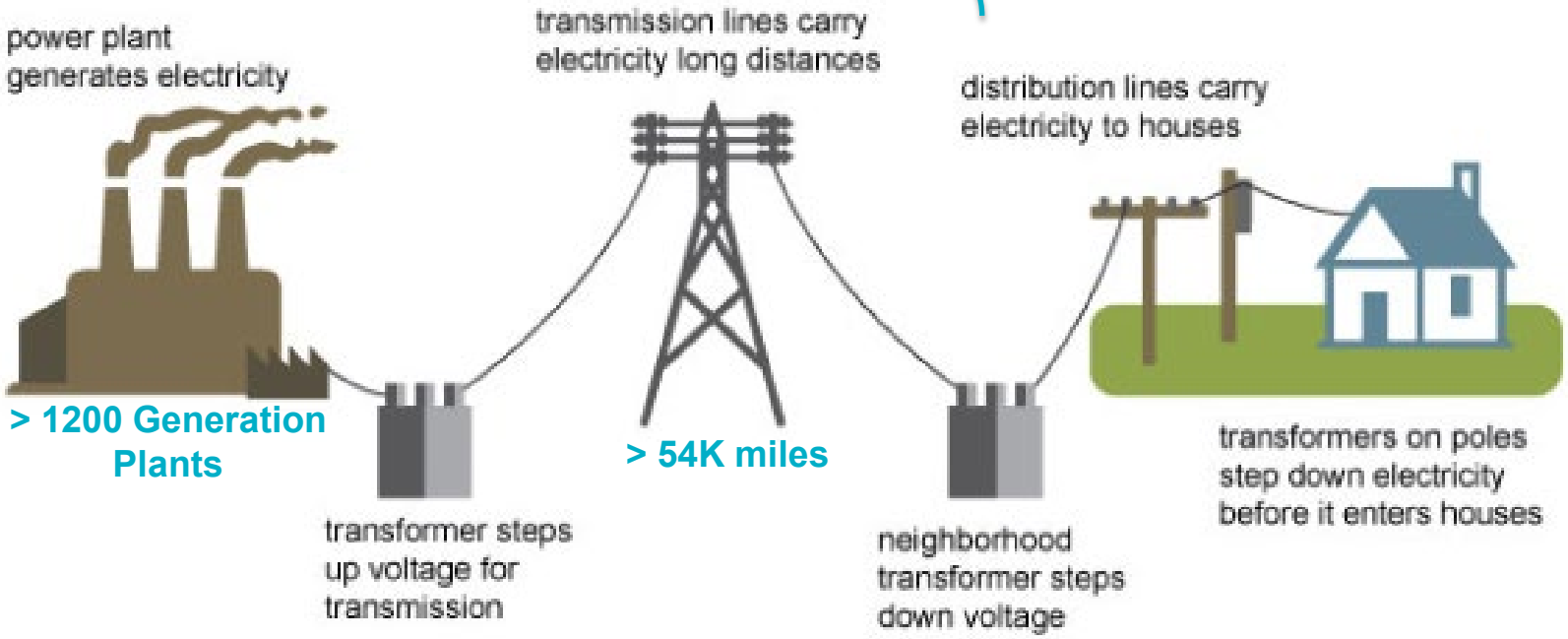
Competitive Sales

- Retailers compete to serve consumers' electric load in ERCOT.
- Municipal and cooperative utilities sell power to one fourth of the ERCOT market.
- Nearly 100% smart meters

ERCOT Role

ERCOT monitors, controls, and plans transmission level equipment

ERCOT doesn't own any infrastructure



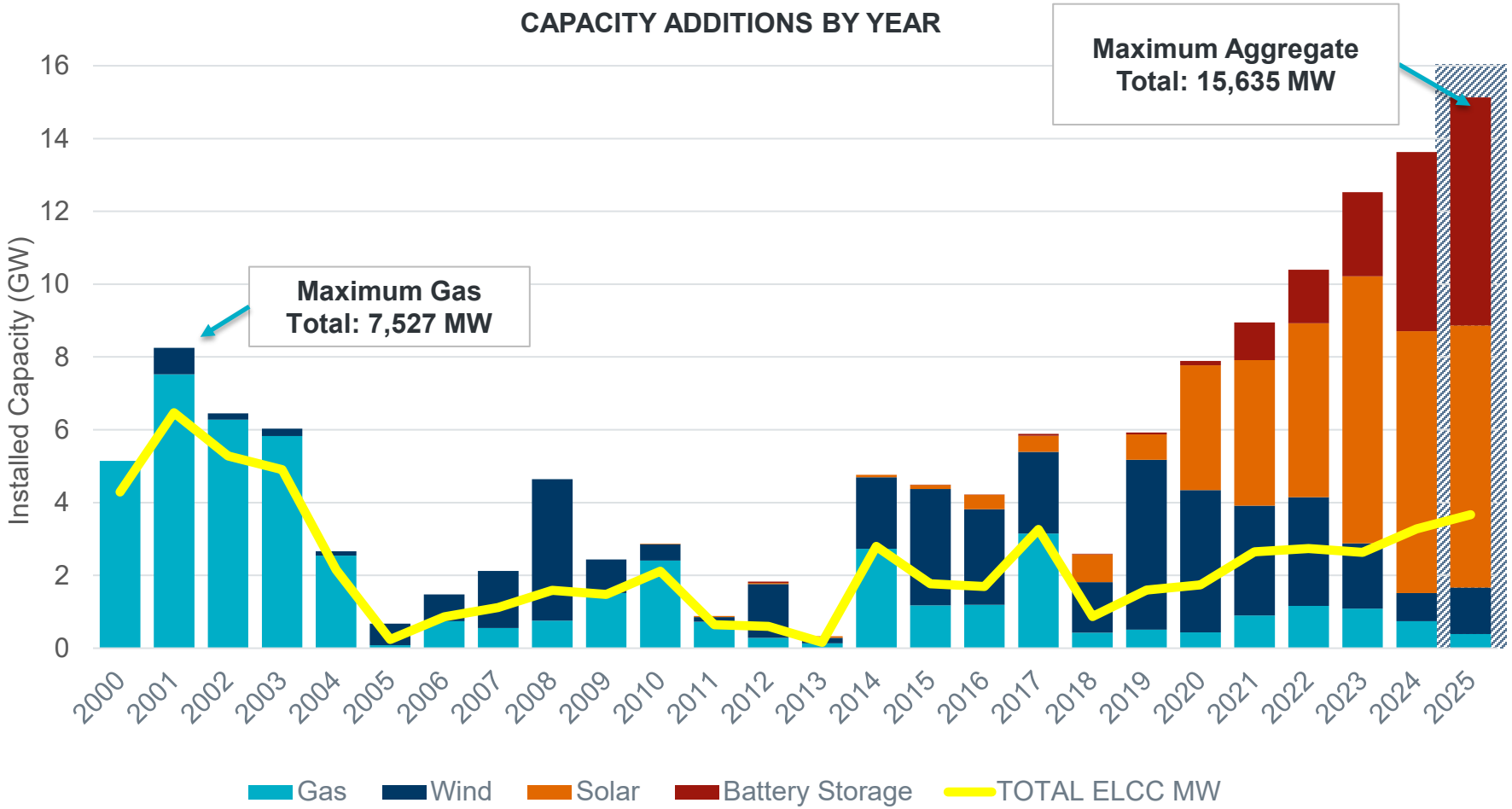
Source: Adapted from National Energy Education Development Project (public domain)

ERCOT oversees the retail market

ERCOT facilitates the wholesale market used for buying and selling electric power

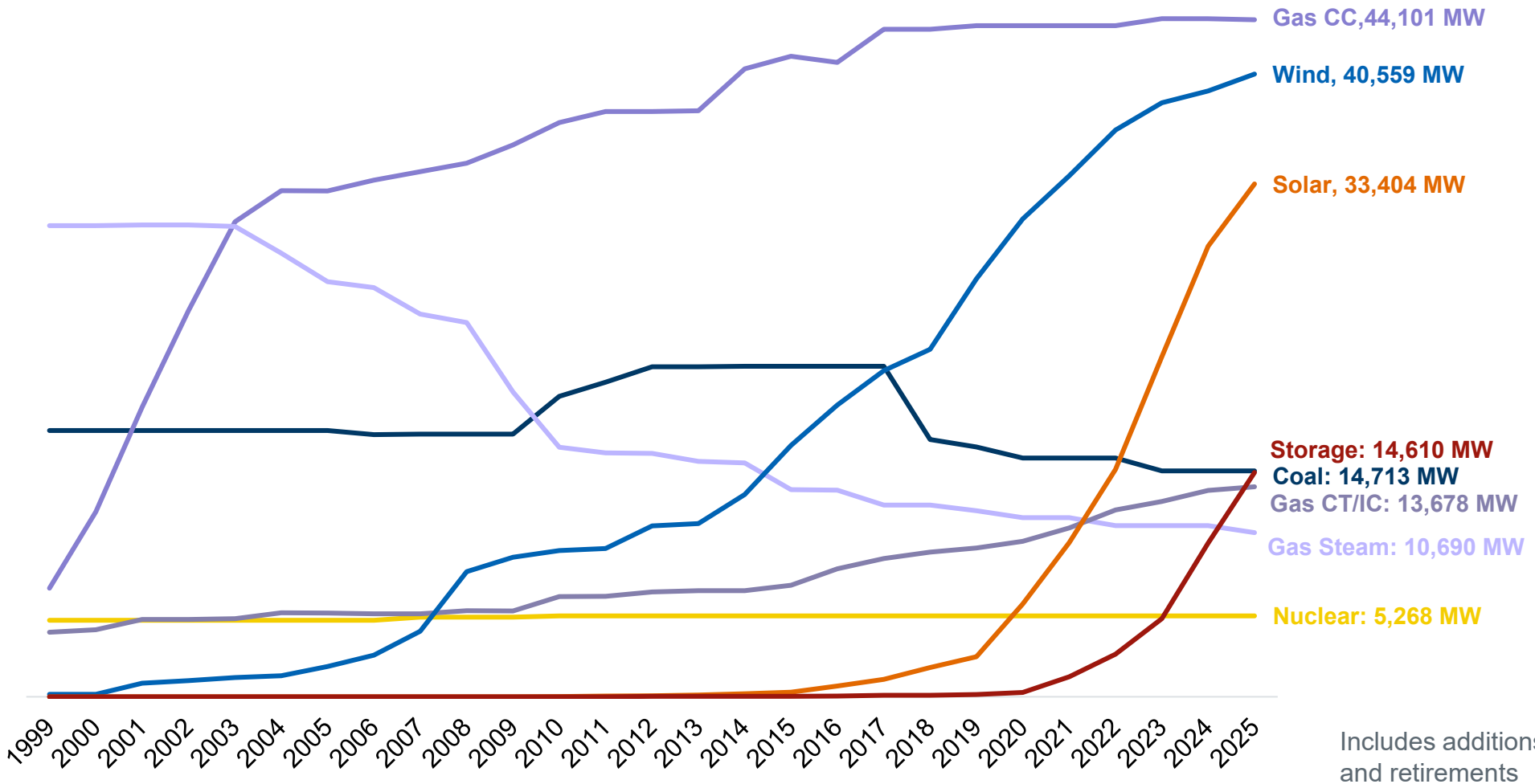
Historic Resource Capacity Additions to ERCOT Grid

- During the early 2000s, more than 27,000 MW of new gas generation was added to the system over a 5-year period.
- In the last 3 years, almost 25,000 MW of nameplate wind and solar generation were added to the system. This period also includes about 9,000 MWh of energy storage.
- These time periods of rapid Resource growth provide some insight into the amount of new generation that can be reliably interconnected over a short period of time.



Key Takeaway: Historic Resource capacity additions provide insight into the potential limits of incorporating new Load.

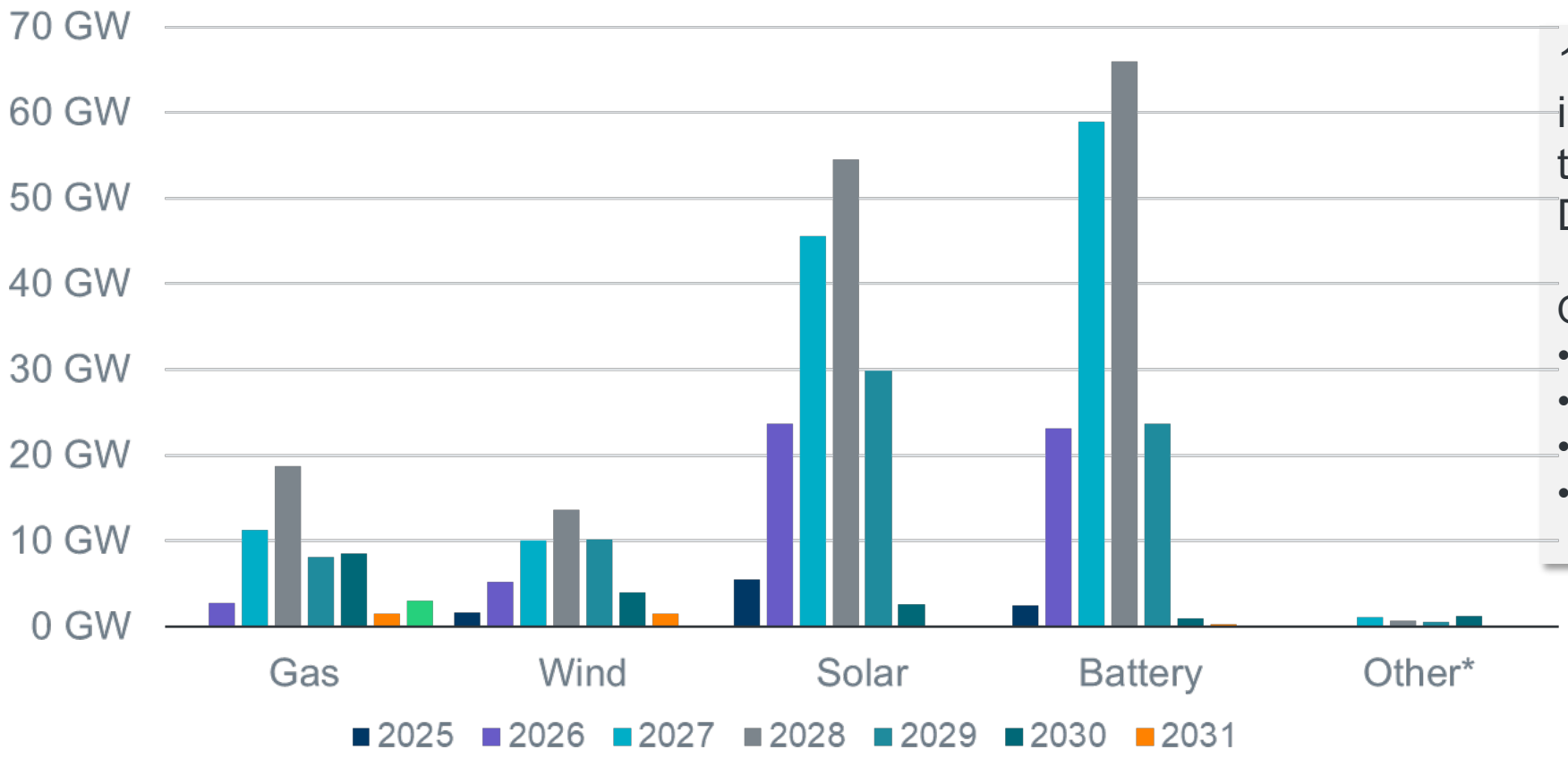
ERCOT Installed Net Generation Capacity as of August 1, 2025



Includes additions and retirements

Notes: Capacity totals are based on the Installed Capacity Ratings for generating units. "Other" comprises of Biomass, Hydro, and Diesel. Planned generation projects are added to installed capacity after approval for synchronization to ERCOT Grid. Totals include Private-Use Network generators that export to the ERCOT grid, Distribution Generation Resources, Settlement-Only Distribution Generators, Unavailable Switchable Capacity, Extended Outage Units, and Seasonal Mothballed Units but not Indefinite Mothballed Units.

Generation Interconnection Requests



1,984 active generation interconnection requests totaling 441,031 MW as of December 2025

Queue totals:

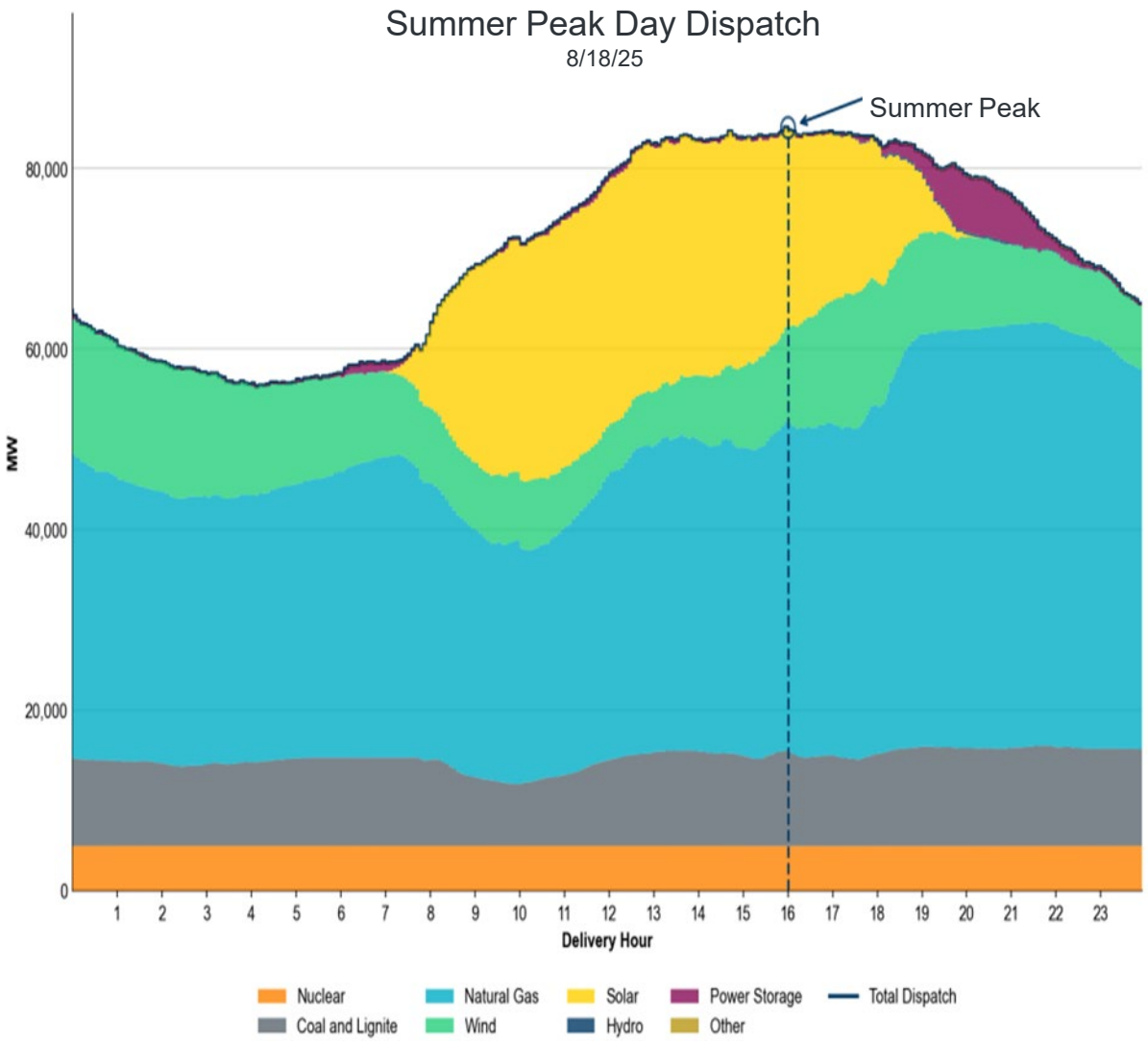
- Energy Storage 175,459 MW
- Solar 161,807 MW
- Wind 46,191 MW
- Gas 53,716 MW

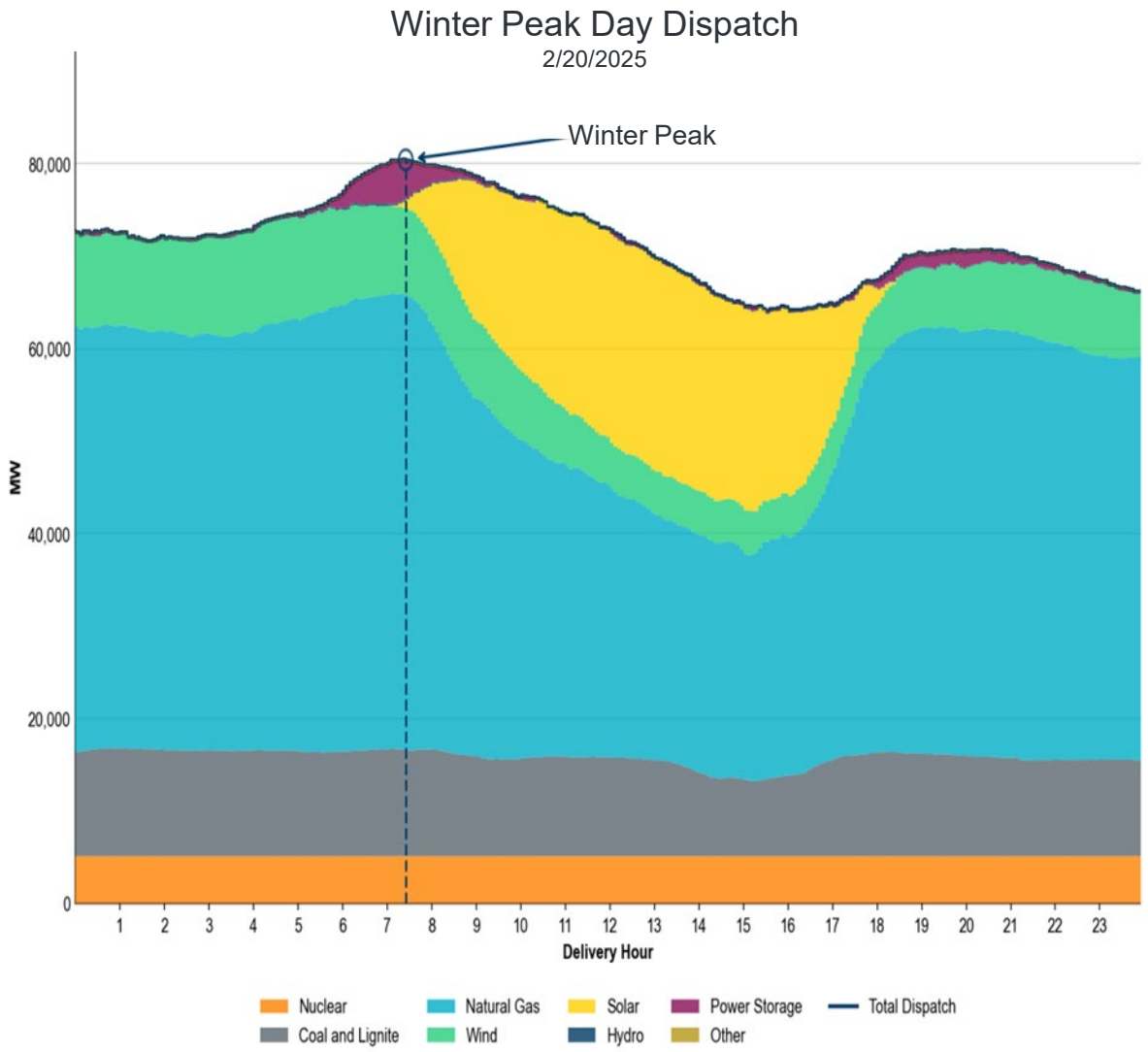
Other includes petroleum coke (pet coke), hydroelectric, fuel oil, geothermal energy, other miscellaneous fuels reported by developers, and fuel cells that use fuels other than natural gas. (Numbers exclude capacity associated with projects designated as Inactive per Planning Guide Section 5.2.5.)

Key Takeaway: Solar and Energy Storage account for **77%** of the amount of generation seeking interconnection. Gas is up from 26 GW in October 2024.

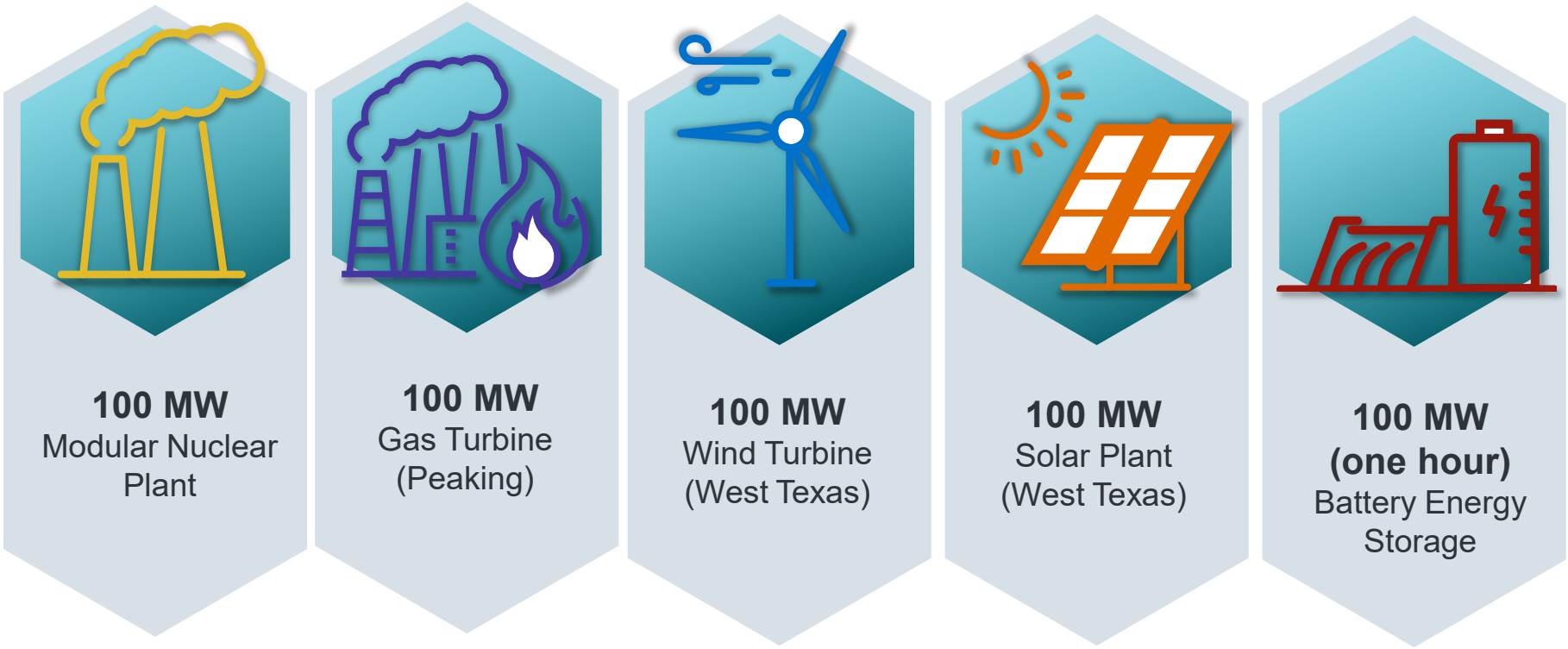
Generation Type Comparison

Peak Day Dispatch





Generation Type Comparison - Summer



100 MW
Modular Nuclear Plant

23,601 Homes

94% capacity availability during summer peak demand hours

100 MW
Gas Turbine (Peaking)

20,750 Homes

83% capacity availability during summer peak demand hours

100 MW
Wind Turbine (West Texas)

5,500 Homes

22% capacity availability during summer peak demand hours

100 MW
Solar Plant (West Texas)

19,000 Homes

76% capacity availability during summer peak demand hours

100 MW (one hour)
Battery Energy Storage

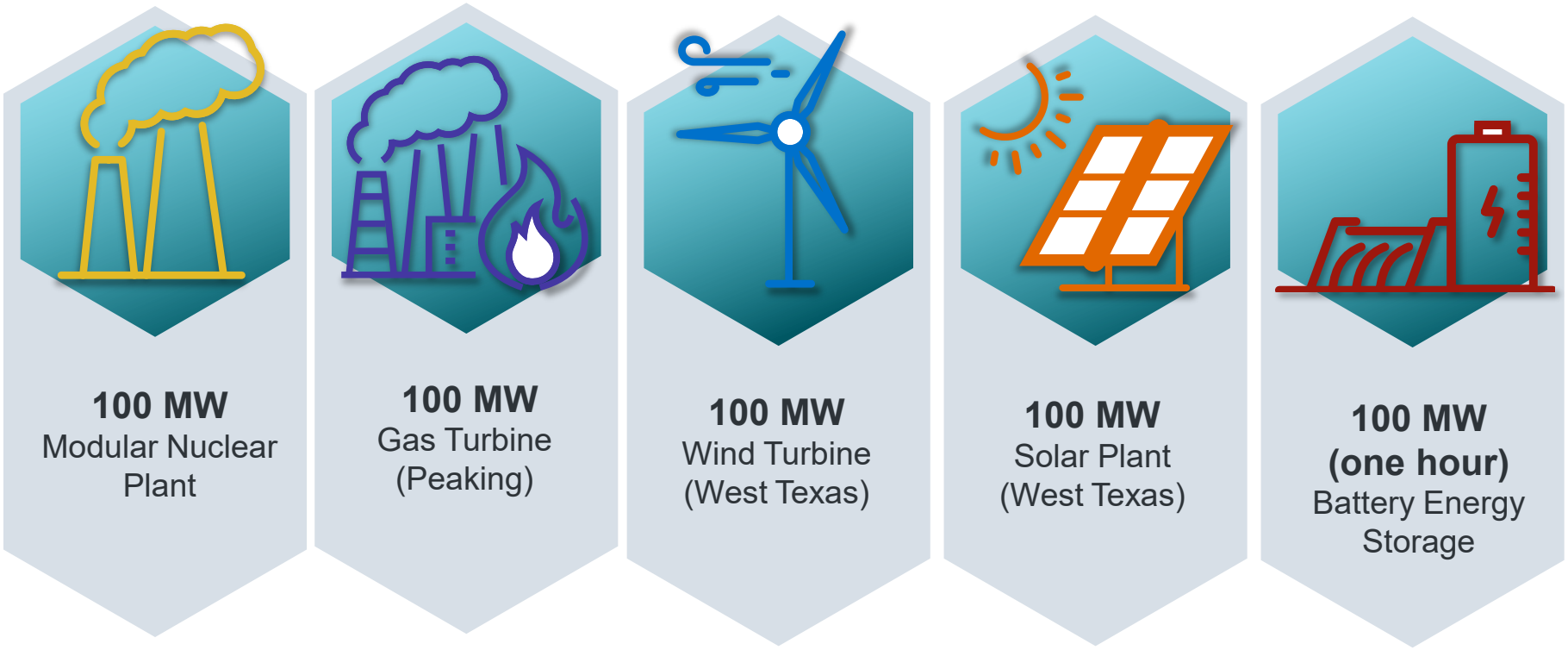
9,188 Homes

37% capacity availability during summer peak demand hours

1 MW serves about 250 homes during summer peak demand

Generation Type Comparison - Winter

It is important to note that winter has greater variability.



100 MW
Modular Nuclear Plant

24,455 Homes

98% capacity availability during winter peak demand hours

100 MW
Gas Turbine (Peaking)

22,000 Homes

88% capacity availability during winter peak demand hours

100 MW
Wind Turbine (West Texas)

7,000 Homes

28% capacity availability during winter peak demand hours

100 MW
Solar Plant (West Texas)

4,250 Homes

17% capacity availability during winter peak demand hours

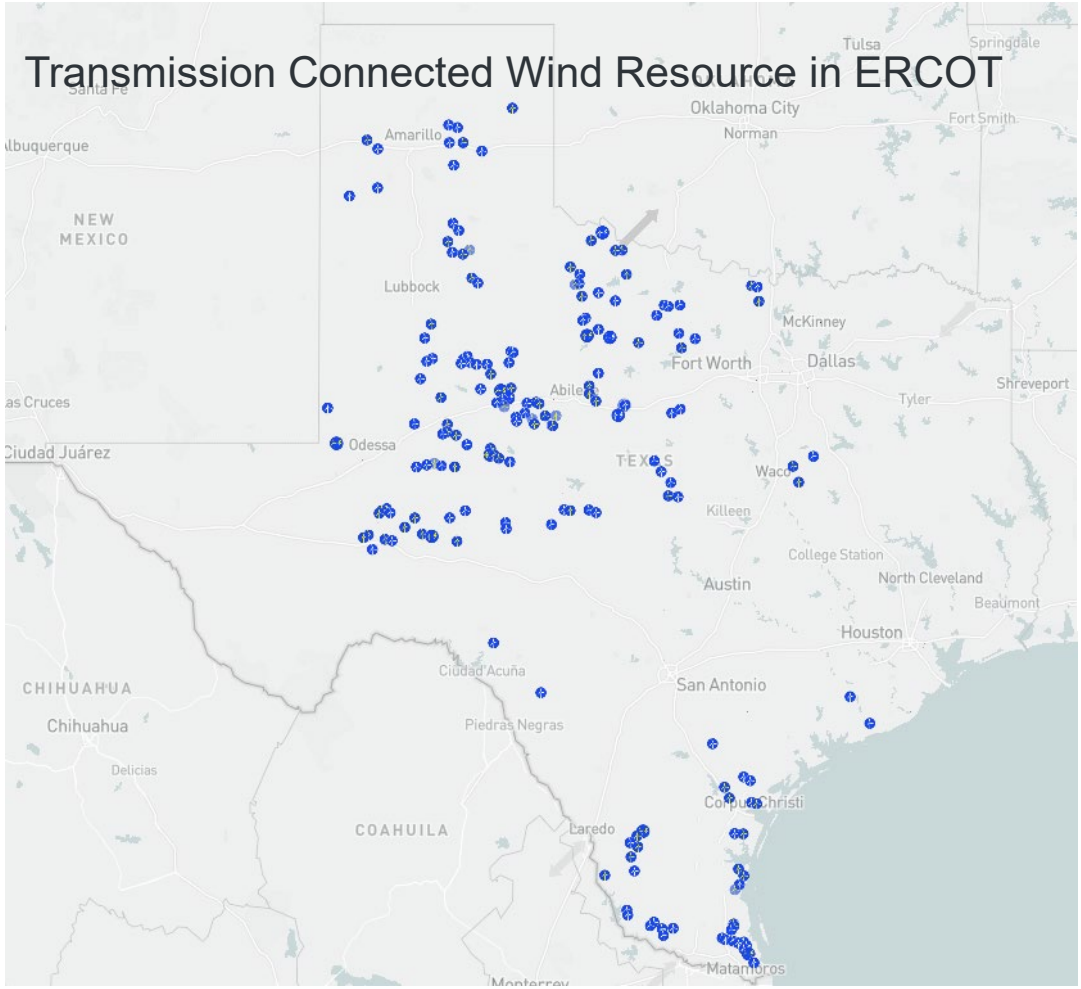
100 MW (one hour)
Battery Energy Storage

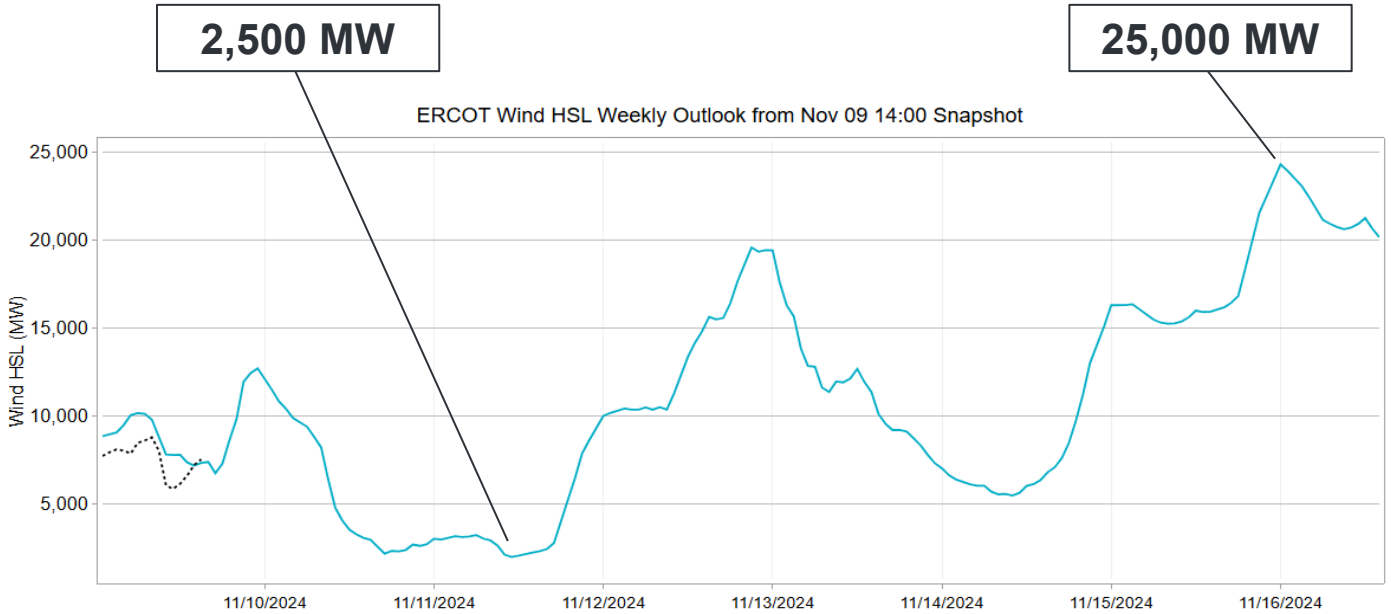
7,500 Homes

30% capacity availability during winter peak demand hours

1 MW serves about 250 homes during summer peak demand

Variability of Wind Resources (~40,000 MW capacity)

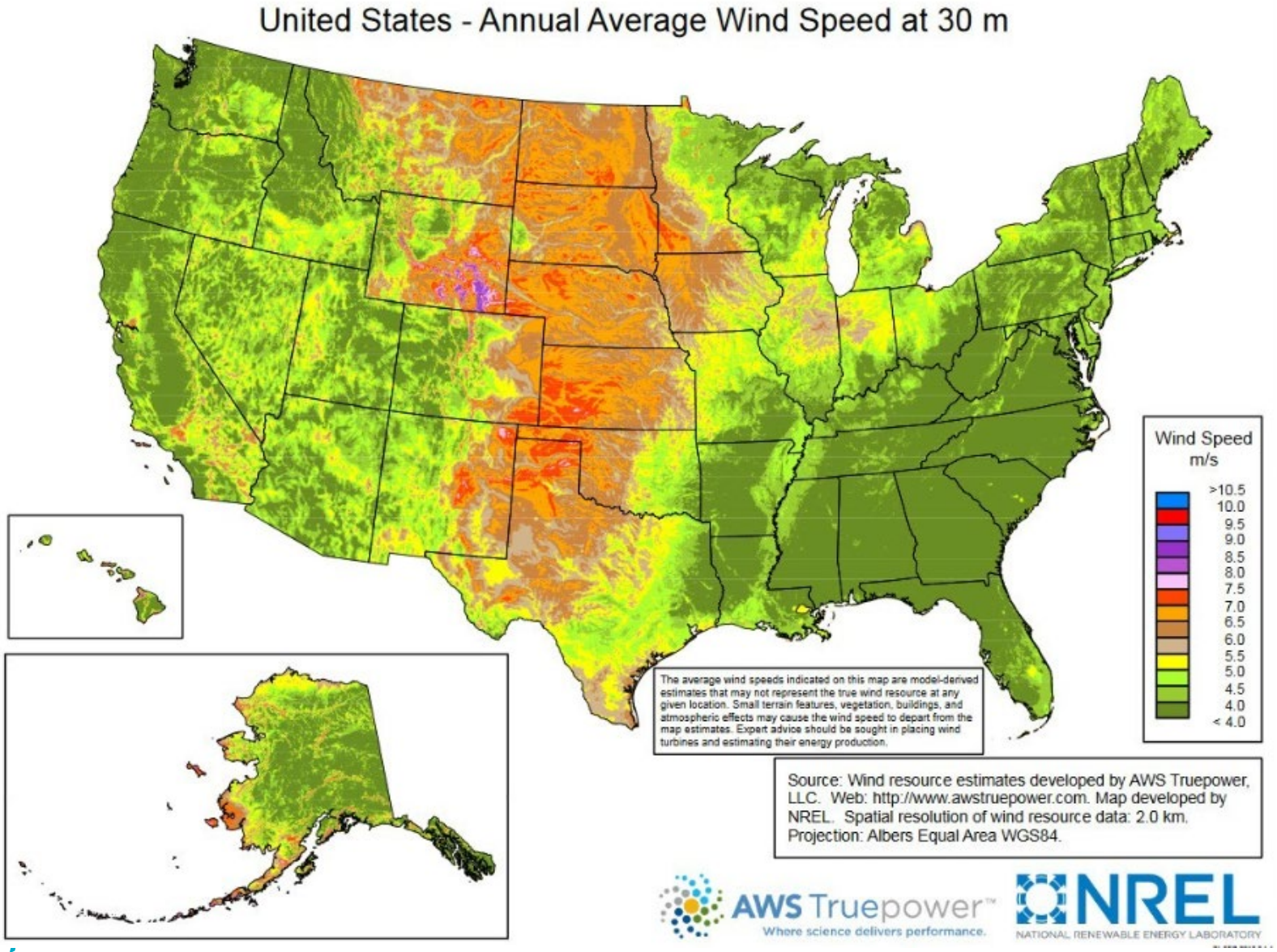




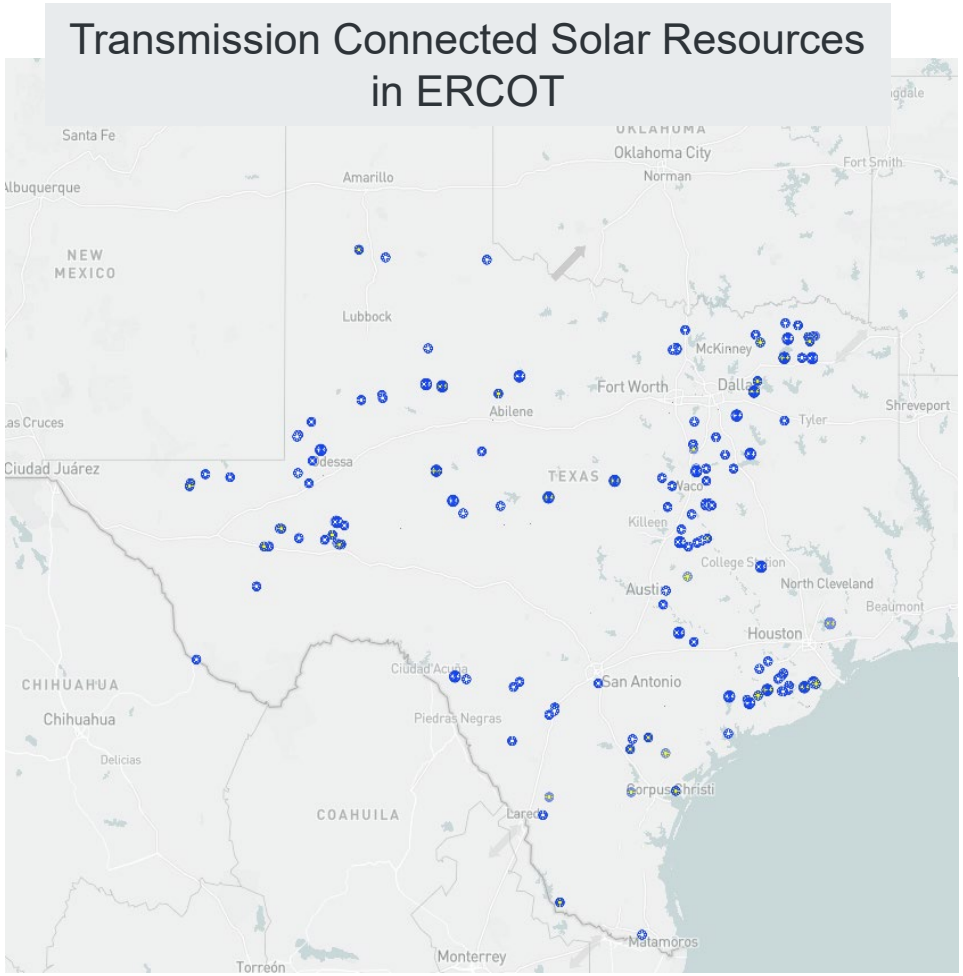
The week of November 9, 2025, resulted in almost 20,000 MW of variability.

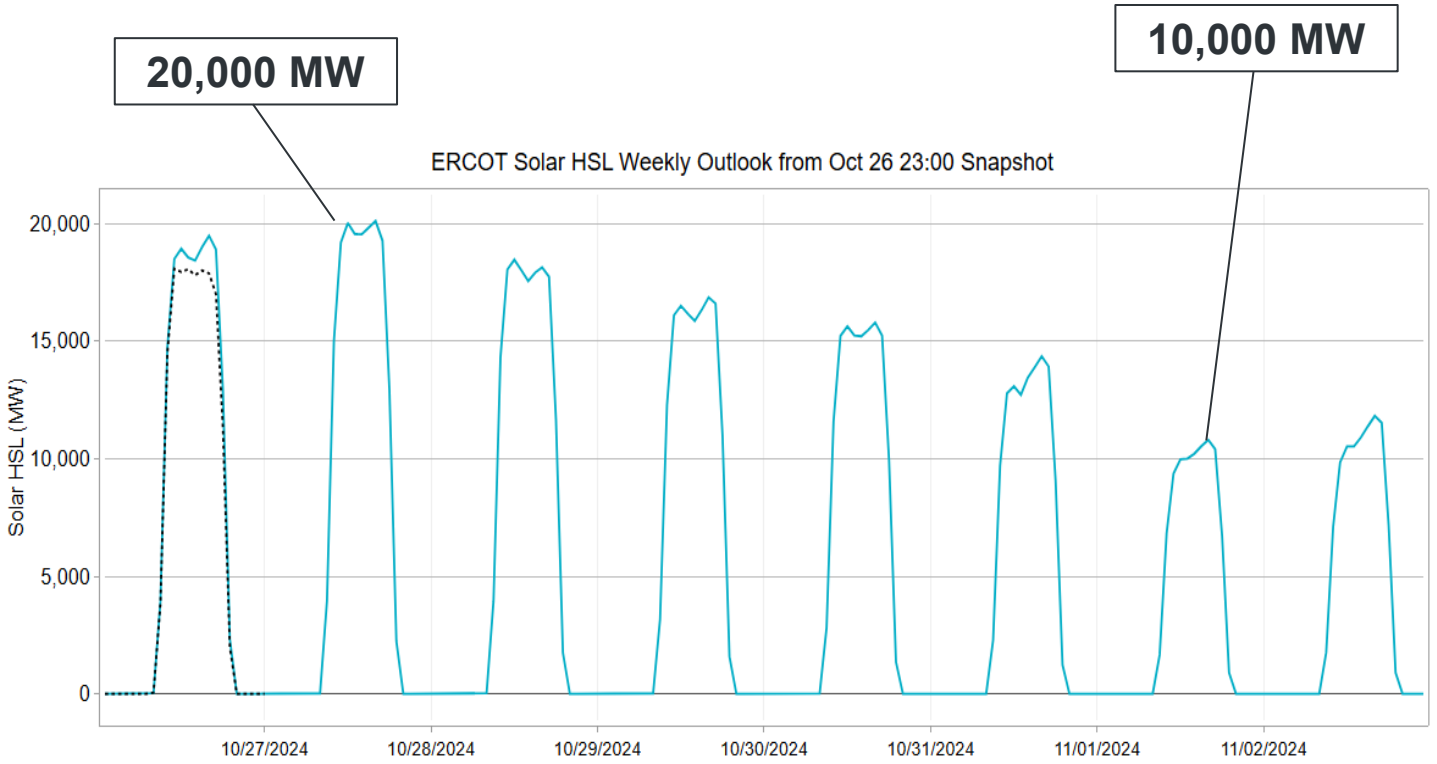
Key Takeaway: Wind generated power is very dependent on time of day and is also subject to weather fronts moving through the state.

NREL Map of Annual Average Wind Speed



Variability of Solar Resources (~25,000 MW capacity)

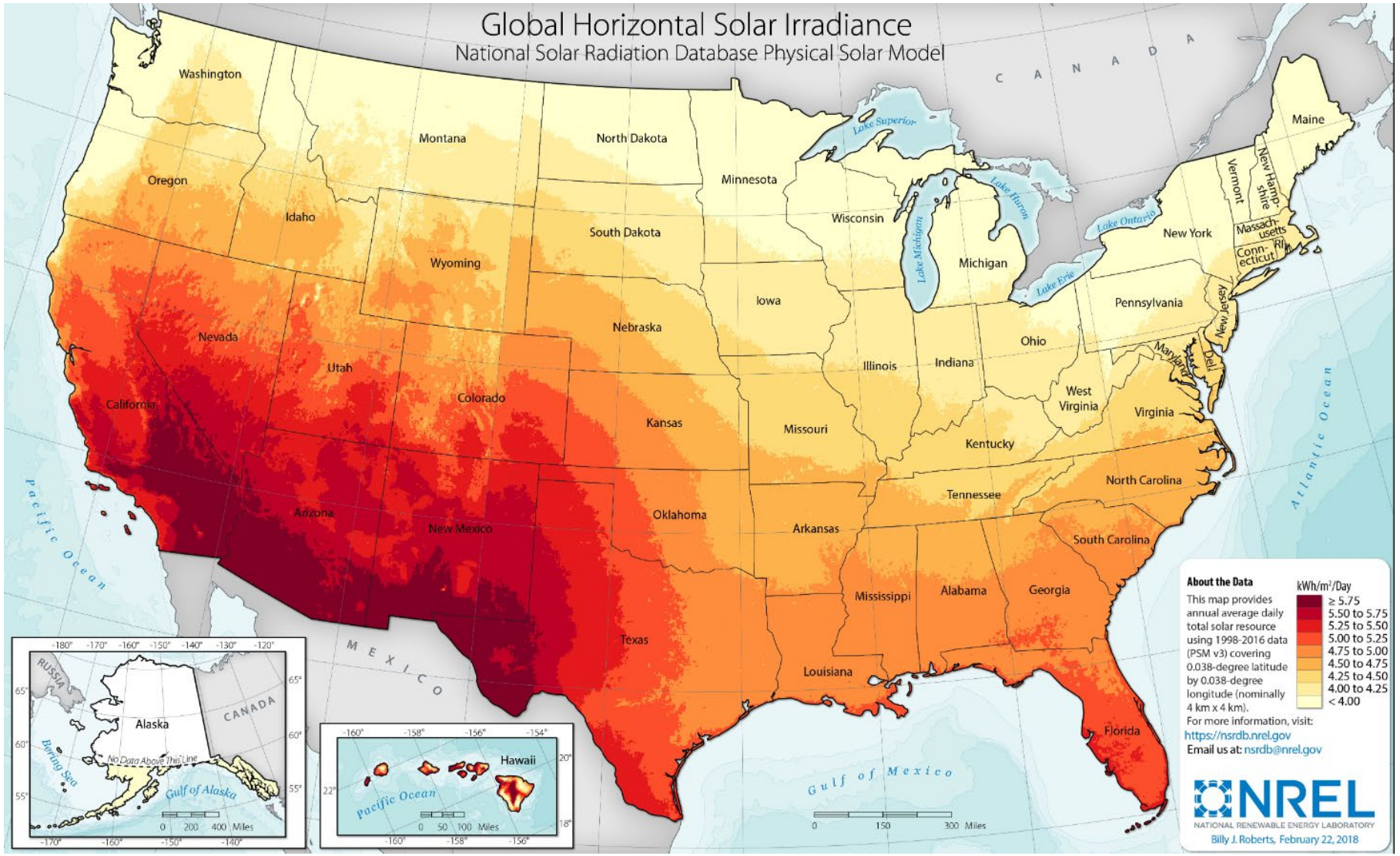




The week of October 26, 2024, had almost 10,000MW of variability.

Key Takeaway: Solar Power is very dependent on cloud cover and also varies by time of year. Solar day is much shorter in the winter months.

National Renewable Energy Laboratory (NREL) Map of Solar Irradiance



Ancillary Land Use Considerations

Lithium Mine in Nevada

Oil Field in West Texas

Nuclear Waste Storage

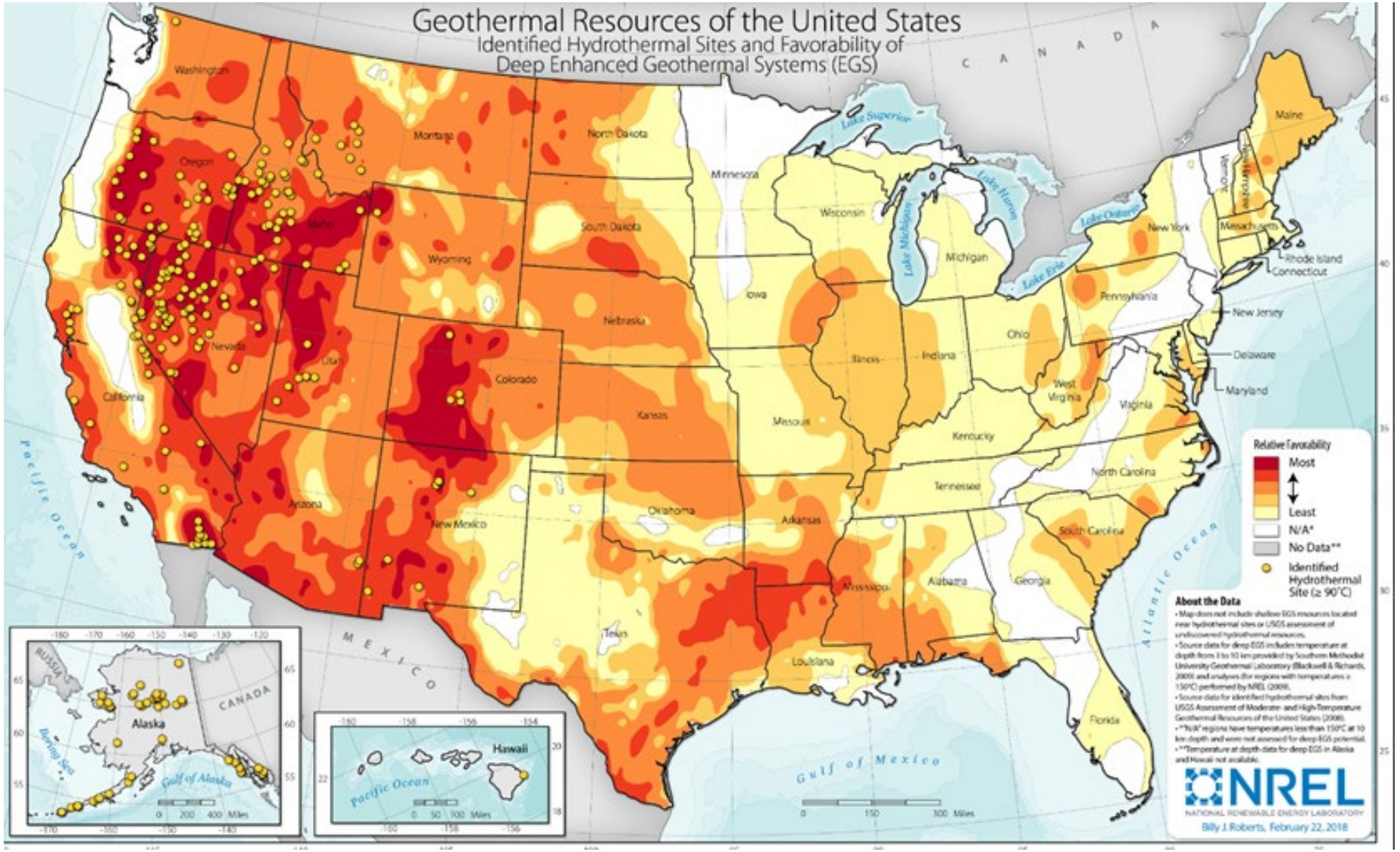
Coal Mine in Wyoming

Silica Mine for Solar Panel Material

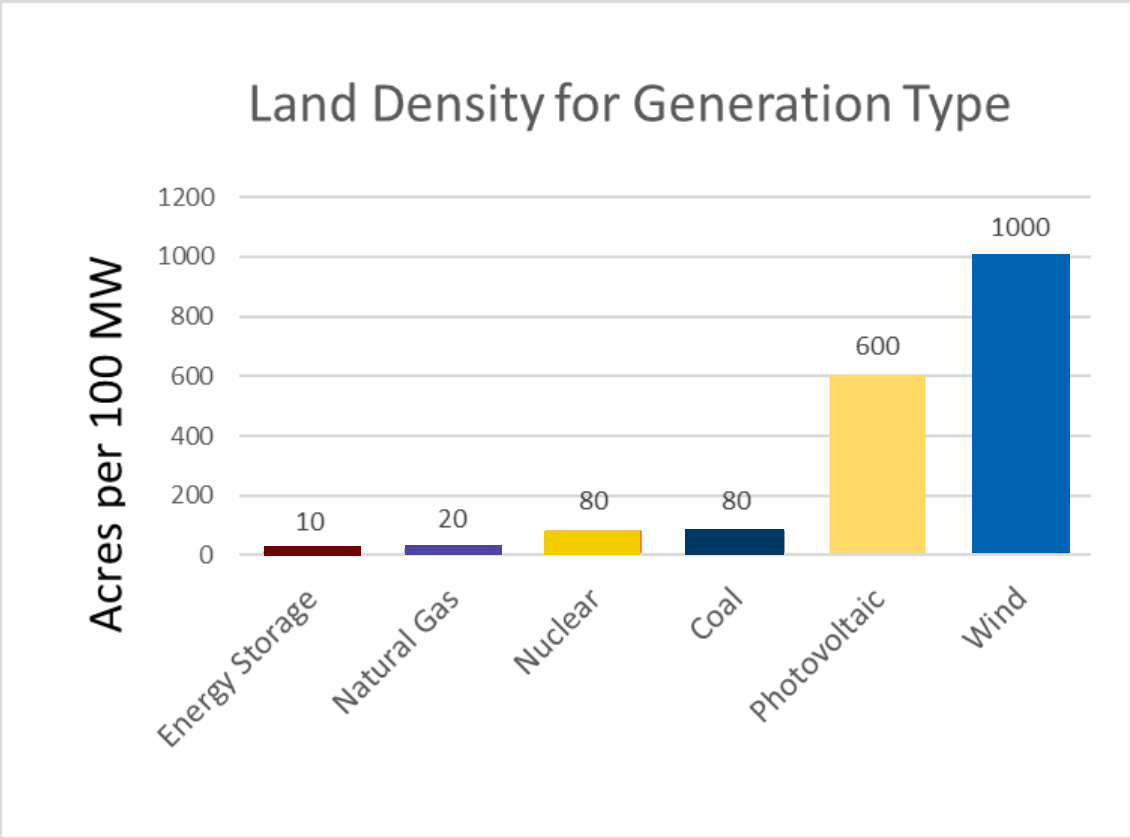
Uranium Mine

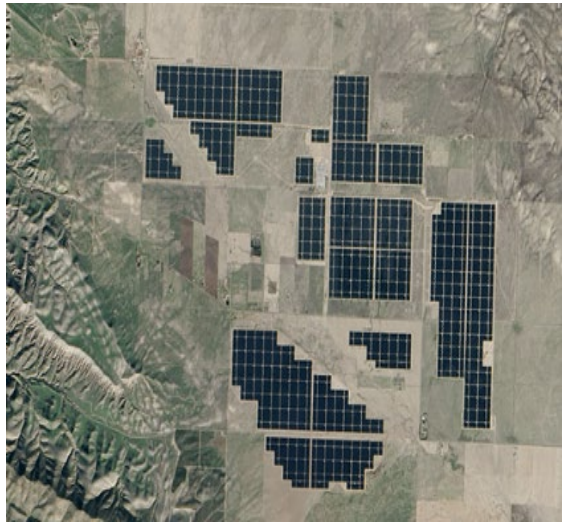
Disposing of Wind Turbine Blades

NREL Geothermal Map



Land Density for New Generation





550 MW Solar Plant on 9.5 square miles

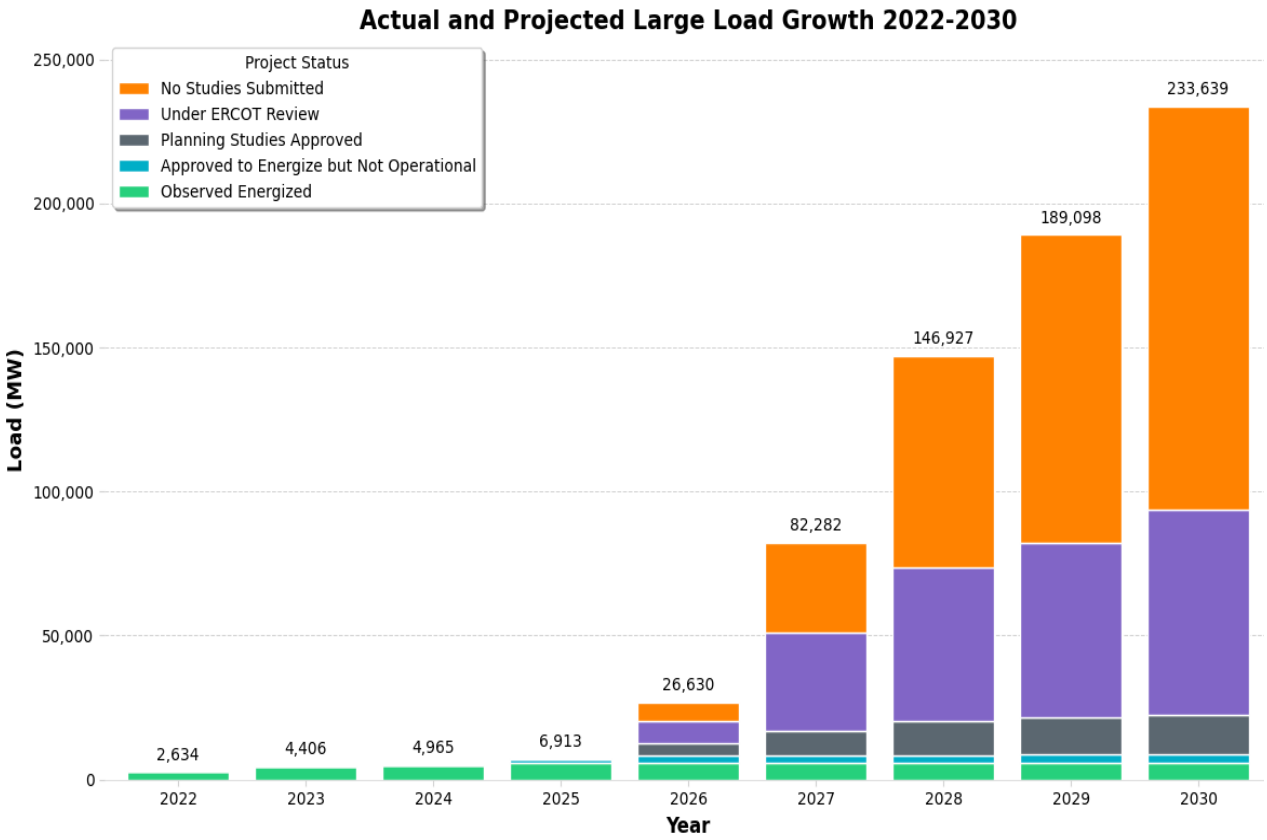
800 MW Gas Plant on 30 Acres

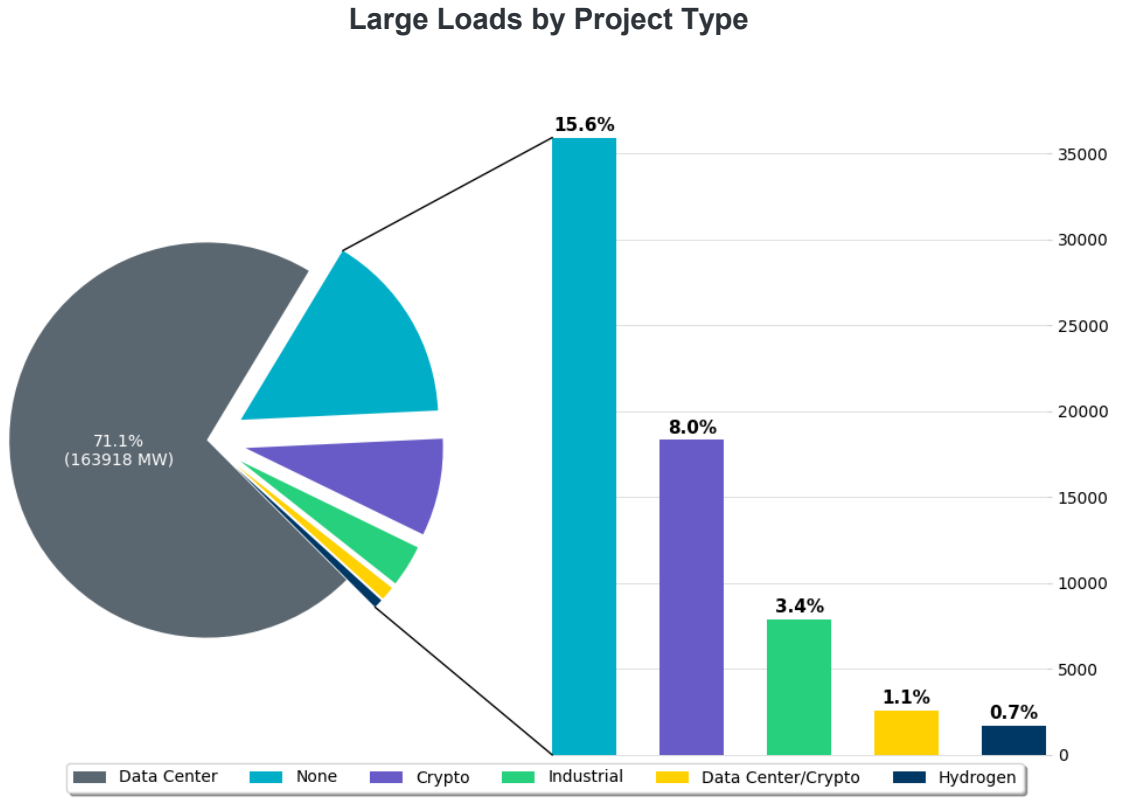
Texas Wind Plant

Key Takeaway: Generation types require different amounts of land to produce the same amount of power.

Data Centers and New Large Loads

New Ways of Looking at Load – Large Load Interconnection Queue





Key Takeaway: ERCOT is tracking approximately **231 GW** of Large Loads seeking interconnection (compared to 63 GW in November 2024), of which **~71%** are data centers. ERCOT is an active participant in the PUCT process to implement Senate Bill 6 legislation.

Power Consumption Comparison

Average Demand

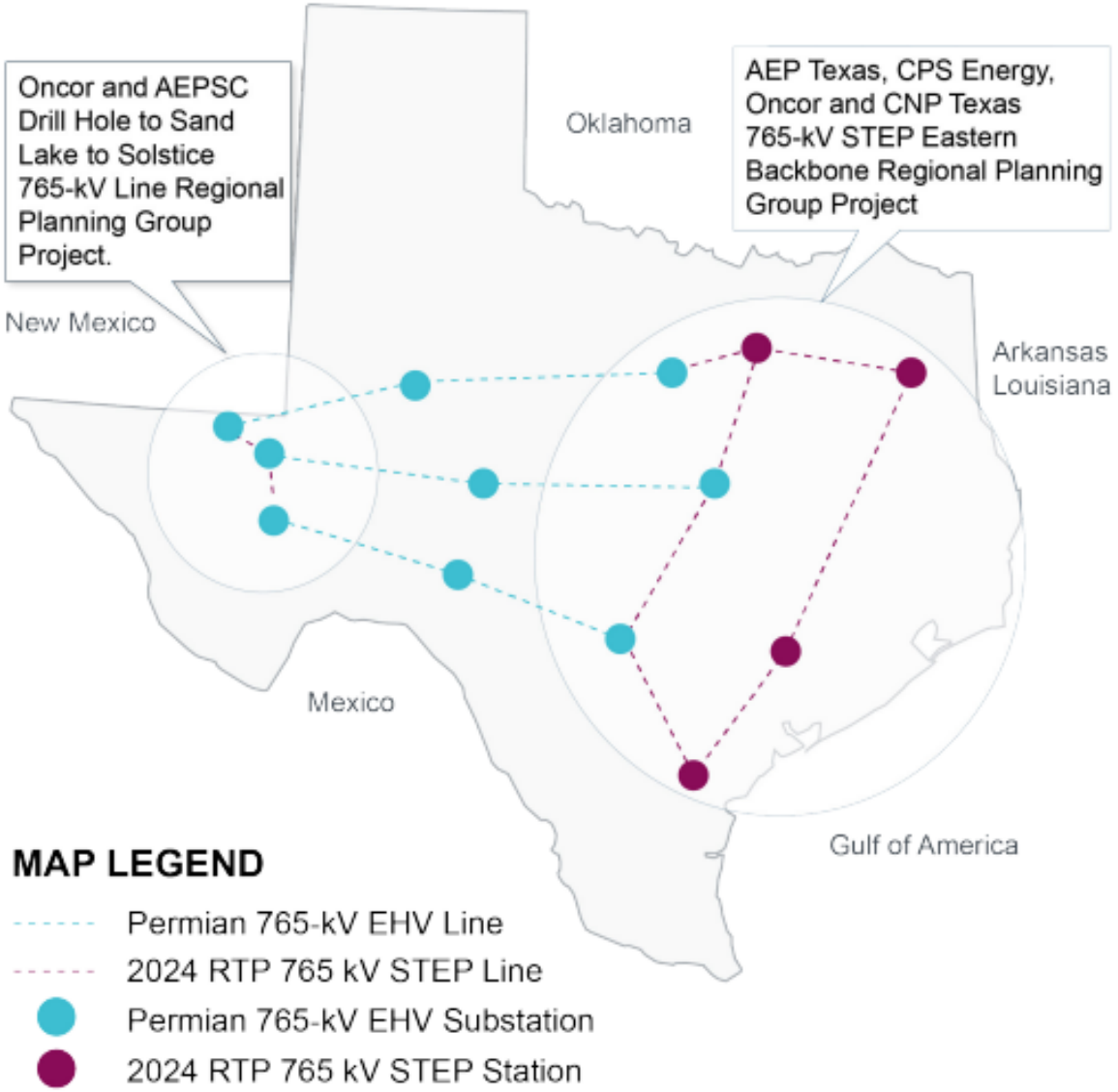
1,000 MW	500 MW	100 MW	50 MW	10 MW	5 MW
Arlington	Corpus Cristi	Georgetown	Buda	Wimberly	Salado
					
Equivalent Power Use	Equivalent Power Use	Equivalent Power Use	Equivalent Power Use	Equivalent Power Use	Equivalent Power Use
Large Data Center	Large Steel Mill	Large Chemical Plant	Chip Fabrication Plant	Large Medical Facility	Large Office Building

Key Takeaway: Data Centers require as much power as a small city

Land Use for Transmission

Texas 765-kV Strategic Transmission Expansion Plan (STEP)

- **With the increase in large loads projected to move to Texas, ERCOT endorsed a 765-kV backbone to facilitate transferring power across the state.**
  - Public Utility Commission of Texas (PUCT) has approved the western portion of this plan (teal lines)
  - Remaining portions are currently under further study and review (maroon lines)



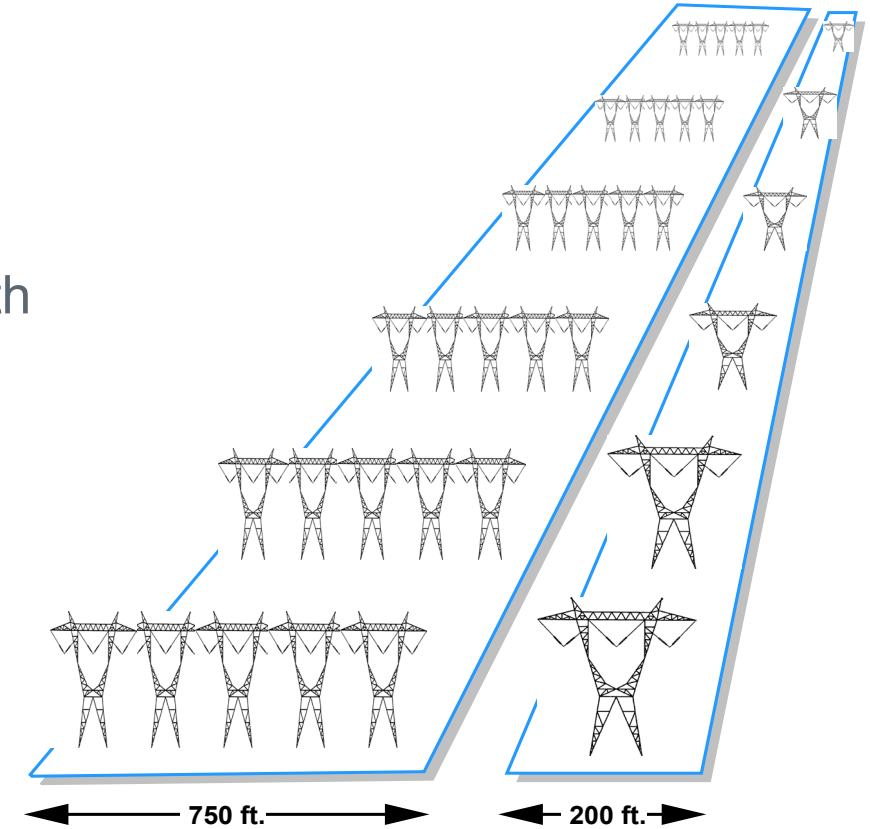
Geographic locations for endorsed new lines are meant to demonstrate general electrical point-to-point connections. Specific routing of any new transmission infrastructure is determined by the PUCT as part of the Certificate of Convenience (CCN) process with Transmission Service Providers.

New Era of Planning – EHV Considerations

While 765-kV may be new to the ERCOT region, the technology has been used since the late 1960s. It is currently in place in North America, South Africa, Asia and Europe.

Benefits of higher voltage transmission include:

- Increased transfer capability to load centers
- Flexibility on Generation Resource siting
- Reduced impact to Texas consumers due to fewer Right-of-Way requirements
- Lower line losses
- Outage coordination capacity
- Possible retirement of series compensation devices
- Potential exit strategy for some current Generic Transmission Constraints



Right of Way Comparison: For long distance transmission (longer than 100 miles), one 765-kV line on a 200-foot-wide right-of-way can carry the same amount of energy as 345-kV lines on five 150-foot-wide rights-of-way, having a combined width of 750 feet.

Key Takeaway: Forecasted load growth coupled with the evolution of generation types and locations have led to EHV infrastructure consideration to reliably and efficiently facilitate large power transfer across the system.