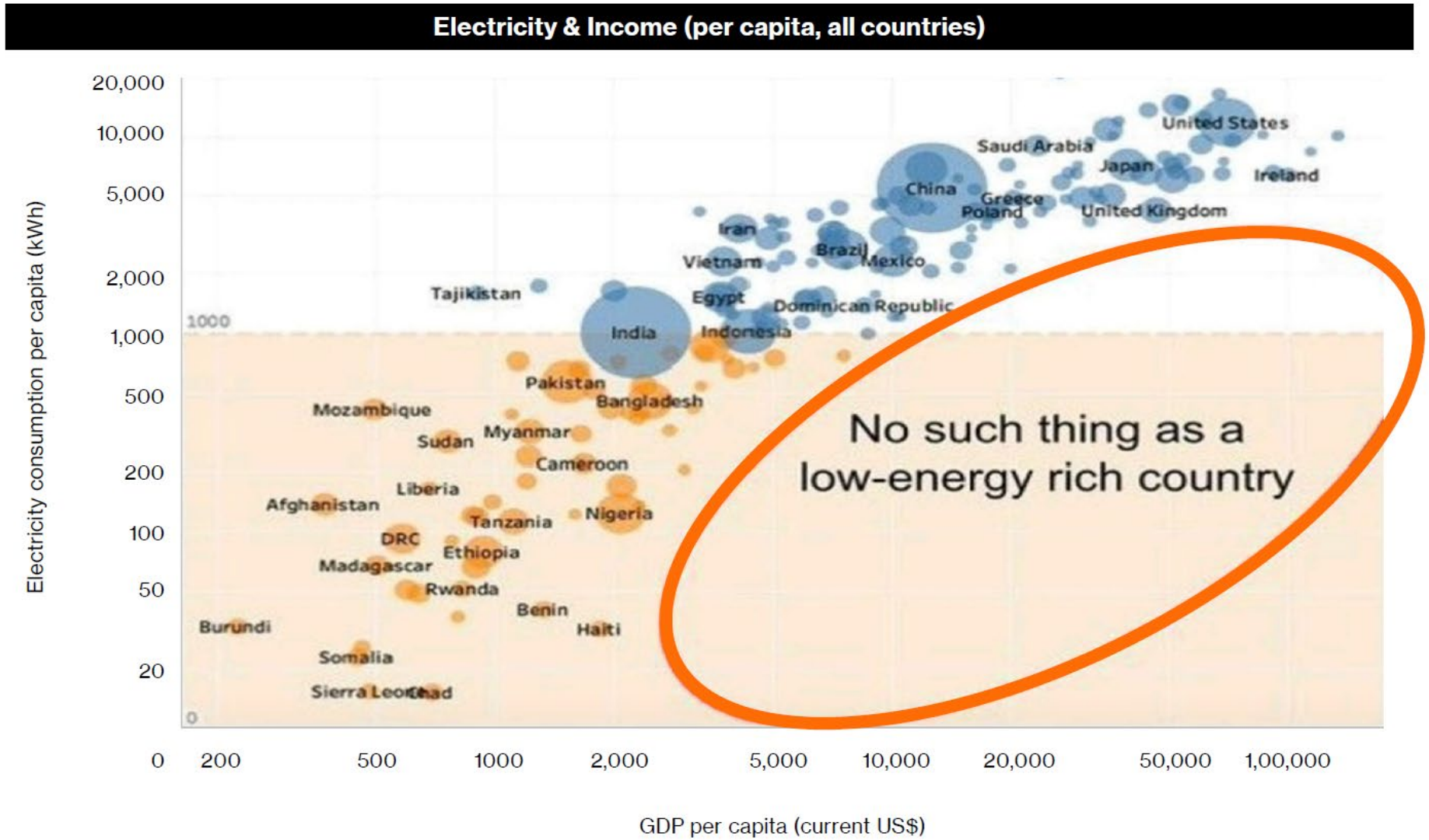
SECRETARY OF ENERGY & ENVIRONMENT

Office of the Secretary of Energy and Environment

September 3, 2025

GDP per Capita Is Directly Correlated To Electricity Consumption

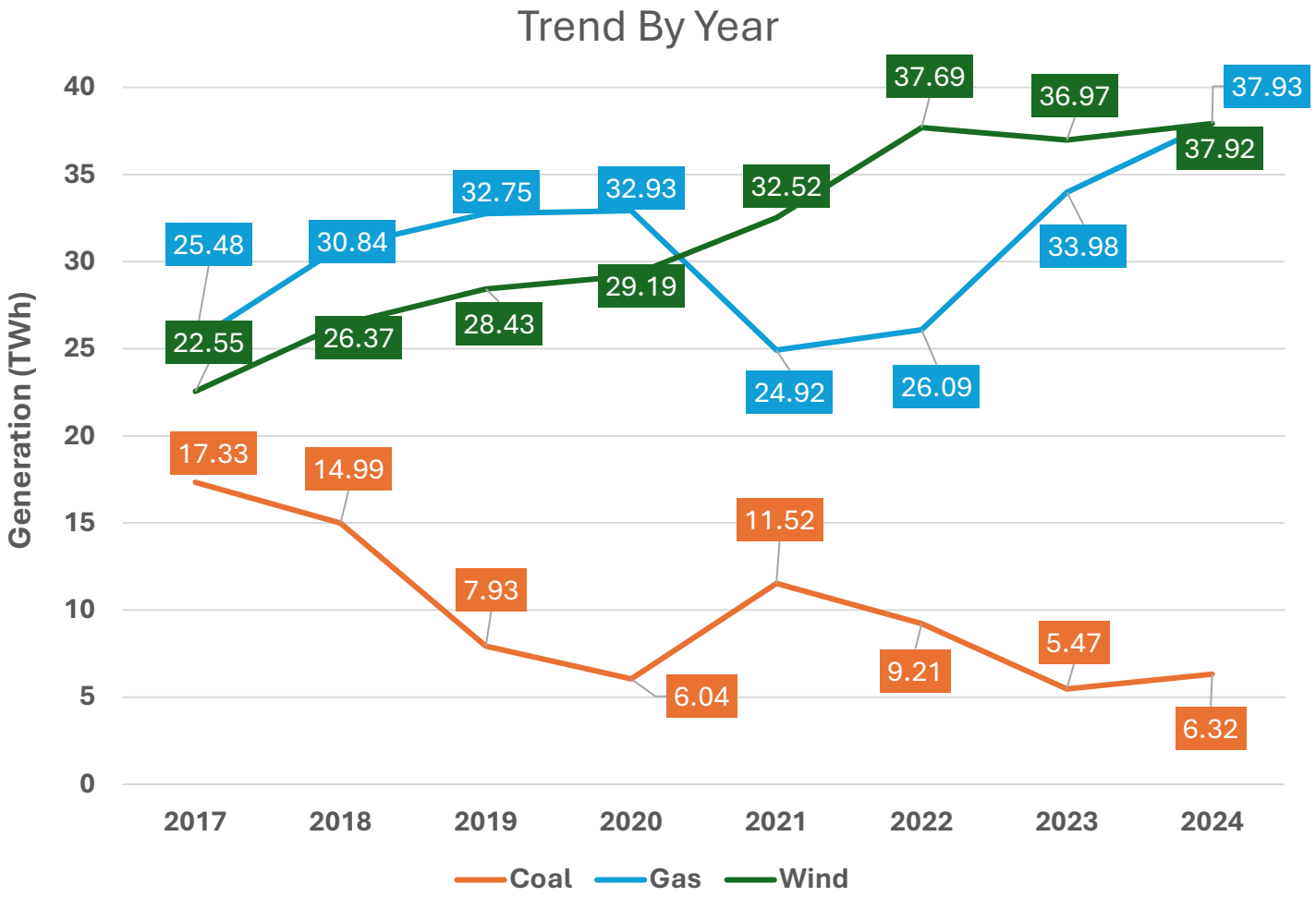


Pickering Energy Partners

Source: IEA, World Bank
https://ourworldindata.org/grapher/energy-use-per-capita-vs-gdp-per-capita

Oklahoma's EVOLVING ENERGY MIX

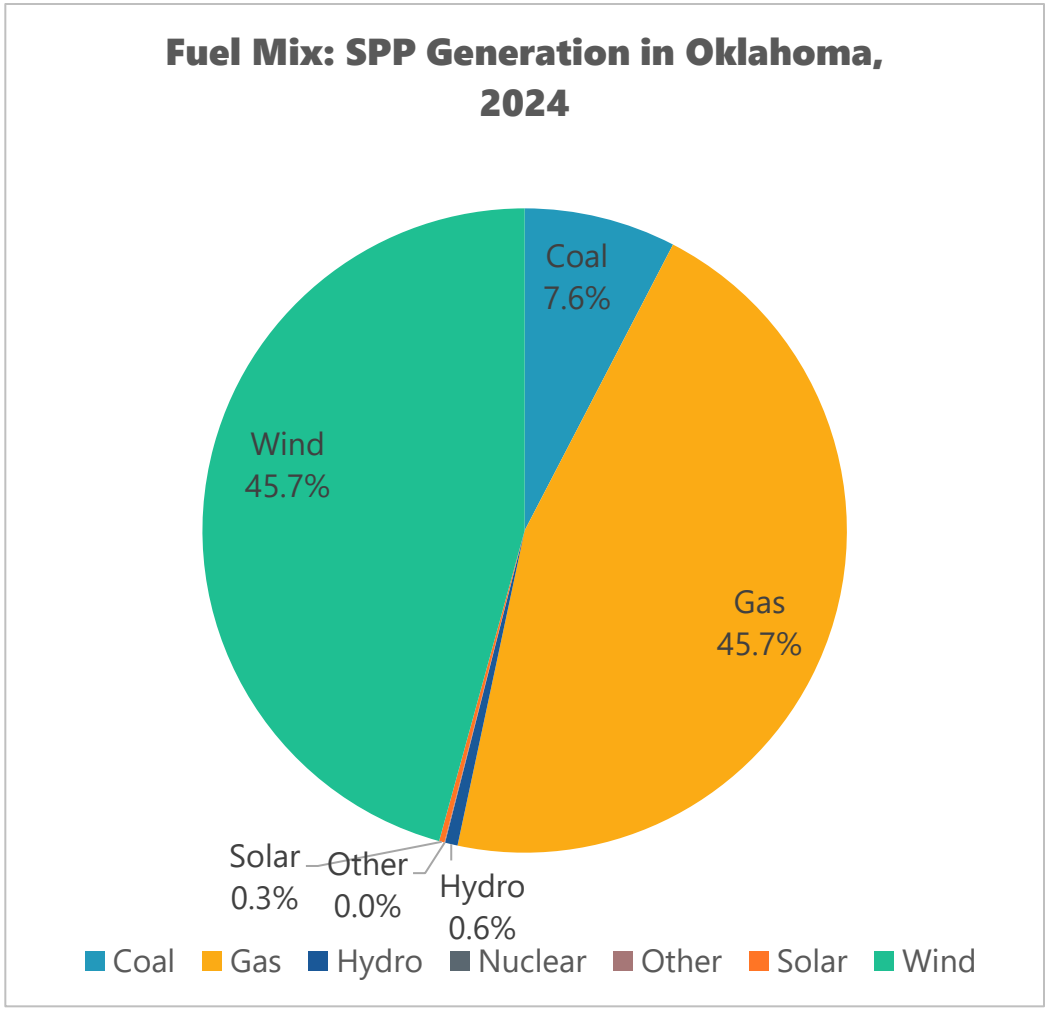
Yearly energy Production by fuel type (TWh)

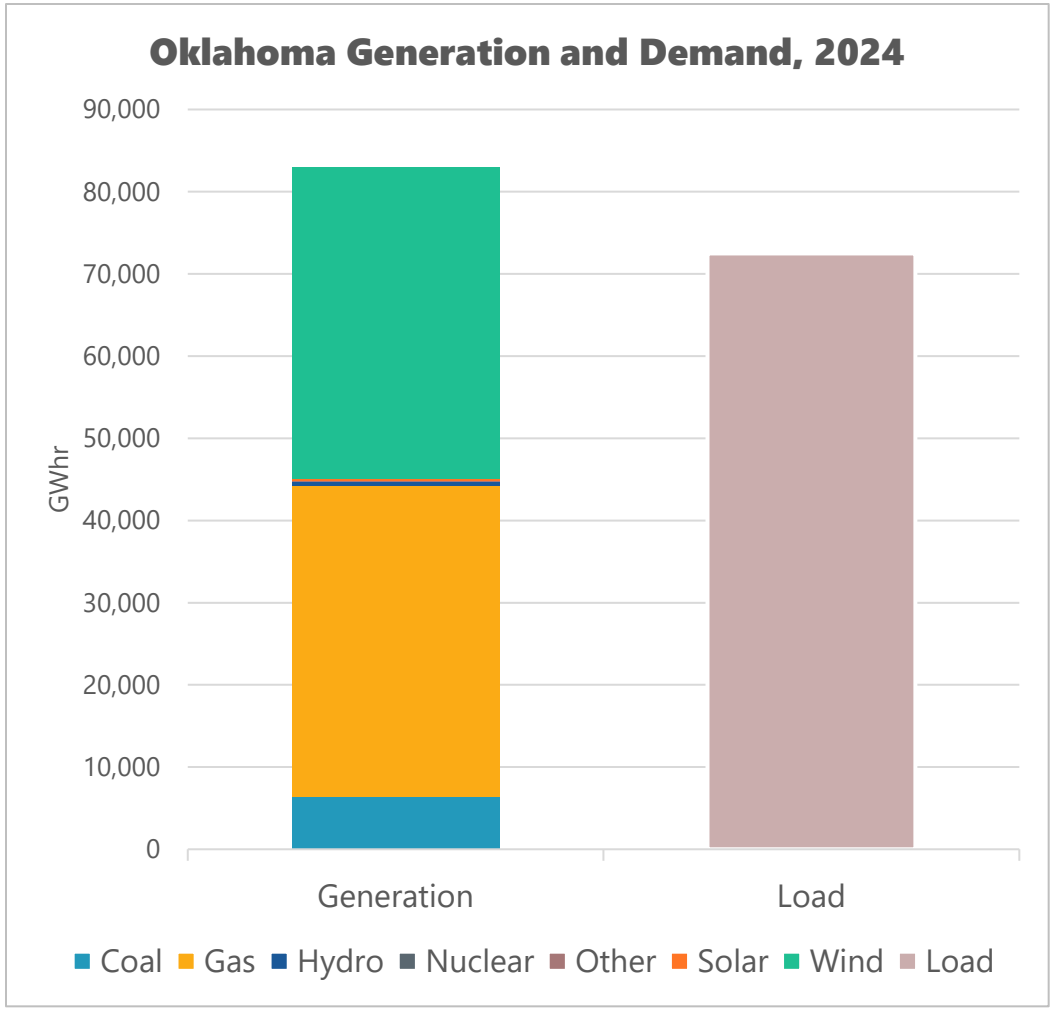


OK CHANGE IN ENERGY PRODUCTION SINCE 2017

Gas: ↗ 49% increase

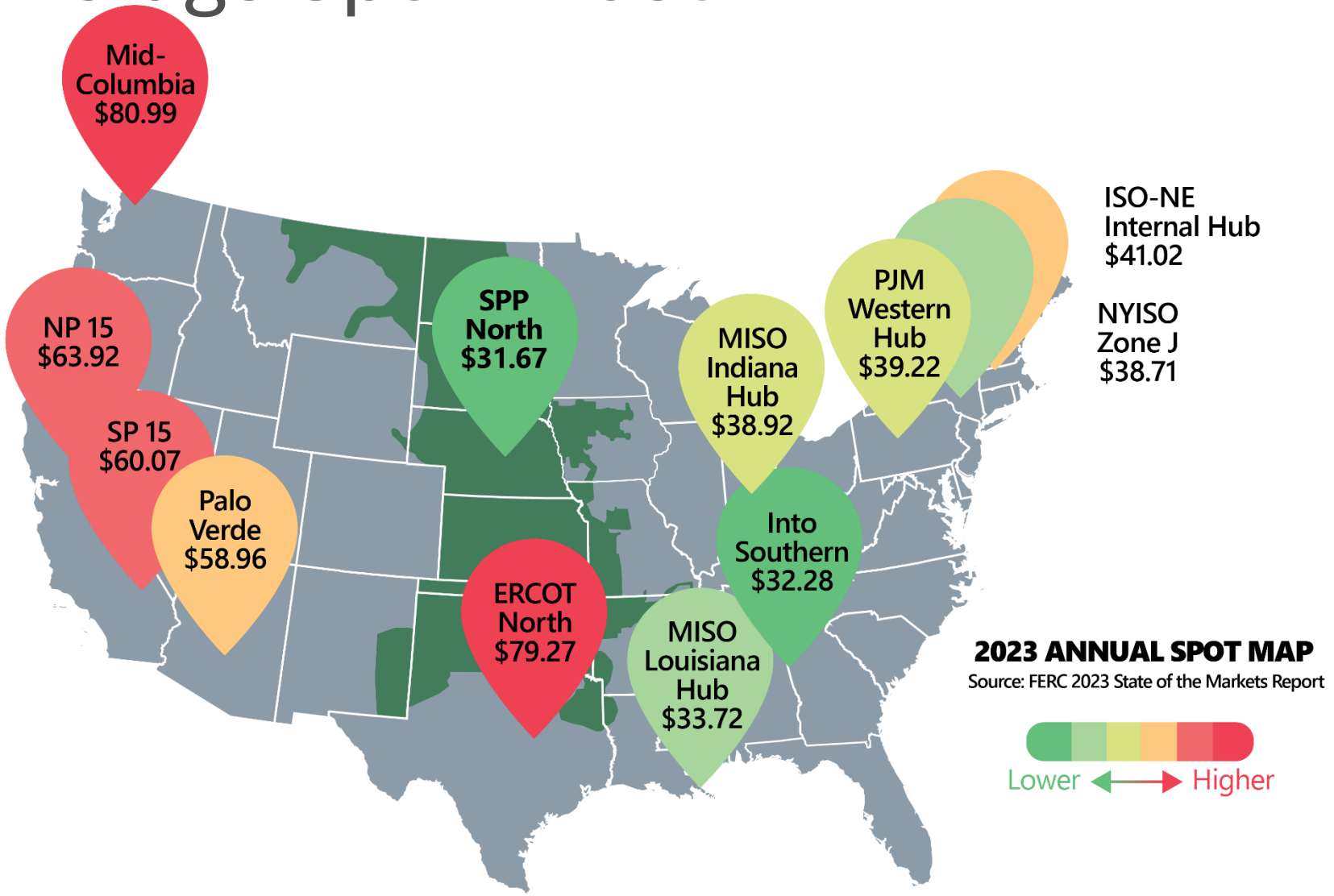
2024 Oklahoma Generation and Load



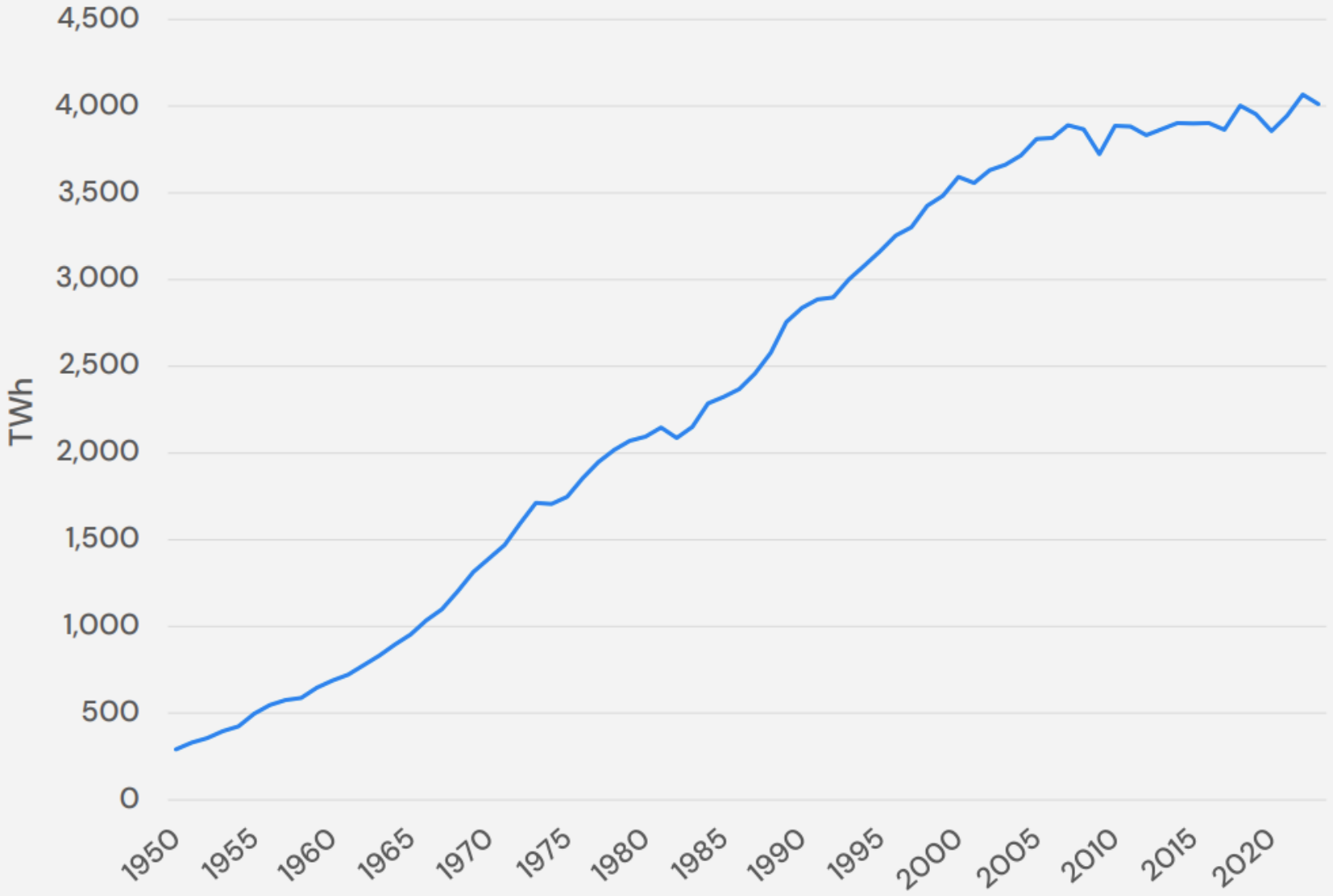


2023 Annual Average Spot Prices

In 2023, SPP's average wholesale market prices remained the lowest of any organized market in the U.S.



Historic US electricity use



U.S. Electricity Use Growth by Decade

1950 – 1960: 136%

1960 – 1970: 102%

1970 – 1980: 50%

1980 – 1990: 35%

1990 – 2000: 27%

2000 – 2010: 8%

2010 – 2022*: 3%

Source: EIA MER Table 7.6
*Used 2022 instead of 2020 to account for COVID-19.

Examples of "Large" data centers over time

2008 – *12 MW*

- Driven by colocation and multi-tenant designs
- Less predictable ramp schedules
- Less likely to to have high load factor

2015 – *100MW*

- Driven cloud computing and single-tenant designs
- More predictable ramp schedules
- More likely to to have high load factor

2024 – *1GW*

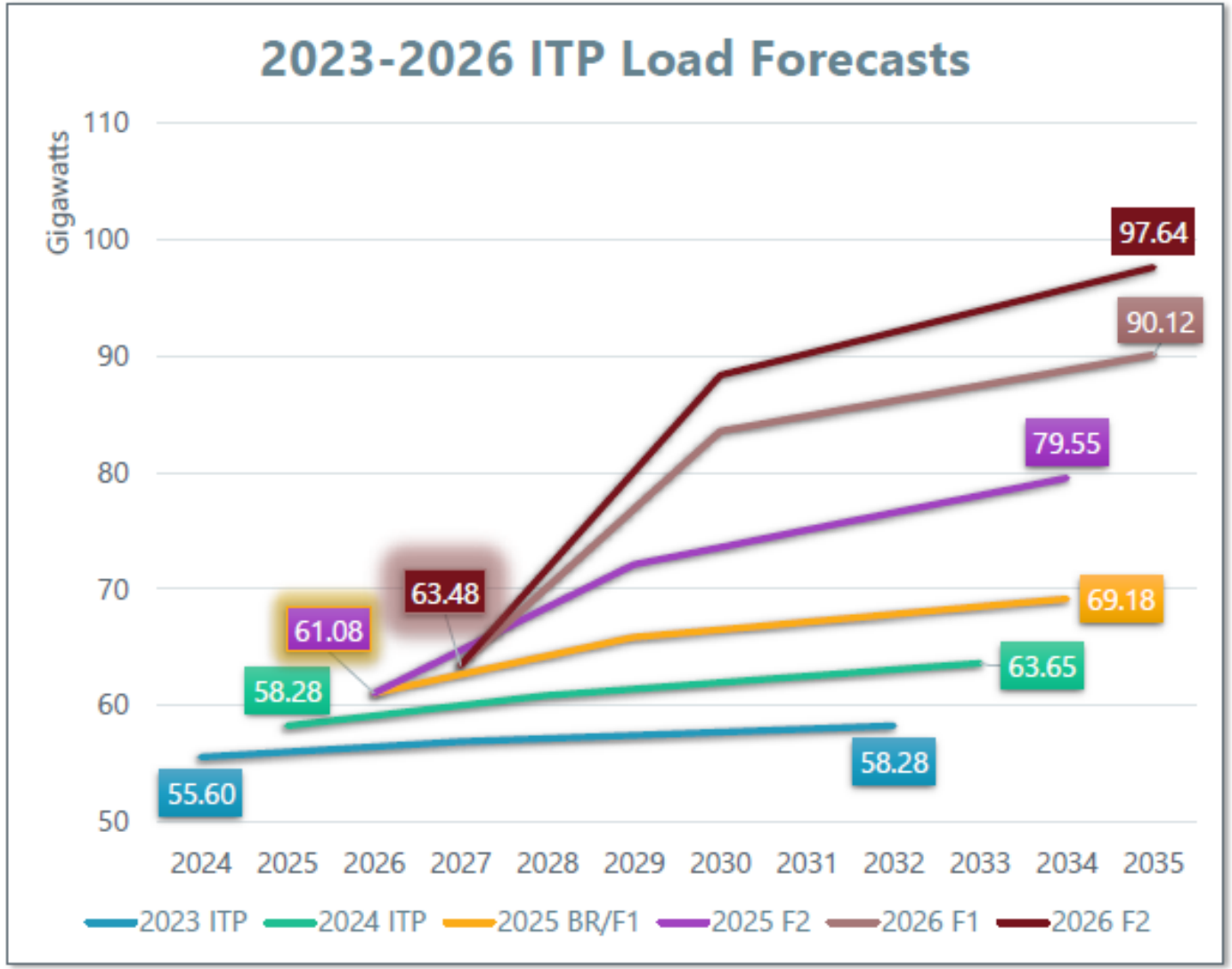
- Driven by AI / GenAI / AGI
- Aggressive ramp schedules
- Unknown load factor

DEMAND GROWTH AHEAD

2025 and 2026 Planning models includes large load growth in both futures at varying levels

SPP (and the industry) continue to see large load projections grow

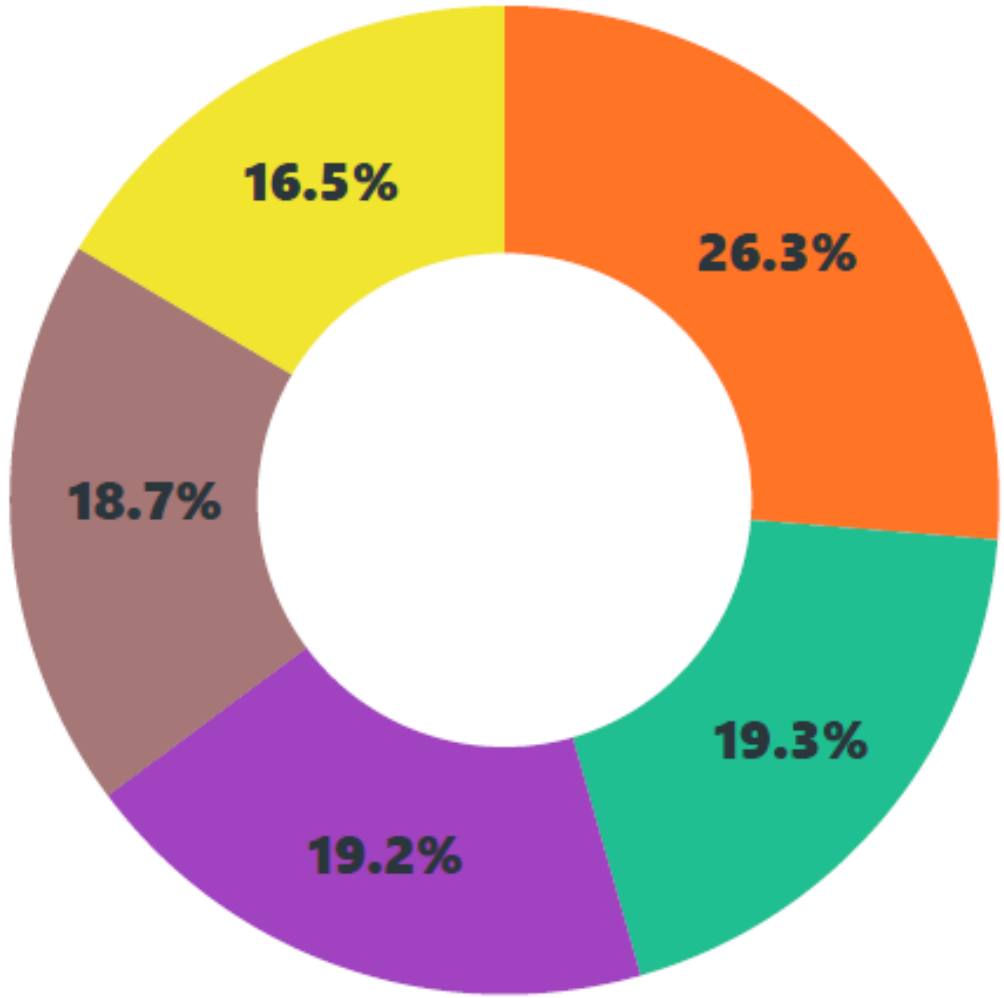
Proactive transmission investment will ensure SPP is ready to serve this load growth



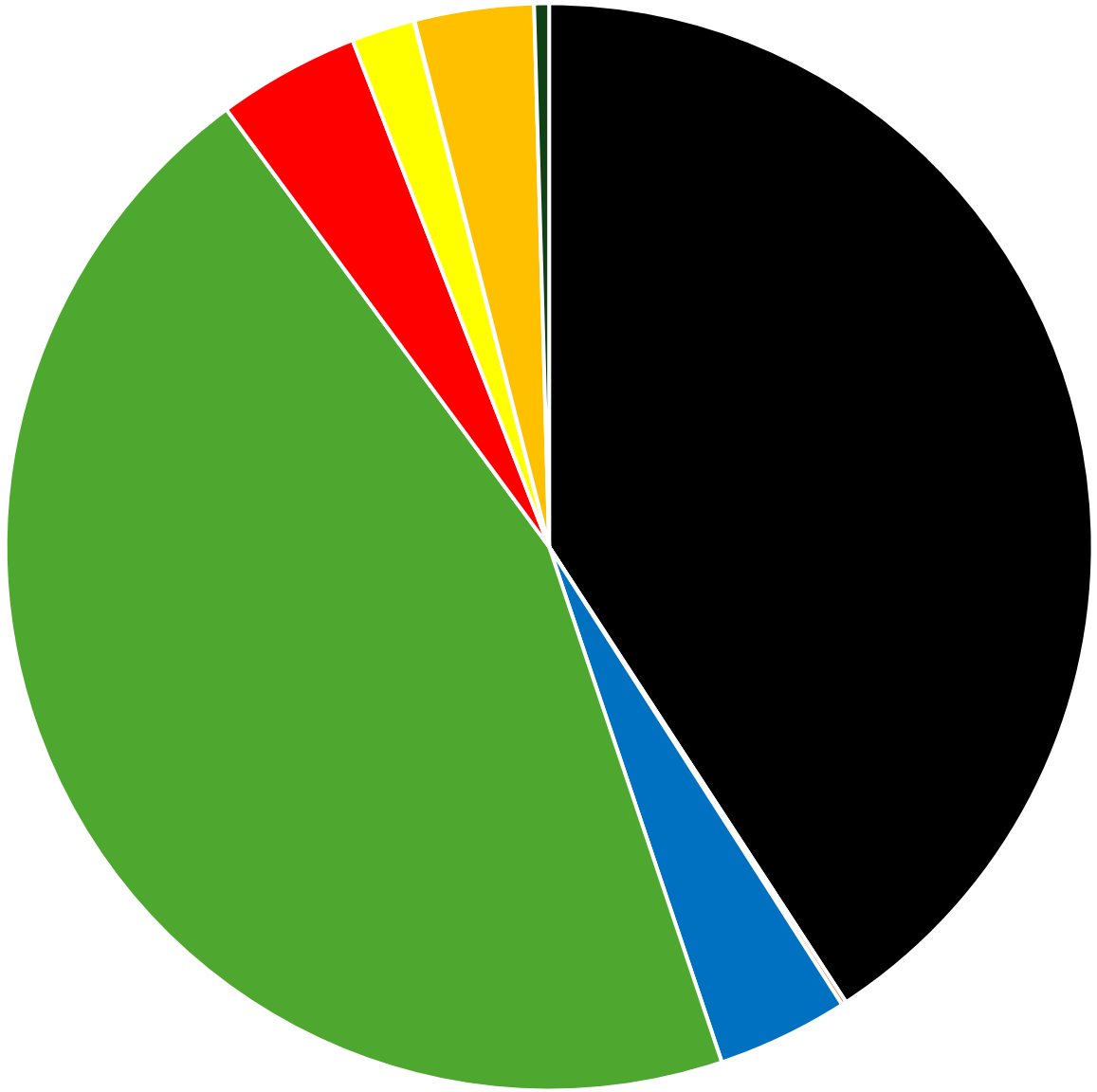
161.1 GW
GENERATOR INTERCONNECTION REQUESTS UNDER STUDY

AS OF JULY 2025

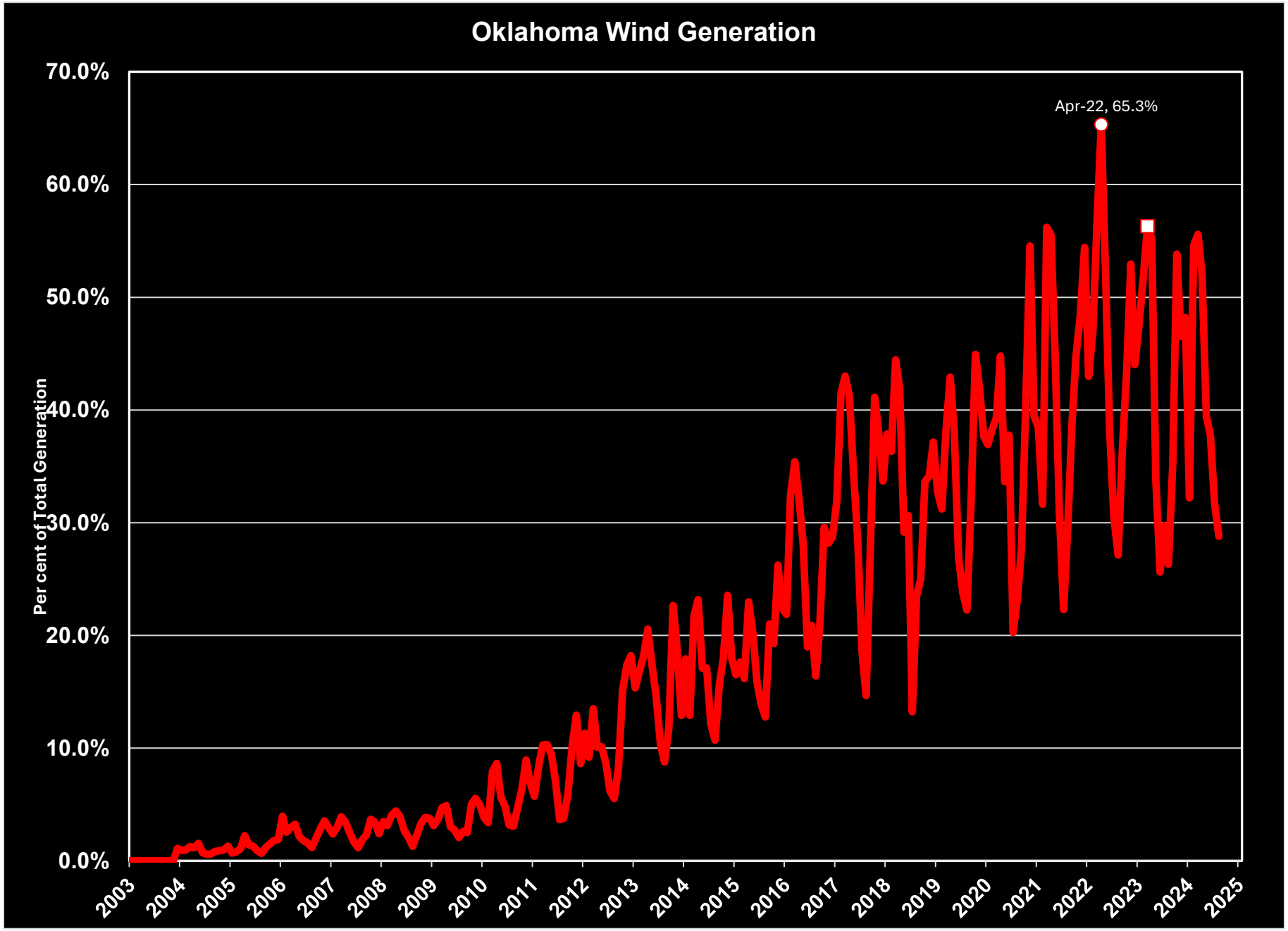
- Solar (42,347 MW)
- Wind (31,077 MW)
- Battery/Storage (31,002 MW)
- Thermal (30,129 MW)
- Hybrid (26,564 MW)



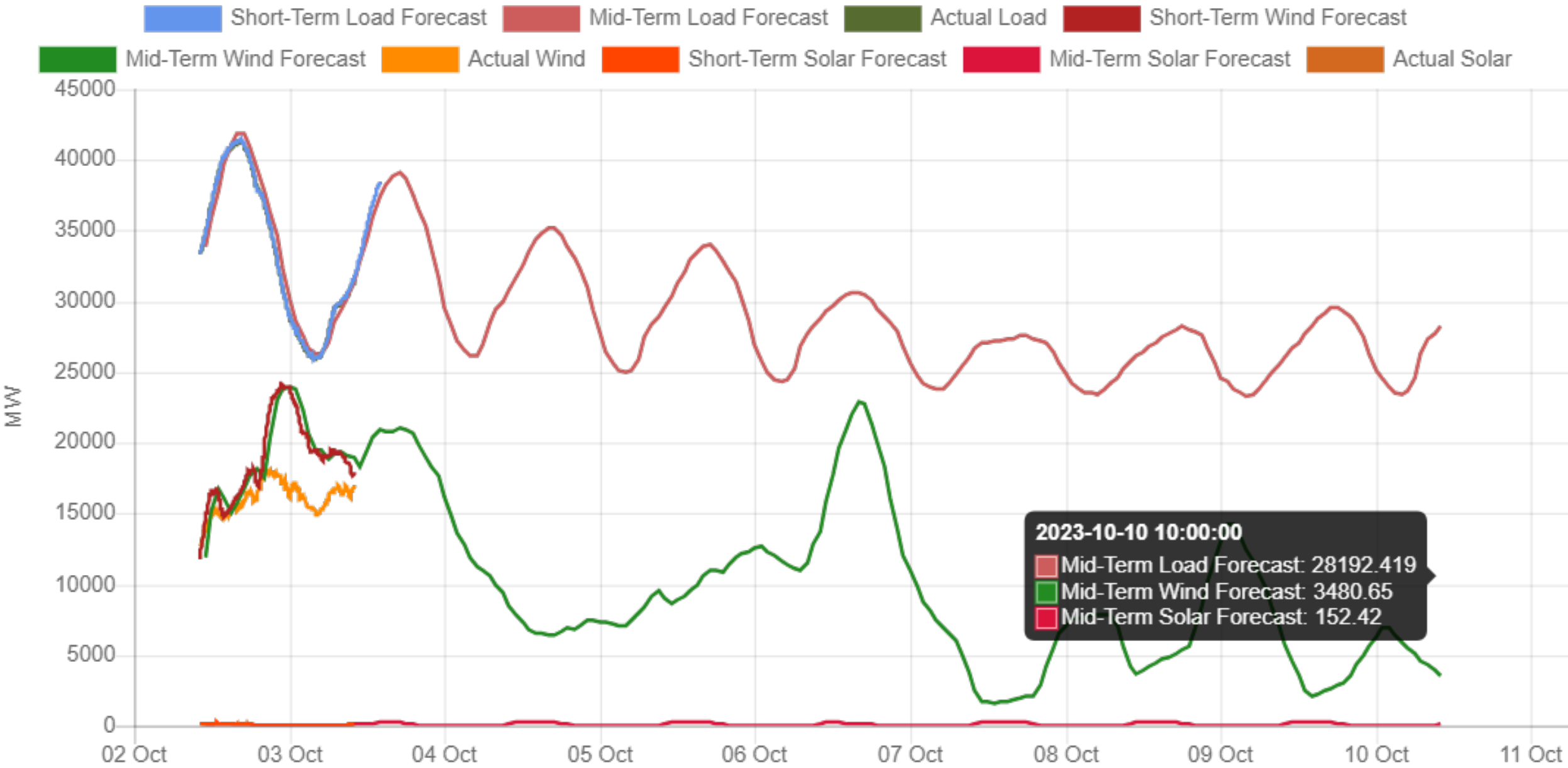
Generation Mix (SPP) on August 21 at 6:00pm

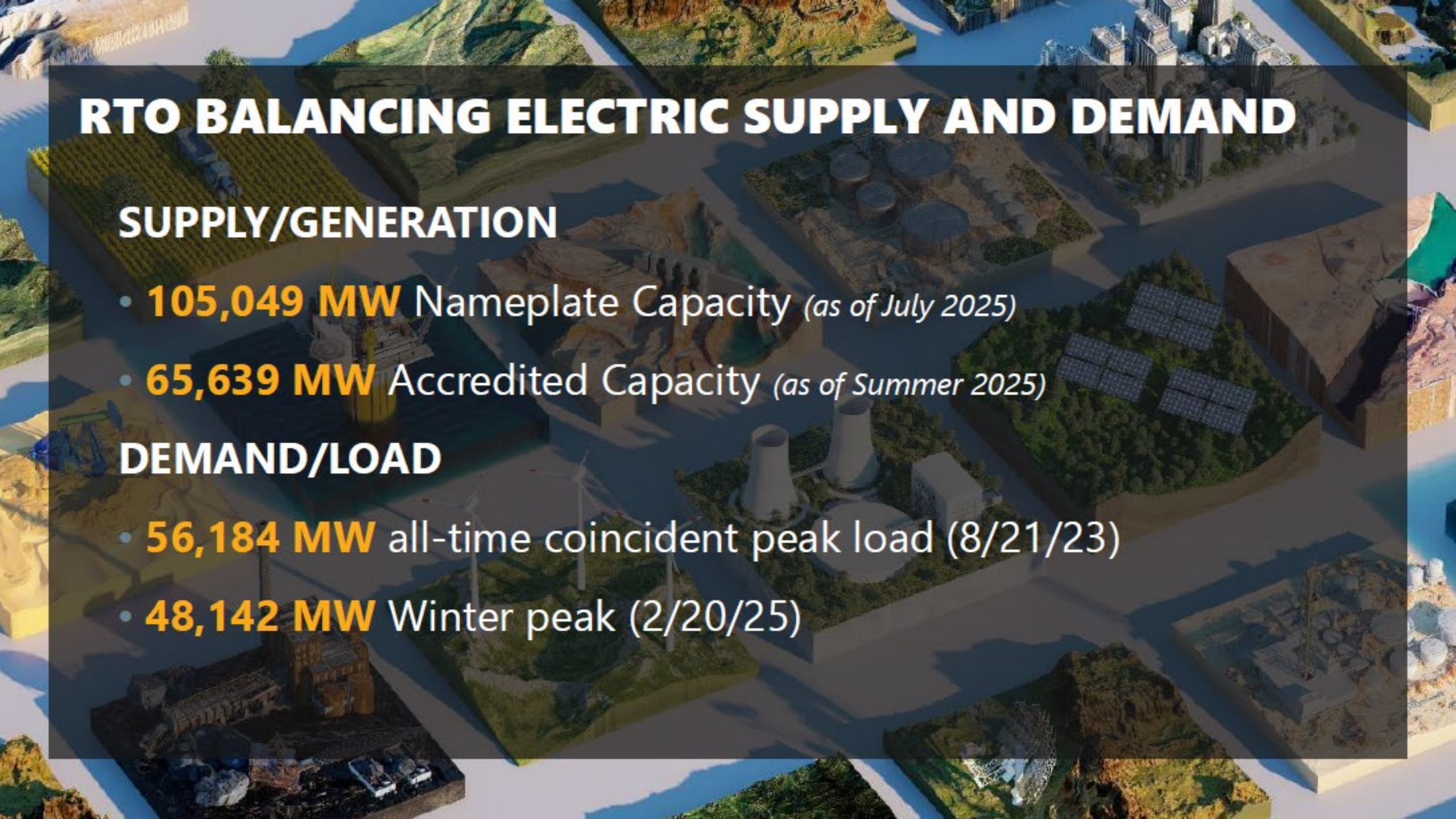


Coal Diesel Hydro Natural Gas Nuclear Solar Waste Wind Other


Oklahoma Wind Generation
Per cent of Total Generation
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Apr-22, 65.3%
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025

SPP 10-Day Outlook





RTO BALANCING ELECTRIC SUPPLY AND DEMAND

SUPPLY/GENERATION

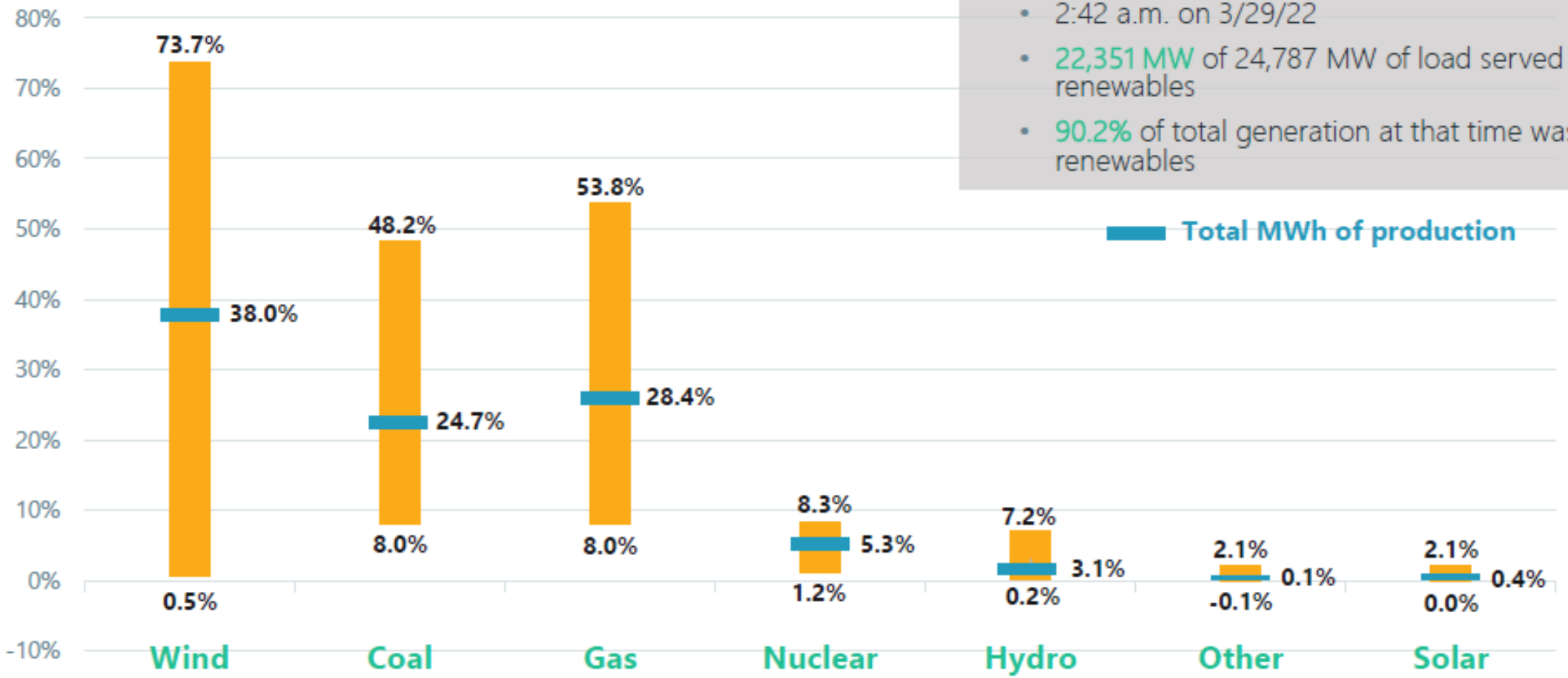
- **105,049 MW** Nameplate Capacity *(as of July 2025)*
- **65,639 MW** Accredited Capacity *(as of Summer 2025)*

DEMAND/LOAD

- **56,184 MW** all-time coincident peak load (8/21/23)
- **48,142 MW** Winter peak (2/20/25)

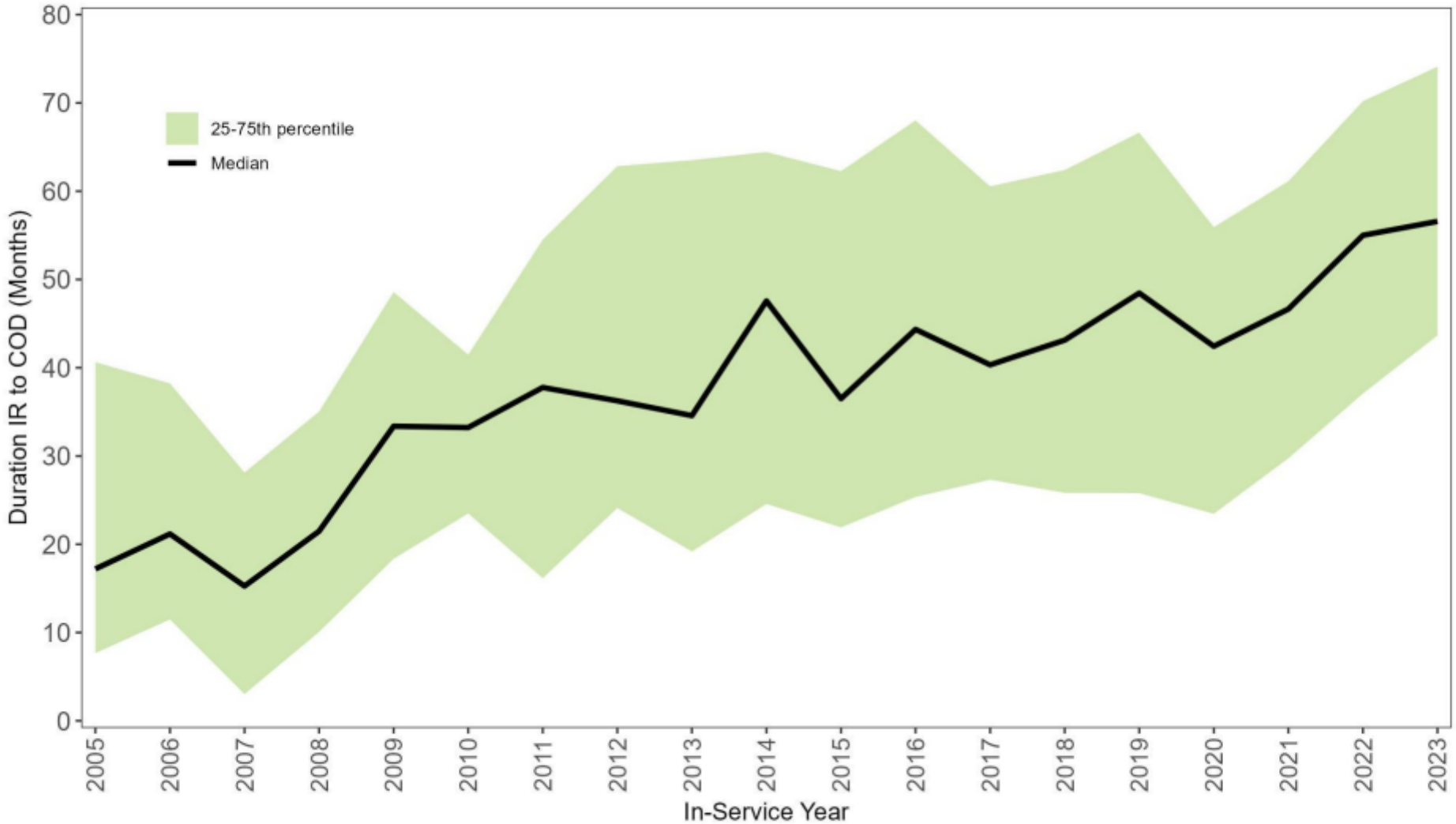
MIN AND MAX PERCENT OF GENERATION BY FUEL TYPE JANUARY 2024 – DECEMBER 2024

- Renewable penetration record: 90.2% of load
  - 2:42 a.m. on 3/29/22
  - 22,351 MW of 24,787 MW of load served by renewables
  - 90.2% of total generation at that time was renewables



Min and Max % based on the highest and lowest percent from individual real-time balancing market (RTBM) intervals for the period.
Total MW/h of production is based on the sum of RTBM dispatch MW across the period.

The median duration from interconnection request (IR) to commercial operations date (COD) continues to rise, approaching 5 years for projects completed in 2022-2023



Notes: (1) In-service date was only available for 6 ISOs (CAISO, ERCOT, ISO-NE, NYISO, PJM, SPP) and 8 non-ISO BAs (Duke, FPL, LADWP, PSCo, SOCO, SEC, SRP, TSGT) representing 61% of all operational projects. (2) Duration is calculated as the number of months from the queue entry date to the commercial operations date.

June 11, 2025

Federal Energy Regulatory Commission
888 First Street N.E.
Washington, D.C. 20426

Re: Support for the SPP's Proposed Expedited Resource Adequacy Study

Dear Chairman Mark Christie, Commissioner David Rosner, Commissioner Lindsay S. See, and Commissioner Judy W. Chang:

On May 22, 2025, Southwest Power Pool, Inc. ("SPP") filed proposed changes to its Open Access Transmission Tariff ("Tariff") to implement an Expedited Resource Adequacy Study ("ERAS Filing"), enabling load responsible entities to meet their respective resource requirements through the timely interconnection of new generation resources. We, the undersigned governors of states served in whole or in part by the SPP, write to support the ERAS Filing as a critical step to provide the generation resources necessary to support the crucial resource adequacy needs in our states.

Over the past few years, our states have seen large and accelerating electrical load growth. In the next five to ten years, our public utilities have projected unprecedented load growth caused by new load demands. This increased load coupled with the retirement of base load generation has left our public utilities in an increasingly untenable situation. Without the ability for our public utilities to obtain new generation resources immediately, our public utilities are in jeopardy of not being able to reliably serve the existing load, much less any new load additions that drive economic growth in our states. It would be detrimental to our states' economies if our public utilities are forced to reject these new load additions because they do not have the necessary generation resources. The economic growth potential of the future load additions will be

Sincerely,

Governor Sarah Huckabee Sanders
State of Arkansas

Governor Kim Reynolds
State of Iowa

Governor Jeff Landry
State of Louisiana

Governor Mike Kehoe
State of Missouri

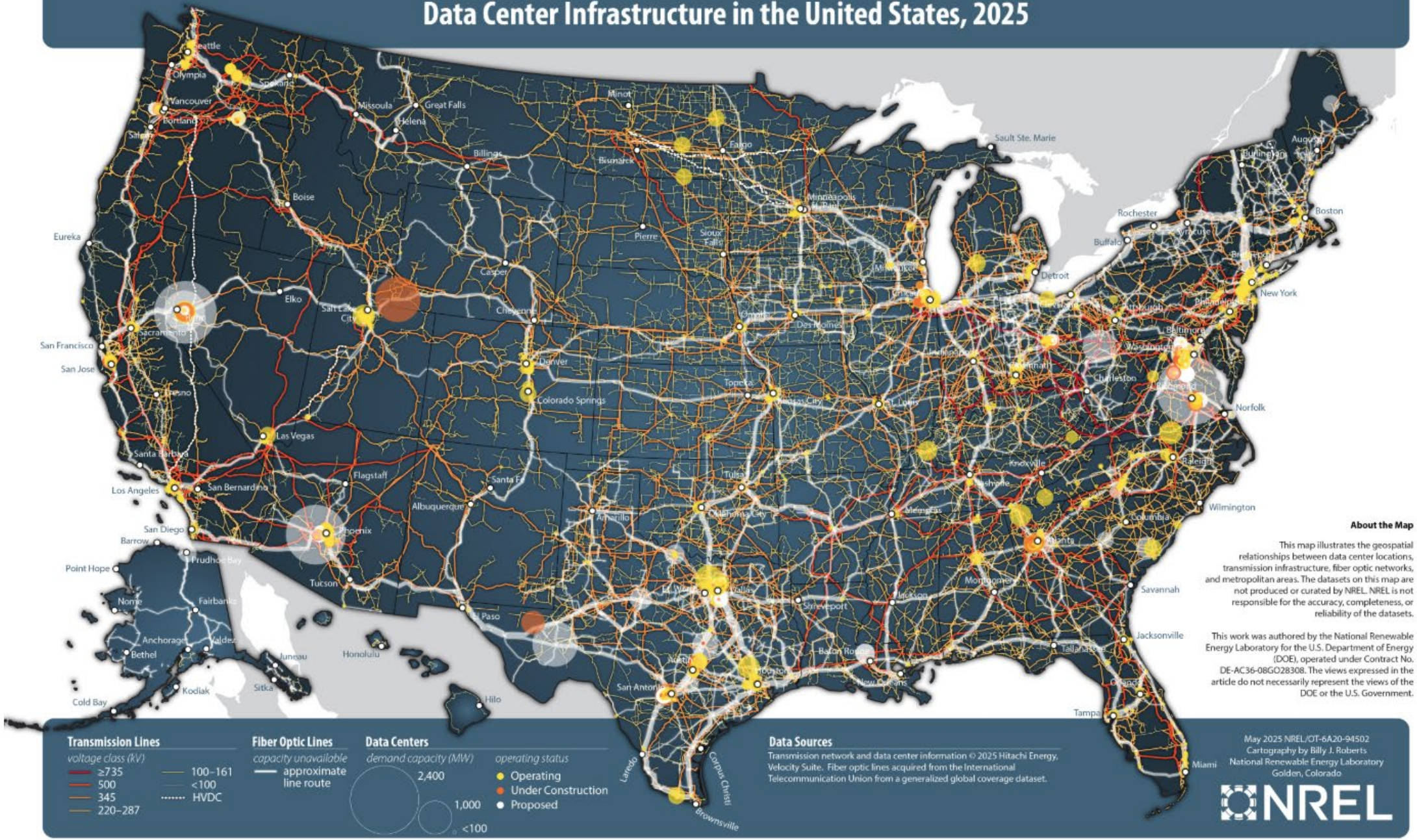
Governor Jim Pillen
State of Nebraska

Governor Kelly Armstrong
State of North Dakota

Governor Kevin Stitt
State of Oklahoma

Governor Mark Gordon
State of Wyoming

Data Center Infrastructure in the United States, 2025



Transmission Lines
voltage class (kV)
- ≥735
- 500
- 345
- 220–287
- 100–161
- <100
- HVDC

Fiber Optic Lines
capacity unavailable
- approximate line route

Data Centers
demand capacity (MW)
- 2,400
- 1,000
- <100

operating status
- Operating
- Under Construction
- Proposed

Data Sources
Transmission network and data center information © 2025 Hitachi Energy. Velocity Suite. Fiber optic lines acquired from the International Telecommunication Union from a generalized global coverage dataset.

About the Map

This map illustrates the geospatial relationships between data center locations, transmission infrastructure, fiber optic networks, and metropolitan areas. The datasets on this map are not produced or curated by NREL. NREL is not responsible for the accuracy, completeness, or reliability of the datasets.

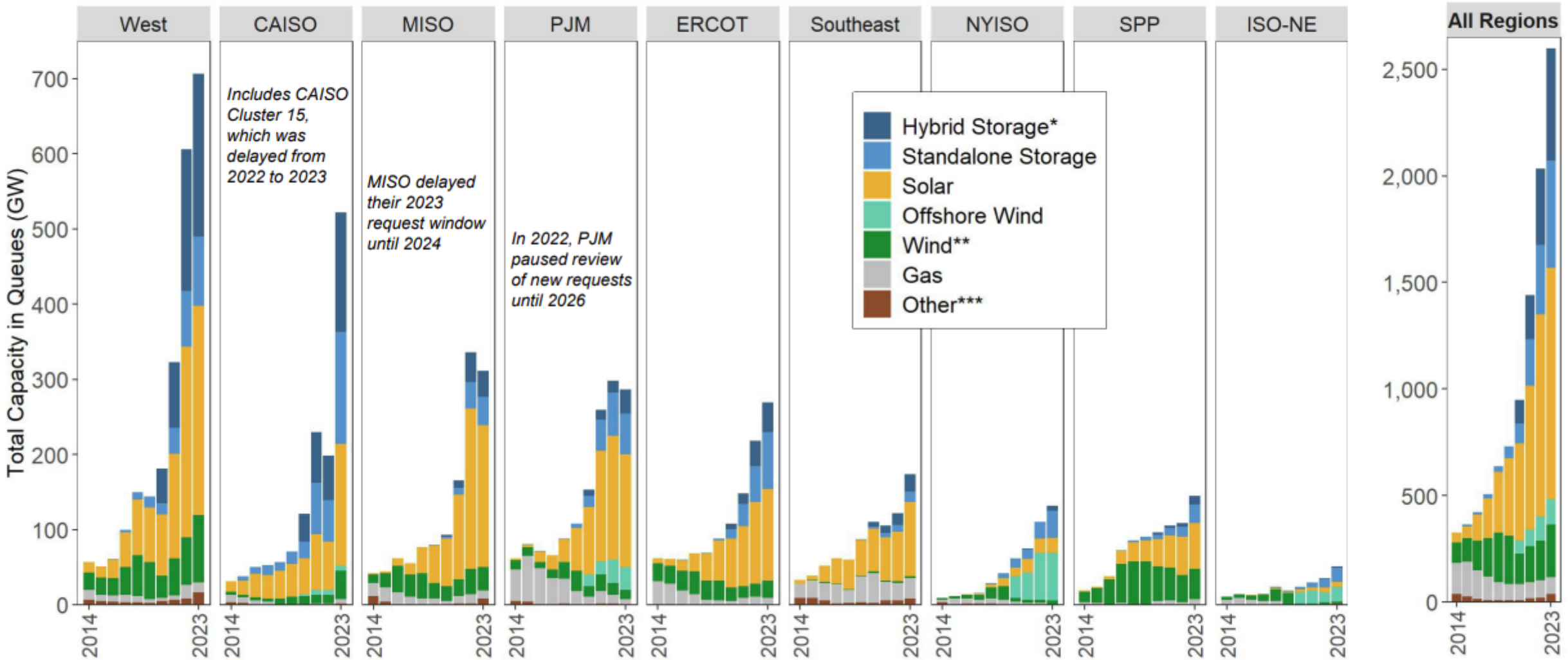
This work was authored by the National Renewable Energy Laboratory for the U.S. Department of Energy (DOE), operated under Contract No. DE-AC36-08GO28308. The views expressed in the article do not necessarily represent the views of the DOE or the U.S. Government.

May 2025 NREL/OT-6A20-94502
Cartography by Billy J. Roberts
National Renewable Energy Laboratory
Golden, Colorado

NREL

Appendix

Active queue capacity is highest in the West (706 GW), followed by CAISO (523 GW). Several regions have delayed accepting or processing new requests due to backlogs

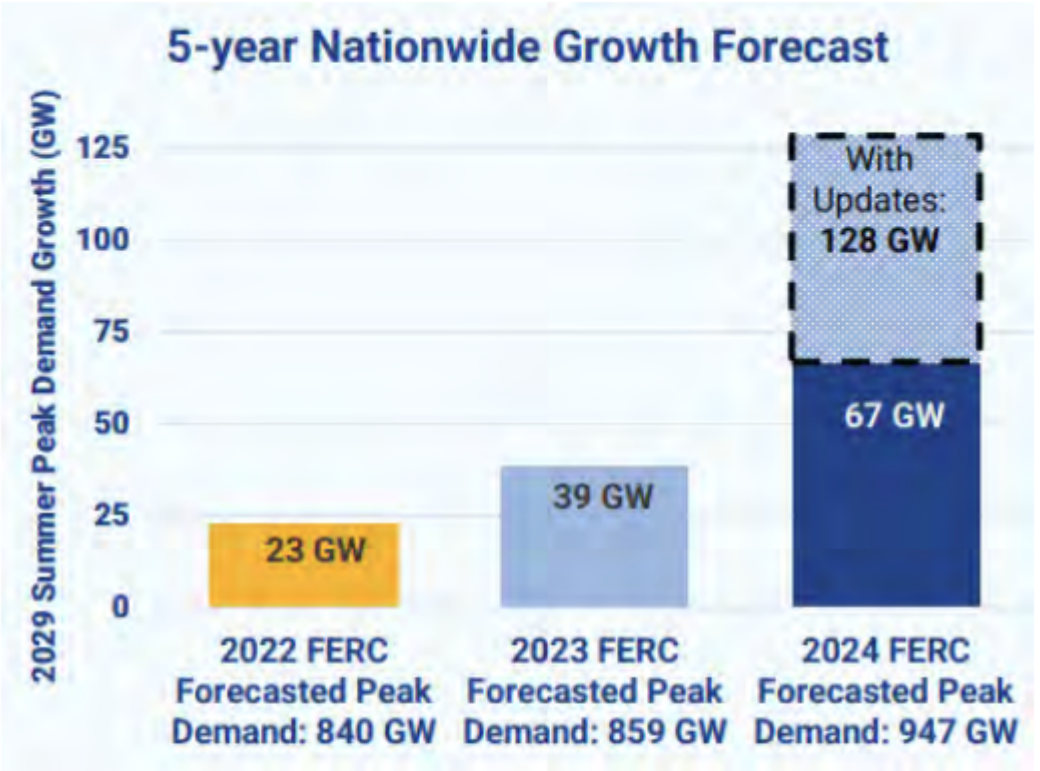


*Notes: (1) *Hybrid storage capacity is estimated for some projects using storage:generator ratios from projects that provide separate capacity data, and that value is only included starting in 2020. Storage duration is not provided in interconnection queue data. (2) **Wind capacity includes onshore and offshore for all years, but offshore is only broken out starting in 2020. (3) ***Other in this chart includes Coal, Nuclear, Hydro, Geothermal, and Other / Unknown. (4) Not all of this capacity will be built.*

LOAD GROWTH: NATIONAL PEAK LOAD 5X INCREASE TO 128 GW

Future Growth Drivers:

1) Rise of AI & Data Center Growth
2) New Domestic Manufacturing
3) Increased Demand from Transportation & Buildings
4) Increased Oil and Gas Production
5) Hydrogen & Synthetic Fuel Production
6) Extreme Weather

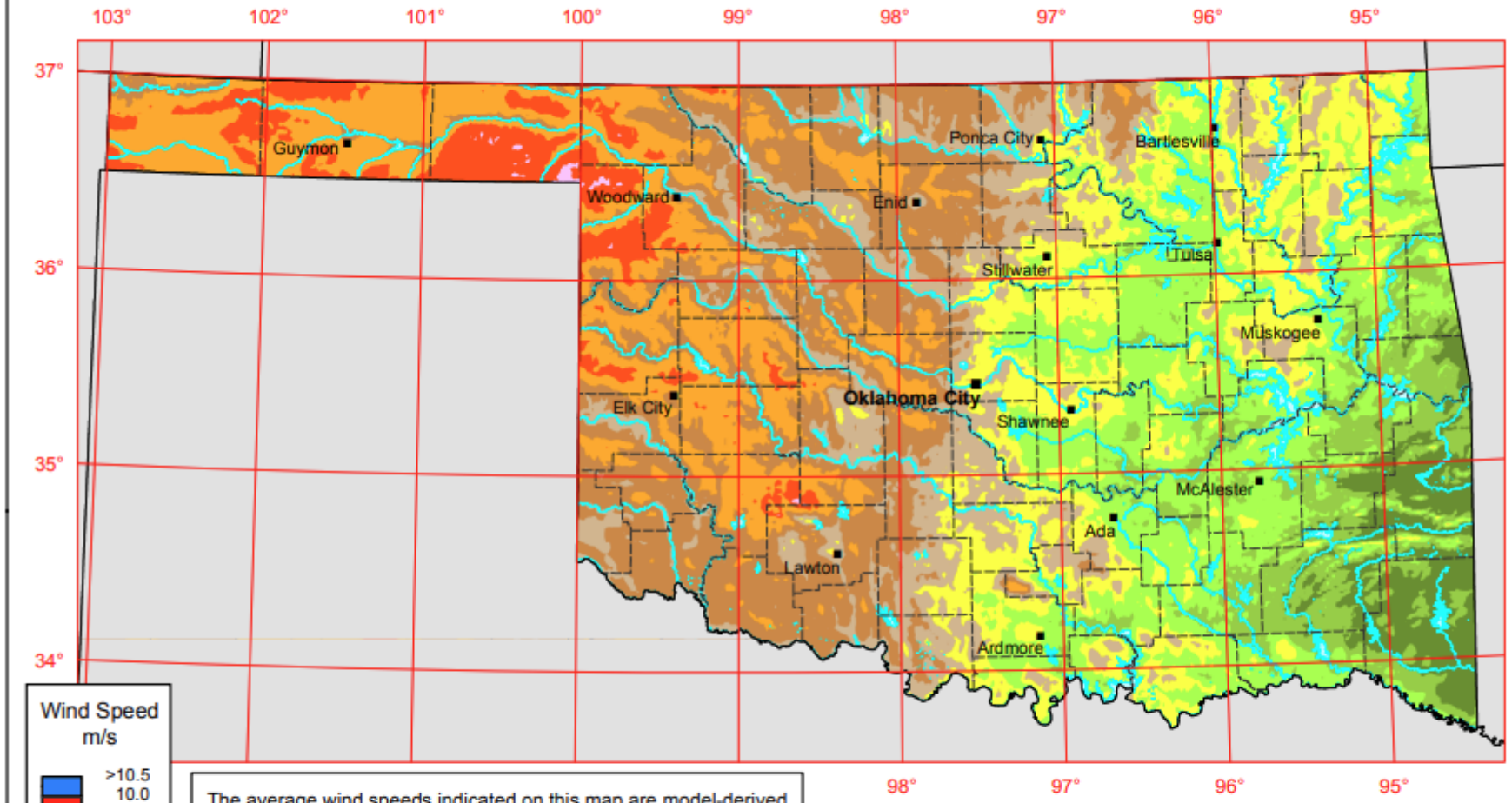


For the last two decades, the utility industry has been in a period of low growth (<1% per year). Deploying sufficient generation, energy storage, demand-side resources, and transmission and distribution infrastructure will challenge existing utility planning and investment cycles as well as regulatory processes.

Sub-optimal utility planning & investment could have negative consequences for US global leadership in strategic industries (e.g. AI),domestic growth, jobs, and grid reliability

Source: Grid Strategies (2024) *Strategic Industries Surging: Driving US Power Demand*

Oklahoma - Annual Average Wind Speed at 30 m



Wind Speed m/s

>10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
< 4.0

The average wind speeds indicated on this map are model-derived estimates that may not represent the true wind resource at any given location. Small terrain features, vegetation, buildings, and atmospheric effects may cause the wind speed to depart from the map estimates. Expert advice should be sought in placing wind turbines and estimating their energy production.

Source: Wind resource estimates developed by AWS Truepower, LLC. Web: http://www.awstruepower.com. Map developed by NREL. Spatial resolution of wind resource data: 2.0 km. Projection: UTM Zone 14 WGS84.

50 0 50 100 150 200 Kilometers

25 0 25 50 75 100 125 Miles

AWS Truepower™
Where science delivers performance.

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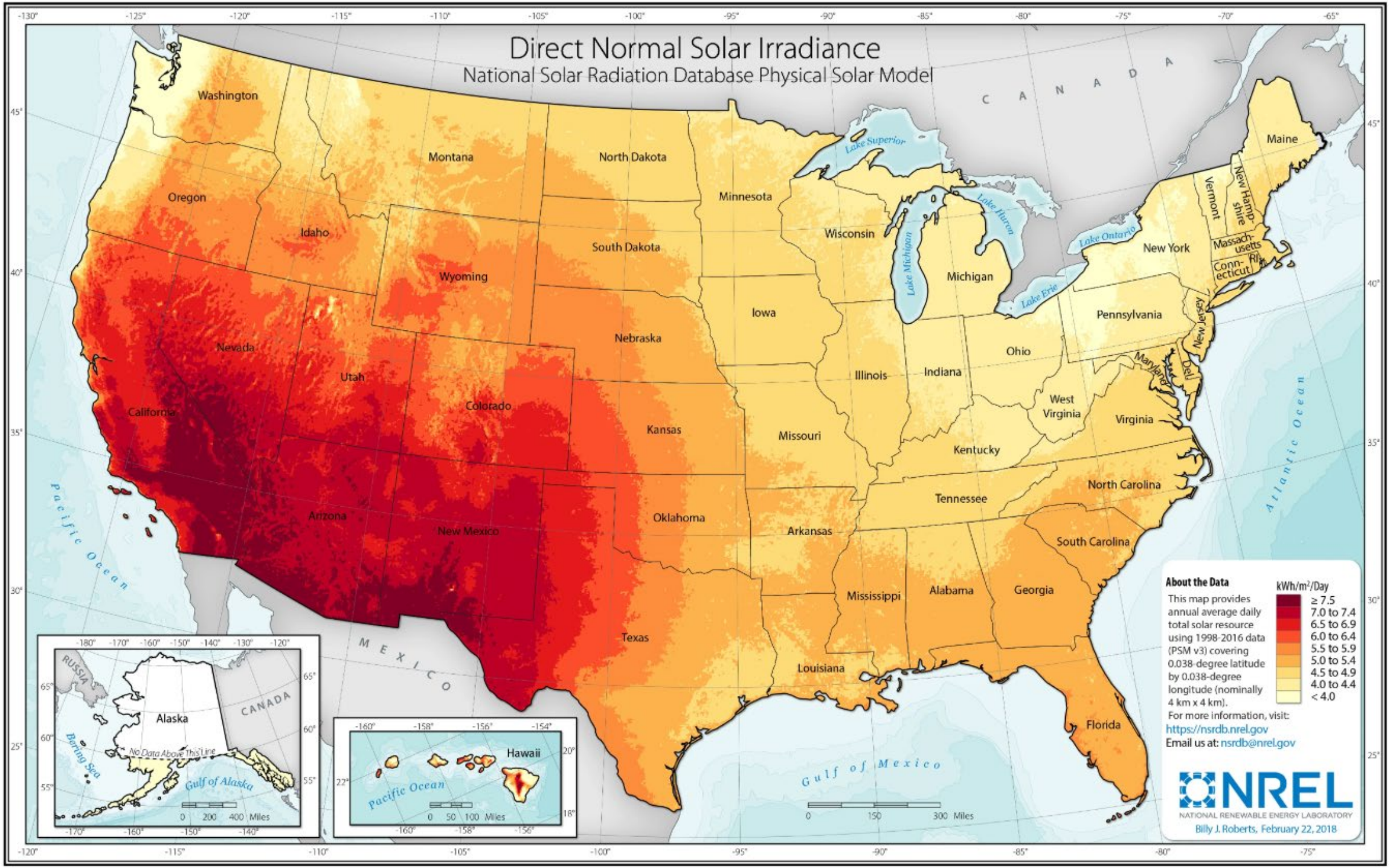
NATIONAL RENEWABLE ENERGY LABORATORY

10-FEB-2012 2.1.1


Direct Normal Solar Irradiance
National Solar Radiation Database Physical Solar Model
Washington
Oregon
California
Nevada
Idaho
Montana
Wyoming
Utah
Arizona
Colorado
New Mexico
North Dakota
South Dakota
Nebraska
Kansas
Oklahoma
Texas
Minnesota
Iowa
Missouri
Arkansas
Louisiana
Wisconsin
Illinois
Michigan
Indiana
Ohio
Kentucky
Tennessee
Mississippi
Alabama
Georgia
Florida
South Carolina
North Carolina
Virginia
West Virginia
Pennsylvania
New York
Maryland
Del
New Jersey
Conn-ecticut
RI
Massach-usetts
Vermont
New Hamp-shire
Maine
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
CANADA
MEXICO
Pacific Ocean
Atlantic Ocean
Gulf of Mexico
Alaska
RUSSIA
CANADA
Bering Sea
Gulf of Alaska
No Data Above This Line
0 200 400 Miles
Hawaii
Pacific Ocean
0 50 100 Miles
0 150 300 Miles
About the Data
This map provides annual average daily total solar resource using 1998-2016 data (PSM v3) covering 0.038-degree latitude by 0.038-degree longitude (nominally 4 km x 4 km).
For more information, visit:
https://nsrdb.nrel.gov
Email us at: nsrdb@nrel.gov
kWh/m²/Day
≥ 7.5
7.0 to 7.4
6.5 to 6.9
6.0 to 6.4
5.5 to 5.9
5.0 to 5.4
4.5 to 4.9
4.0 to 4.4
< 4.0
NREL
NATIONAL RENEWABLE ENERGY LABORATORY
Billy J. Roberts, February 22, 2018