



Clean Energy Policy in Minnesota

Joseph K. Sullivan | Deputy Commissioner

Minnesota Department of Commerce, Energy Division

Minnesota: Statewide Energy Policy Objectives

Conservation Improvement Program (CIP)	Renewable Electricity Standard (RES)	Greenhouse Gas Emissions Goals (GHG)	25% Total Energy by 2025 Renewables
<ul style="list-style-type: none">• MN Statute 216B.241• Utility Energy Efficiency and Conservation Goals<ul style="list-style-type: none">• 1.5% = Electric• 1% = Natural Gas• CHP/WHR Eligibility included in 2013	<ul style="list-style-type: none">• Portfolio standard = 27.5% by 2025• 1.5% Solar Energy Standard	<ul style="list-style-type: none">• MN Statute 216H.02• 15% by 2015• 30% by 2025• 80% by 2050	<ul style="list-style-type: none">• MN Statute 216C.05, Subd. 2• Decrease in fossil fuel use 15% by 2015• Across all sectors

Impact of Efforts to Date



Energy Efficiency

Saved
Minnesotans
over **\$6 Billion**



Coal Generation

Reduced from
over 60% to
under 40%



CO₂ Emissions

Reduced by
almost **36%** from
2005 baseline

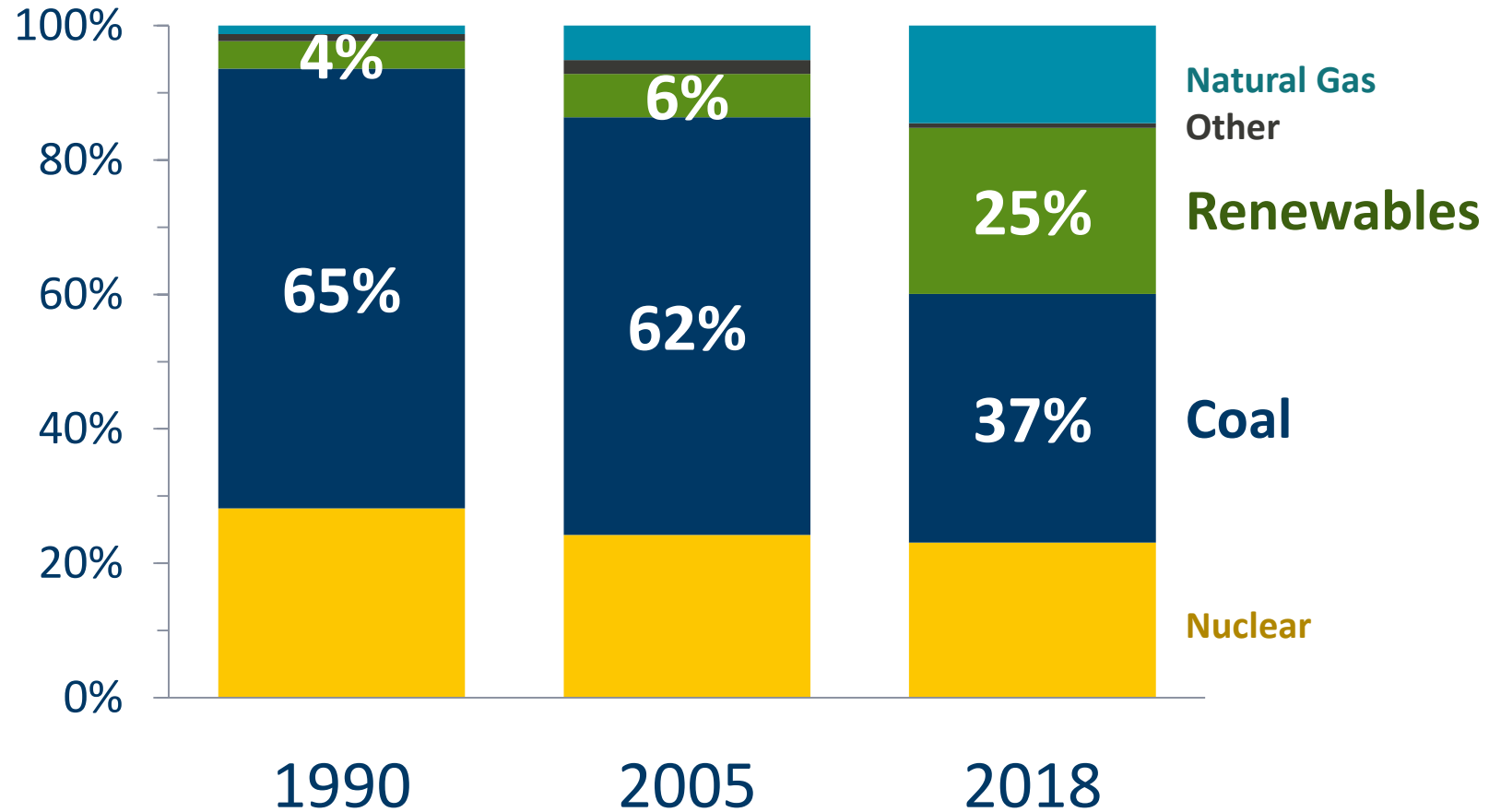


Renewable Energy

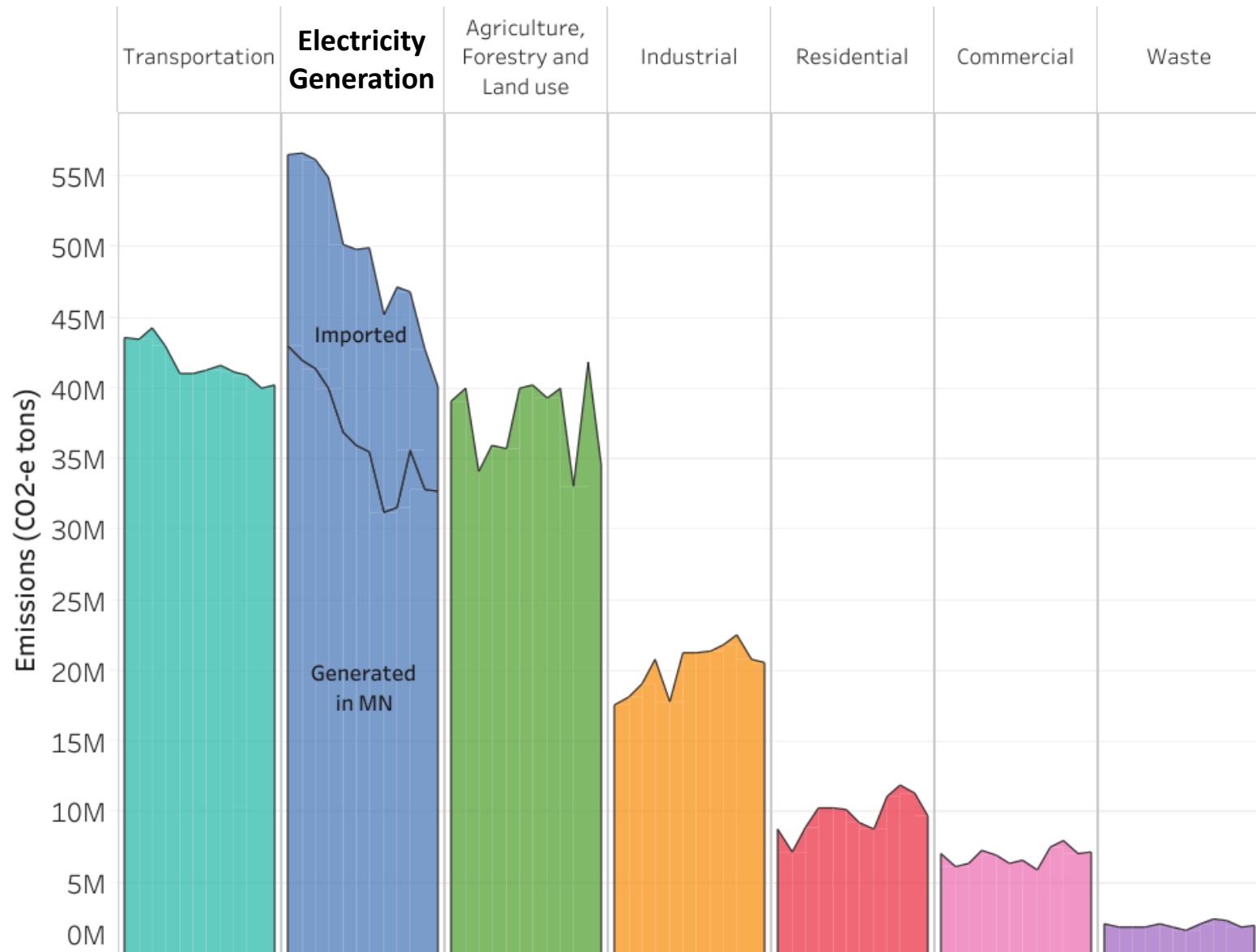
Developed nearly
5,000 MW's of
Wind & Solar

Electric Generation Transition

MN Experience to date: 1990 - 2018



Source: U.S. Energy Information Administration



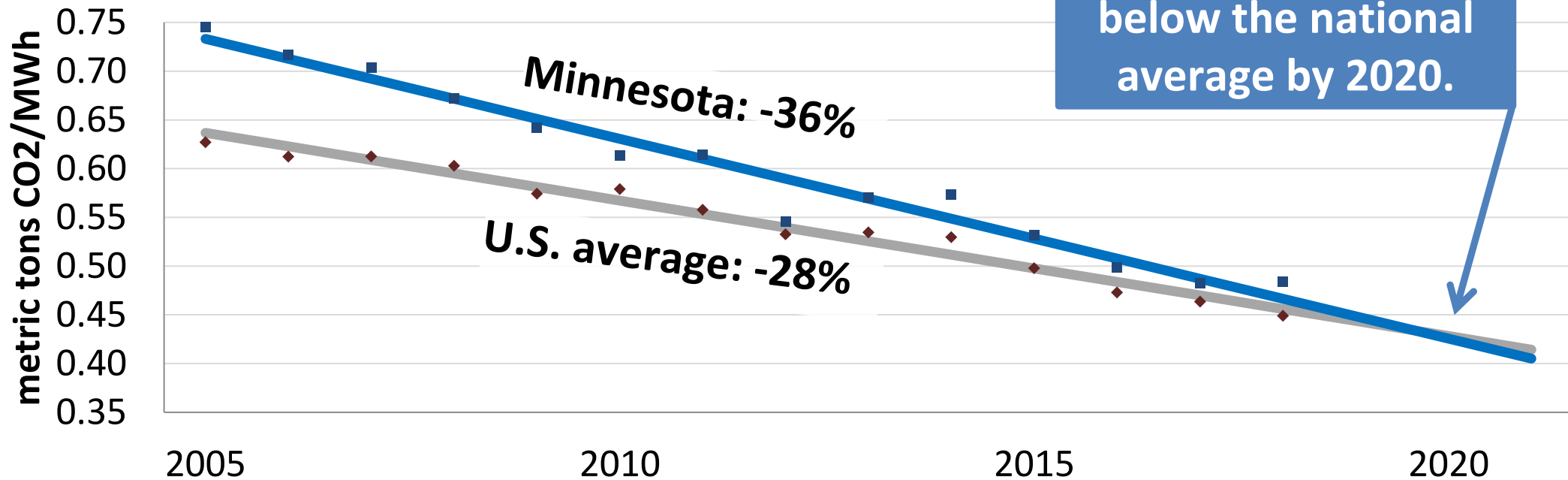
Minnesota GHG Emissions by Sector

Figure 4. Minnesota's GHG emissions from economic sectors, 2005-2016. The dark line in the column for the electricity generation sector represents the division between emissions from electricity generated in Minnesota (below the line) and emissions from imported electricity (above the line).

Emission change 2005 to 2016	Transportation	Electricity Generation	Agriculture, Forestry and Land use	Industrial	Residential	Commercial	Waste
-8%	↓	↓	↓	↑	↑	↑	↓

Carbon Intensity of Electricity

Emissions change 2005 to 2018



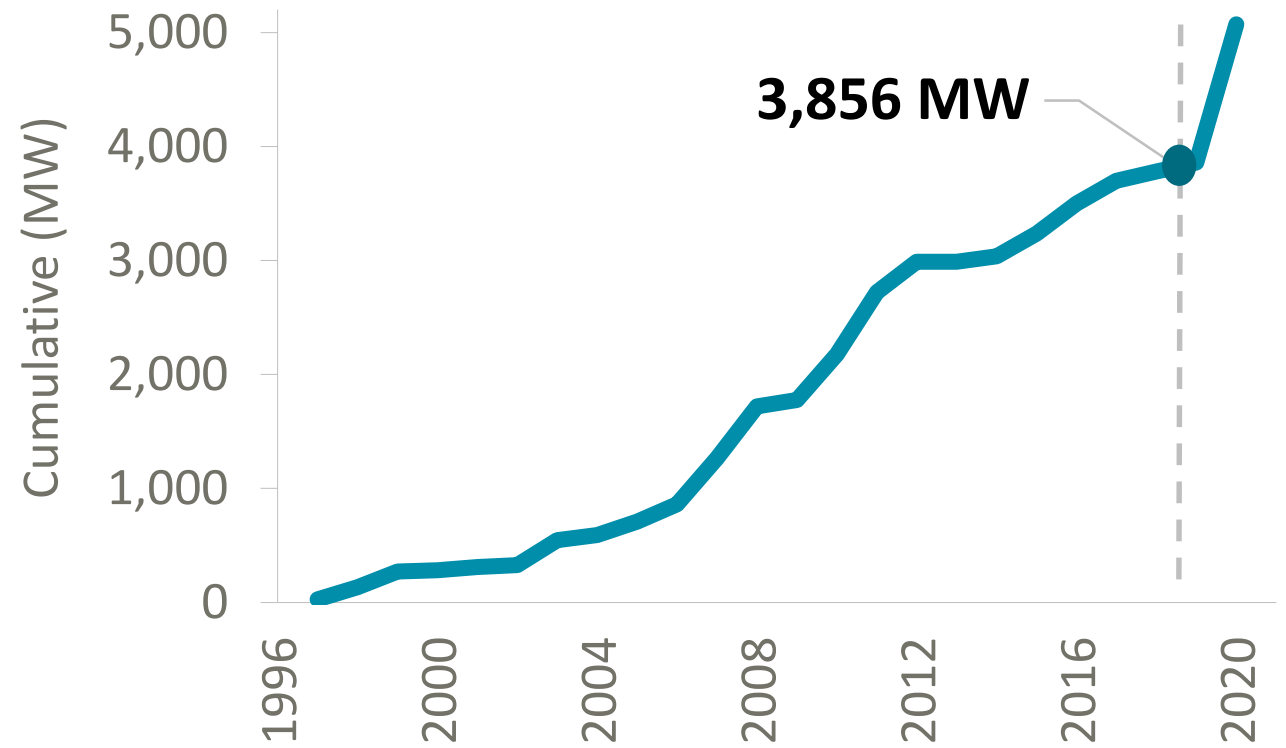
Source: MN Department of Commerce analysis of U.S.EIA data

Minnesota Wind Electricity



Minnesota's Wind Capacity - Projected

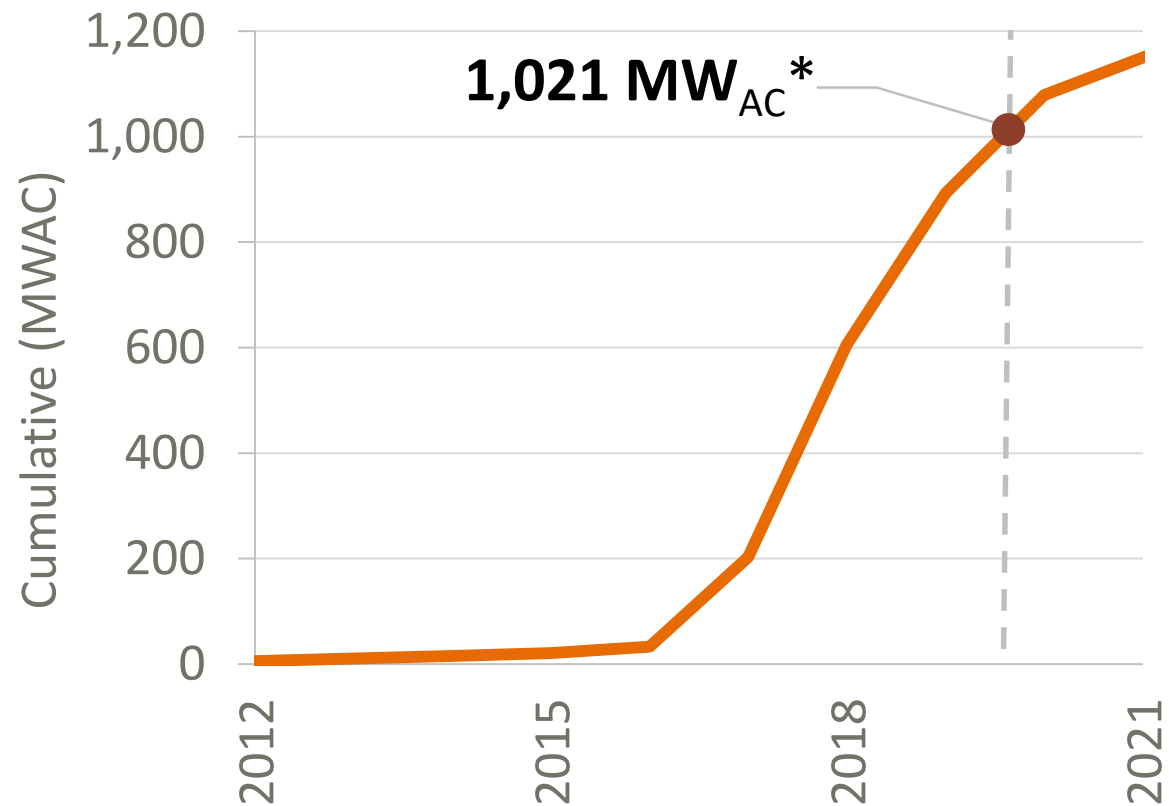
as of November 2019



Minnesota Solar Electricity

Minnesota's Solar Capacity - Projected

as of November 2019 (*preliminary)

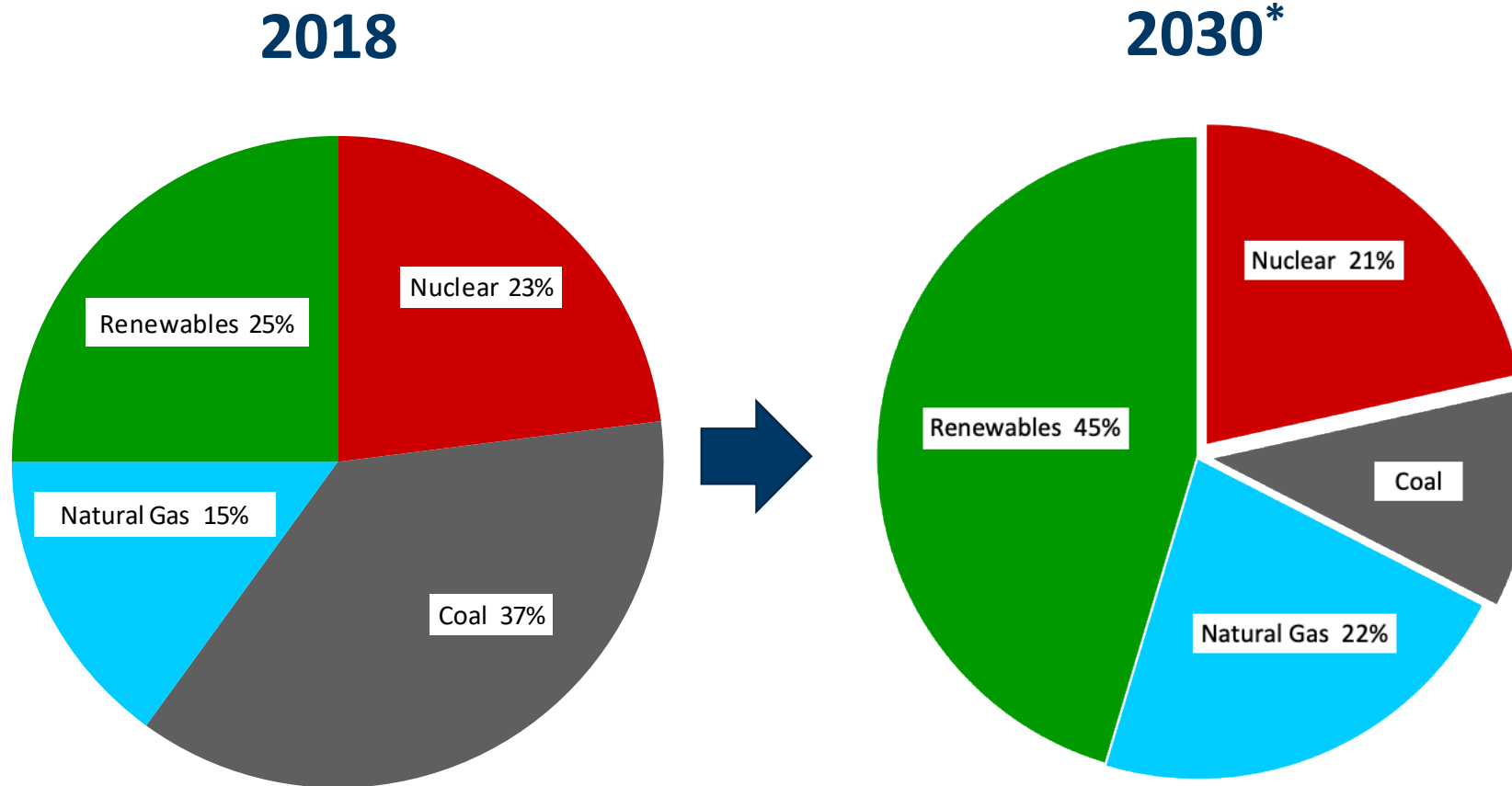


Source: MN Dept of Commerce



Minnesota Electricity in Transition

Current Plans: 2018 - 2030



* New natural gas plants added (3 intermediate combined cycle plants and 2 peaking combustion turbines) and new renewables added, per MN IOU IRPs & announcements.

Energy Sector – Current Commitments

- Xcel Energy
 - 80% carbon reduction by 2030
 - 100% carbon-free electricity by 2050
- Minnesota Power
 - 50% Renewable Energy & 50% carbon reduction by 2021
- Great River Energy
 - 50% Renewable Energy by 2030.

Commercial Demand for Clean Energy

MINNEAPOLIS/ST. PAUL
BUSINESS JOURNAL

1/11/2019

Google planning \$600 million data center in Becker powered by Xcel wind farms

3M News Center

2/28/2019

3M Announces 100% Global Renewable Electricity Goal with Headquarters Campus Converting to all Renewables Immediately

Target commits to 100 percent renewables; signs PPAs to purchase wind and solar energy

June 13, 2019

By Renewable Energy World Editors

GreenBiz

Cargill, GM, P&G among group calling for market-ready renewable thermal energy

Sarah Golden
Thursday, March 21, 2019 - 4:32am



Legislative & Regulatory Activities

Minnesota Path to Clean Energy

Clean Energy First

- Regulatory Mechanism
- Requires utilities to build clean energy when building new power plants or replacing retired facilities
- Requires transmission planning studies to accommodate new renewables and resources

Energy Optimization

- Updates MN Statute 216B.241
- Updates the Conservation Improvement Program
- Utility Energy Efficiency and Conservation Goals
 - 1.75% = Investor Owned Electric Utilities
 - 1.5% = Munis and Coops
 - 1% = Natural Gas
- Allows for utility electrification through efficient fuel switching programs

100% Carbon-Free by 2050

Requires all power sector resources to be carbon free by 2050
Resource agnostic but must be carbon free

Clean Energy First - Off Ramps

If both affordable AND reliable, implement clean energy resources.



If clean energy resource is either not affordable OR not reliable, utility can fill the resource need with non-renewables



Energy Optimization

- Updates Conservation Improvement Program goals:
 - 1.75% = Investor Owned Electric Utilities
 - 1.5% = Munis and Coops
 - 1% = Natural Gas
- Allows for utility electrification through efficient fuel switching programs
- Doubles low-income spending requirement



100% Carbon Free by 2050



- Requires all power sector resources to be carbon free by 2050
- Flexible options and timing for utilities
- Assistance to affected workers and communities
- Prioritizes local jobs and prevailing wages for large wind projects

2019 Legislative Session – Energy Storage

- **Study:** Energy Storage Cost-benefit Analysis due December 31, 2019
- **Resource Planning:** IOUs must consider energy storage in long-term resource plans
- **Pilot projects:** IOUs may request cost recovery for energy storage pilot projects

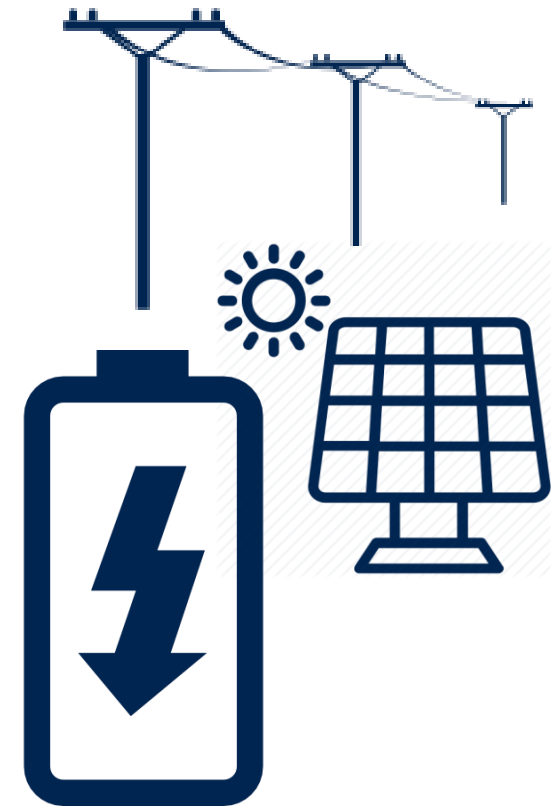


Energy Storage Cost-benefit Analysis

Near-term (5-10 year) cost benefit analysis completed by Energy and Environmental Economics (E3), finds that:

- **Solar + storage** is cost-effective today and could be used to meet peak capacity needs and grid upgrade deferral
- **Stand-alone storage** could be cost-effective in 2025

As costs and market rules change, study can serve as a framework for case-by-case analysis



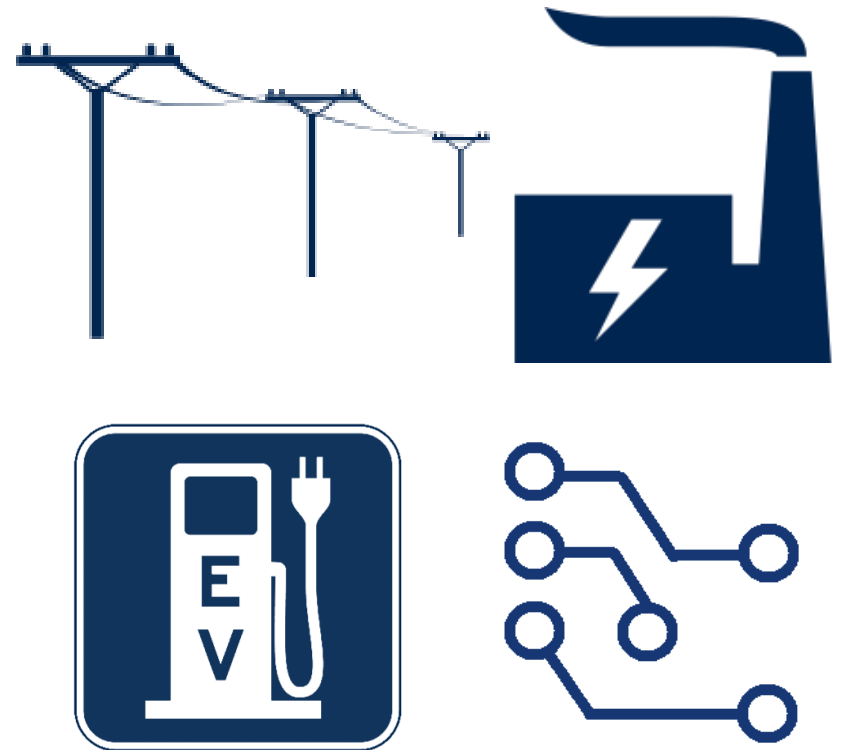
2020 Regulatory Activities

- **Resource Plans** – Xcel and Minnesota Power
- **Rate Cases** – four in progress or anticipated in 2020

Electric	Gas
Dakota Electric	Great Plains
Minnesota Power	CenterPoint Energy

Policy Dockets

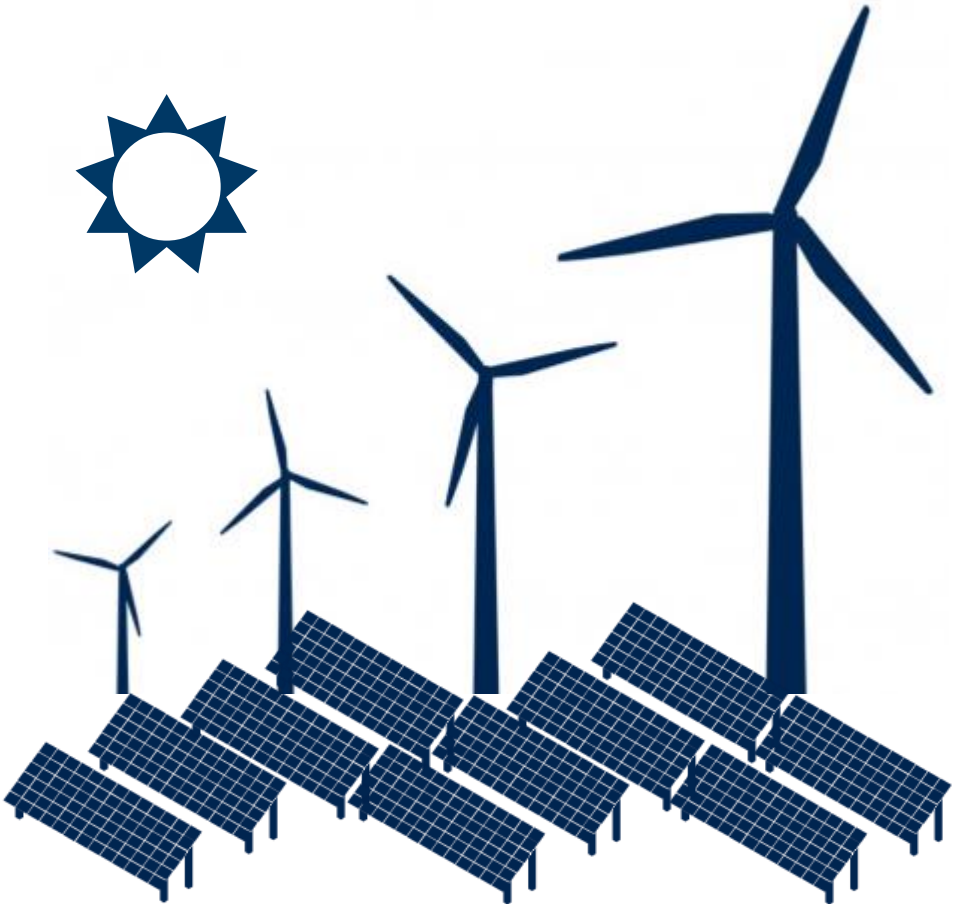
- Grid Modernization
- Interconnection Standards
- Electric Vehicle Charging Infrastructure & Rates
- Fuel Switching in CIP
- Baseload Commitment & Scheduling



2020 Regulatory Activities

Certificates of Need

Wind	MW	Solar	MW
Big Bend	335	Red Rock	75
Buffalo Ridge	109	Elk Creek	80
Three Waters	200	Regal	100
Plum Creek	414		



Thank you!

Joe Sullivan, Deputy Commissioner
Division of Energy Resources
Minnesota Department of Commerce