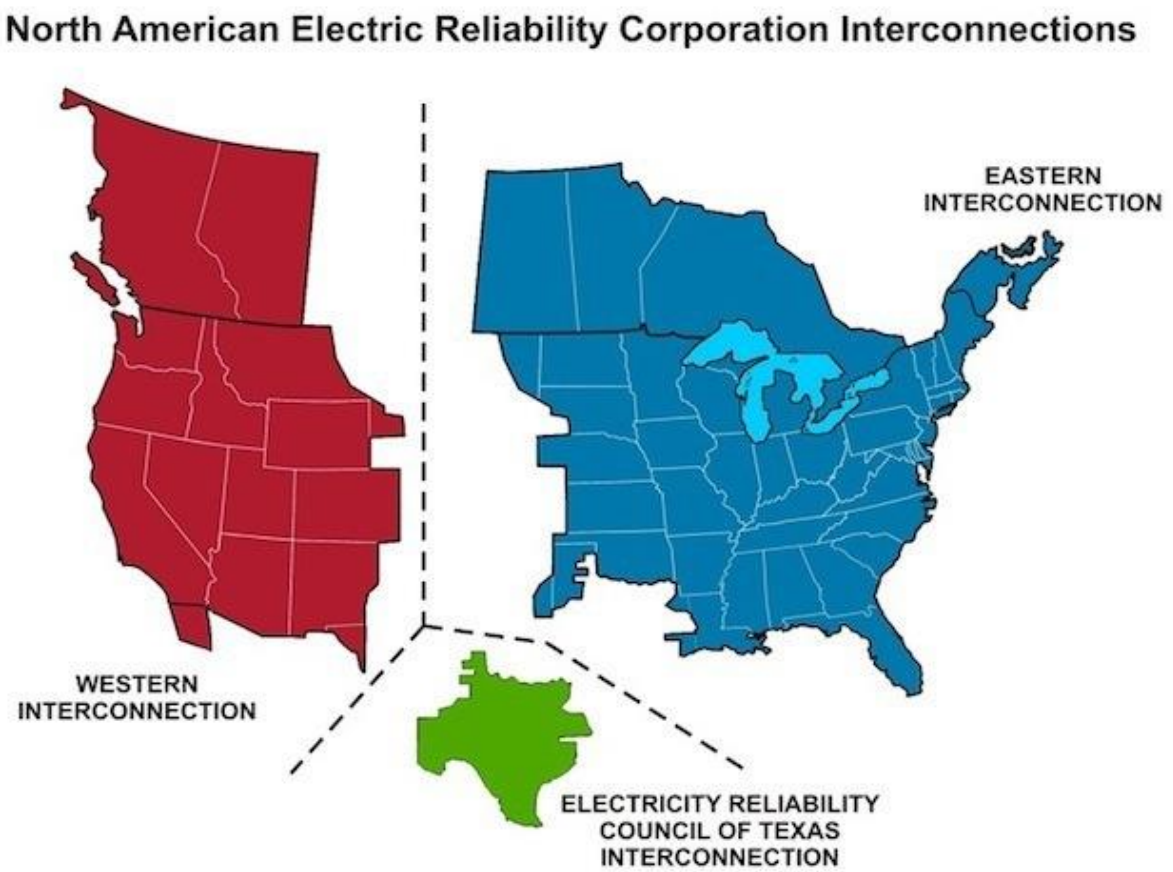
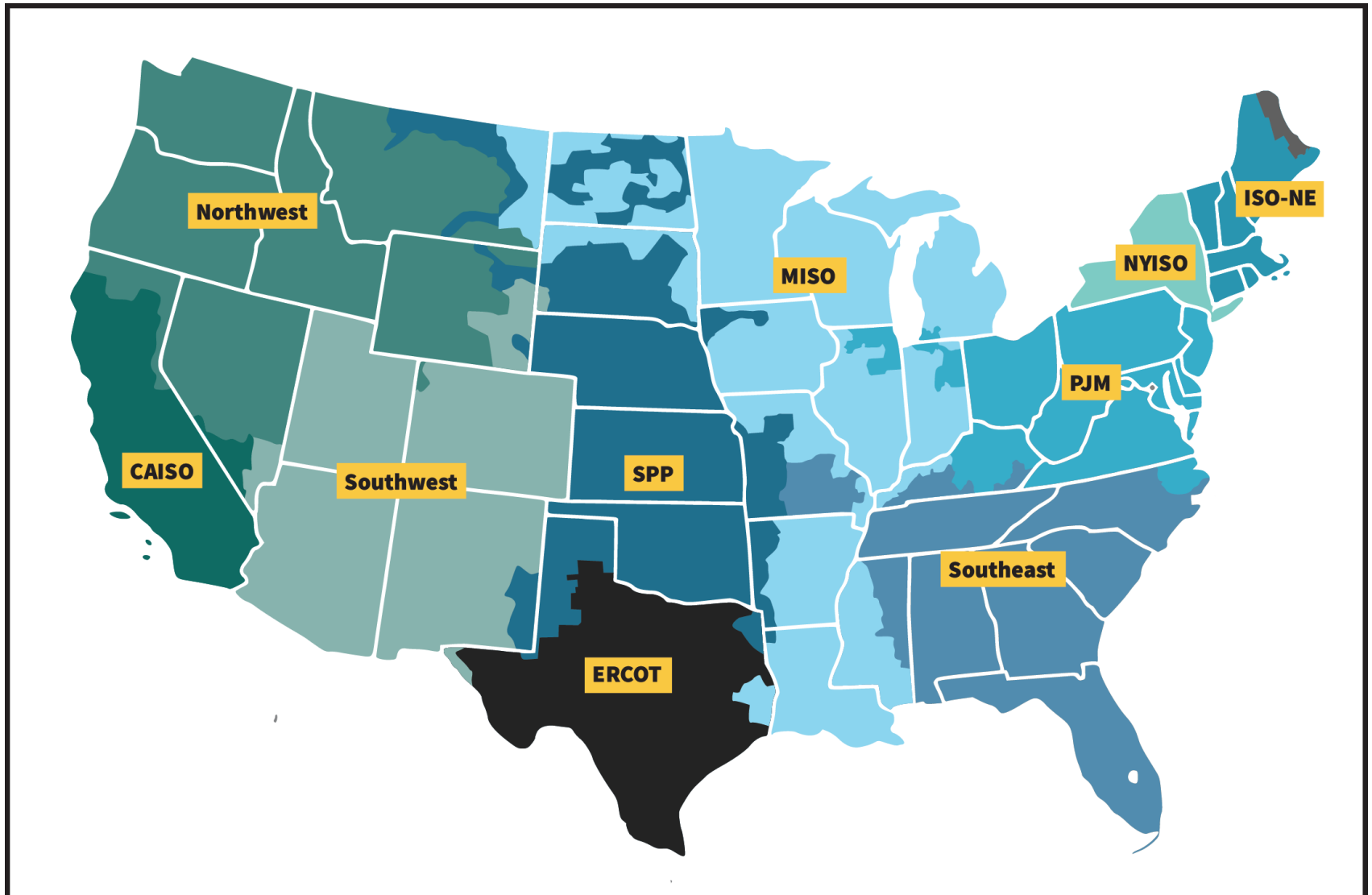
OK Senate Energy Committee
October 4, 2023

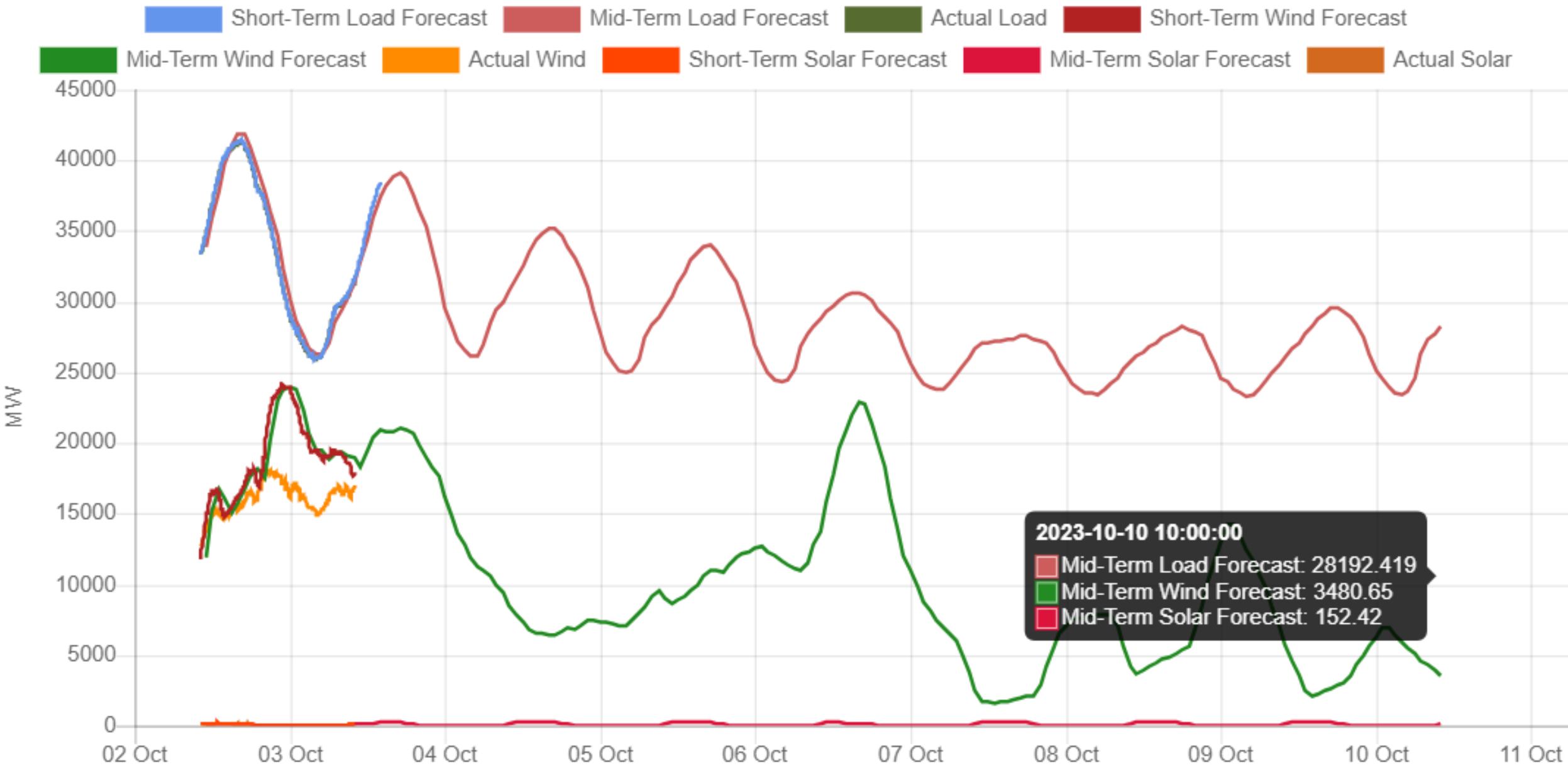
Three Asynchronous Grids in Lower 48



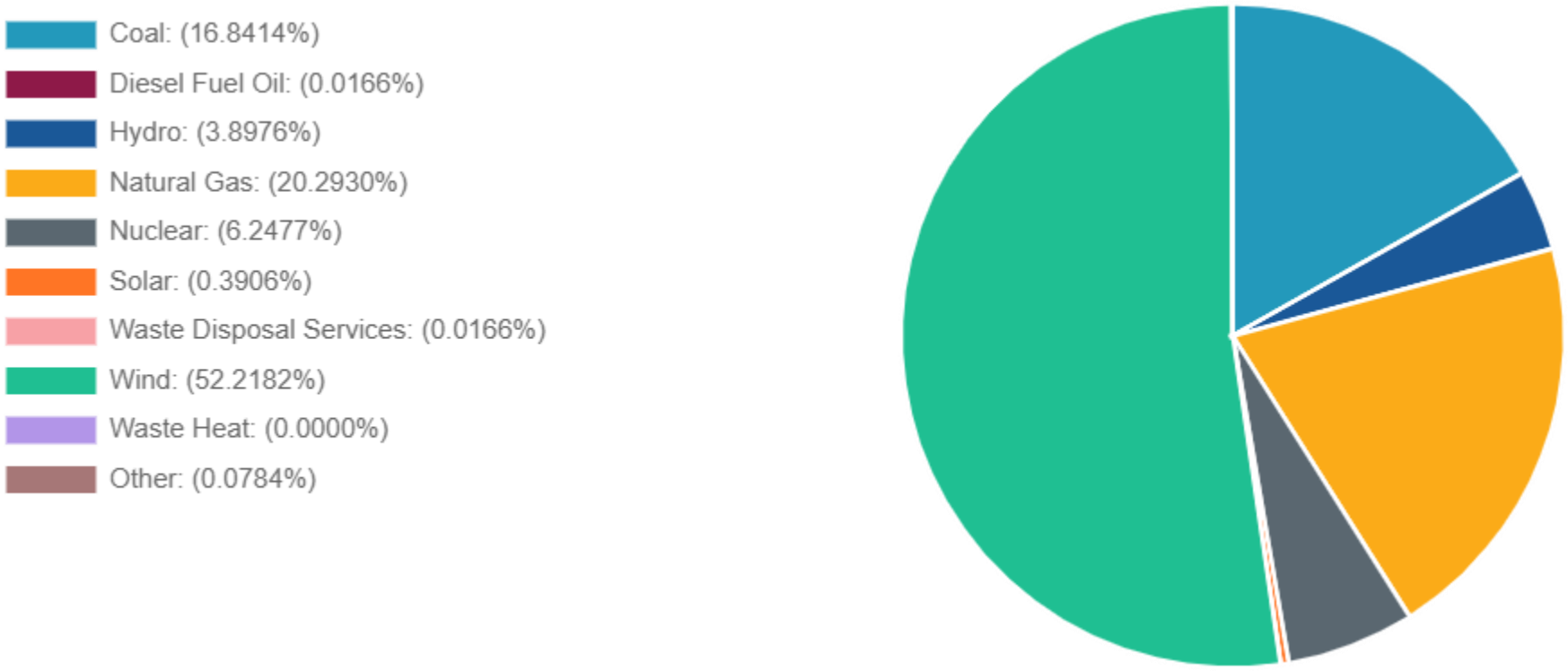
Regional Transmission Operators (RTO)
Independent System Operators (ISO)

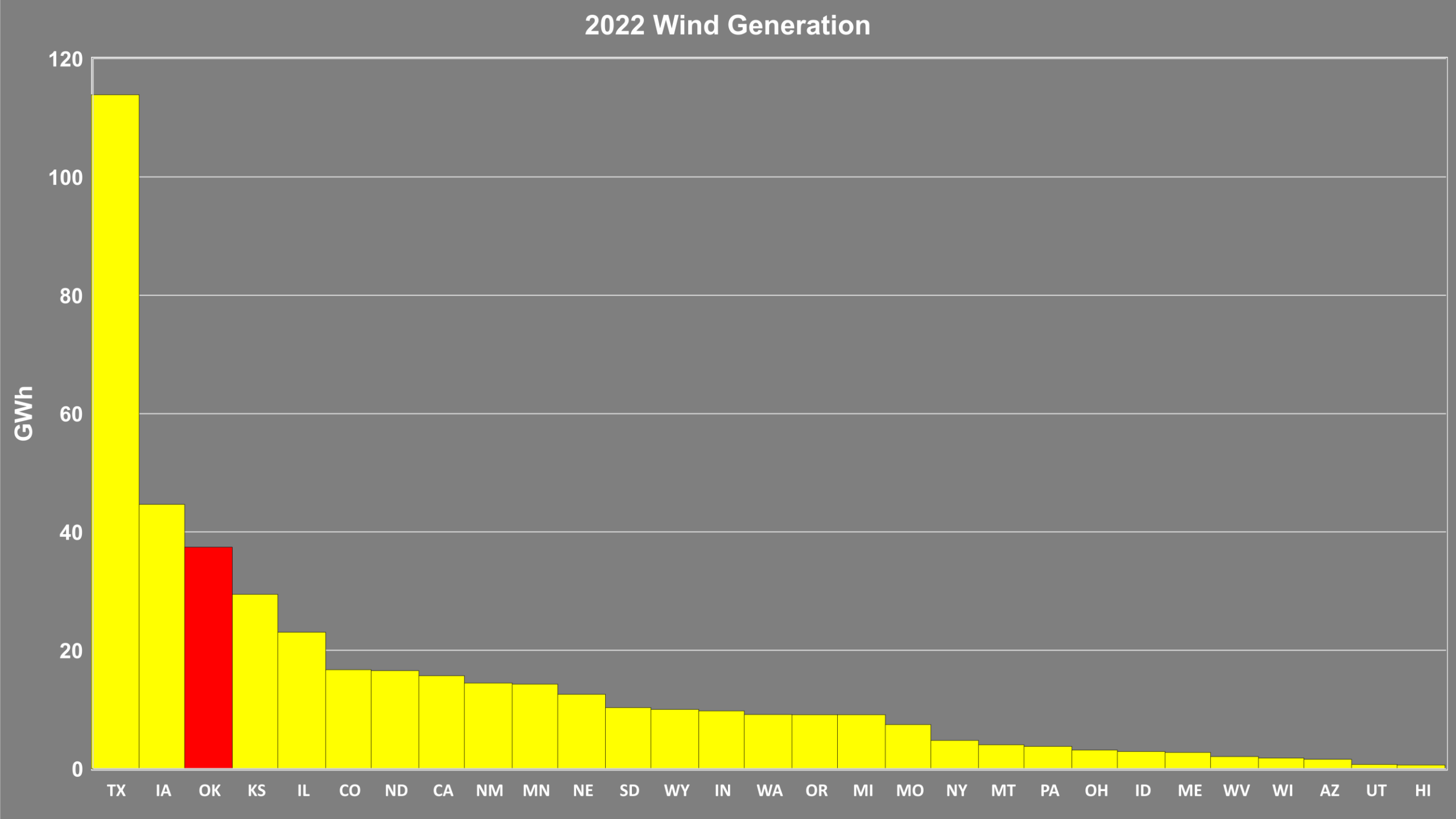


SPP 10-Day Outlook

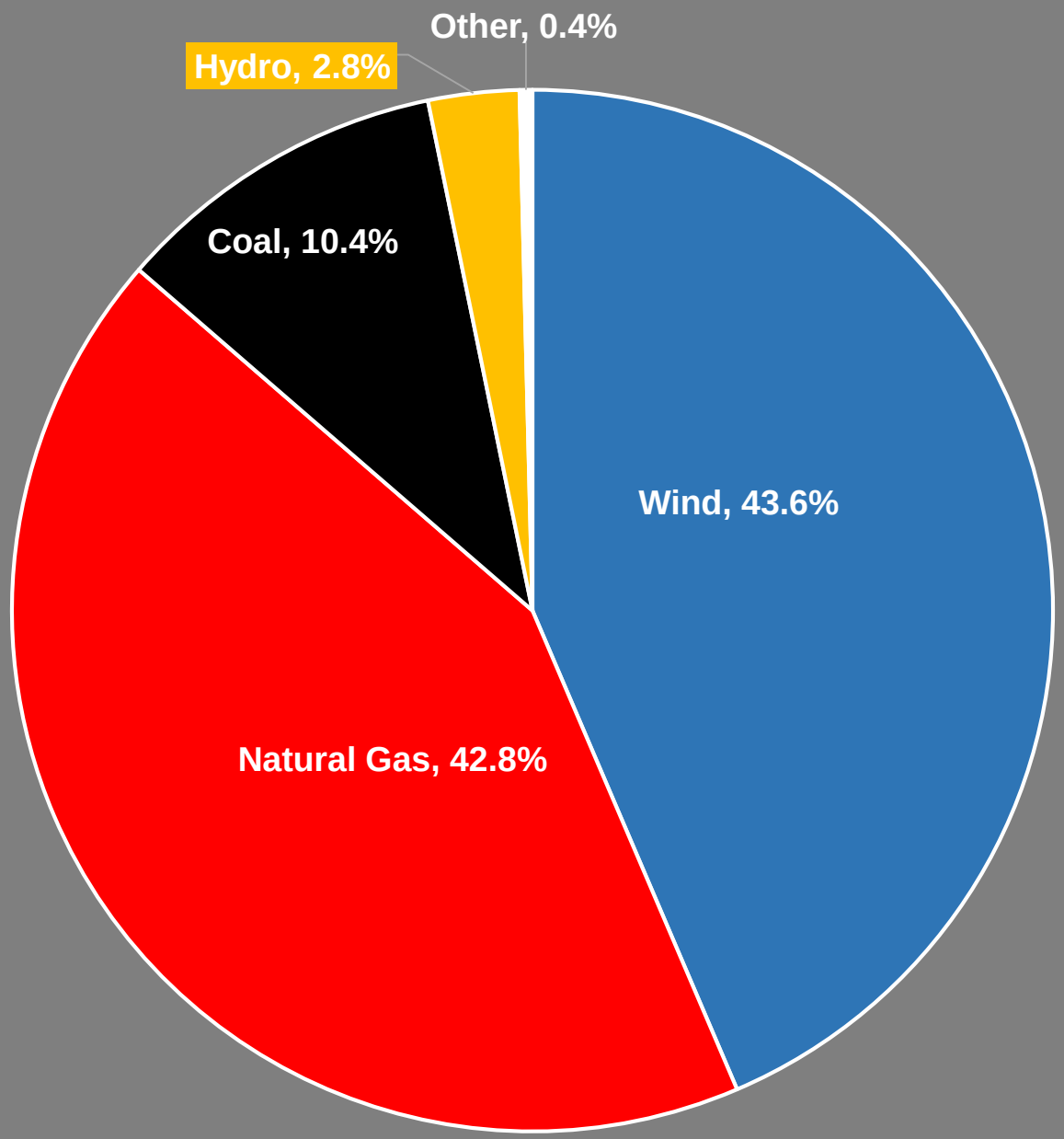


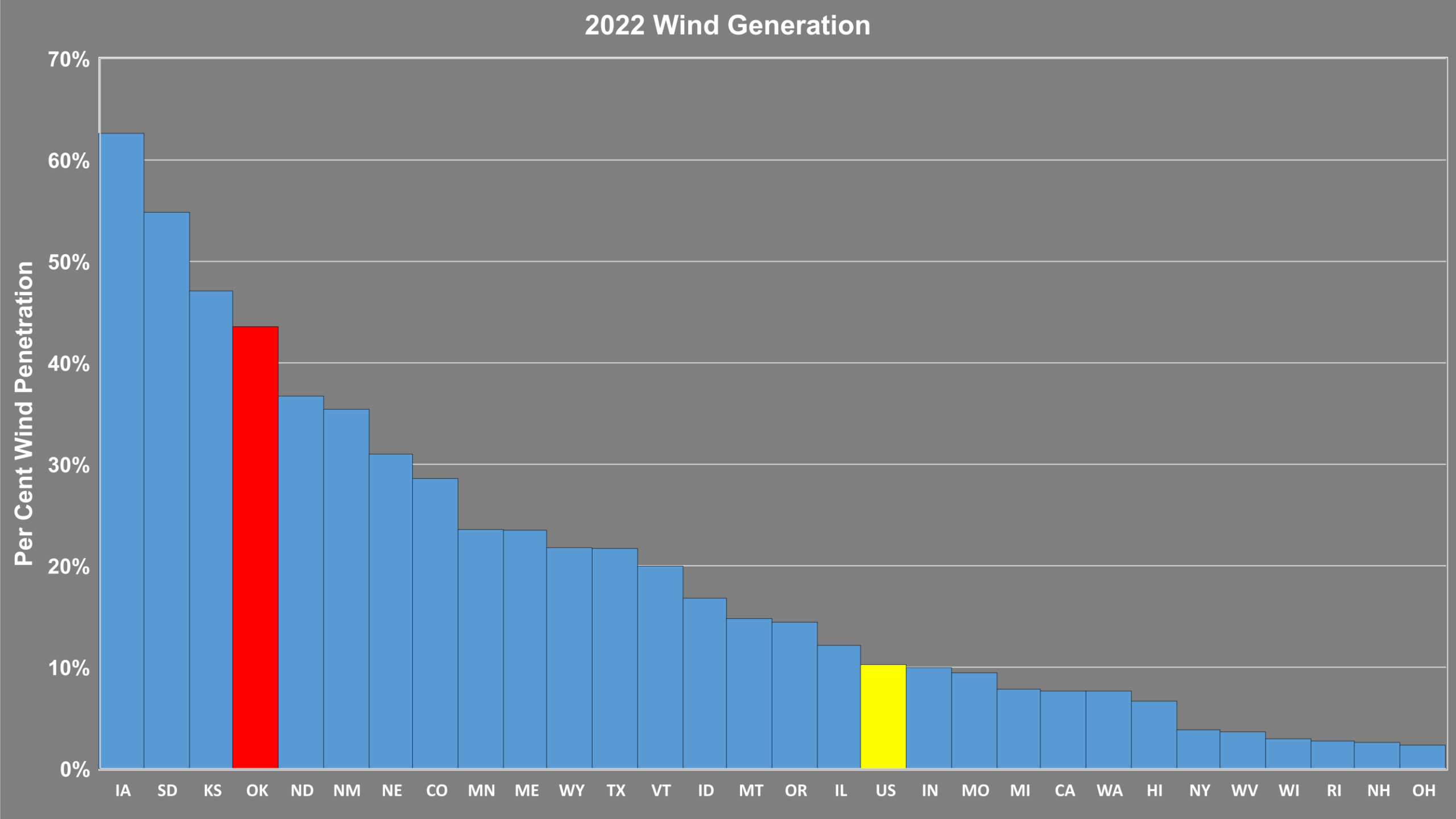
SPP Power Generation 10/2/2023 10:15 am CDT

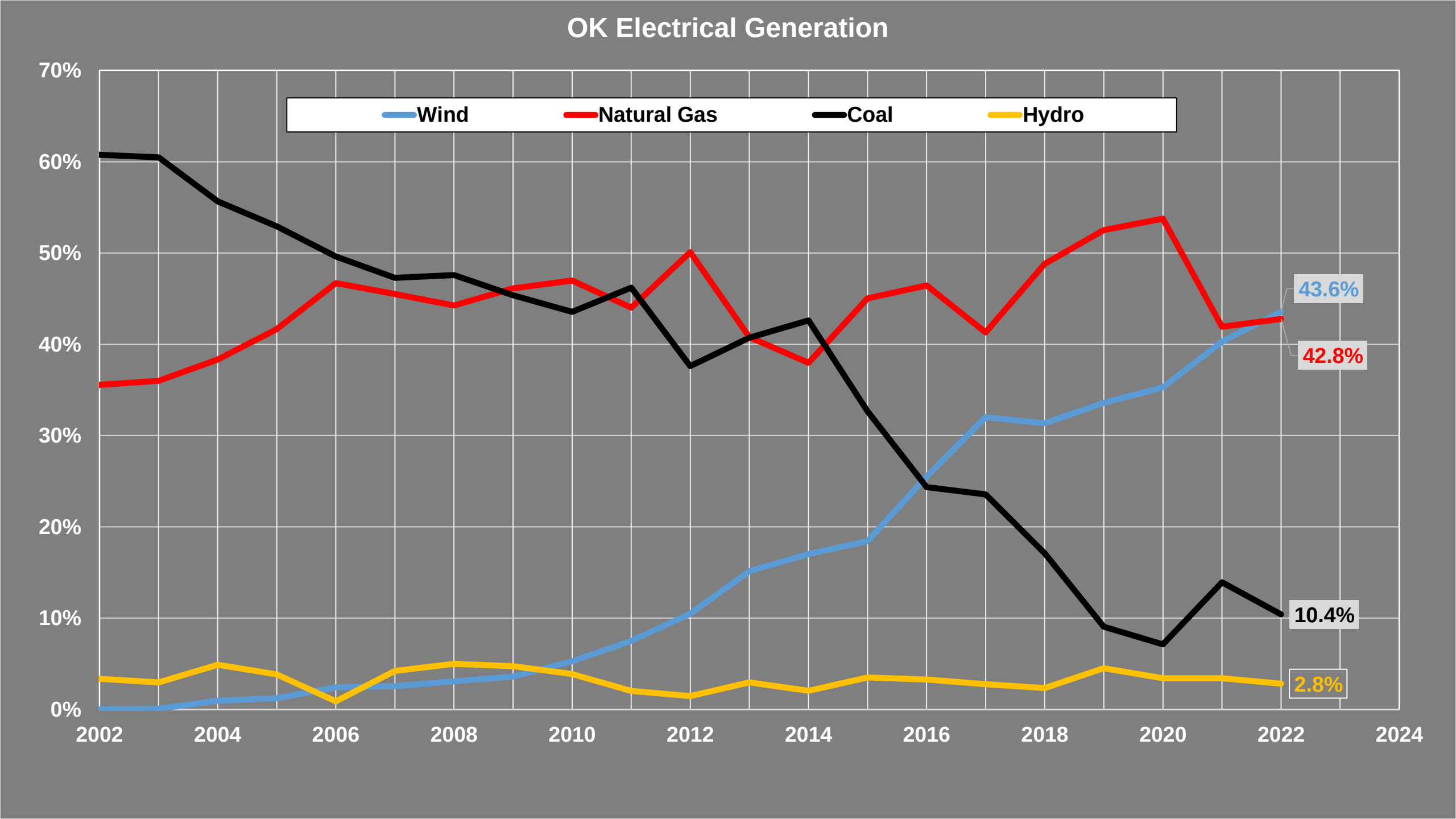



2022 Wind Generation
GWh
120
100
80
60
40
20
0
TX
IA
OK
KS
IL
CO
ND
CA
NM
MN
NE
SD
WY
IN
WA
OR
MI
MO
NY
MT
PA
OH
ID
ME
WV
WI
AZ
UT
HI

2022 OK Generation

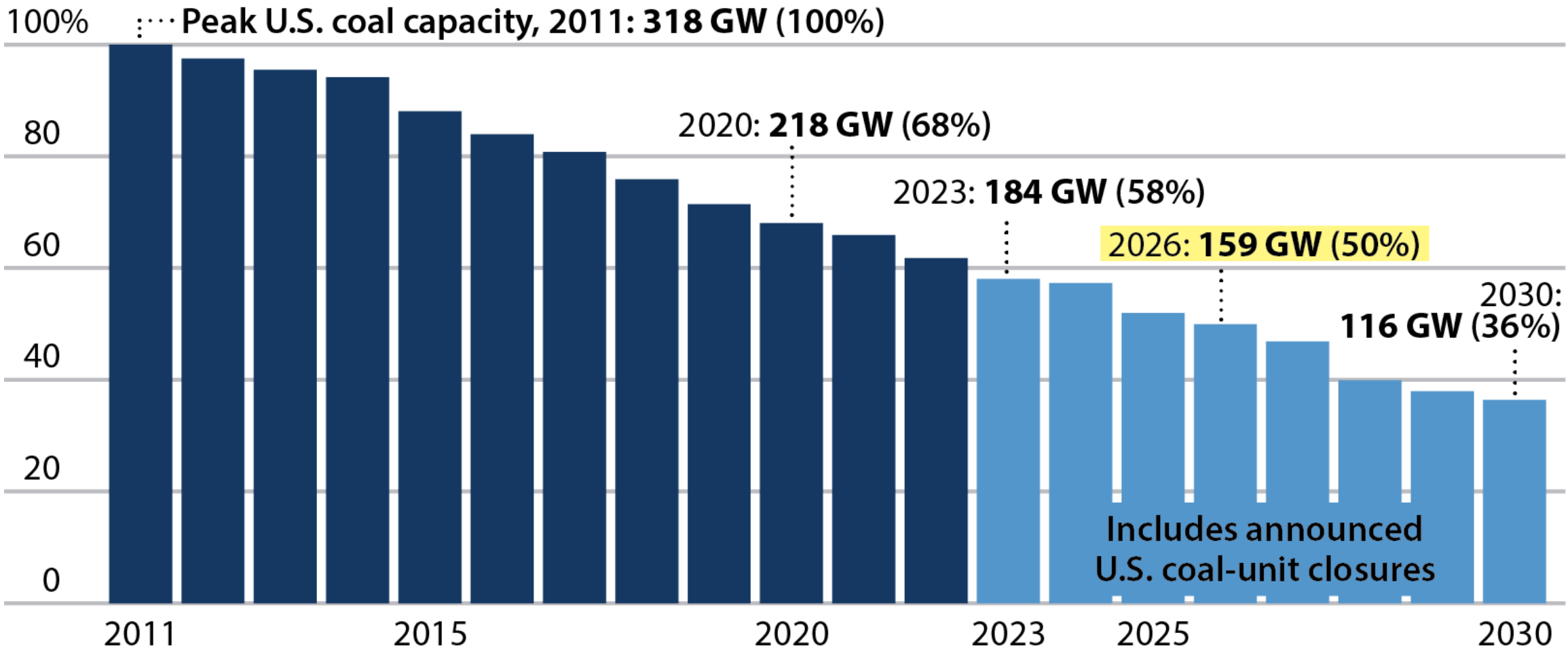



2022 Wind Generation
Per Cent Wind Penetration
70%
60%
50%
40%
30%
20%
10%
0%
IA
SD
KS
OK
ND
NM
NE
CO
MN
ME
WY
TX
VT
ID
MT
OR
IL
US
IN
MO
MI
CA
WA
HI
NY
WV
WI
RI
NH
OH


OK Electrical Generation
Wind
Natural Gas
Coal
Hydro
70%
60%
50%
40%
30%
20%
10%
0%
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
43.6%
42.8%
10.4%
2.8%

Half of Peak Coal-Fired Generation Capacity to Close in U.S. by 2026

The peak of coal's power generation capacity was in 2011, at 317.6 GW. Just 15 years later, in 2026, half of that capacity will be gone — replaced by gas, wind and utility-scale solar.

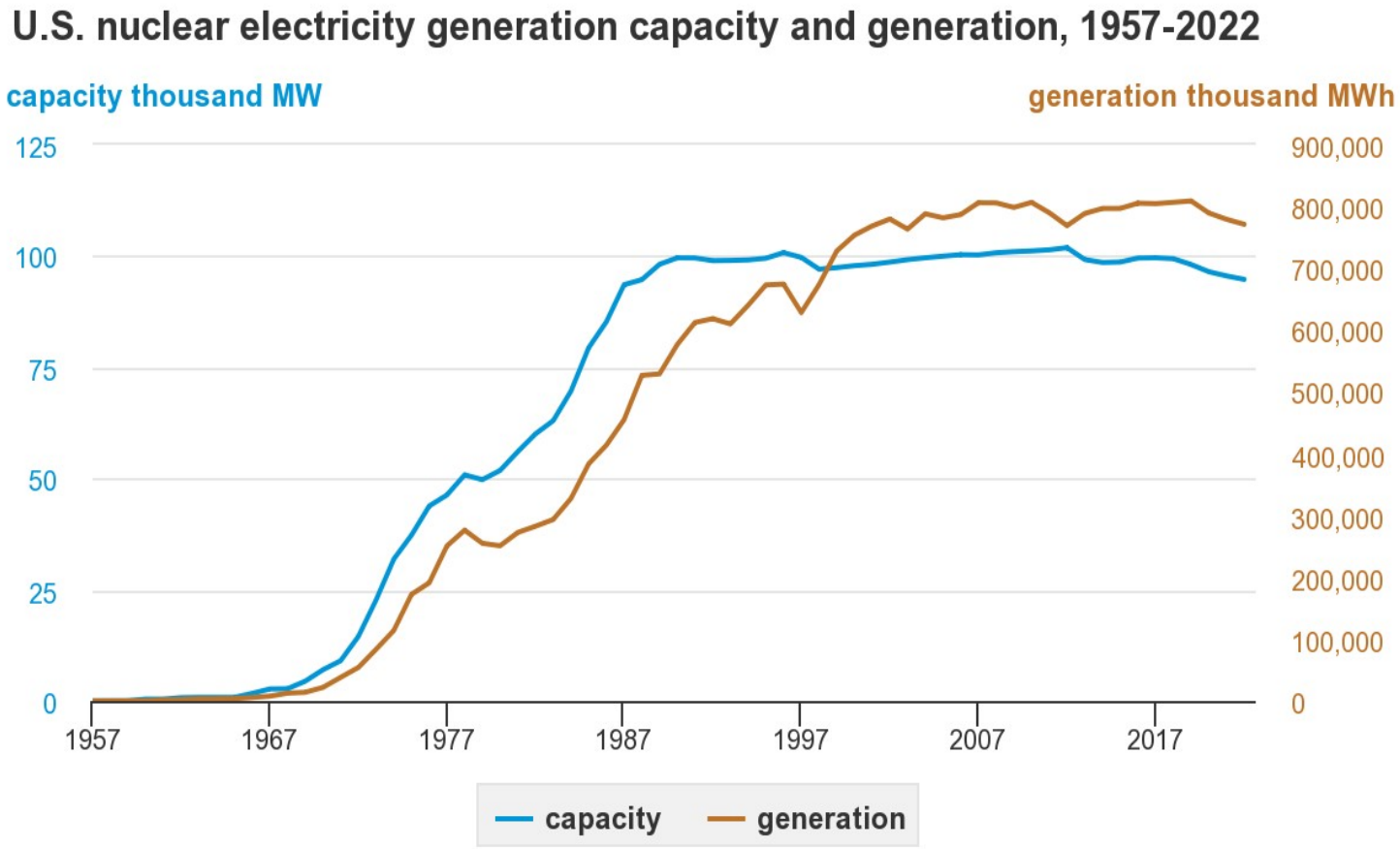


Sources: EIA; PJM; S&P Global; IEEFA research (2021-2030) End of each year, as of March 7, 2023 IEEFA

Oklahoma Coal-Fired Generation Stations

Name	Capacity (MW)	Year Completed
Grand River Energy Center	594	1985
Hugo Power Plant	446	1982
Muskogee Generating Station	572	1984
Northeastern Station	473	1979
River Valley Generating Station	350	1990 - Unit 1
		1990 - Unit 2
Sooner Generating Station	1,138	Unit 1 - 1979
		Unit 2 - 1980
TOTAL	**3,573**	

US Nuclear Domestic Power Industry



Data source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 8.1, July 2023, preliminary data for 2022
Note: Capacity is net summer; MW is megawatts; MWh is megawatthours.

- First Commercial Reactor – 1958
- Today – 93 Reactors at 54 sites
- 28 states have nuclear reactors
- Alvin V. Vogtile #3 online 2023
- Alvin V. Vogtile #4 on line 2024