

Nebraska Power Association 2023 Load & Capability Report

**NDEE/NPPD Power Summit
October 5, 2023**

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Chair, NPA Joint Planning Subcommittee

Organizational and Statutory Background Information

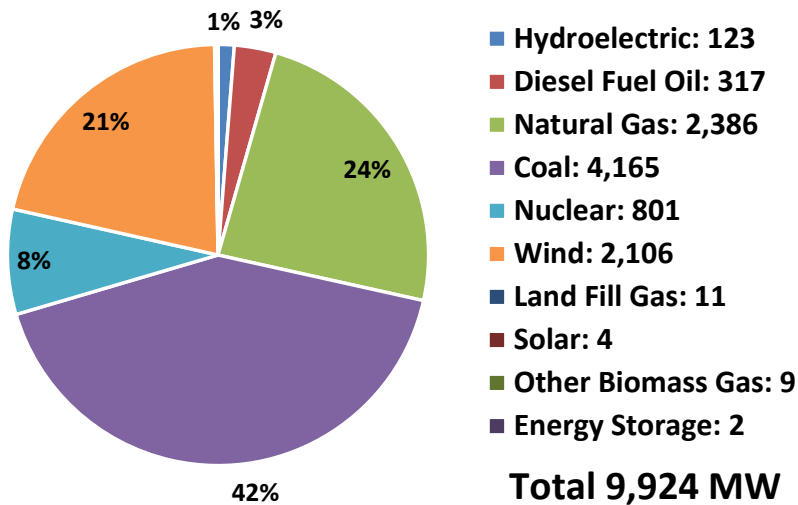
- **Nebraska Power Review Board (NPRB)**
 - State agency formed in 1963 to regulate Nebraska's publicly owned electric utility industry
 - Five-member Board approved by the Governor and confirmed by the Legislature
- **Nebraska Power Association (NPA)**
 - Voluntary organization of municipal, public power district, and cooperative electric utilities (166 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

Nebraska's Projected Peak Electrical Demand Growth

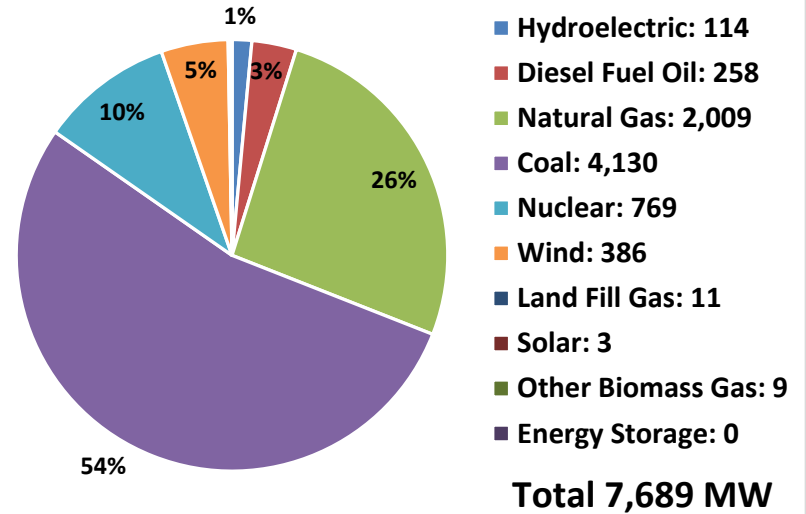
- **Average annual demand growth rate is 1.5% per year from 2023 through 2042**
 - The utilities are using probability based rankings to determine the customer electrical loads that are included in the forecast
- **This is much higher than the 0.4% growth rate shown in last year's report due to modifications in the methods for including large loads**

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

Resource Mix (Nameplate MW)



Resource Mix (Accredited MW)

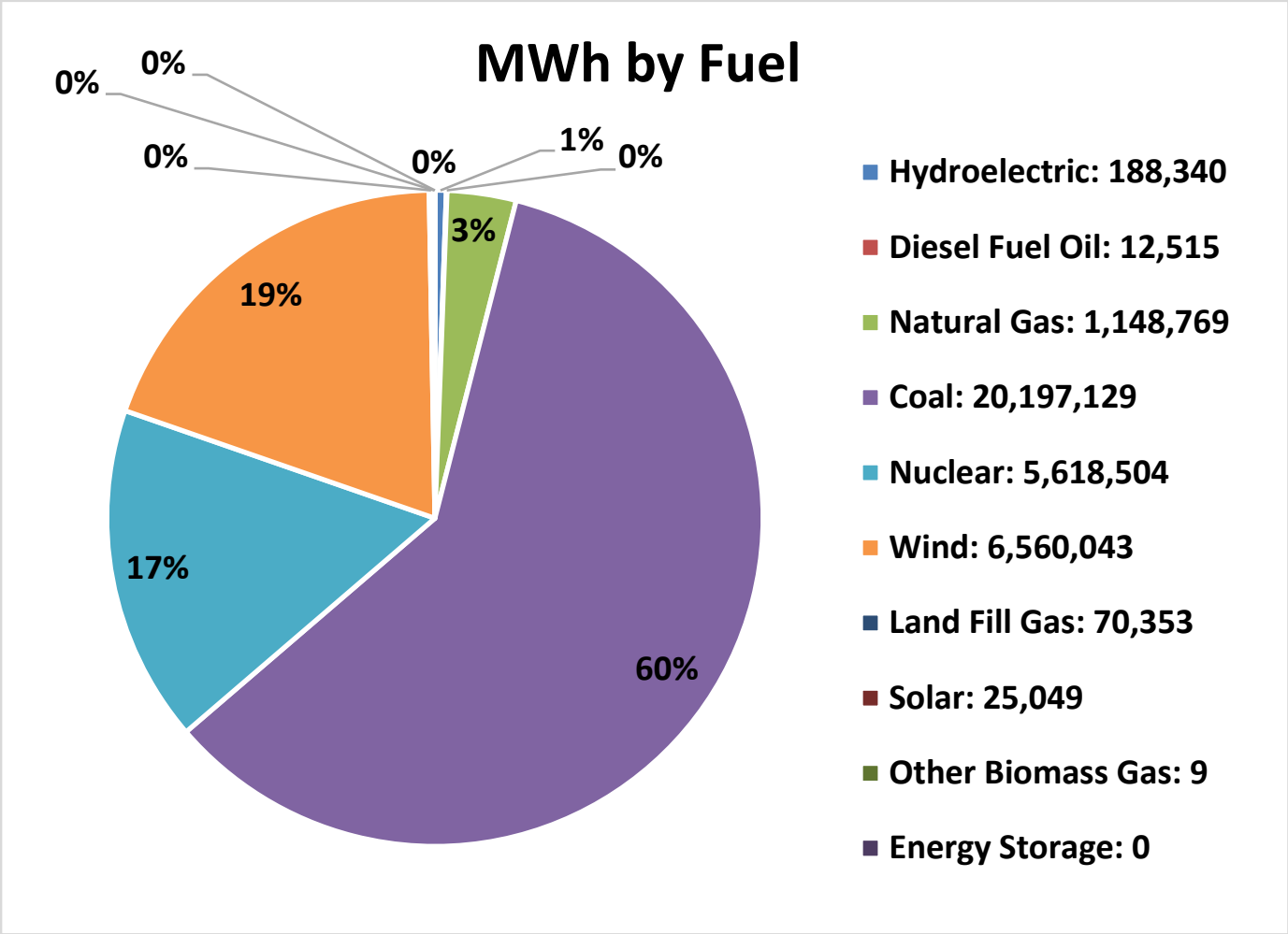


- **1,180 MW of Firm Power Purchases¹**
 - 832 MW Western Area Power Administration (WAPA) Hydro Contracts
 - 348 MW Other Firm Power Contracts
- **124 MW of utility behind the meter nameplate generation (includes solar)**

* Electrical generating resources expected to be in service by the summer of 2023.

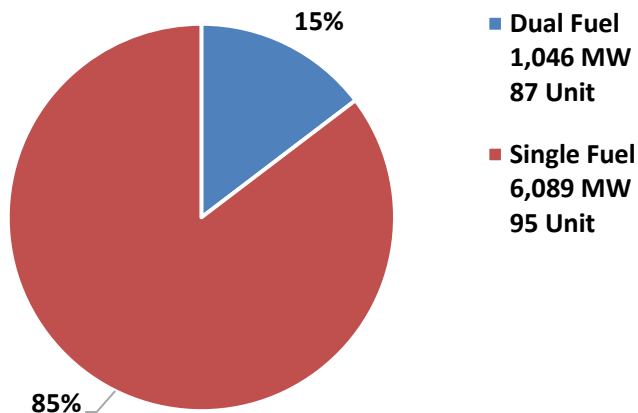
¹ Capacity reserves are provided by the Firm Power provider

In 2022, about 60% of the electrical energy produced by Nebraska utilities came from coal, with the next highest categories being 19% from wind and 17% from nuclear.

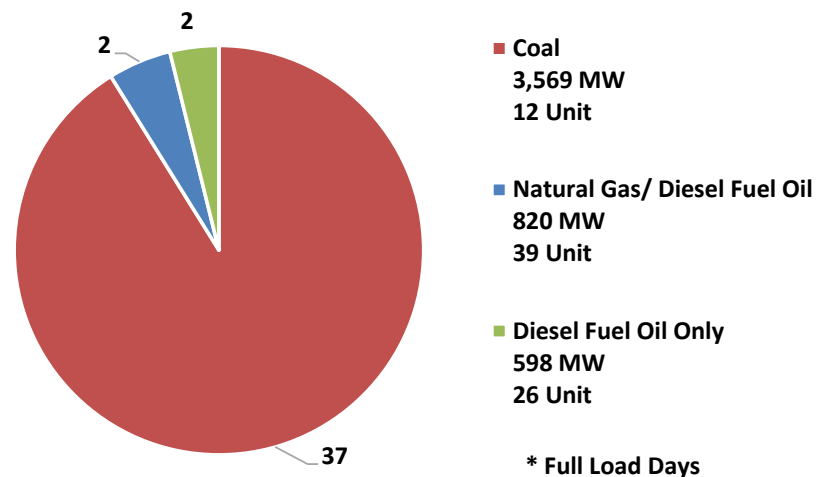


During winter conditions, about 15% of Nebraska's generators are capable of utilizing dual fuels (natural gas or fuel oil). At full output of the generators, Nebraska's coal fired generation has about 37 days of fuel stored on site, while the generators that can use fuel oil have about two days of fuel stored on site.

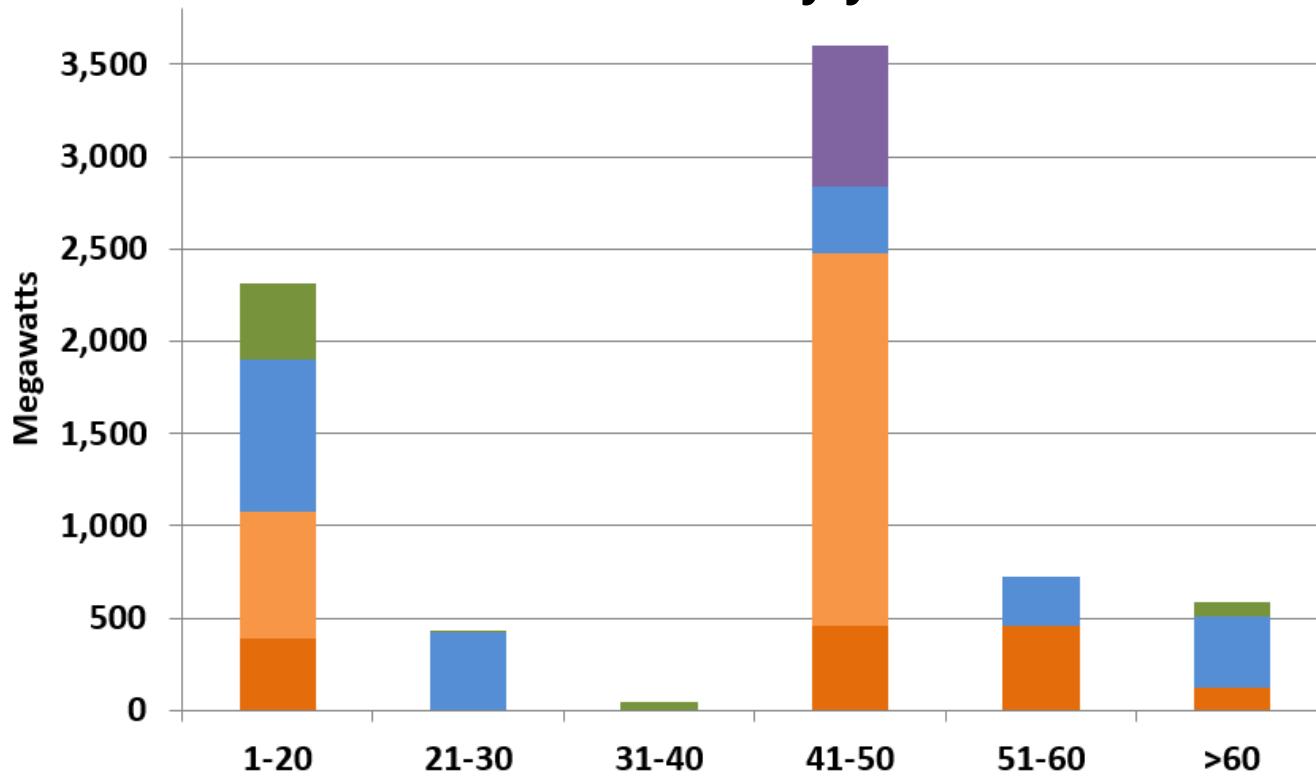
Dual Fuel Resources
(Winter Accredited Capacity)



Average Days on Site Fuel by Type
(Winter Accredited Capacity)



Nebraska's existing generating fleet encompasses a broad range of ages, with a notable group of generators that are twenty years old or less, and another group that is in the 41-50 years old category. Approximately 64% of Nebraska's generators have been in service for more than forty years.



Generation Unit Age Chart as of 2023

■ Small Coal (<250 MW)
 ■ Large Coal (>250 MW)
 ■ Oil/ Gas
 ■ Nuclear
 ■ Renewable

The Nebraska utilities have about 2,662 Megawatts (accredited rating) of new electrical generation being evaluated in various stages of the planning process.

	Renewable	Conventional	Unspecified	Total
Committed	56 (OPPD Platteview Solar)	593 (OPPD Standing Bear Lake NG) (OPPD Turtle Creek NG)	0	649
Planned	0	0	0	0
Studied	872 (OPPD Solar, Wind, Battery Storage, DR)	750 (OPPD CT)	391 (NPPD)	2,013
Total	928	1,343	391	2,662

Southwest Power Pool (SPP) Generation Interconnection Queue for Nebraska (Nameplate) as of June 4, 2023

≈ 1,830 MW Battery Storage

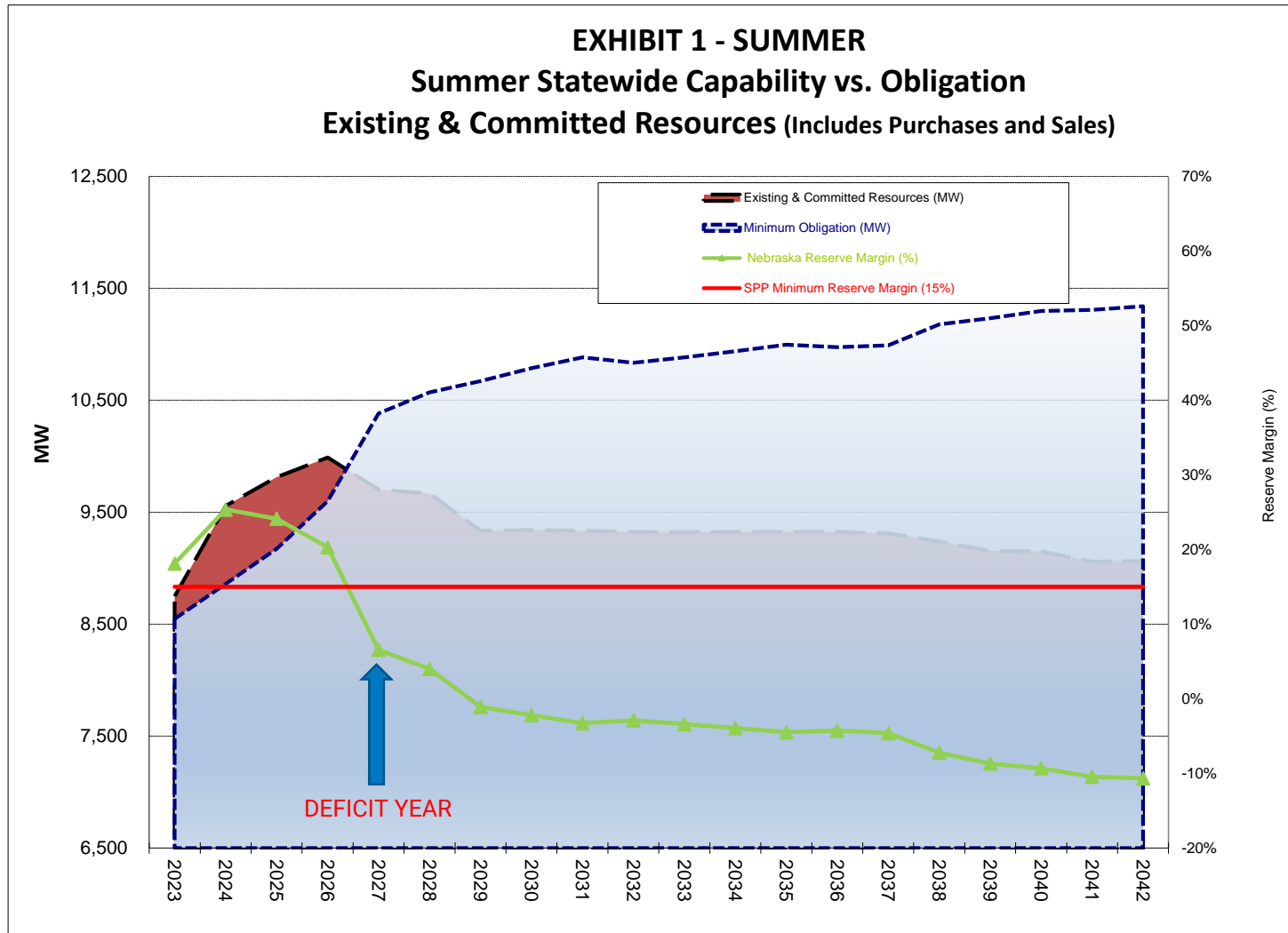
≈ 5,575 MW Solar

≈ 4,573 MW Wind

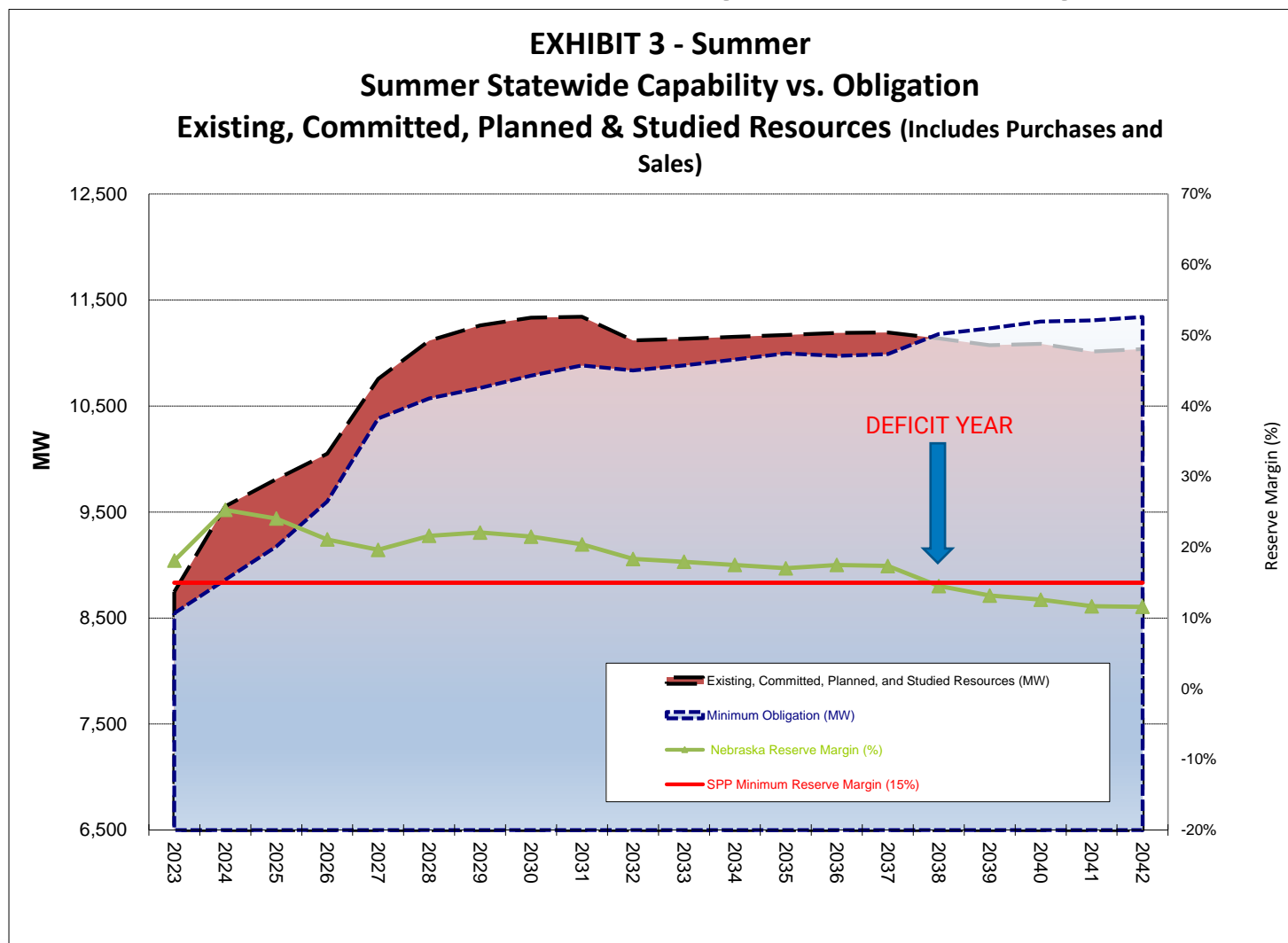
≈ 1,952 MW Hybrid (Typically Solar + Storage)

≈ 1,286 MW Conventional

With Nebraska's fleet of Existing and Committed electrical generators, the State would drop below the Southwest Power Pool's recently revised 15% summer Generation Planning Reserve Margin in 2027

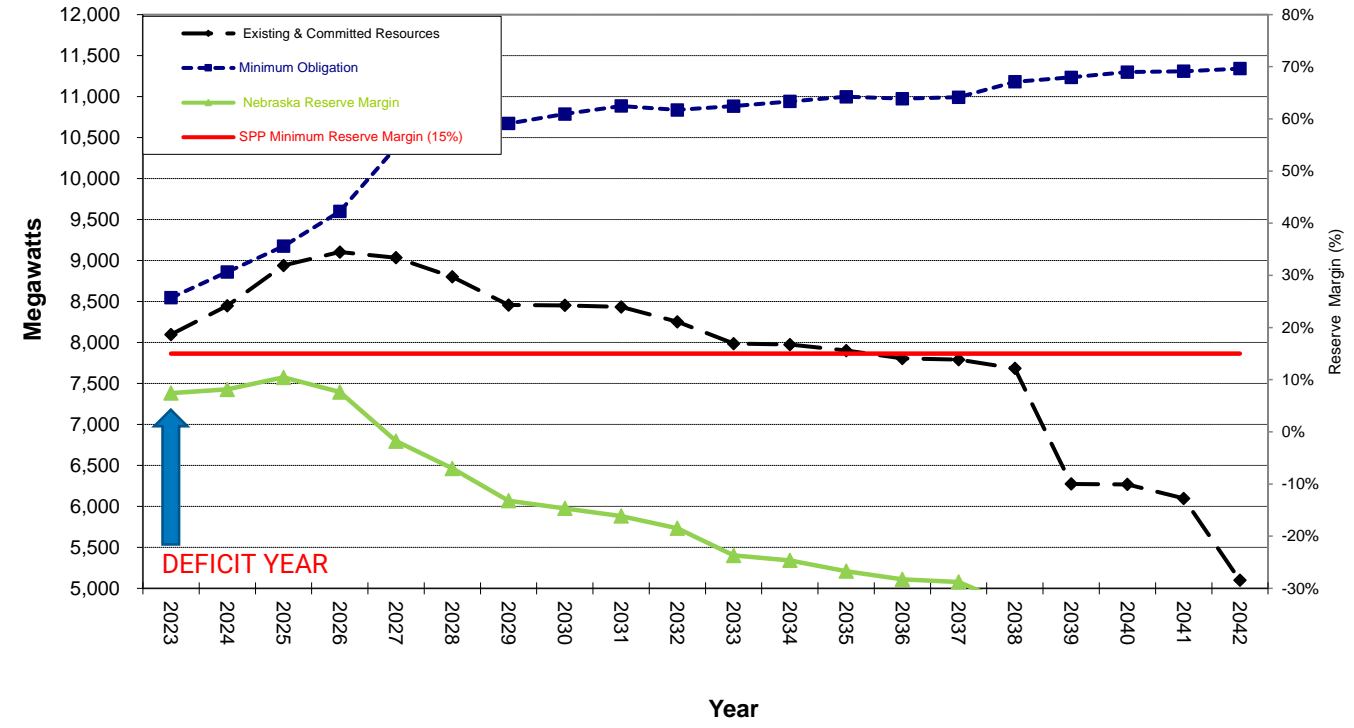


With Planned and Studied electrical generation included, Nebraska would not drop below the Southwest Power Pool's recently revised 15% summer Generation Planning Reserve Margin until 2038

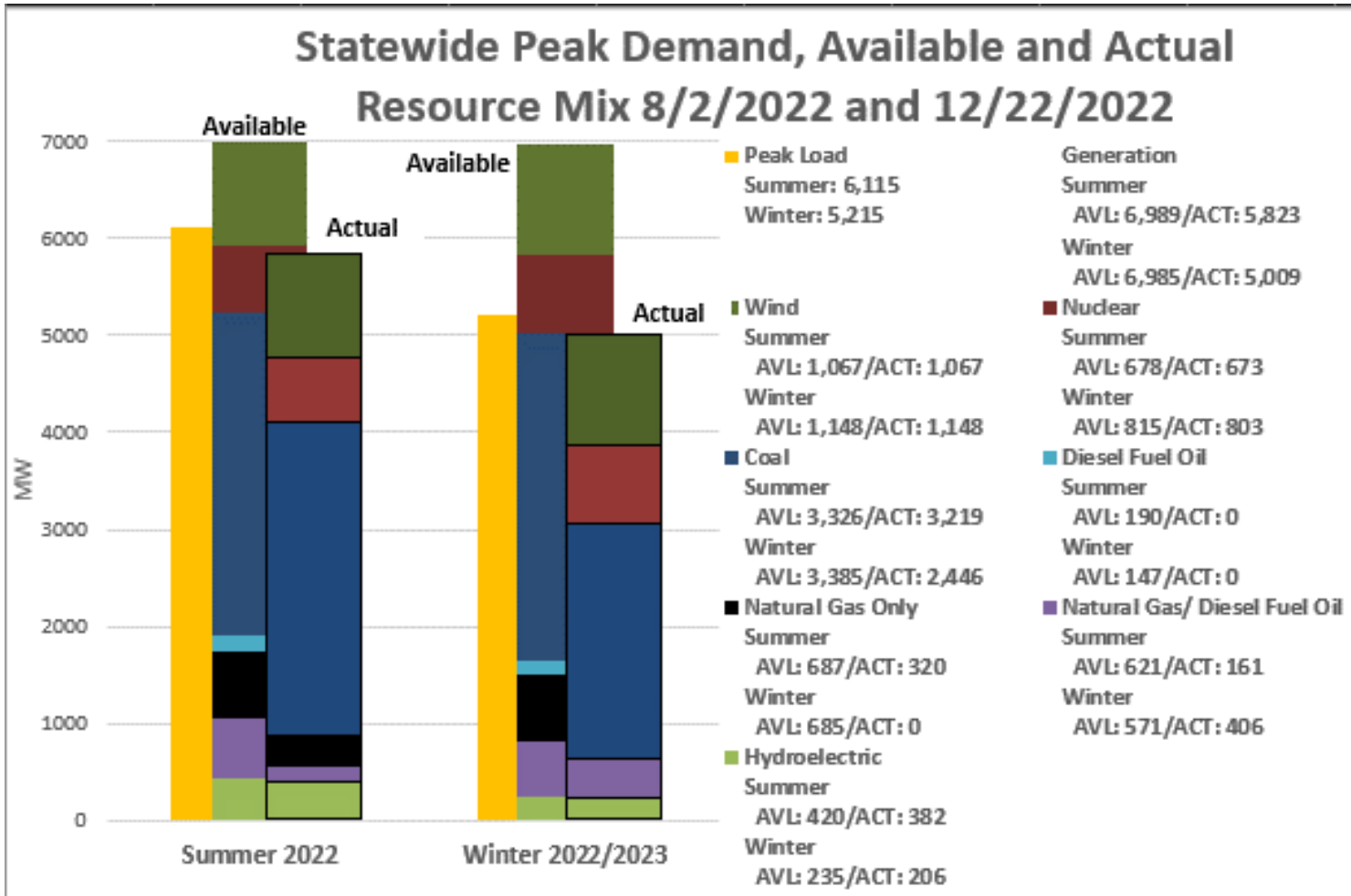


For illustrative purposes only, if the Nebraska utilities retired their Existing & Committed fossil fuel powered generating resources when they reach sixty years of age, the State would drop below the required Generation Planning Reserve Margin in 2023

Exhibit 8
Statewide Capability vs. Obligation
Existing, Committed Resources Less Retirements
(Includes Purchases and Sales)
(Fossil Units > 60 Years)



In 2022, the Nebraska utilities experienced a summer peak on August 2nd, and a winter peak on December 22nd. At those two times, 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.



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
 - Recent studies performed are being used to make informed decisions regarding near term proposed generation additions
- **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

2023 NPA Load & Capability Report Summary

- Nebraska's projected electrical demand growth rate of 1.5% per year is higher than the 0.4% rate shown in last year's report due to modifications in the methods used for including large loads in each utility's forecast.
- Nebraska meets its SPP Reserve Margin requirements with Existing and Committed resources through 2026.
- A significant amount of new electrical generation is proposed by Nebraska utilities and is progressing through various stages of the planning process.
- Each utility that has adopted a decarbonization goal will continue to evaluate its options in the coming years.

Questions and Discussion