

Challenges to Meet Record Electrical Growth

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Nebraska
Wind & Solar
CONFERENCE & EXHIBITION

Challenges to Meet Record Electrical Growth

Nebraska Wind and Solar Conference & Exhibition

October 24, 2023

LES by the Numbers

- Approximately 150,000 retail customers in 200 square miles
- Nine-member administrative board appointed by the mayor
- Approximately 540 employees
- 2nd largest retail electric utility in Nebraska
- 23rd largest public power utility in the US
- 819 MW peak load set in August 2023

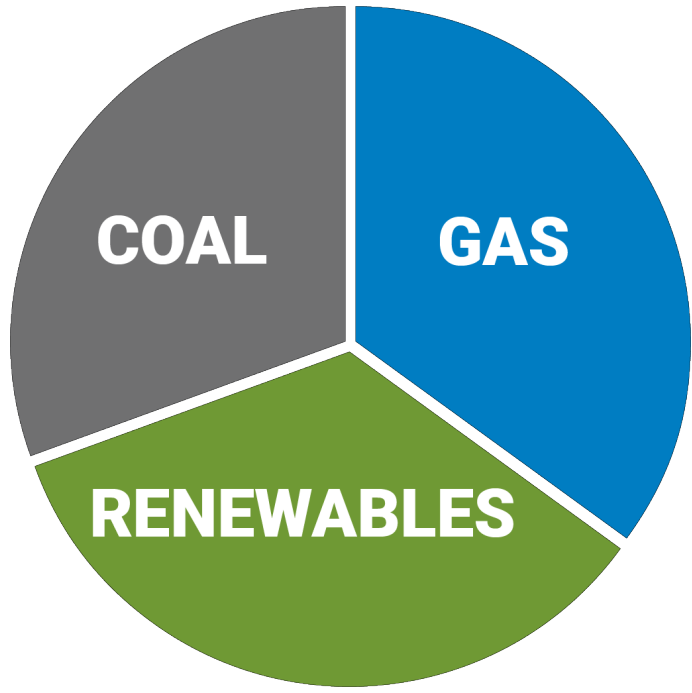
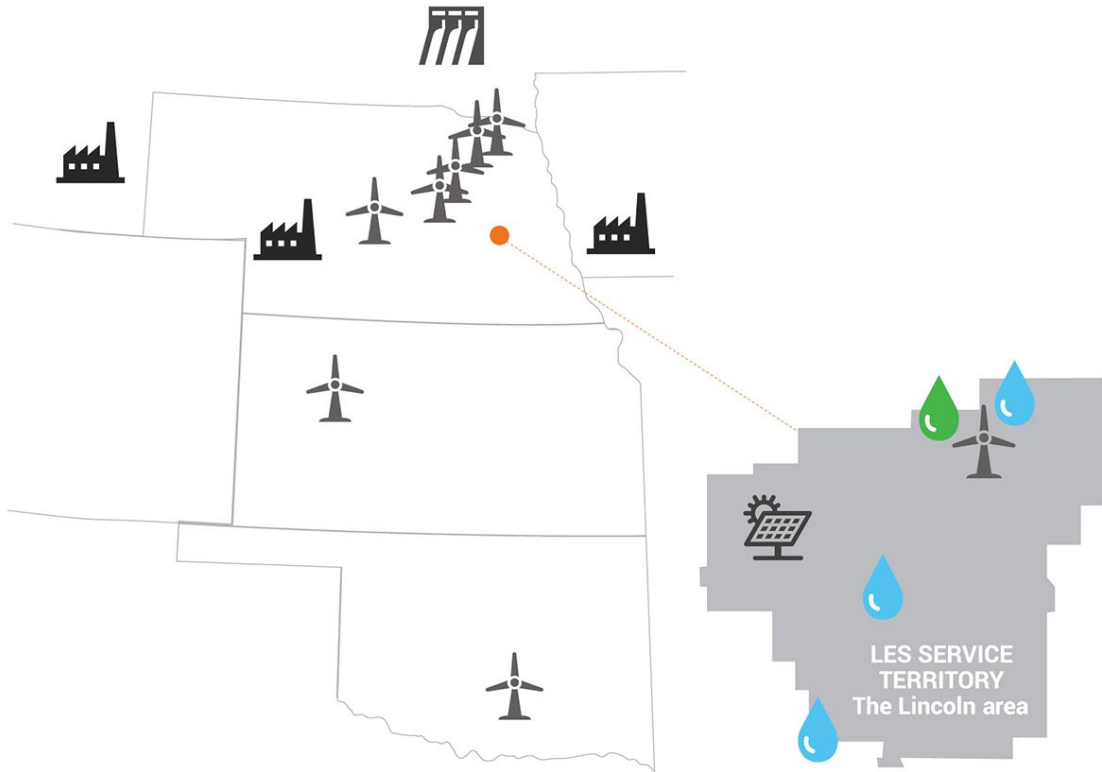


LES Decarbonization Goal

Net zero by 2040

After participating in a yearlong educational series on establishing a new carbon reduction goal and soliciting public opinion, the LES Administrative Board in November 2020 adopted a robust decarbonization goal. This new goal will aim to offset LES' carbon dioxide production from our generation portfolio by 2040, in line with the city's Climate Action Plan — a citywide goal to reduce greenhouse gas emissions by 80% by 2050.

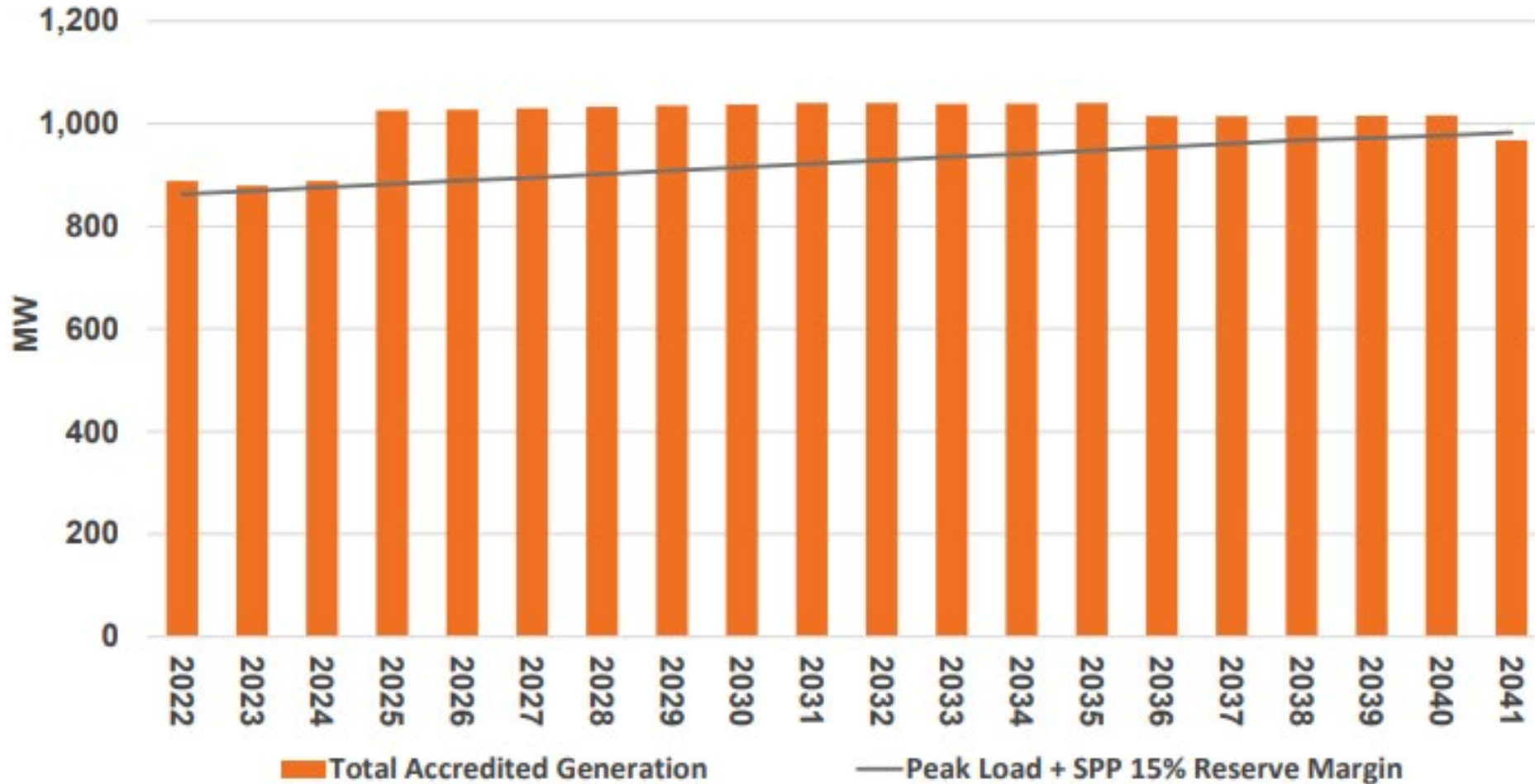
LES Generation Mix



LES is selling the Renewable Energy certificates (RECs) associated with its applicable resources, and the renewable attributes are transferred to the REC recipient.

- Coal
- Hydro
- Natural Gas
- Landfill Gas
- Wind
- Solar

2022 Integrated Resource Plan



Large Load Considerations

- Mitigate financial risk to other ratepayers through rates and agreements
- Maintain financial stability of the utility
- Continue to make progress toward 2040 decarbonization goal
- Collaborate with Lincoln Partnership for Economic Development
- Securing renewables for large loads
- Cogeneration opportunities
- Advantages to adding large loads



Thank you!

Lisa Hale

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Lincoln Electric System



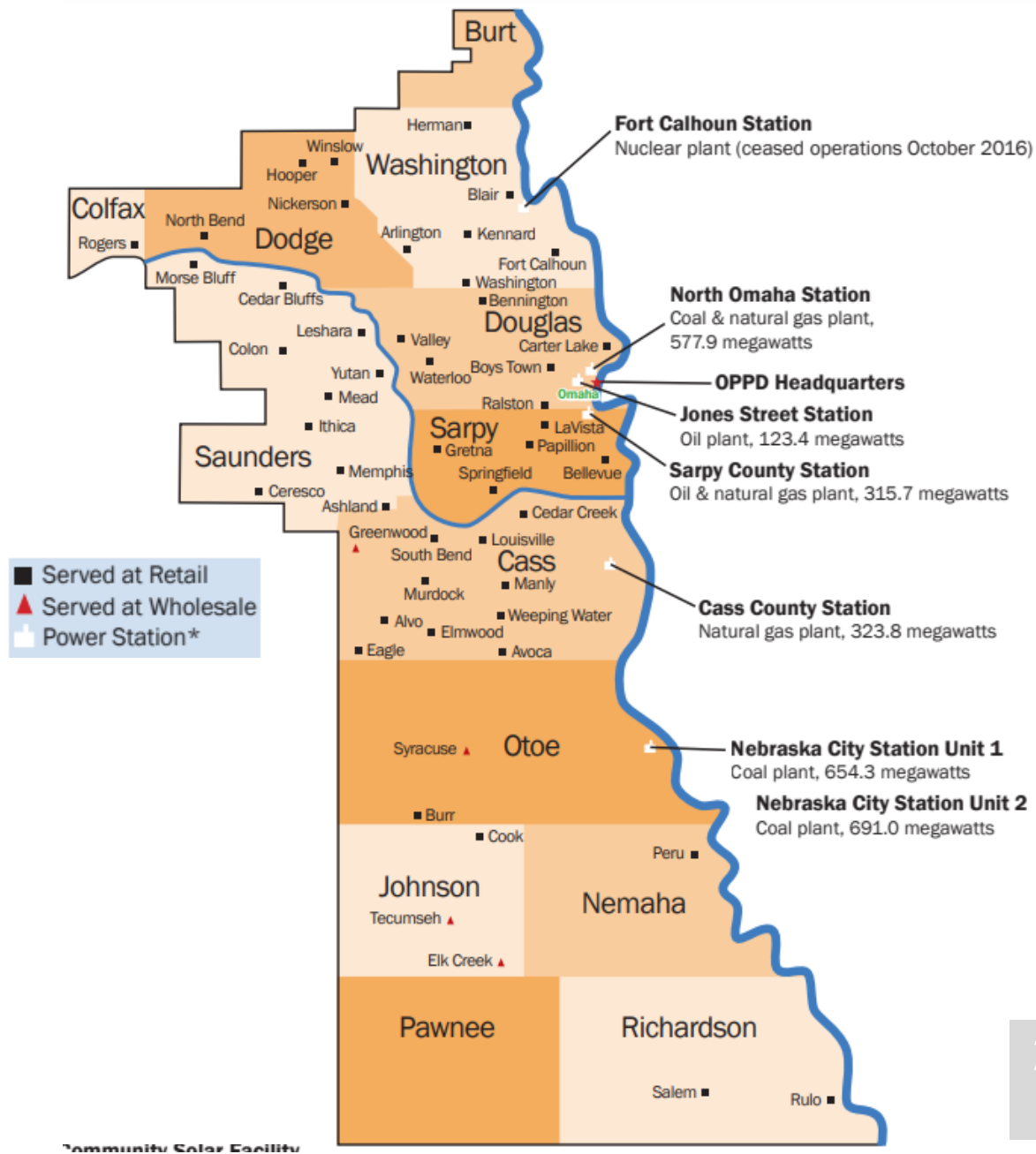
Powering the Future and Beyond

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OPPD Overview



Company highlights

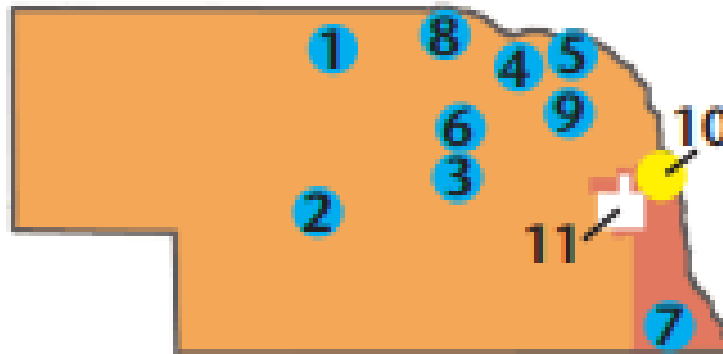
- Operating since 1946
- Publicly owned
- Governed by elected board
- Headquartered in Omaha, Neb.
- Serves 853,000 people in 13 counties
- 5,000-square-mile service territory
- 12th-largest public power utility in U.S. per number of customers

Tip – service area map - <https://nprb.gworks.com/>

Renewables + Decarbonization

- OPPD aims to be a net-zero carbon producer by 2050
- The current portfolio has more than 1,000 MW of renewables

Wind	31.6%
Hydro	3.3%
Landfill gas	0.4%
Solar	0.1%
Total	35.4%



- **WIND ENERGY CENTERS**
 - 1. Ainsworth**
10-megawatt participation agreement
 - 2. Broken Bow I**
18-megawatt participation agreement
 - Broken Bow II**
43.9-megawatt participation agreement
 - 3. Petersburg**
40.5-megawatt participation agreement
 - 4. Elkhorn Ridge**
25-megawatt participation agreement
 - 5. Crofton Bluffs**
13.6-megawatt participation agreement
 - 6. Prairie Breeze**
200.6-megawatt participation agreement
 - 7. Flat Water**
60-megawatt participation agreement
 - 8. Grande Prairie**
400-megawatt participation agreement
 - 9. Sholes**
160-megawatt participation agreement
- **SOLAR**
 - 10. Fort Calhoun Community Solar Facility**
5 megawatts
- LANDFILL GAS**
 - 11. Elk City Station**
6 megawatts
- HYDRO**

From Western Area Power Administration
81.3 megawatts

Keep Growing, Nebraska

Opportunity to Serve

- Electric service is the **backbone of modern life**, empowering all aspects of the region's life, wellbeing and prosperity.
- OPPD partners closely with the state, counties, cities and many others to understand where businesses, schools and other **power users are planning to grow**.
- These partnerships have sent strong growth signals the last few years and continue to send very strong growth signals. **OPPD must be prepared**.
- It is OPPD's **responsibility and obligation** to serve its customers.

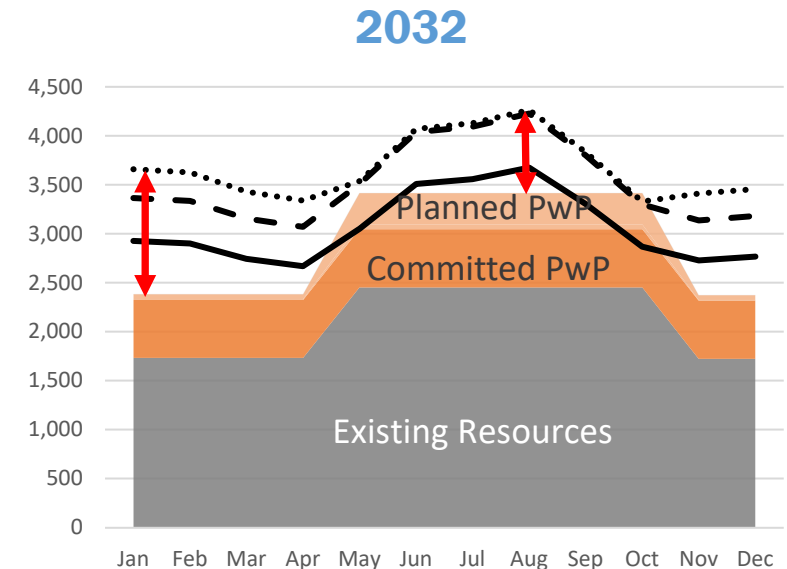
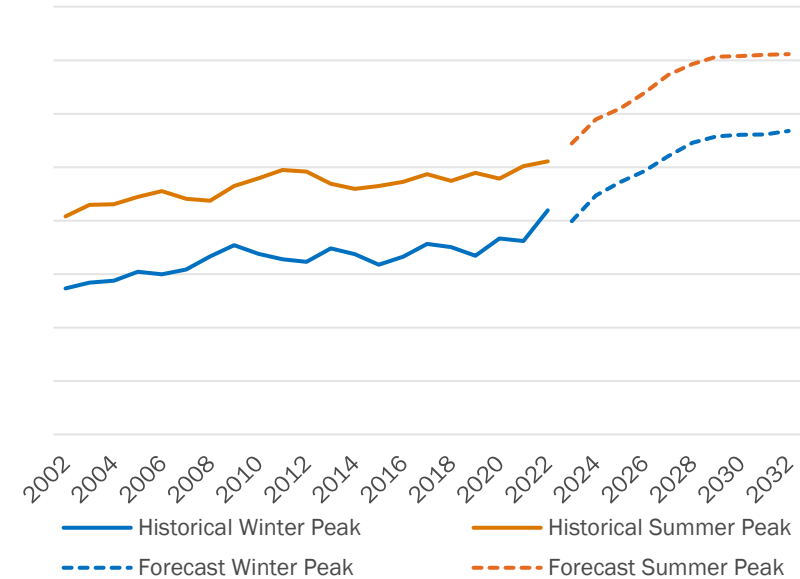


Keep Growing, Nebraska

Current & Future Load Levels

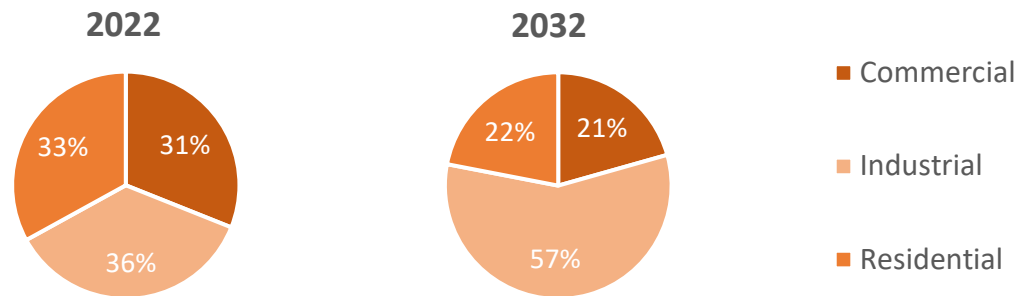
- We are experiencing **historic load growth, upwards of 100 MW per year** with an *expected* increase of ~1,050MW of peak demand growth by 2032.
- Expected **demand and regulatory requirements will drive size of resource growth.**
- OPPD will **need additional summer and winter capacity** to meet peak demand.
- New capacity and energy sources will be needed.
- Energy **consumption is expected to grow across all classes**, but primarily driven by industrial class.

Winter and Summer Peak Load History and Forecast, MW



Growth and Industries

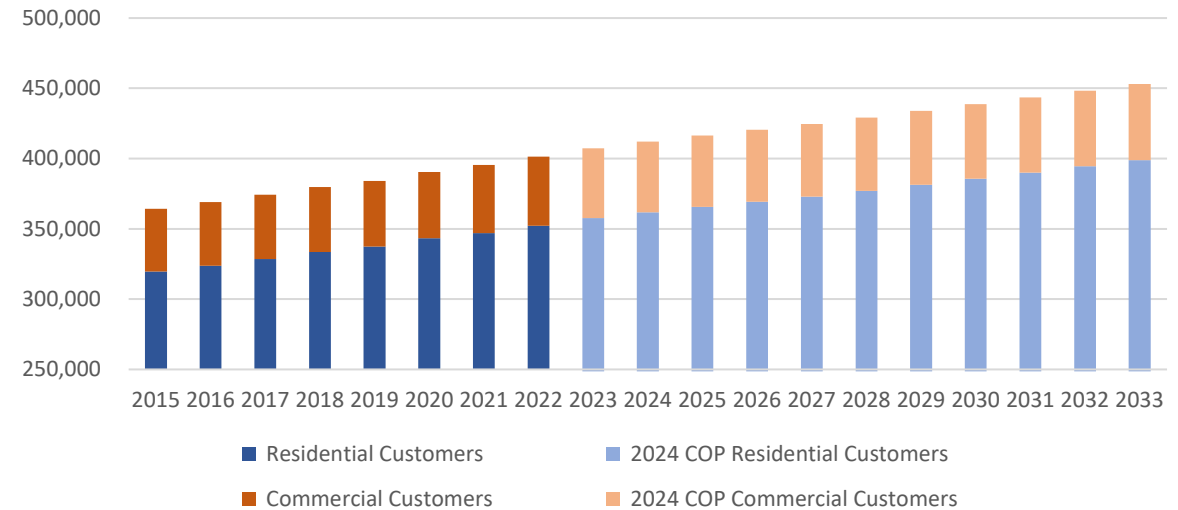
- Industrial growth is driven by a variety of industries across our service territory.
- Residential and commercial growth is on the rise and expected to continue.
- Growth in transportation, education, retail, medical, food, agriculture and more expected over the coming years.



Industrial Load Growth

- Electrification
- Biotech
- Manufacturing
- Data Centers (Fintech)
- Food Processing
- Agricultural Processing

Average Annual Commercial and Residential Customers
Historic Actual and 2024 COP Forecast



Near Term Generation Recommendation

- Guided by our mission: affordable, reliable, sustainable energy services
- Build on previously announced plans
 - Retiring units 1-3 at North Omaha Station, converting units 4-5 to natural gas as soon as possible
 - Continued construction for new generation at Turtle Creek Station (450MW), Standing Bear Lake Station (150MW) and Platteview Solar (81MW)

Resources Selected (Nameplate or Peak Tested Capacity)	Recommended Range of Incremental Additions (MW)
Renewables (Either Solar and/or Wind)	1,000 – 1,500
Storage (4-hour equivalent)	Up to 125
Dual Fuel Combustion Turbine	600 – 950
Demand Response	32+ <i>Future DR to be pursued as available.</i>
Added fuel oil capability and storage at existing facilities	Approximately 320MW

All values are above currently announced projects, including Platteview Solar, Turtle Creek Station, and Standing Bear Lake

KEEP GROWING, NEBRASKA.
WE LOVE A CHALLENGE.



OPPO ILLUMINATE OUR FUTURE

Thank you!

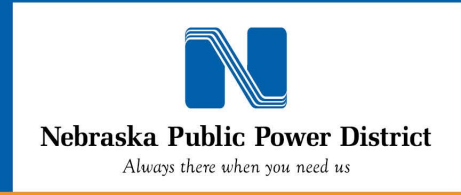
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NPPD By The Numbers



30
GENERATING
FACILITIES



5,376 MILES
TRANSMISSION &
SUBTRANSMISSION LINES



2,825 MILES
DISTRIBUTION
LINES



38
MUNICIPALITIES
SERVED AT
WHOLESALE



79
COMMUNITIES
SERVED BY RETAIL



23
PUBLIC POWER
DISTRICTS SERVED
AT WHOLESALE



1,900+
TEAMMATES WORKING
FOR YOU



\$1.2 Billion
OPERATING
REVENUE



530,000
NEBRASKANS SERVED IN
PARTNERSHIP WITH
OTHER UTILITIES



3,265_{MW}
DIVERSE
GENERATION



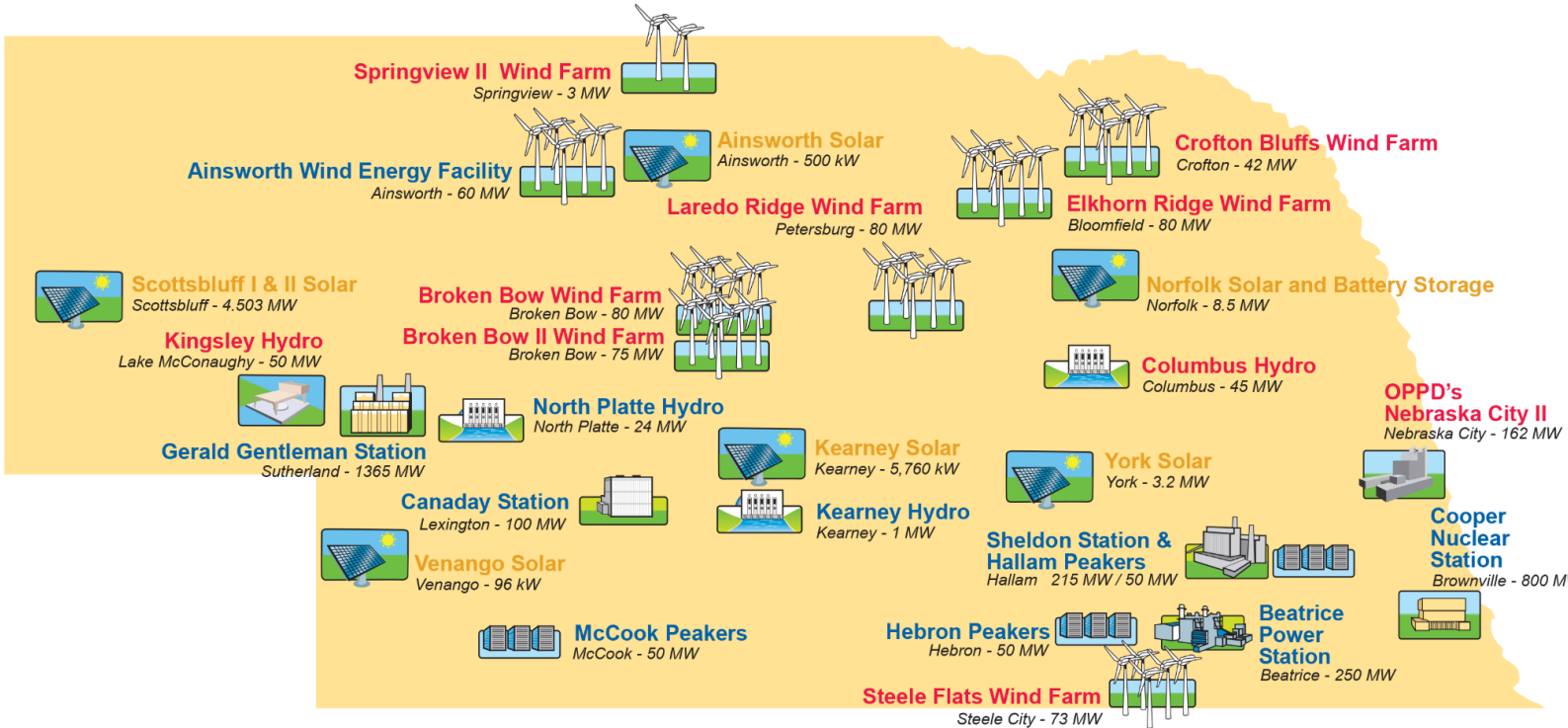
93,000
RESIDENTIAL, COMMERCIAL
AND INDUSTRIAL
CUSTOMERS



84 of 93
NEBRASKA COUNTIES
ARE SERVED BY NPPD

NPPD Generation Mix

A diverse generation mix that provides reliable, affordable, sustainable and resilient power.



LEGEND

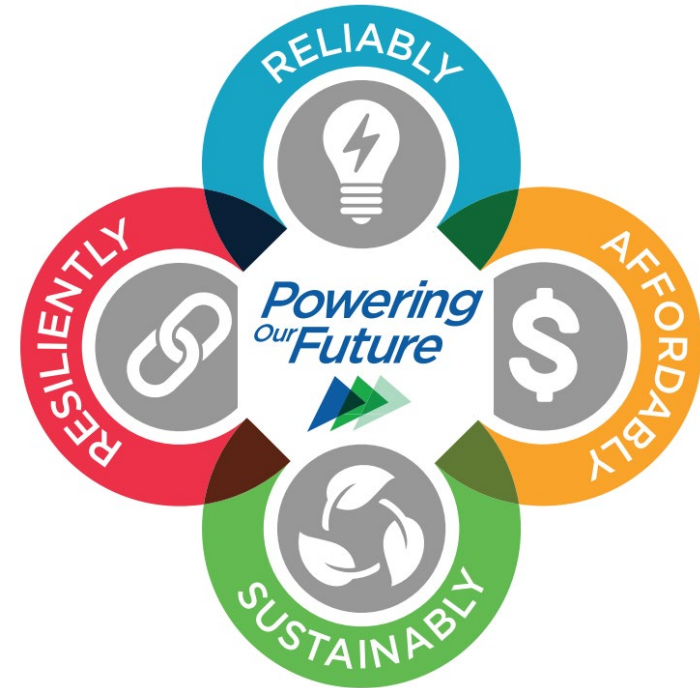
- NPPD Owned
- Power Purchase Agreement (All or Part)
- Retail Community Solar Locations

NPPD ENERGY GENERATION RESOURCES FOR NEBRASKA CUSTOMERS
2021-2022 Rolling Two-Year Average



Helping Power Nebraska's Economy

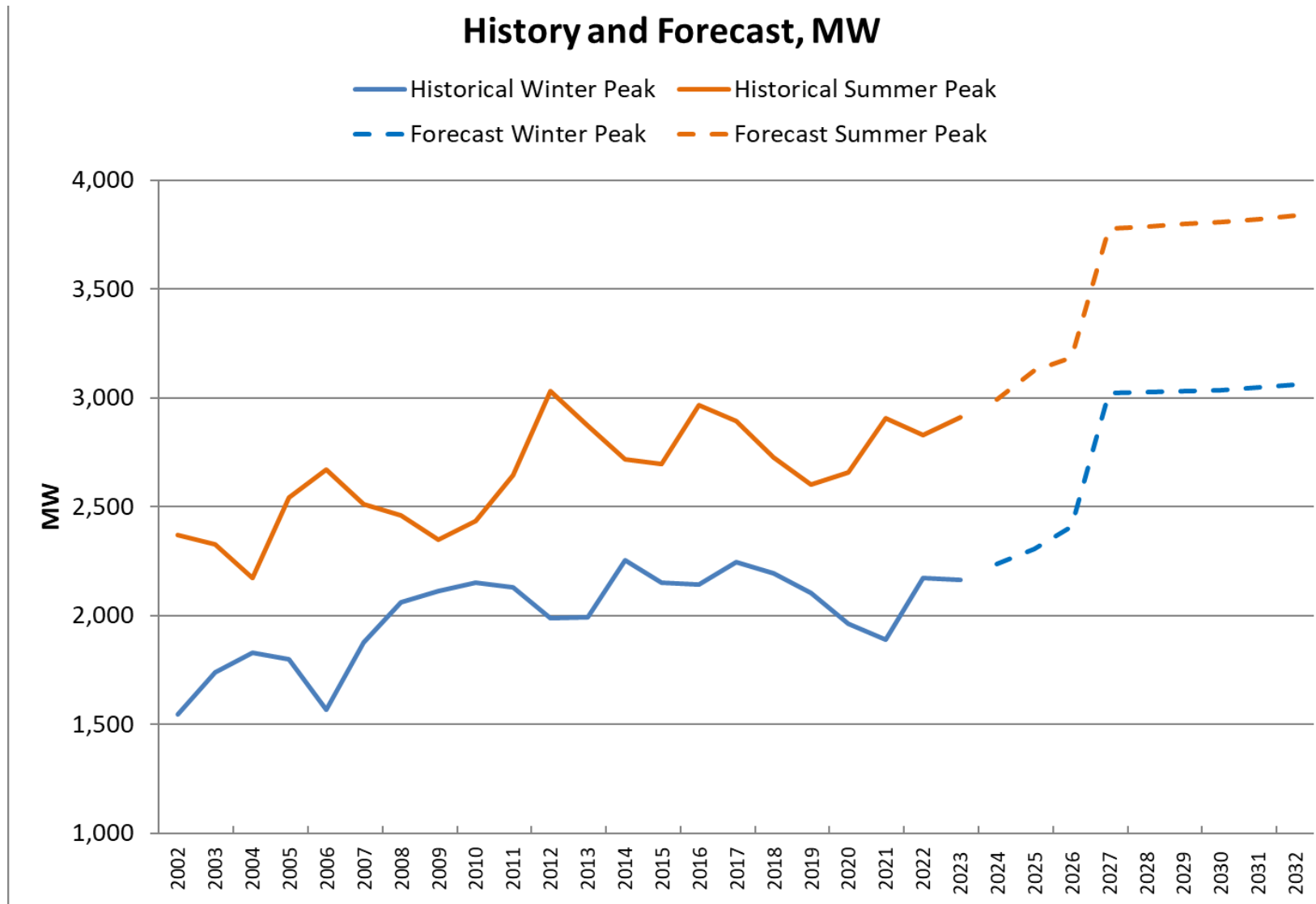
- NPPD Board of Directors has adopted the goal of achieving “net zero” carbon emissions from NPPD’s generation resources by 2050.
- IIJA & IRA Legislation has helped fuel a surge in the number of energy intensive projects in NPPD’s footprint.
- Huge opportunity for Nebraska, specifically rural Nebraska and the state’s agriculture economy
- Load growth coming from multiple industries
- Shortage of workforce is also driving industry to consider automation as a solution



Areas of Load Growth

- Agricultural Processing
- Ammonia
- Bio
- Data Centers
- Ethanol
- Food Processing
- Manufacturing

NPPD Summer & Winter Peak Load





Thank You!

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Stay connected with us.



Nebraska Public Power District
Always there when you need us