

Nebraska Power Association 2024 Load & Capability Report

LES Administrative Board Meeting
November 15, 2024

Jason Fortik
Vice President, Power Supply, LES
Chair, NPA Joint Planning Subcommittee

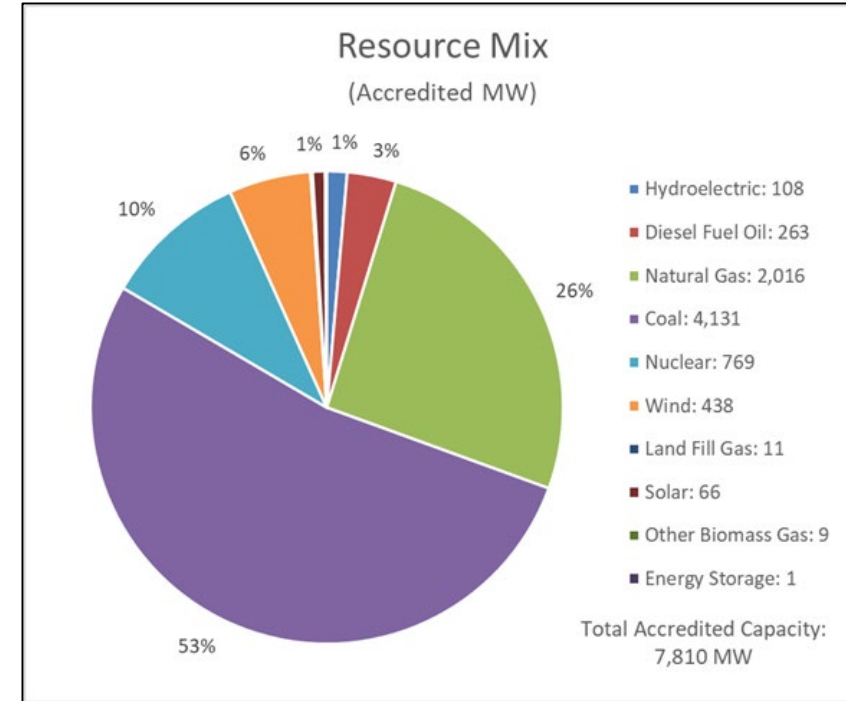
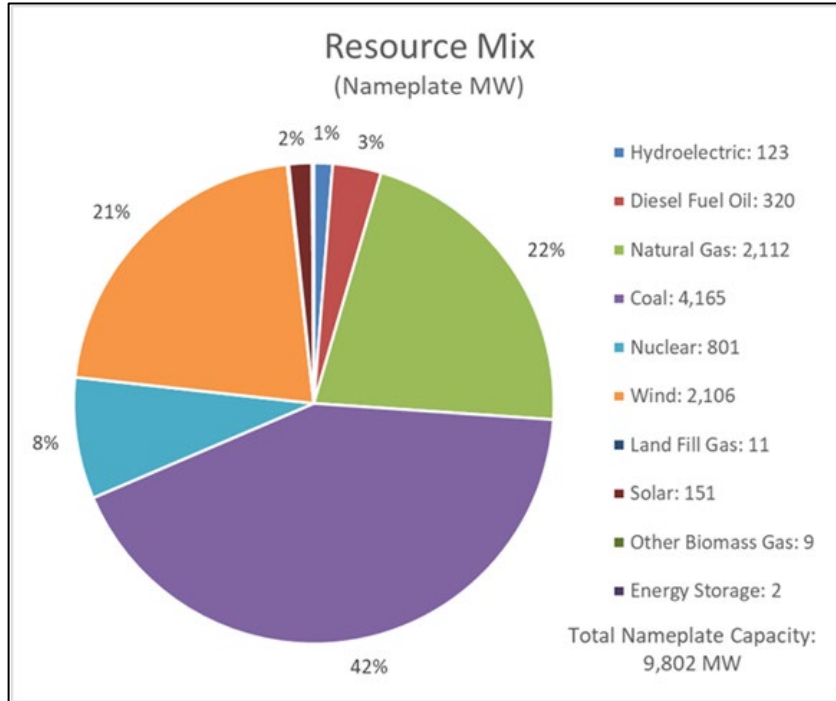
Organizational and Statutory Background Information

- **Nebraska Power Review Board (NPRB)**
 - State agency formed in 1963 to regulate Nebraska's publicly owned electric utility industry
 - Five-member Board approved by the Governor and confirmed by the Legislature
- **Nebraska Power Association (NPA)**
 - Voluntary organization of municipal, public power district, and cooperative electric utilities
 - ~160 members
 - Formed in 1980 to address statewide electricity policies and issues. Administered by LES.
- **State Statute 70-1025**
 - Requires an annual statewide report on electric demand and generation for a 20-year period
 - NPA is the designated entity to provide this report to the NPRB
 - The NPA's Joint Planning Subcommittee has typically assembled the report

Nebraska's Projected Peak Electrical Demand Growth

- **Average annual demand growth rate is 1.4% per year from 2024 through 2043**
 - The utilities continue using probability-based rankings to determine the traditional customer electrical loads that are included in the forecast
 - Non-traditional, large, single point electrical loads are included in the forecast if the host utility has determined that there is a sufficiently high degree of confidence that the load will materialize
- **The 2024 growth rate is comparable to the 1.5% growth rate shown in last year's report and reflects additional information obtained for proposed large loads**

Existing Electrical Generating Resources Categorized by Fuel Type Using both Nameplate and Accredited Ratings*

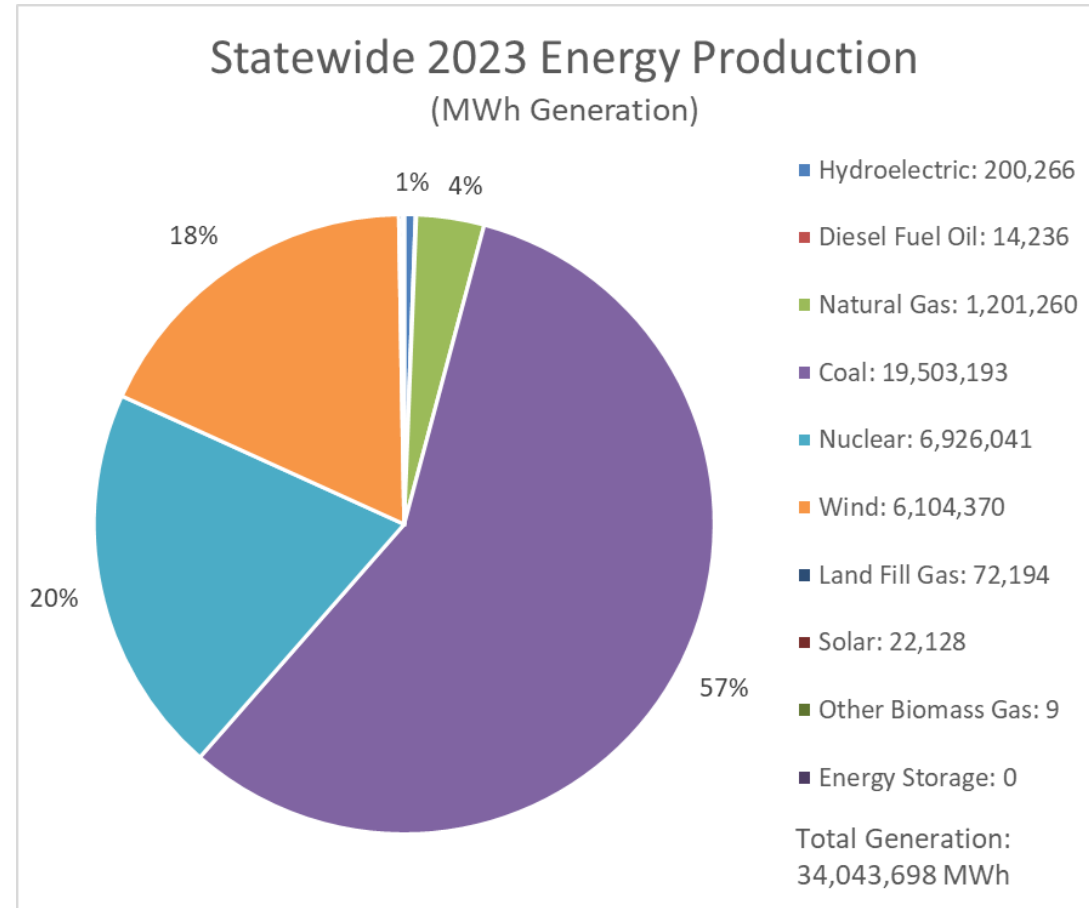


- **1,173 MW of Firm Power Purchases¹**
 - 832 MW Western Area Power Administration (WAPA) Hydro Contracts
 - 341 MW Other Firm Power Contracts
- **157 MW of utility behind the meter nameplate generation (includes solar)**

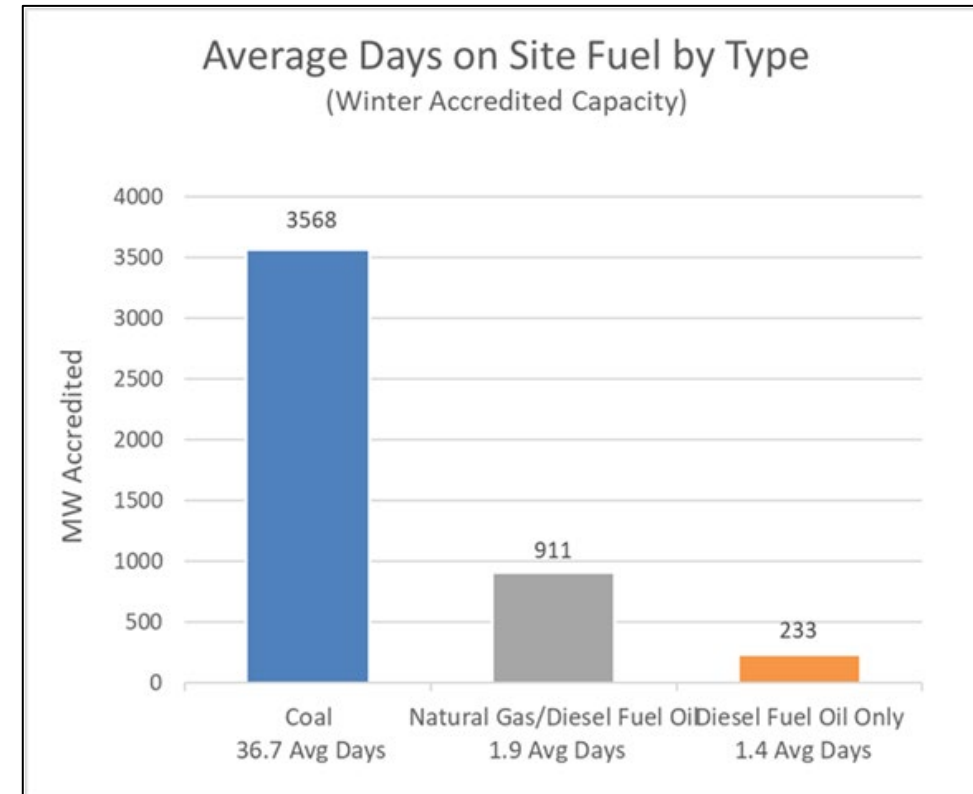
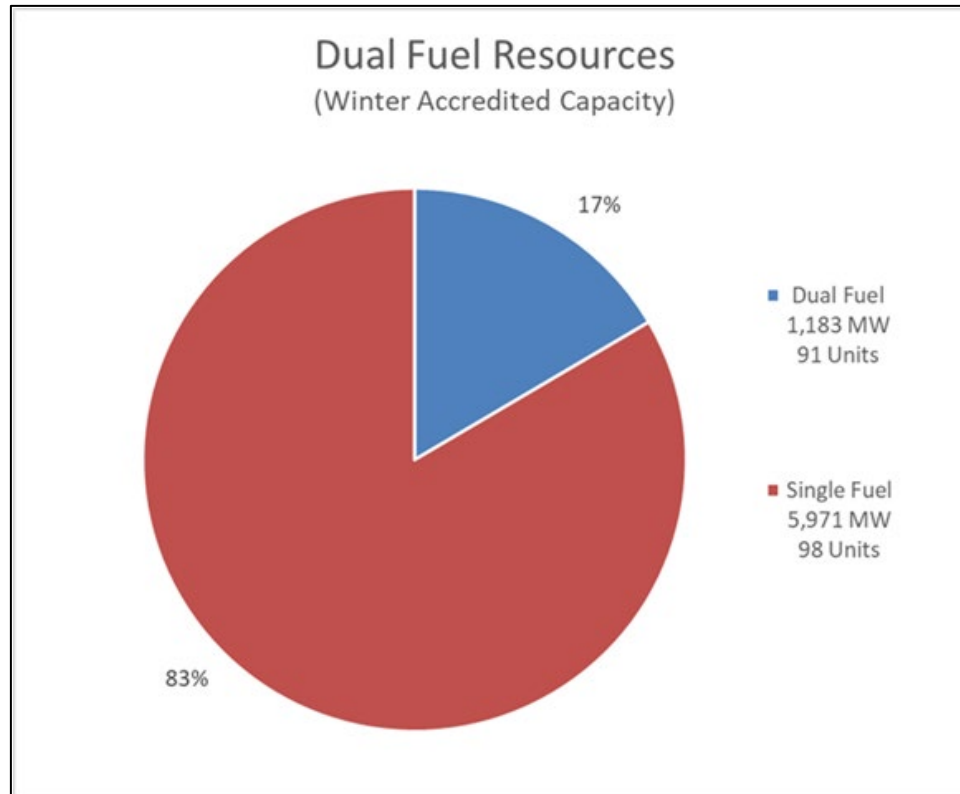
* Electrical generating resources expected to be in service by the summer of 2024.

¹ Capacity reserves are provided by the Firm Power provider

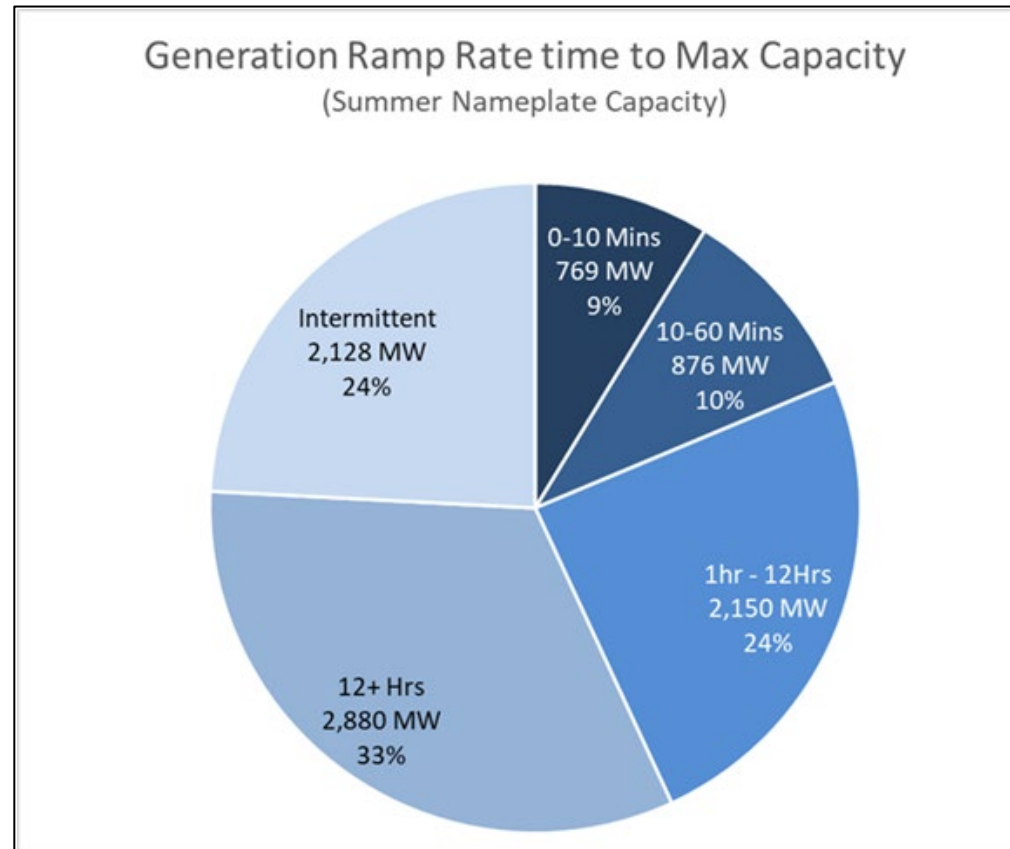
In 2023, about 57% of the electrical energy produced by Nebraska utilities came from coal, with the next highest categories being 20% from nuclear and 18% from wind.



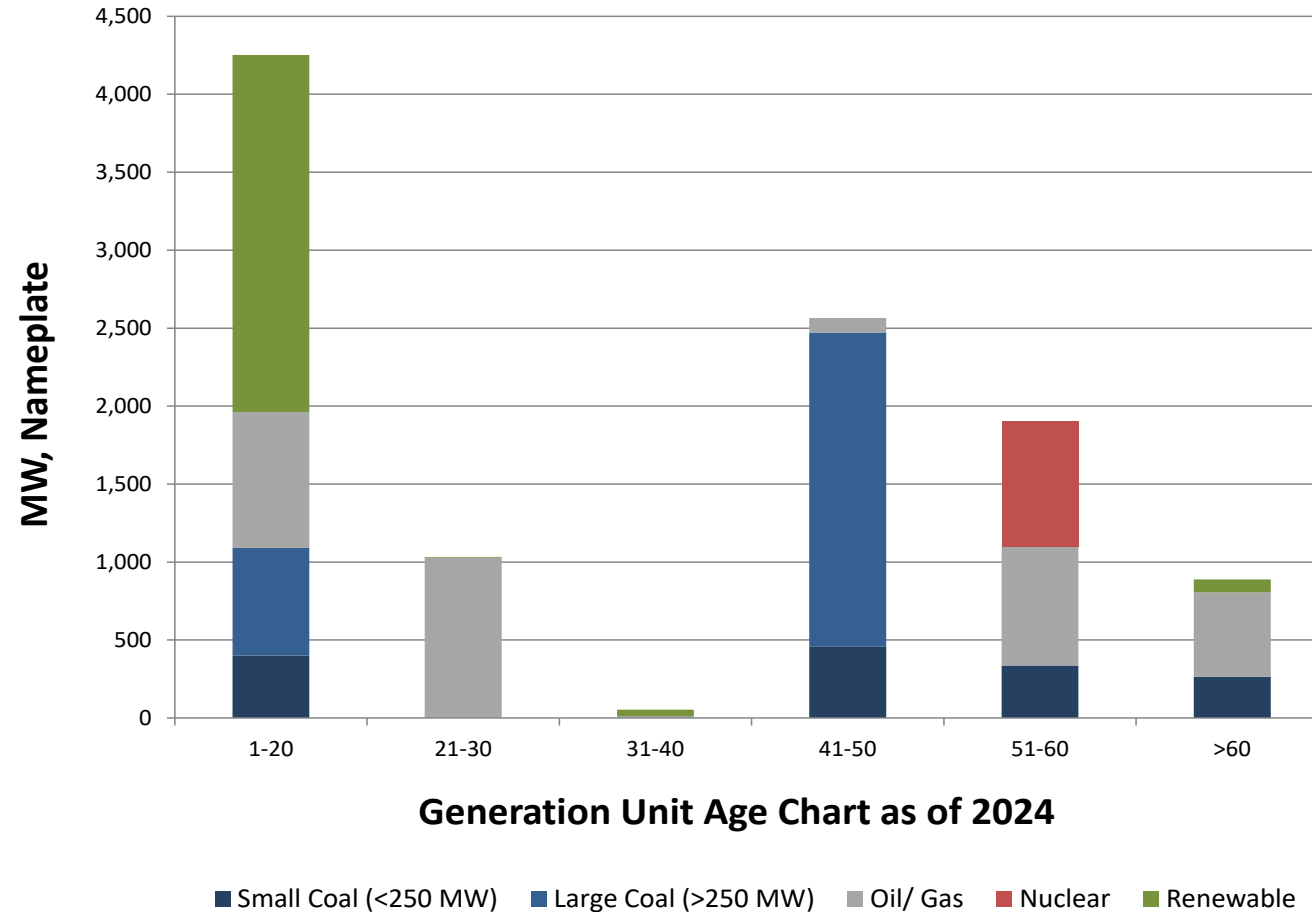
During winter conditions, about 17% of Nebraska's accredited generating capacity is capable of utilizing dual fuels (natural gas or fuel oil). At full output, NPPD, OPPD, and LES's coal fired generation has about 37 days of fuel stored on site, while their generators that can use fuel oil have 1.4 to 1.9 days of fuel stored on site.



The Nebraska utilities manage a diverse generating fleet with ramp rates to full output ranging from 0-10 minutes to 12+ hours, along with intermittent resources whose output and ramp rates can depend on a variety of factors.



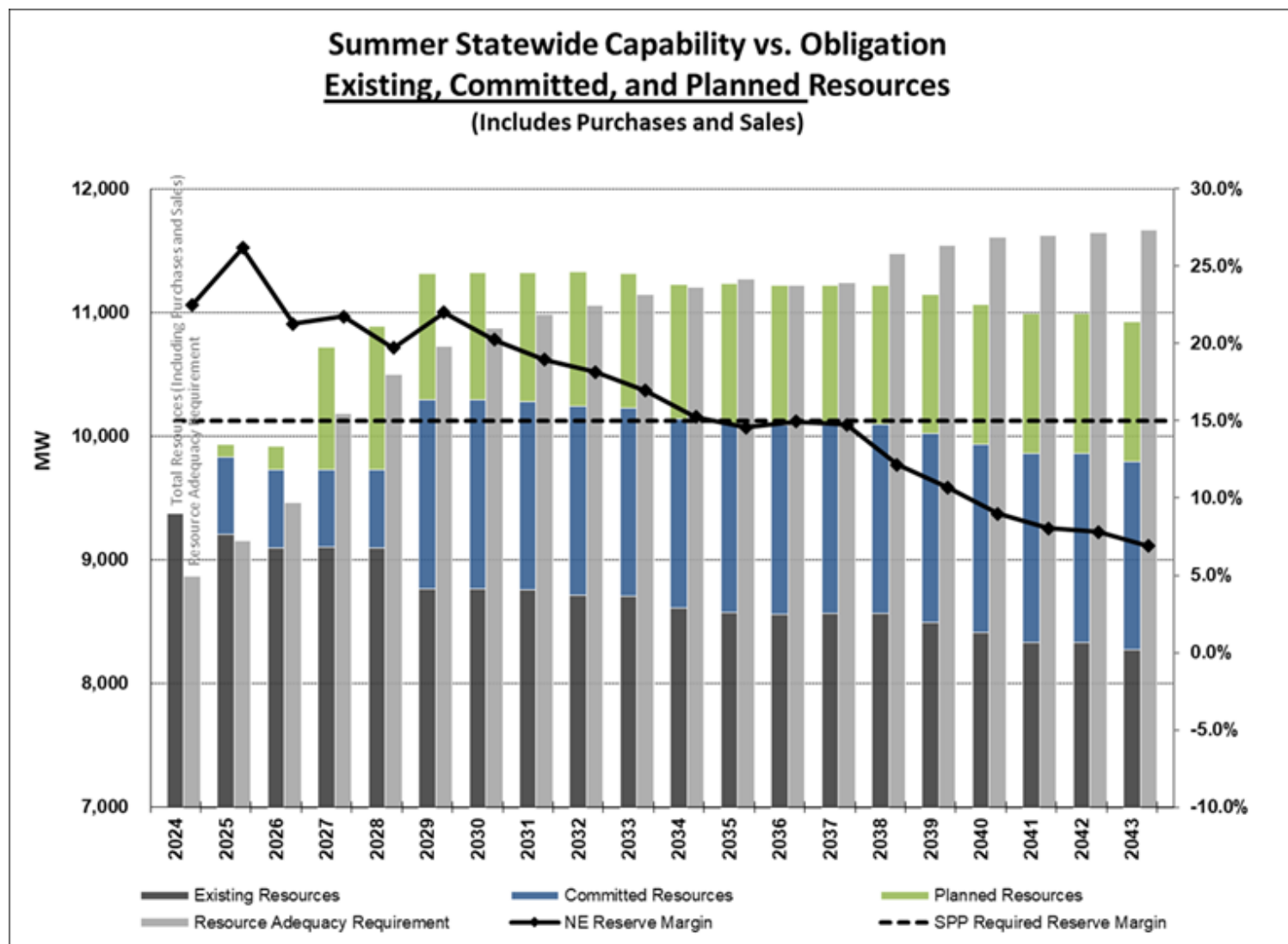
Nebraska's existing generating fleet encompasses a broad range of ages, but can generally be categorized into generation that is twenty years old or less, and generation that is older than forty years. By nameplate rating, approximately 50% of Nebraska's generation has been in service for more than forty years.



The Nebraska utilities have about 4,339 Megawatts (accredited rating) of new electrical generation being evaluated in various stages of the planning process.

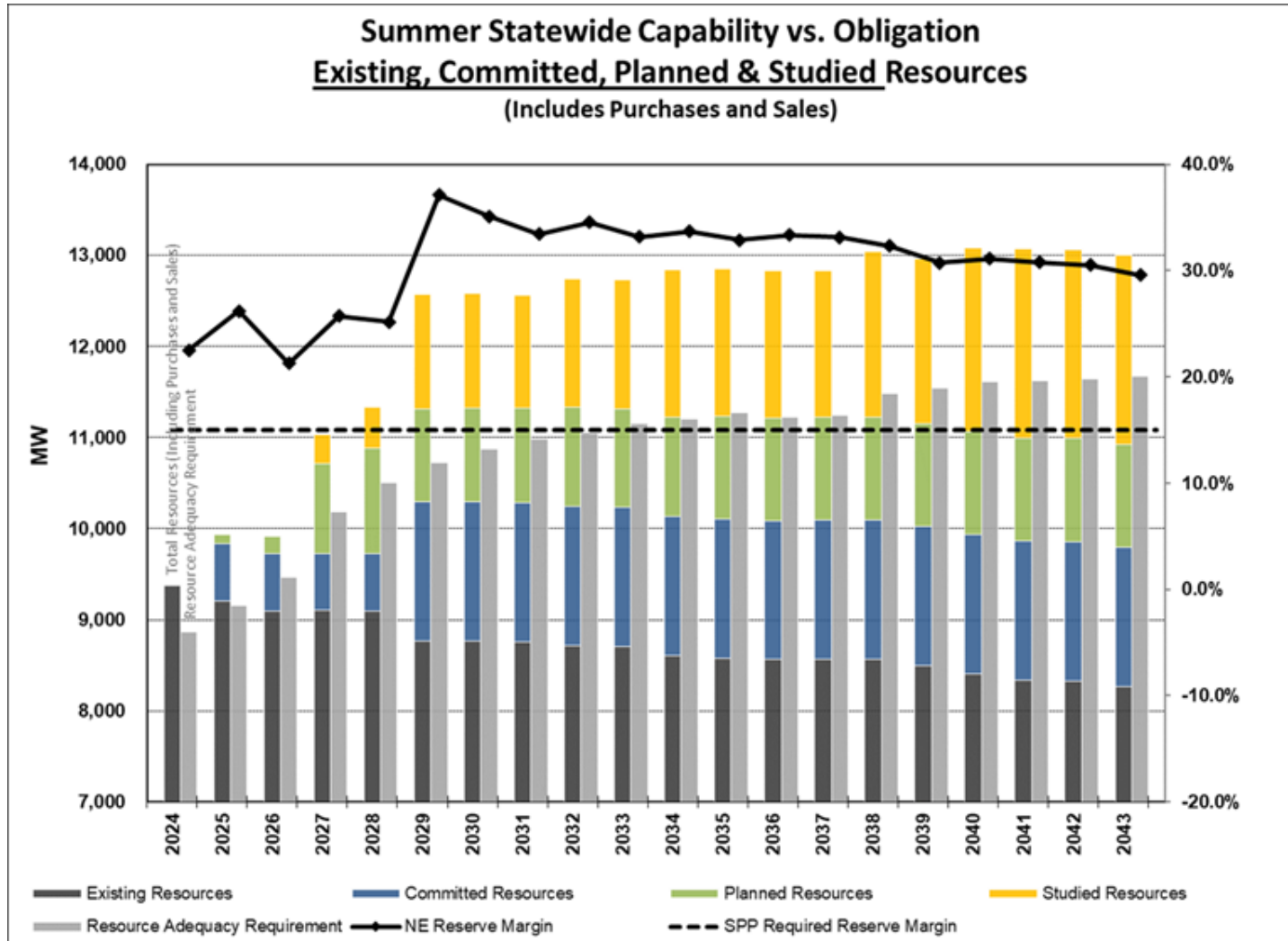
	Renewable	Conventional	Unspecified	Total
Committed	34 (OPPD Wind)	1,493 (OPPD Standing Bear Lake NG) (OPPD Turtle Creek NG) (OPPD Future CT)	0	1,527
Planned	100 (NPPD Battery Storage)	636 (NPPD CT) (NPPD RICE)	0	736
Studied	586 (OPPD Solar, Wind) (OPPD Battery Storage) (NPPD Solar, Wind)	630 (NPPD CT)	860 (LES, OPPD)	2,076
Total	720	2,759	860	4,339

With Nebraska's fleet of Existing, Committed, and Planned* electrical generators, the State would drop below the Southwest Power Pool's 15% summer Planning Reserve Margin in 2035

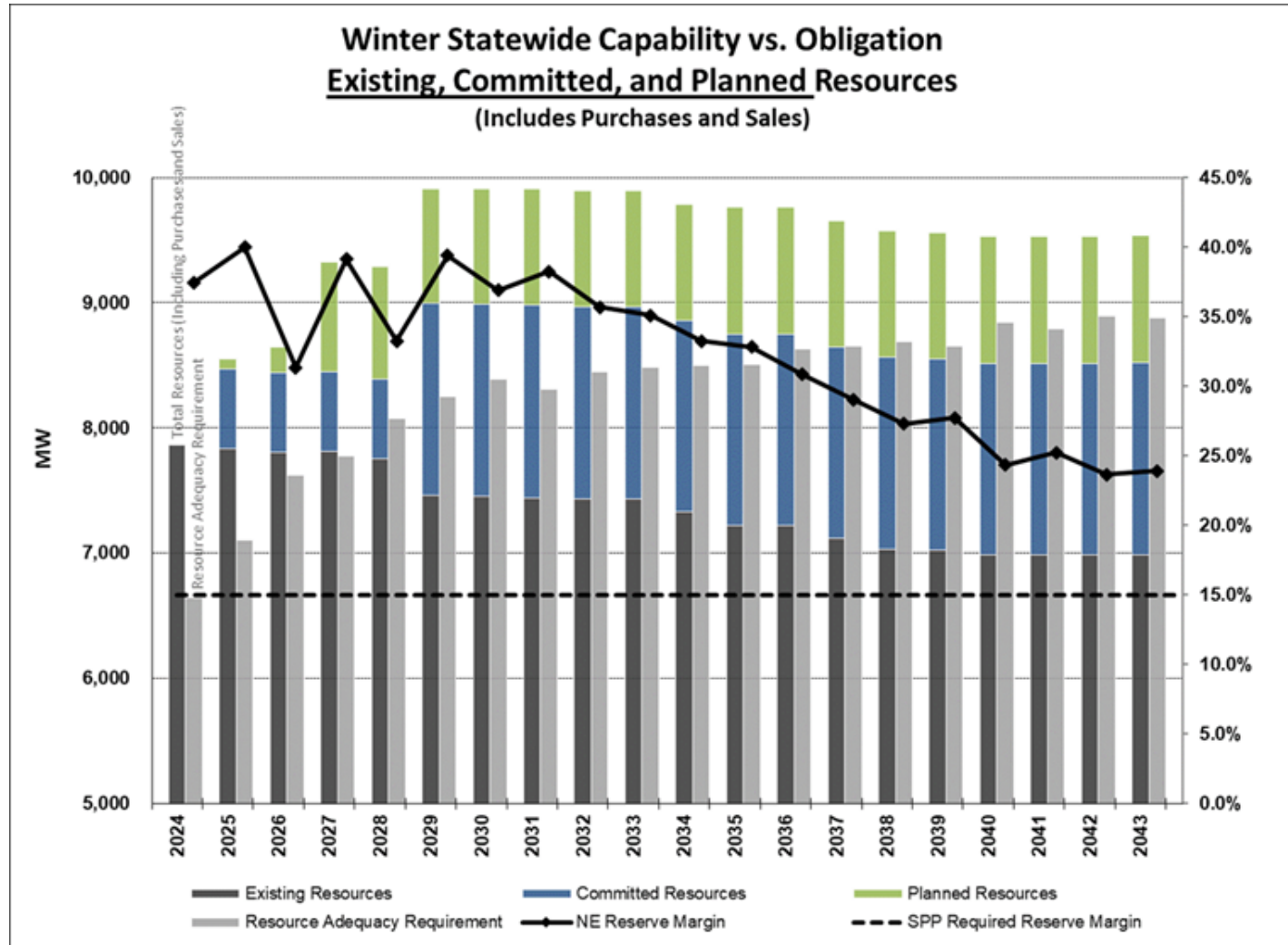


*Regulatory approvals (e.g. planning, zoning, environmental, etc.) along with NPRB approval may still be required for Planned resources. The timely receipt of these approvals will have a direct affect on each utility's ability to comply with the Planning Reserve Margin out to year 2035.

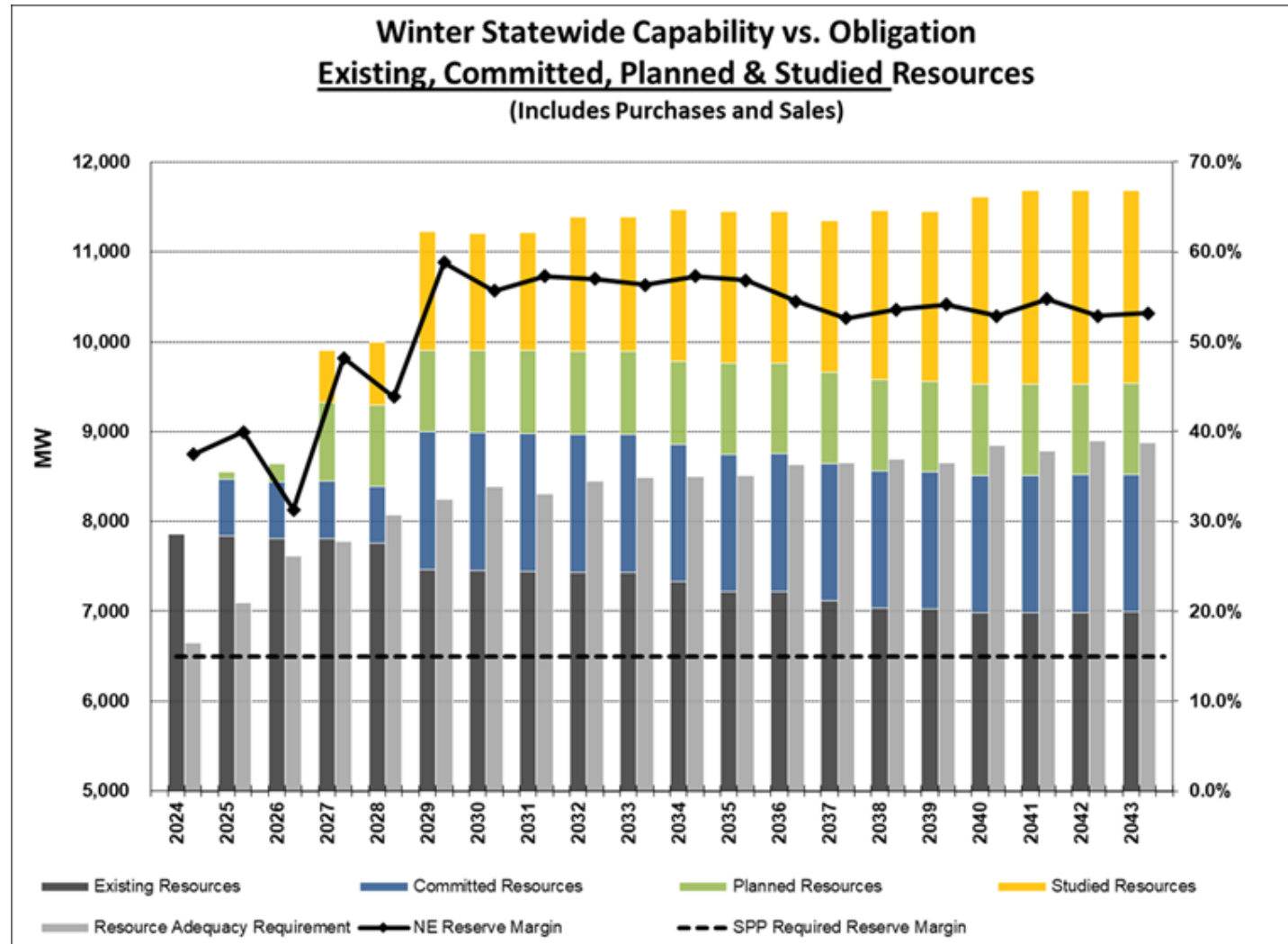
With Studied electrical generation included, Nebraska meets the Southwest Power Pool's 15% summer Planning Reserve Margin throughout the twenty-year study period



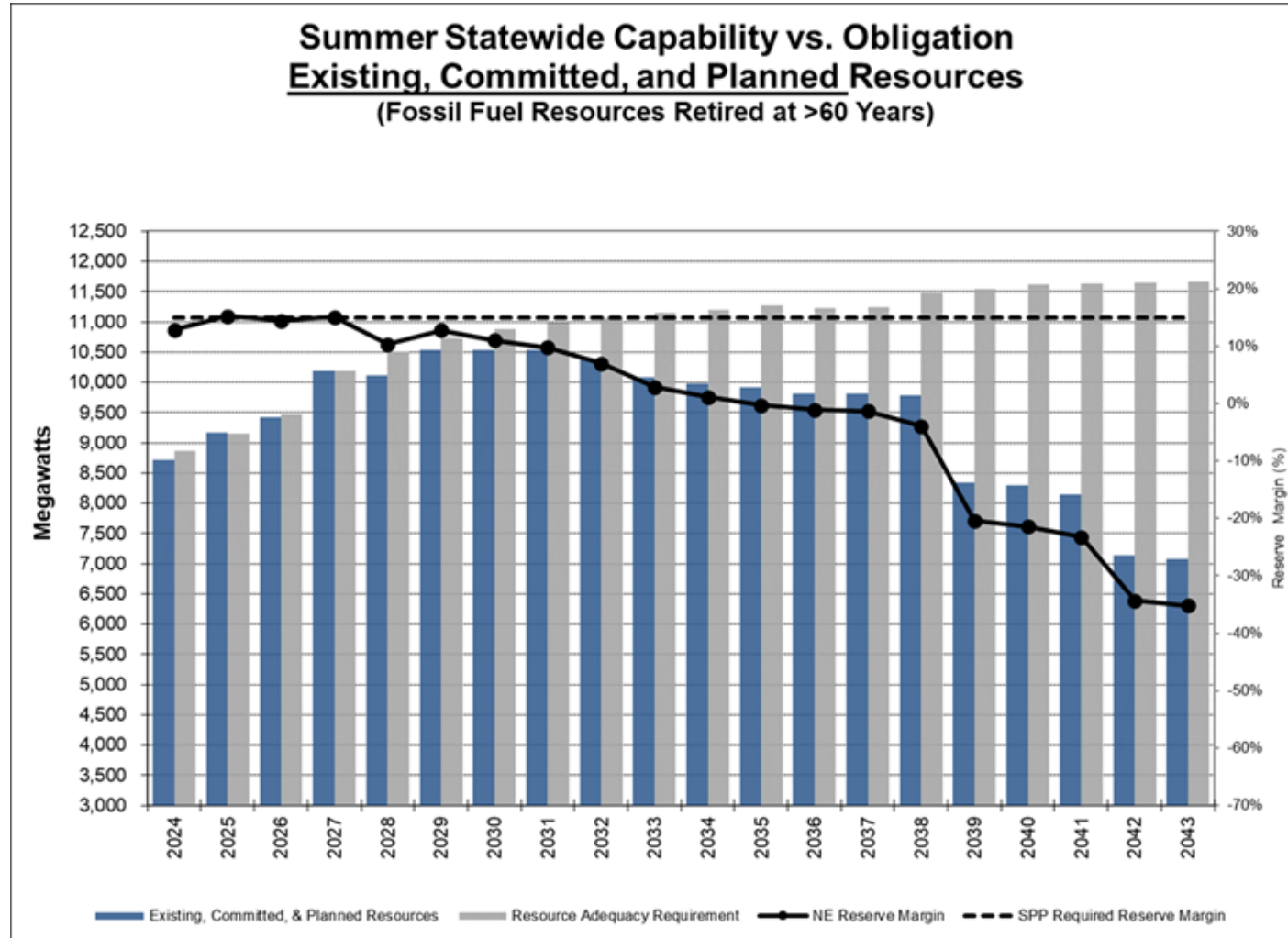
With Nebraska's fleet of Existing, Committed, and Planned electrical generators, the State meets the Southwest Power Pool's currently assumed 15% winter Planning Reserve Margin throughout the twenty-year study period



With Studied electrical generation included, Nebraska meets the Southwest Power Pool's currently assumed 15% winter Planning Reserve Margin throughout the twenty-year study period



For illustrative purposes only, if the Nebraska utilities retired their Existing fossil fuel powered generating resources when they reach sixty years of age, the State would hover near the required summer Planning Reserve Margin for the next several years, but fall below in 2028



SPP has assembled the initial data for generation reliability metrics. Nebraska's generating fleet performance is being evaluated to help understand the results and prepare for the conversion to Performance Based Accreditation.

SPP Footprint Fuel and Technology Type	SPP Summer Weighted Average EFORd	SPP Winter Weighted Average EFORd
Combustion Turbine Natural Gas	7.00%	13.80%
Combustion Turbine Petroleum	10.70%	9.70%
Combined Cycle Natural Gas	5.50%	5.00%
Internal Combustion Biomass*	0.01%	0.10%
Internal Combustion Natural Gas*	4.10%	6.40%
Steam Turbine Coal	7.40%	8.20%
Steam Turbine Natural Gas	11.60%	14.50%
Steam Turbine Nuclear	1.60%	0.50%
Hydro**	1.40%	0.90%
Pumped Storage	7.60%	8.50%

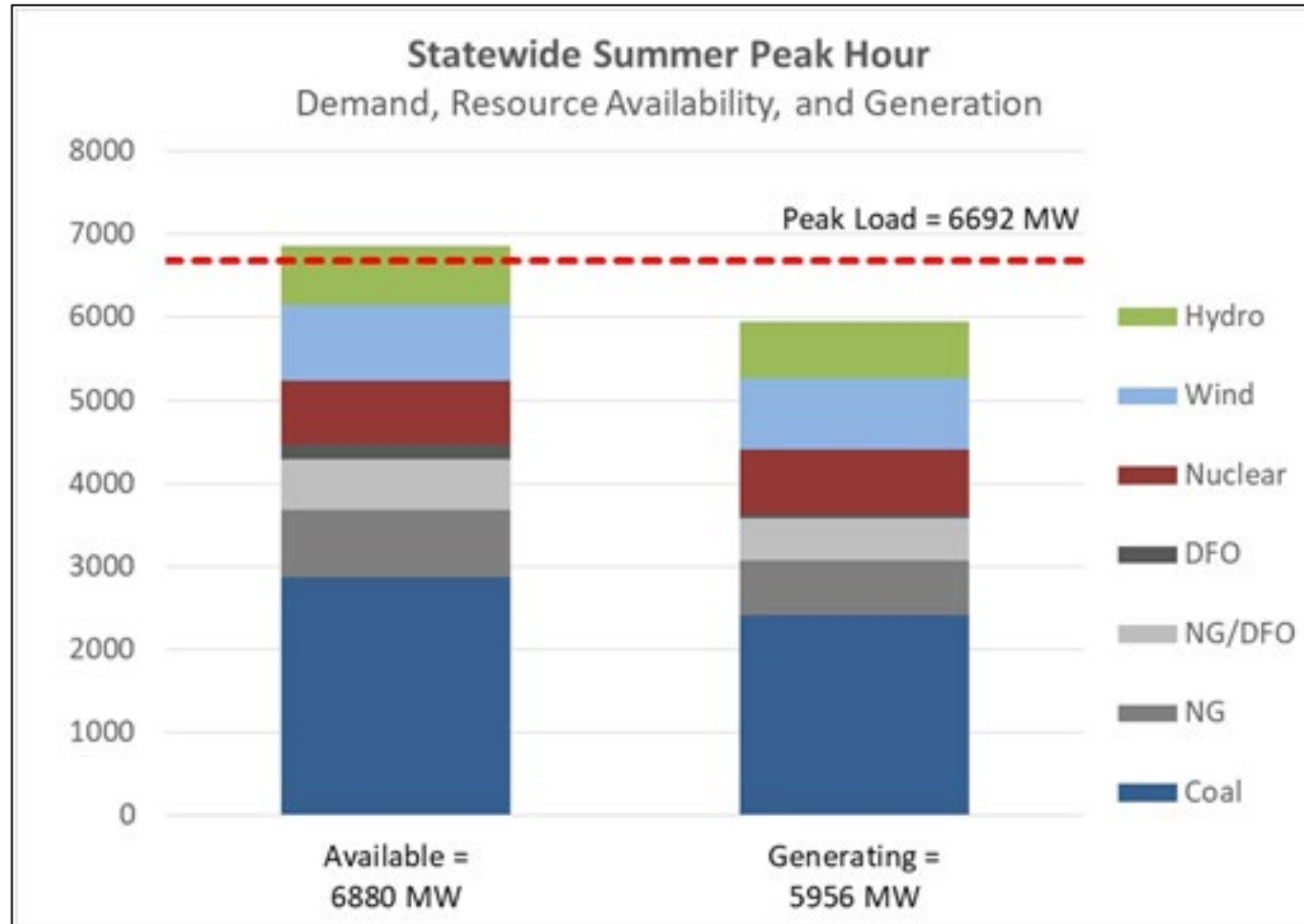
Nebraska Capacity Weighted Summer EFORd	Nebraska Capacity Weighted Winter EFORd
10.33%	19.16%
15.31%	21.31%
5.60%	2.52%
0.00%	0.00%
10.68%	14.76%
7.87%	6.93%
12.29%	
0.60%	1.81%
4.63%	6.60%

Nebraska Summer Original Claimed Capacity (MW)	Nebraska Winter Original Claimed Capacity (MW)	Nebraska Summer Adjusted Capacity (ACAP) (MW)	Nebraska Winter Adjusted Capacity (ACAP) (MW)
1,157.5	1,275.7	1,037.9	1,031.3
130.0	130.0	110.1	102.3
246.3	246.3	232.5	240.1
10.9	10.9	10.9	10.9
33.7	184.9	30.1	157.6
3,522.8	3,475.8	3,245.7	3,235.0
240.0	-	210.5	-
768.5	768.5	763.9	754.6
108.0	111.7	103.0	104.3

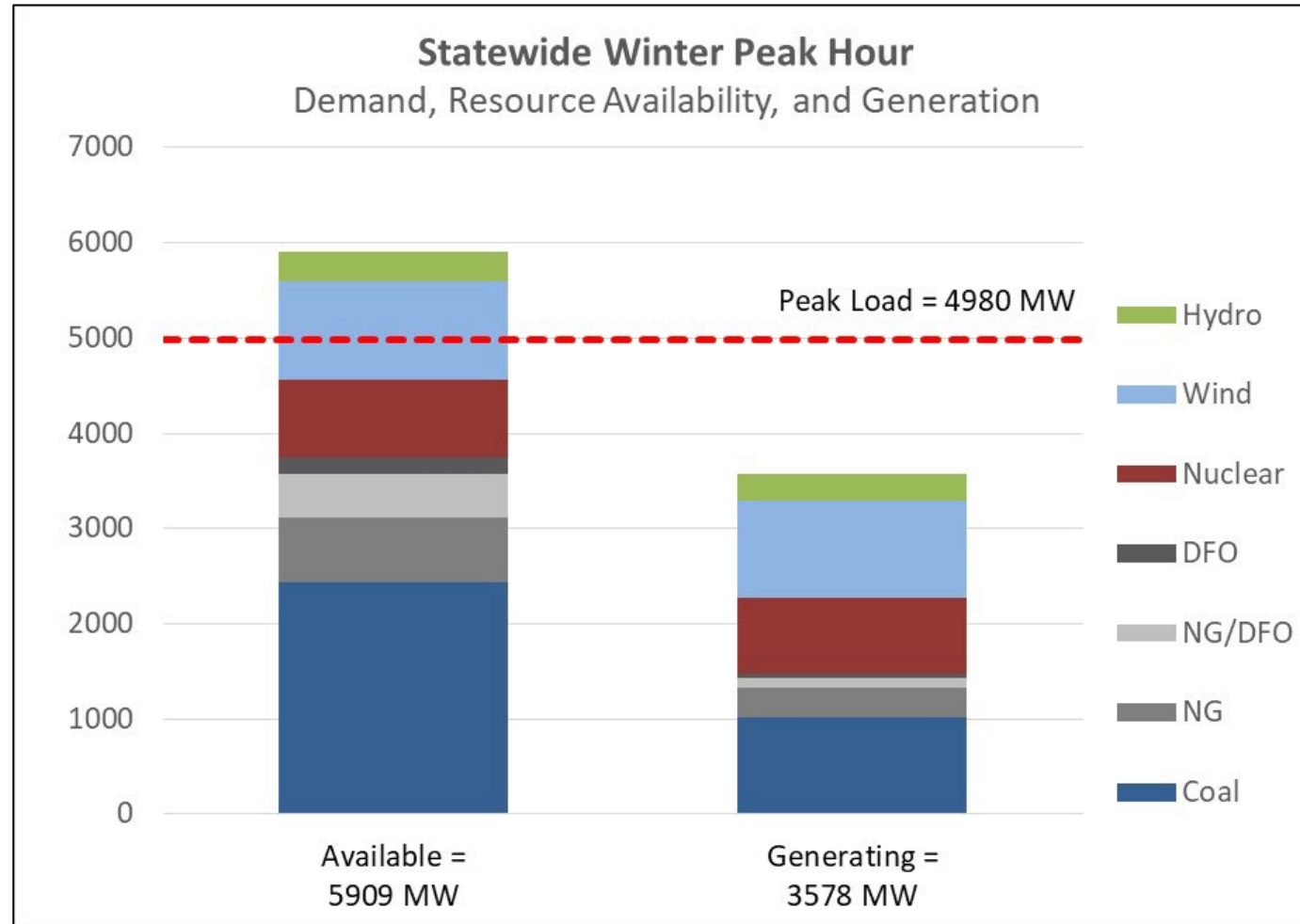
*Biomass includes Landfill Gas and Other Biomass Liquids

**Class average EFORd data for the Nebraska units, per GlobalScape

In 2023, the Nebraska utilities experienced a summer peak on August 21st. At that time, the utilities had more generation available than the amount of customer consumption, but the amount of Nebraska generation actually being operated was lower than consumption due to the availability of competitive and deliverable generation in the SPP Market.



For the 2023/24 winter season, the Nebraska utilities experienced a winter peak on January 15, 2024. Despite this being a period of extreme winter weather, river icing, and reduced river flows in the eastern part of the state, the utilities had more generation available than the amount of customer consumption. Similar to the summer peak, the amount of Nebraska generation actually being operated was lower than consumption due to the availability of competitive and deliverable generation in the SPP Market.



Several Nebraska utilities have adopted Decarbonization Goals. The goals have implementation dates that range from 2040 to 2050 and are all generally based around the concept of net-zero carbon dioxide emissions.

- **Nebraska Public Power District**
 - Board of Directors established strategic directive (SD-05) in 2021
 - The goal is to achieve net-zero carbon emissions from generation resources by 2050
- **Omaha Public Power District**
 - Board of Directors adopted a goal in its Strategic Directives to achieve net-zero carbon production by 2050
- **Lincoln Electric System**
 - Administrative Board approved a resolution in late 2020
 - The goal is to achieve net-zero carbon dioxide production from its generation portfolio by 2040
- **Municipal Energy Agency of Nebraska**
 - Board of Directors approved a resolution in early 2020
 - The goal is to achieve a carbon neutral power resource portfolio by 2050

2024 NPA Load & Capability Report Summary

- Nebraska's projected electrical demand growth rate of 1.4% per year is comparable to the 1.5% rate shown in last year's report and reflects additional information that has been obtained for large loads.
- Nebraska meets its SPP Planning Reserve Margin requirements with Existing, Committed, and Planned resources up to 2035.
- A significant amount of new electrical generation is both under construction and being proposed by Nebraska utilities.
- Each utility that has adopted a decarbonization goal will continue to evaluate its options in the coming years.

Questions and Discussion