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30 West Superior Street
Duluth, MN 55802-2093
www.mnpower.com

September 15, 2021

VIA E-FILING
Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

Re: In the Matter of Minnesota Power's 2021 Integrated Distribution Plan
Docket No. E015/M-21-390

Dear Mr. Seuffert:

On February 20, 2019, the Minnesota Public Utilities Commission ("Commission") issued an Order Adopted Integrated Distribution Plan Filing Requirements ("2019 Order") in Docket No. E015/CI-18-254. The 2019 Order required Minnesota Power ("Company") to hold at least one stakeholder meeting prior to the November 1 filing of the Company's Integrated Distribution Plan ("IDP") to obtain input from the public and incorporate feedback into the filing. On May 27, 2020, the Commission issued an Order Accepting Integrated Distribution Plan and Modifying Filing Requirements ("2020 Order") in the above-mentioned docket requiring Minnesota Power to continue to incorporate stakeholder suggested improvements in the 2021 IDP filed by November 1, 2021.

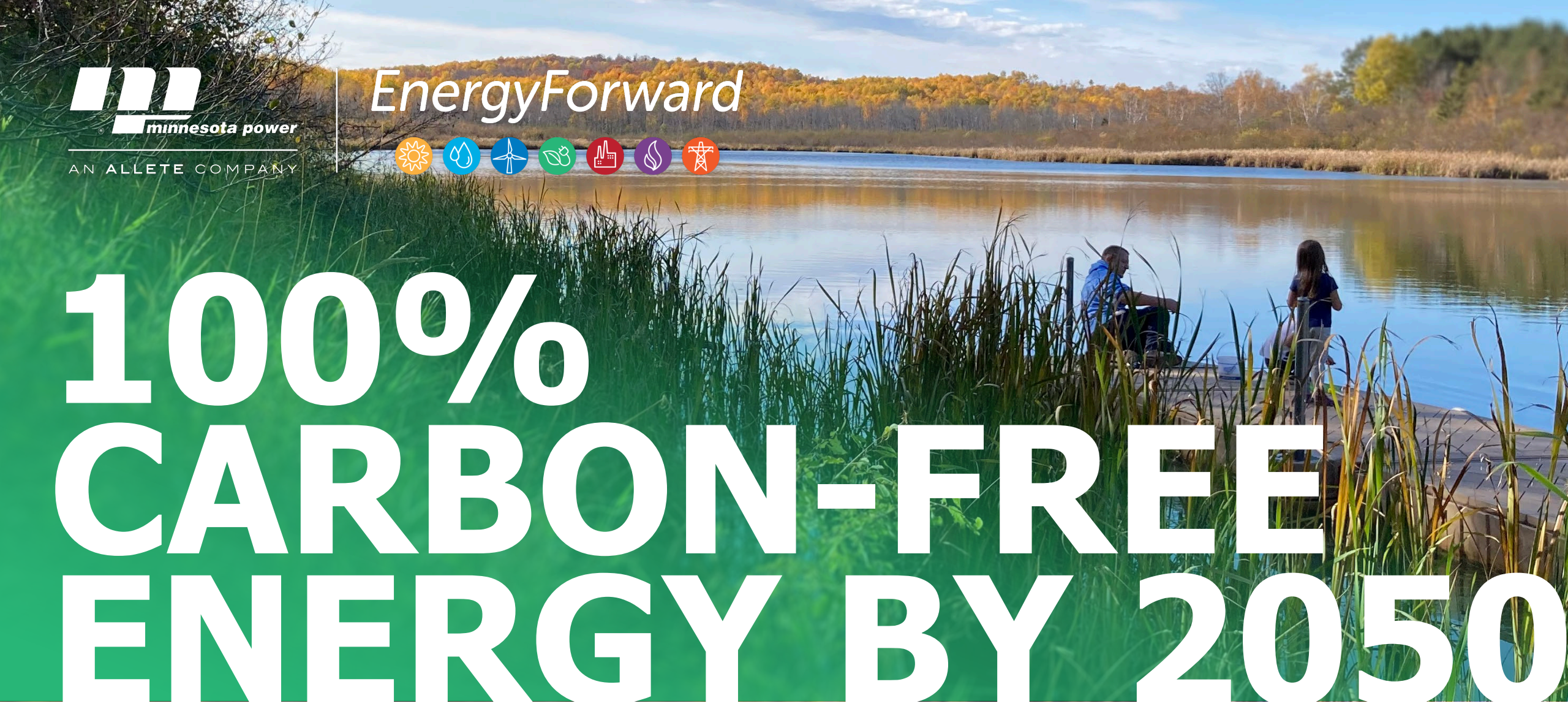
Minnesota Power held its virtual 2021 IDP stakeholder meeting on Tuesday, July 13, 2021. During the meeting the Company addressed: an overview of Minnesota Power's distributions system; distributed energy resources forecasts; proposed 5-year distribution system investments; anticipated capabilities of system investments and customer benefits derived from proposed actions in the next 5-years; long-term distribution planning, and other high-level planning and system information. Minnesota Power respectfully submits this letter with the presentation materials from the stakeholder meeting.

If you have any questions regarding this stakeholder meeting, please contact me at (218) 355-3186 or arittgers@mnpower.com.

Respectfully,

Anne Rittgers
Public Policy Advisor

AWR:th
Attach.



Minnesota Power's 2021 Integrated Distribution Plan Stakeholder Meeting

July 13, 2021

OVERVIEW

- Welcome & Introductions
- Minnesota Power and its Distribution System
- Minnesota Power's 2021 Integrated Distribution Plan
  - Foundational Investments
  - Demonstrating Innovation
  - Planning for a Resilient Future
- Questions & Discussion

Welcome & Introductions

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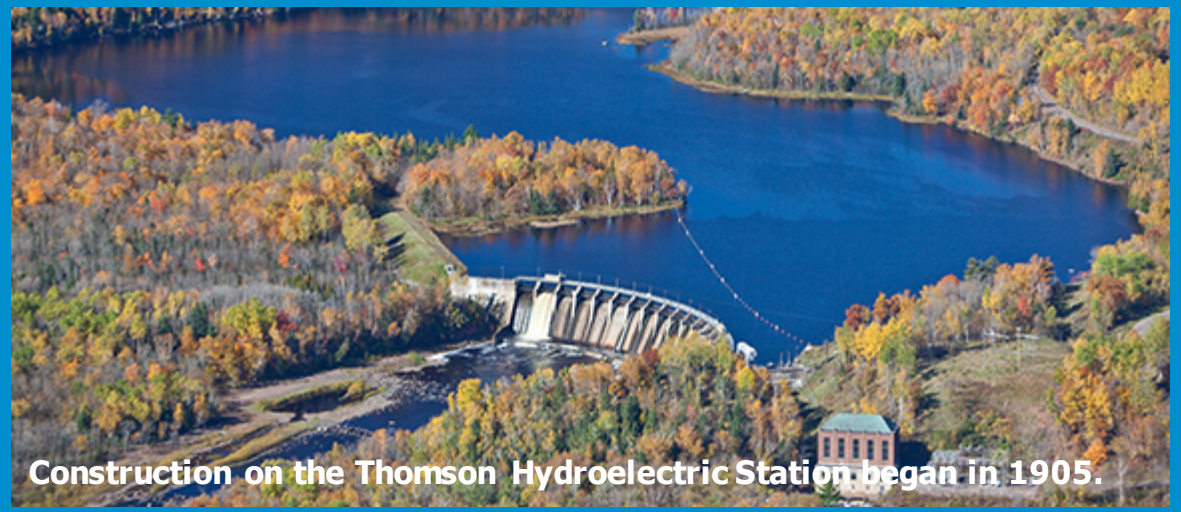
Minnesota Power & its Distribution System

Over 115 Years Serving the Region



Construction on the Thomson Hydroelectric Station began in 1905.

By 1923, the company became known as Minnesota Power and Light

Boswell Energy Center started producing power in 1958.

Construction of the Bison Wind Energy Center was completed in 2015.

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WE ARE UNIQUE

Duluth, MN Headquarters

26,000 Square-miles

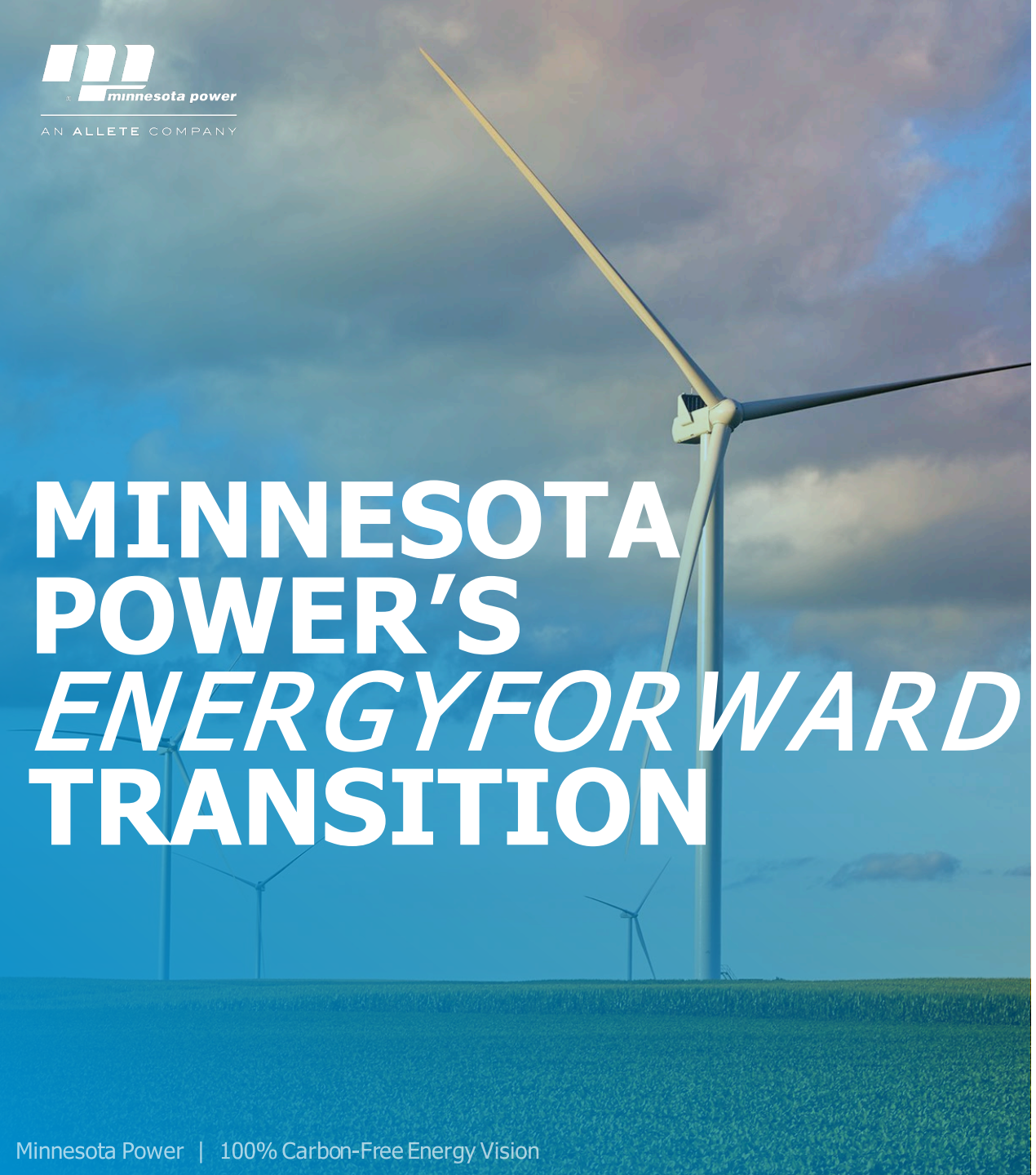
145,000 Customers

13% Residential sales*

72% Industrial sales*

15 Minnesota Municipalities

**Percentage of retail sales*



MINNESOTA POWER'S *ENERGYFORWARD* TRANSITION

Yesterday

Nine coal units

95% of energy from carbon sources

Today

First Minnesota utility to deliver 50% of energy from renewable sources

7 of 9 coal units closed or transitioned

50% reduction in carbon

Achieving state standards a decade early

Tomorrow

100% carbon-free energy by 2050

A Just Transition for Northern Minnesota

Our commitment to climate, customers and communities

A sustainable carbon reduction plan must:

1. Ensure reliability
2. Manage costs for all customers
3. Time for just transition for employees and host communities
4. Allows time for technology to develop and advance

We have **exceeded state clean energy goals** without risking safety, reliability and affordability—and we will continue to do so.

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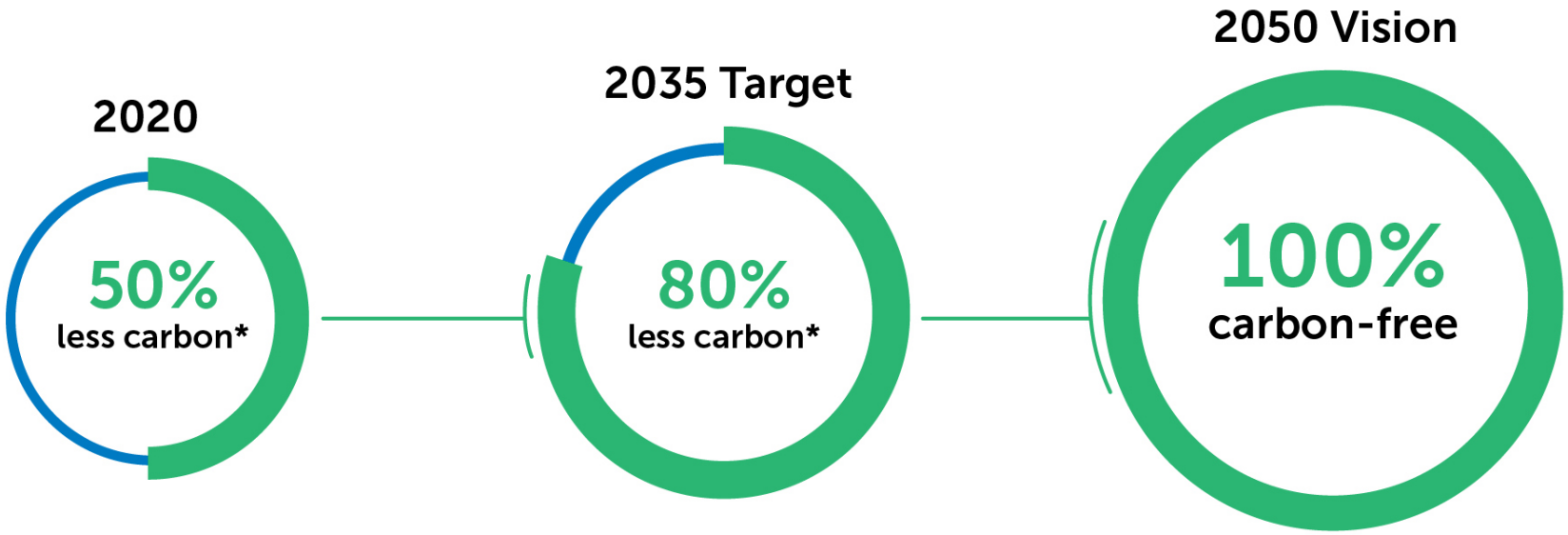
OUR 100% CARBON-FREE ENERGY VISION

We are committed to making a sustainable transition to a **reliable, affordable** and **carbon-free** energy mix for our customers.



*From 2005 levels

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BLUEPRINT TO BUILD OUR CARBON-FREE ENERGY FUTURE

- Strengthen the electric grid
- Adopt innovative solutions
- Engage with stakeholders
- Collaboration with state of Minnesota and others to develop a sustainable transition plan for host communities.

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Minnesota Power's 2021 Integrated Distribution Plan

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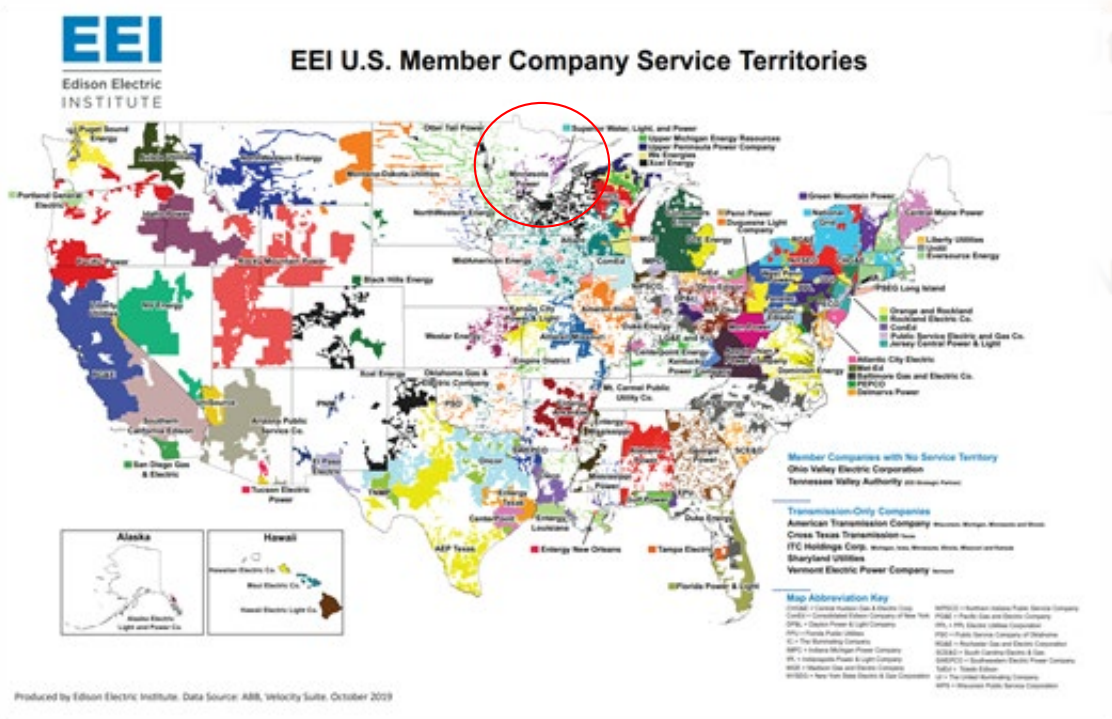
Purpose of MN's Integrated Distribution Plan (IDP):

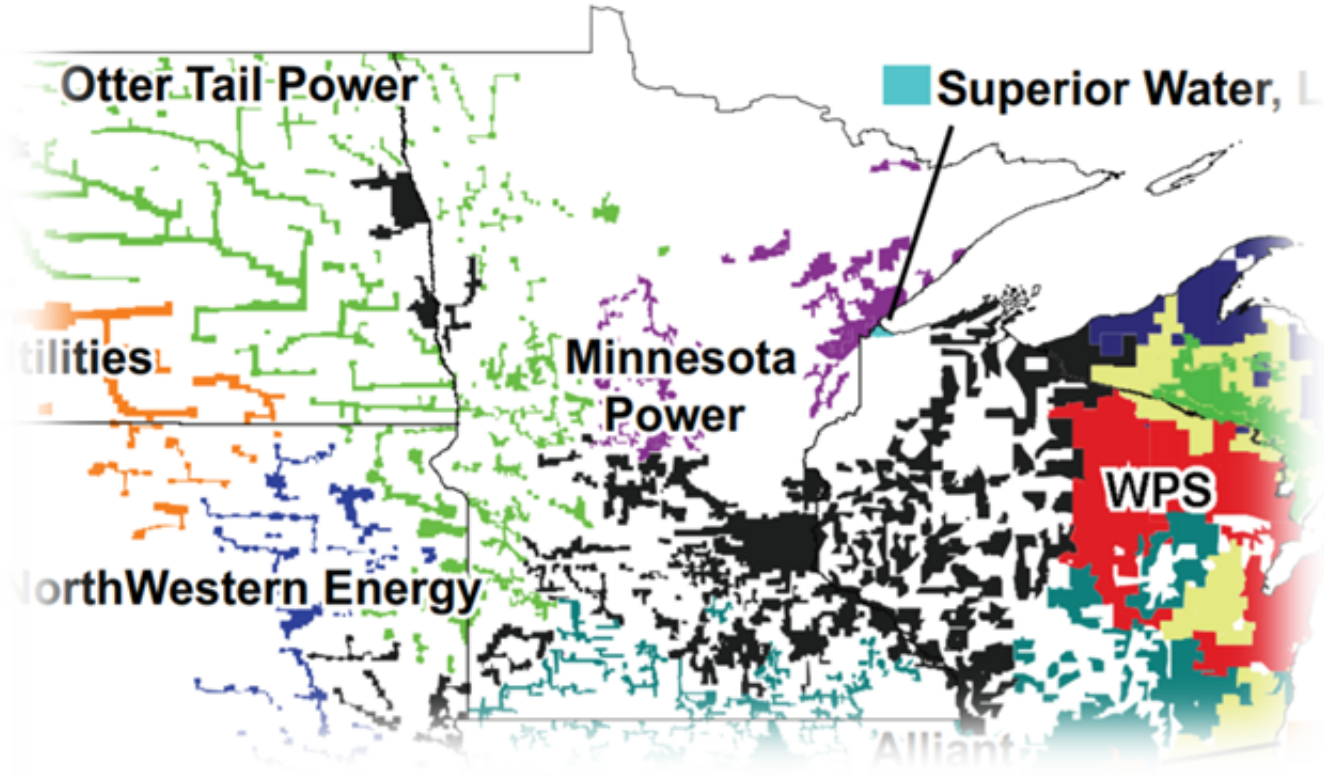
- Maintain and enhance the safety, security, reliability, and resilience of the electricity grid, at fair and reasonable costs, consistent with the state's energy policies;
- Enable greater customer engagement, empowerment, and options for energy services;
- Move toward the creation of efficient, cost-effective, accessible grid platforms for new products, new services, and opportunities for adoption of new distributed technologies;
- Ensure optimized utilization of electricity grid assets and resources to minimize total system costs; and
- Provide the Commission with the information necessary to understand the utility's short-term and long-term distribution-system plans, the costs and benefits of specific investments, and a comprehensive analysis of ratepayer cost and value

Elements of an IDP:

- Baseline Distribution System Data
- Baseline Financial Data
- Baseline DER Data
- Preliminary Hosting Capacity Data
- DER Scenario Analysis
- Non-Wire or Non Traditional Alternatives
- 5-10 Year System Modernization and Infrastructure Plan

Minnesota Power's Service Territory





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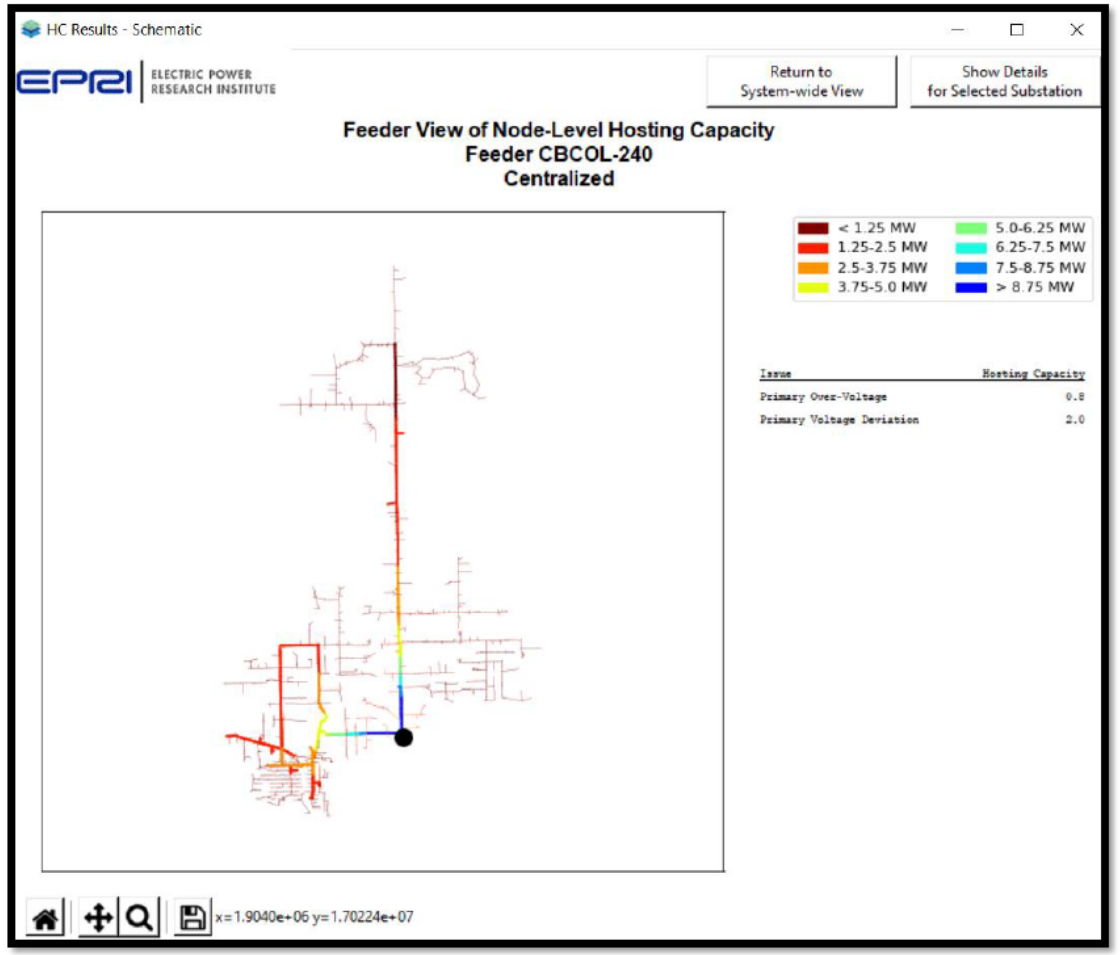
Preliminary Hosting Capacity

- MP does not currently perform hosting capacity analysis
- Moving towards being able to do so through involvement with the EPRI DRIVE User Group
  - Recently worked with EPRI to produce preliminary heat maps for a handful of feeders
- Annual peak and daytime minimum historical load data is evaluated regularly
  - Provides an input to baseline distribution planning & interconnection studies
  - 2019-20 data will be provided with the 2021 IDP



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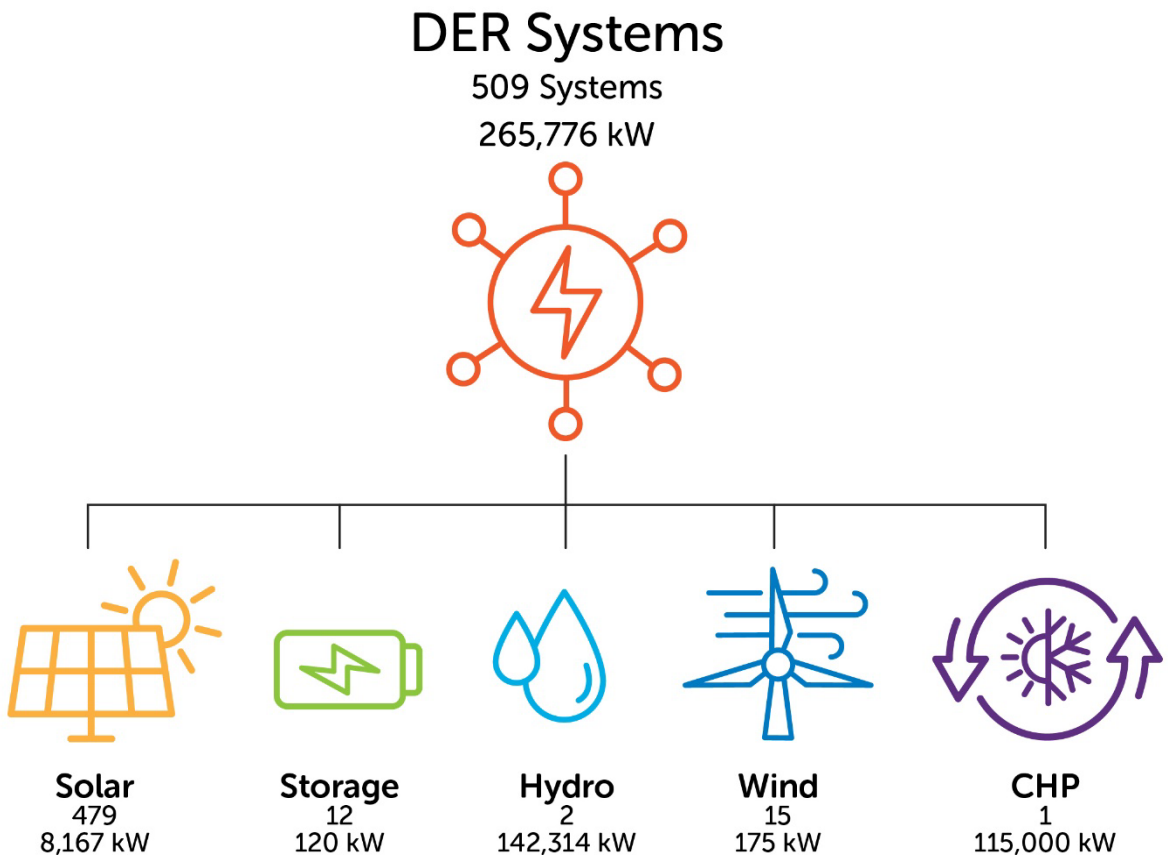
Distributed Energy Resources (DER) on MP's System



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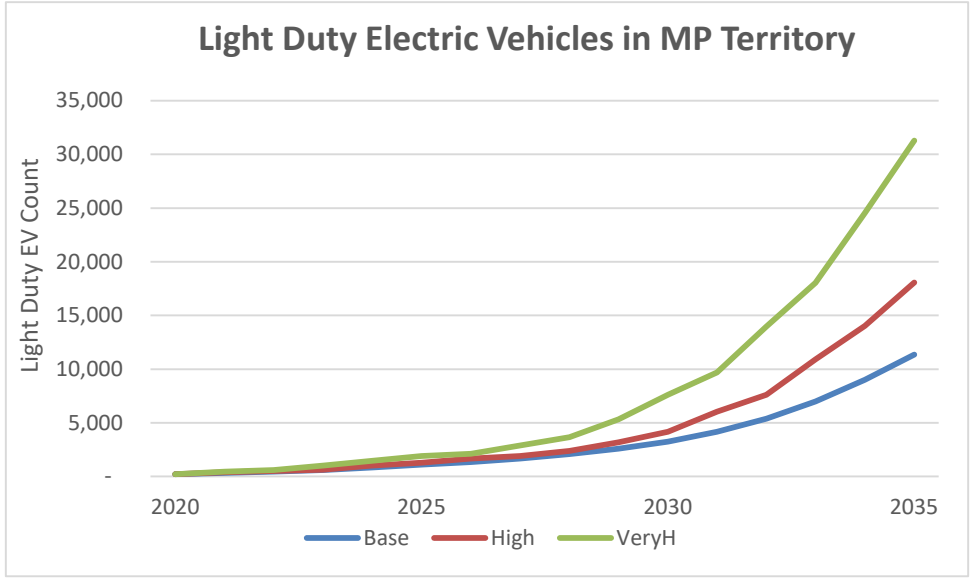
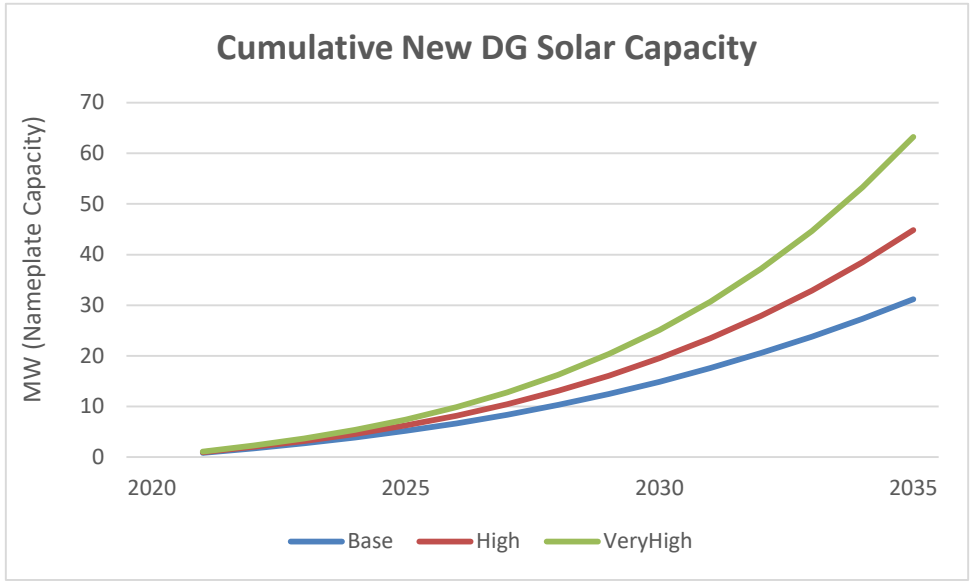
DER Scenario Analysis

- Scenarios consider:
  - Electric Vehicle Ownership (Home/Residential Charging)
  - Public Electric Vehicle charging
  - Distributed Solar Generation
  - Universal Residential Time Of Day (TOD) rollout
- **Base Case** – Consistent with 2021 IRP & 2021 AFR assumptions for Electric Vehicle ownership and distributed solar generation. Assumes full transition of Residential customers to TOD by 2027.
- **Medium DER** – Slightly accelerated adoption of EV and DG Solar, a transition to 100% TOD participation by 2026, and the installation of 16 new Direct Current Fast Chargers (DCFC) for Electric Vehicles on the Minnesota Power system beginning in 2023.
- **High DER** – Aggressively accelerated adoption of EV and DG Solar, 100% TOD participation by 2025, and the installation of 16 new Direct Current Fast Chargers (DCFC) for Electric Vehicles on the Minnesota Power system beginning in 2023.





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Foundational Investments

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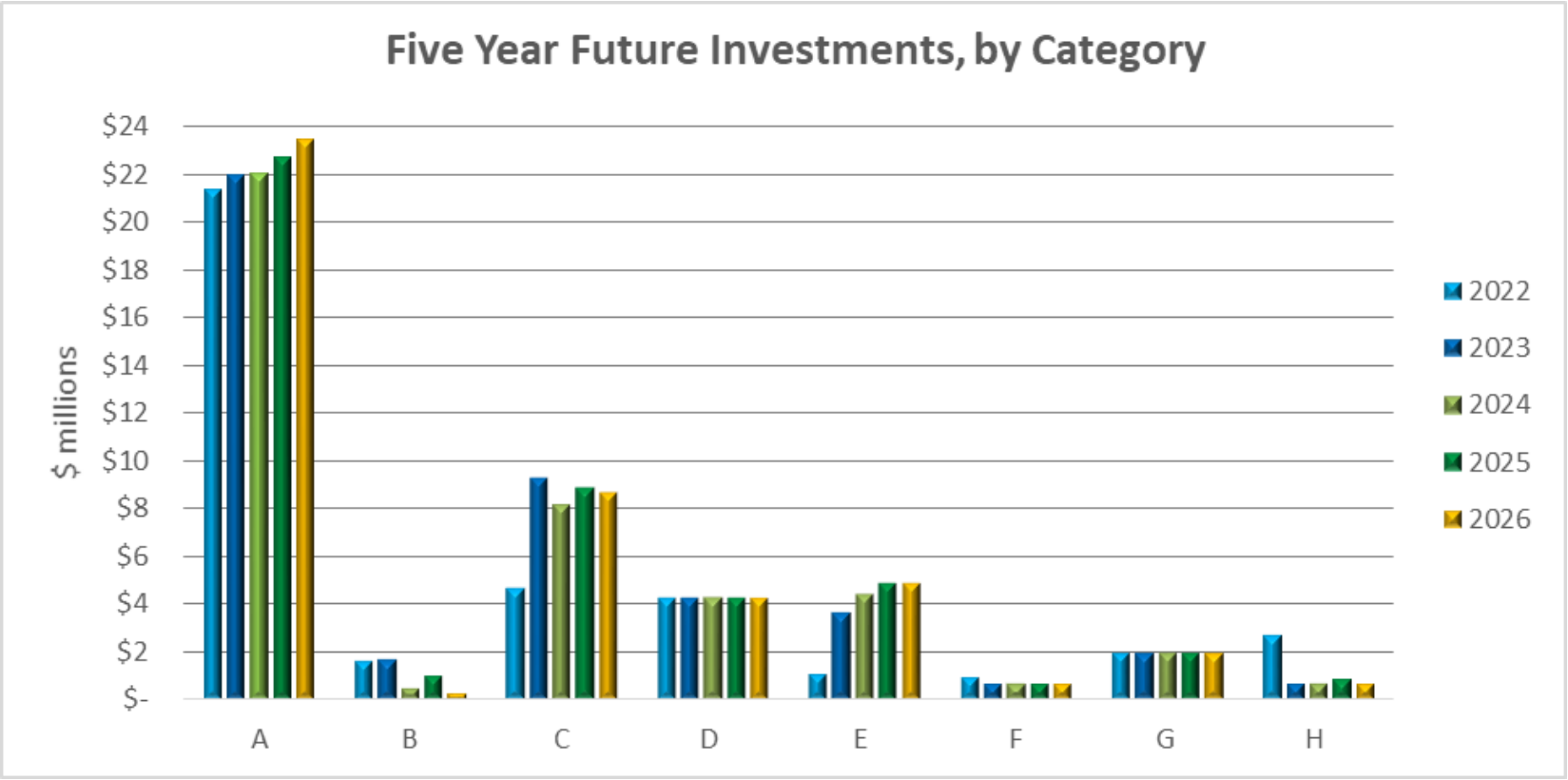
5-Year Investment plan



IDP Category

A - Age-Related Replacements and Asset Renewal

B - System Expansion or Upgrades for Capacity

C - System Expansion or Upgrades for Reliability and Power Quality

D - New Customer Projects and New Revenue

E - Grid Modernization and Pilot Projects

F - Projects Related to local (or other) government requirements

G - Metering

H – Other

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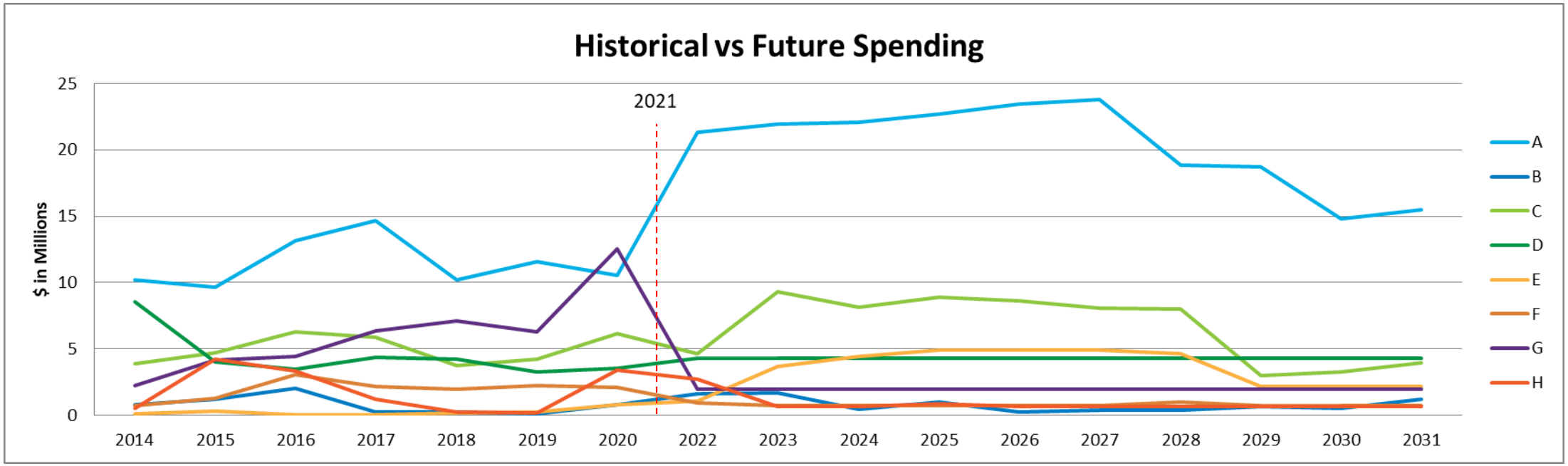
Long-term Investment Plan



IDP Category	2014	2015	2016	2017	2018	2019	2020	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
A - Age-Related Replacements and Asset Renewal	10.207	9.669	13.127	14.636	10.226	11.580	10.552	21.322	21.935	22.040	22.703	23.438	23.788	18.875	18.700	14.825	15.475
B - System Expansion or Upgrades for Capacity	0.753	1.199	2.045	0.248	0.267	0.124	0.805	1.600	1.700	0.475	0.988	0.268	0.368	0.380	0.630	0.530	1.180
C - System Expansion or Upgrades for Reliability and Power Quality	3.895	4.728	6.260	5.842	3.717	4.200	6.139	4.645	9.295	8.130	8.880	8.640	8.065	7.965	2.965	3.265	3.915
D - New Customer Projects and New Revenue	8.525	3.993	3.469	4.333	4.242	3.252	3.504	4.257	4.257	4.257	4.257	4.257	4.257	4.257	4.257	4.257	4.257
E - Grid Modernization and Pilot Projects	0.091	0.278	0.010	0.005	0.152	0.237	0.815	1.050	3.650	4.400	4.900	4.900	4.900	4.650	2.150	2.150	2.150
F - Projects Related to local (or other) government requirements	0.687	1.277	3.023	2.185	1.938	2.201	2.120	0.950	0.700	0.700	0.700	0.700	0.700	0.975	0.700	0.700	0.700
G - Metering	2.214	4.179	4.404	6.327	7.107	6.255	12.523	1.950	1.950	1.950	1.950	1.950	1.950	1.950	1.950	1.950	1.950
H - Other	0.507	4.225	3.323	1.167	0.207	0.151	3.376	2.680	0.680	0.680	0.880	0.680	0.680	0.680	0.680	0.680	0.680
Total ($ millions)	$ 26.879	$ 29.548	$ 35.661	$ 34.743	$ 27.856	$ 28.000	$ 39.834	$ 38.454	$ 44.167	$ 42.632	$ 45.257	$ 44.832	$ 44.707	$ 39.732	$ 32.032	$ 28.357	$ 30.307

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Demonstrating Innovation

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Current DER Programming and Background

- Demand Response
- Electrification
- Small Scale Solar
- Conservation Improvement Program

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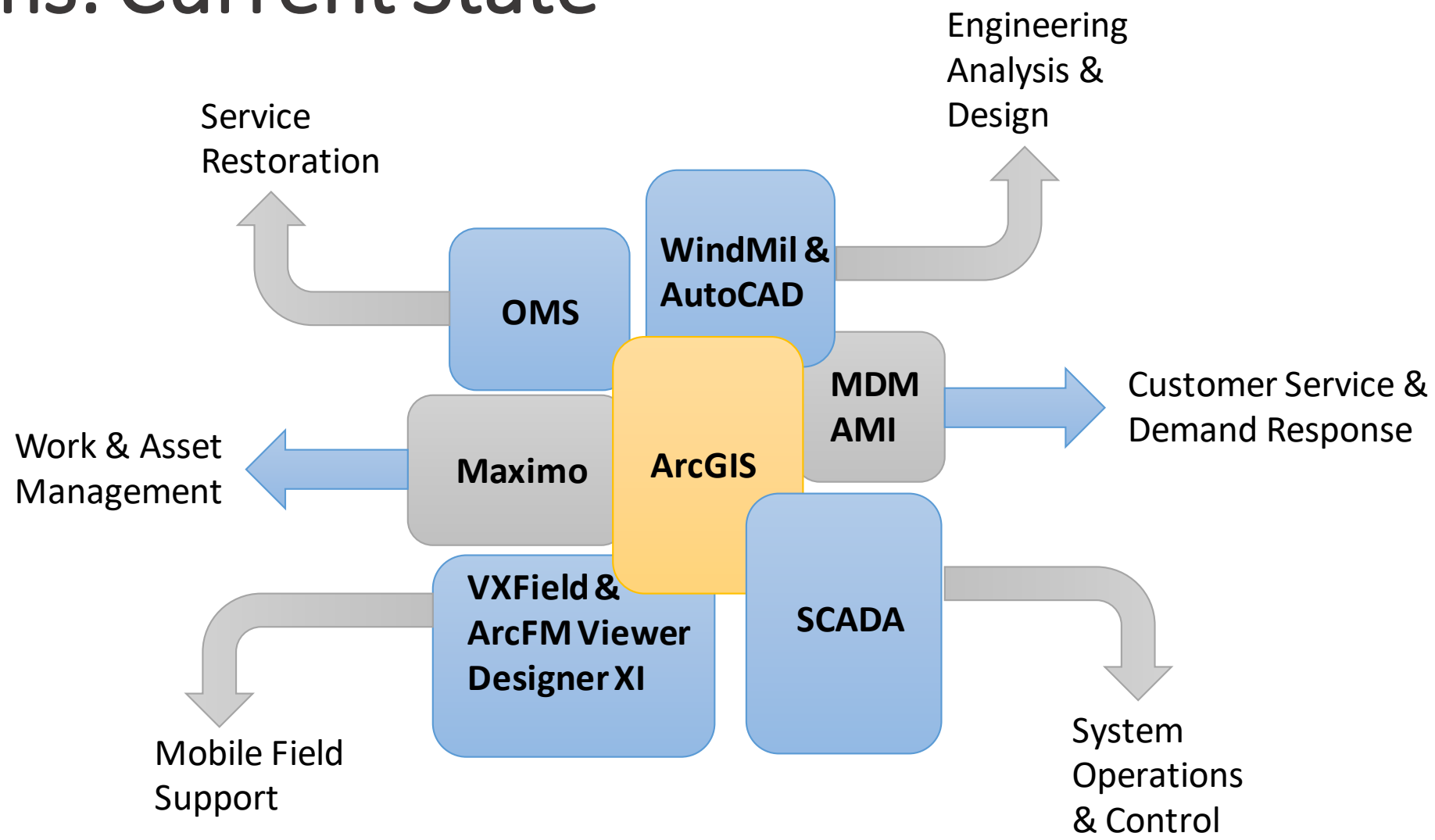
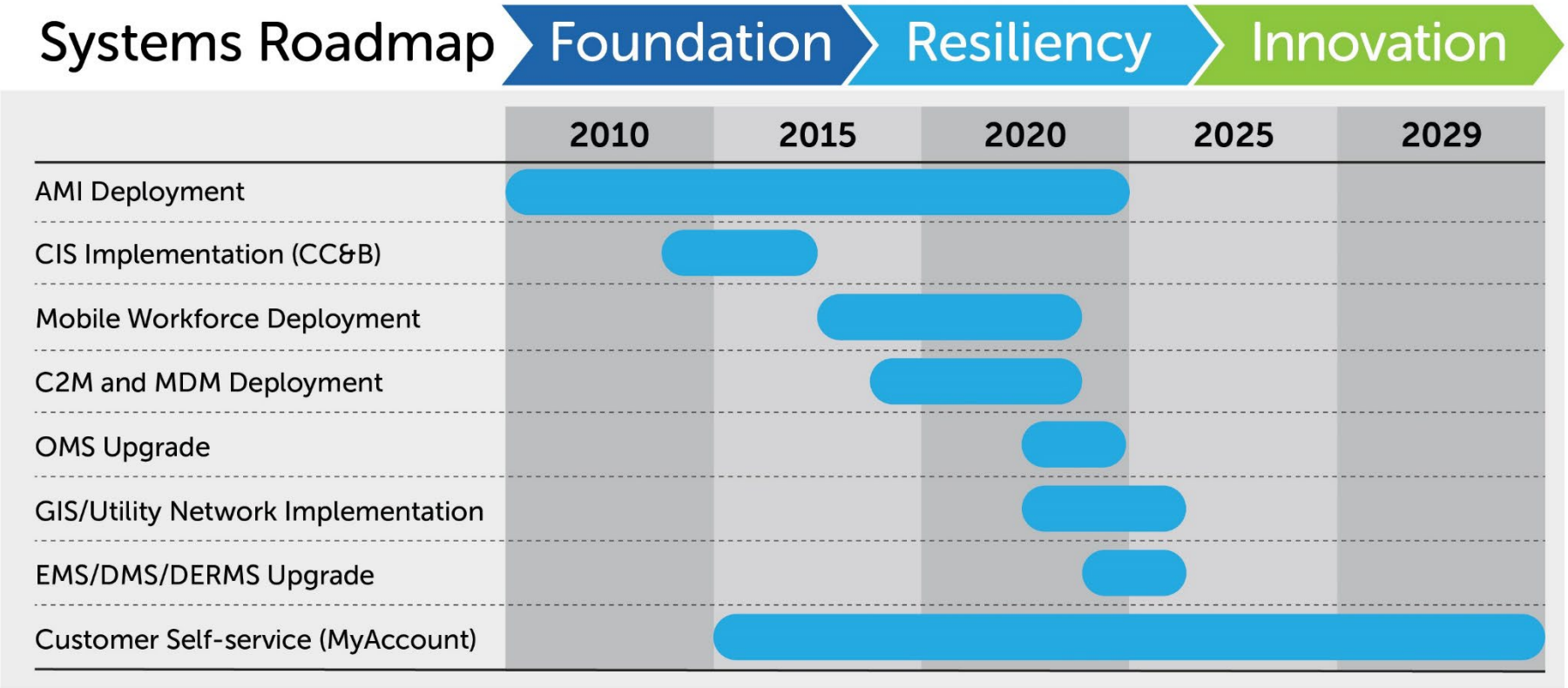
Modernization Investments & Current Projects

- Outage Management System
- Geographical Information System (Utility Network Model)
- Customer to Meter (C2M) Project
- Mobile Applications
  - MAXIMO ANYWHERE
  - DESIGNER XI
  - VxField
  - Inspection Apps (Survey123, Collector)

Systems: Current State



Systems: Future State & Innovation



Current & Past Pilot Programs

- Time of Day/Critical Peak Pricing
- SolarSense Low Income Solar Pilot Program
- Dual Fuel
- EV Service Equipment Donation Pilot
- Street Lighting – LED Replacement Project
- Volt-VAR Optimization *(Future Pilot)*

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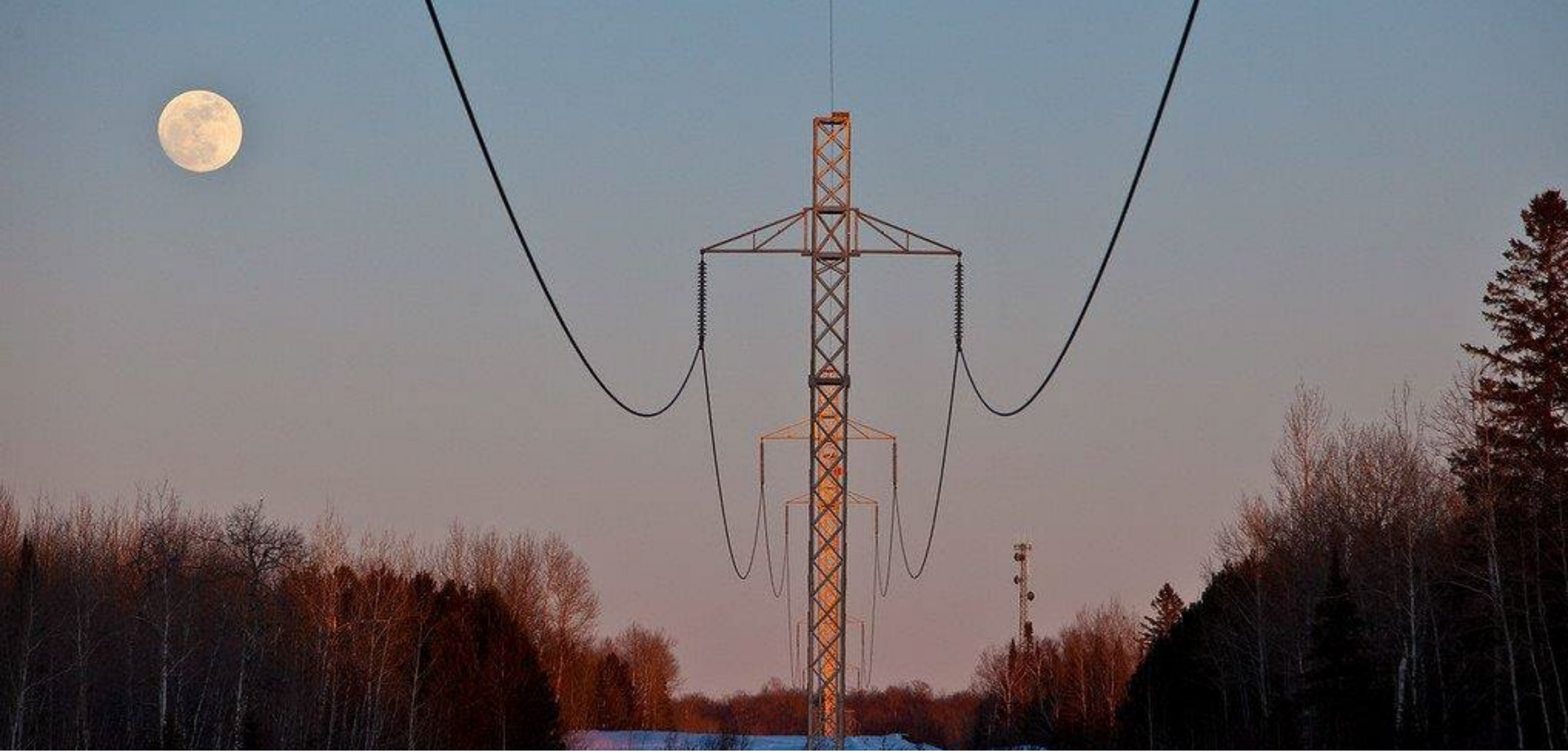
Non-Wires Alternatives

- Scenario analysis with 3rd party contractor
  - Burnett: backup capability
  - Wrenshall: backup capability, solar + storage dynamics
  - Colbyville: general reliability, vvo/cvr, DER increased penetration
  - Kerrick: backup capability



Planning for a Resilient Future

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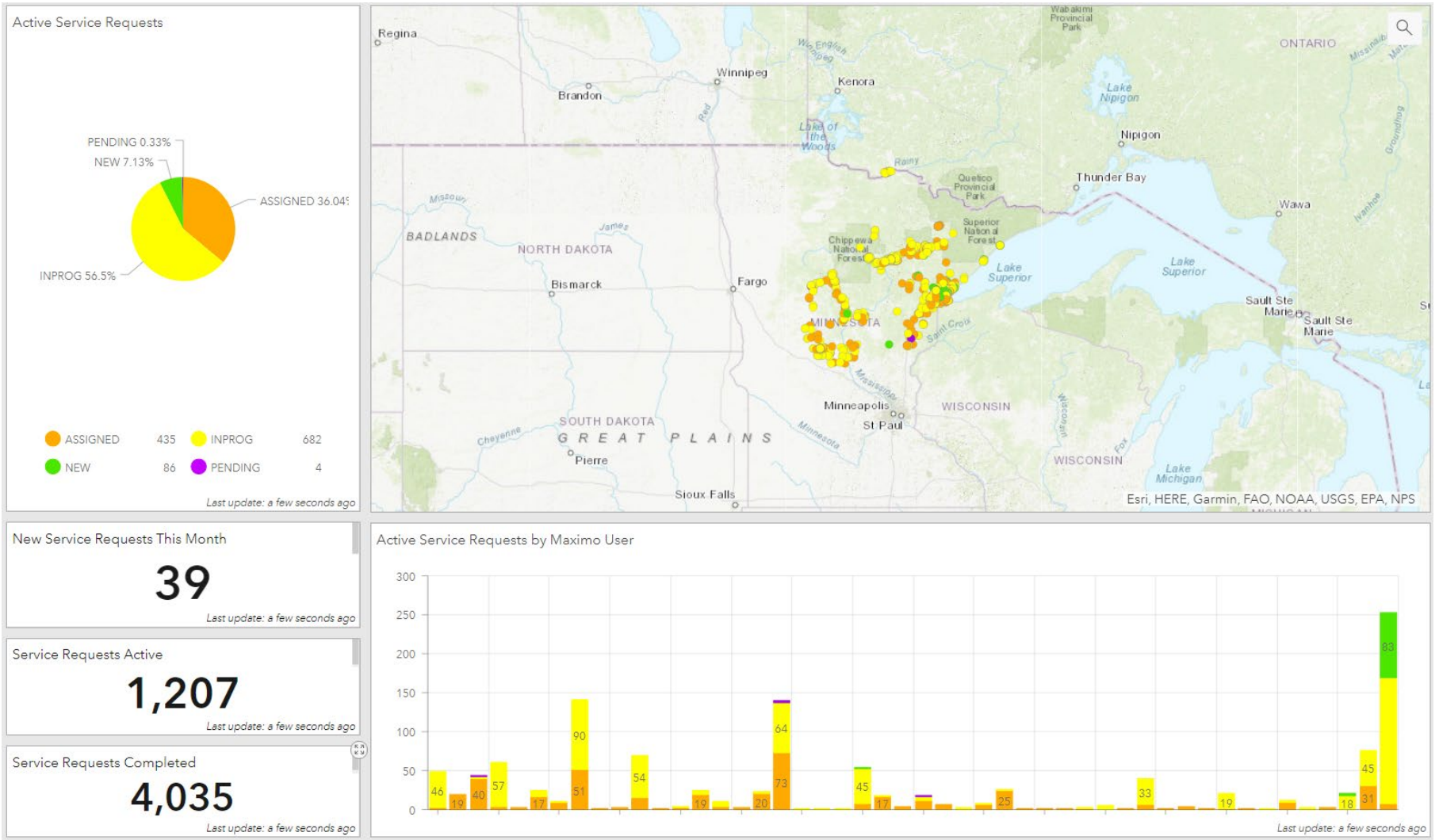
Reliability Target Areas

- Automation
- Mapping
- Groundline
- Vegetation Management
- AMI integration
- Maintenance

Service Request – Trouble Orders



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Distribution Resiliency

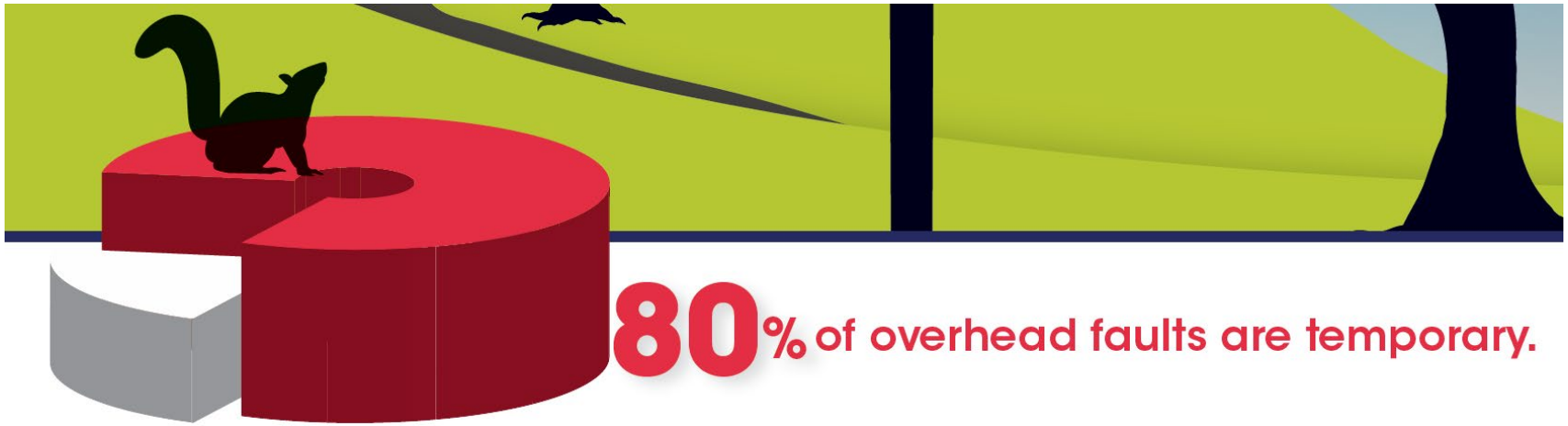
- Automation – FLISR Program initiated in 2010 for Duluth Feeders, expand to other areas
- Automation – Trip Saver Tap Re-closer program started in 2016
- Increased investments in motor-operator remote switching on Distribution Circuits
- Planned upgrades of outlying stepdown substations & transformers
- Strategic Undergrounding started in 2020
- Groundline inspections capitalization program

IntelliRupters

- FLISR technology
- Auto-restore customers
- Continue to rollout IntelliRupters
- Targeting areas for increased reliability

Trip Savers

- Recloser in a cutout body
  - 9 installed in 2017
  - 44 installed in 2018
  - 180 installed in 2019
  - 74 installed in 2020
  - 37 installed, 200 more ordered for 2021
  - Proven technology to clear temporary faults without rolling a truck



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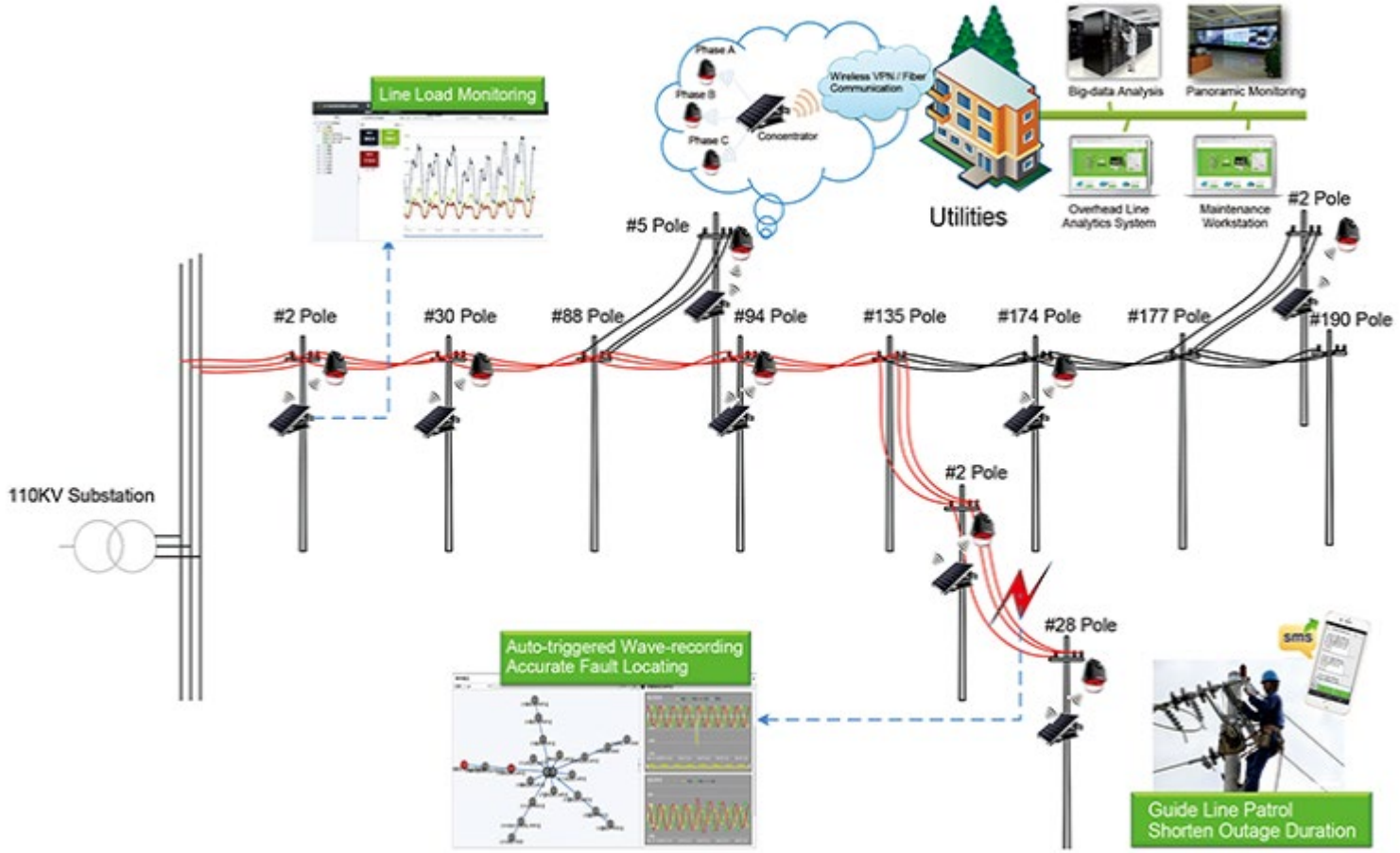
Motor Operated Switches

- Investing communications options
- Reduces response time
- Integrate with smart sensors
- 2021 and forward initiative

Smart Sensors

- Increased presence across our rural systems



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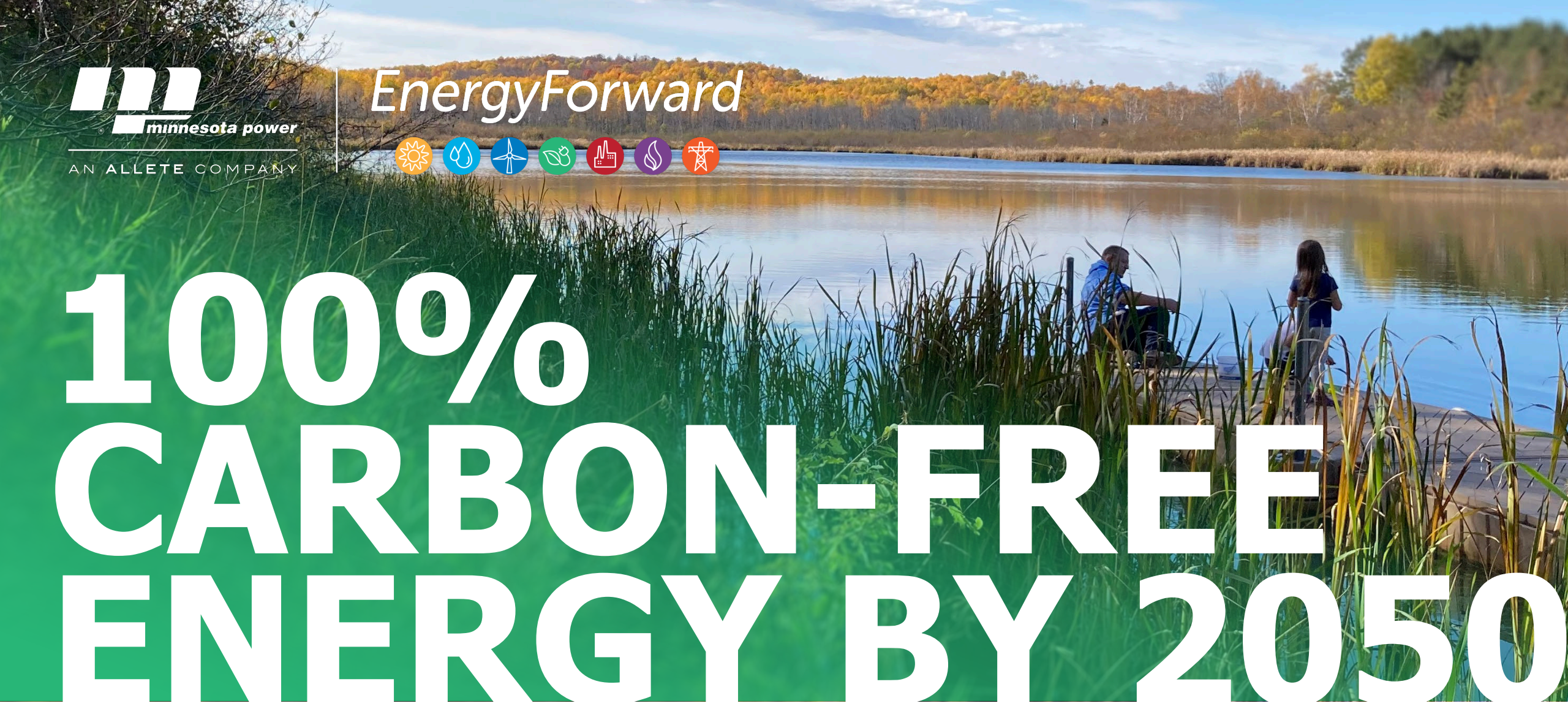
Strategic Undergrounding

- 2020 and forward initiative
- Target heavy tree areas
- Improve reliability
- Reduce O&M costs



100% CARBON-FREE ENERGY BY 2050

Questions & Discussion

STATE OF MINNESOTA	)	AFFIDAVIT OF SERVICE VIA
	) ss	ELECTRONIC FILING
COUNTY OF ST. LOUIS	)	

Tiana Heger of the City of Duluth, County of St. Louis, State of Minnesota, says that on the 15th day of September, 2021, she served Minnesota Power's Letter in **E015/M-21-390** on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The persons on E-Docket's Official Service List for this Docket were served as requested.

Tiana Heger