

Minnesota's electric cooperatives are leaders in the state's energy transition



Your Minnesota electric cooperatives are at the heart of a decades-long, nationwide campaign to reduce greenhouse gas emissions from our energy production. The electricity sector is rapidly reducing carbon emissions and is the only sector of the economy exceeding its decarbonization goals.

▶ Beating goals; surpassing expectations

All suppliers of electricity to Minnesota's cooperatives achieved the state's 25% renewable energy standard years ahead of requirements.

▶ Transforming our generation mix for the future

Cooperatives are shifting their power supply portfolio to take advantage of low-cost renewable energy and the MISO market. The biggest supplier of electricity to Minnesota's cooperatives sold its last coal-based power plant in 2022. Plus, it is on track to reduce its carbon dioxide emissions by over 80% by 2032.

Other co-op power suppliers are adding significantly more renewables and exploring substantial investments in carbon-capture and sequestration and nuclear energy.

▶ Focusing on Beneficial Electrification

Since 2017, electricity generation is no longer the No. 1 source of greenhouse gases in the U.S. According to the Minnesota Department of Commerce, Minnesota's electric utilities have filed integrated resource plans that transition our energy mix to more than 70% carbon free by 2034. (Source: MN Department of Commerce, Energy Policy and Conservation Quadrennial Report: 2020, March 2021)

The path to reducing carbon emissions will require using more electricity, not less. Beneficial electrification means using electricity to displace fossil fuels in other parts of the economy such as transportation, and space and water heating. Electrification will play a major role if Minnesota is able to meet its decarbonization goals. More information can be found at www.be-league.org.

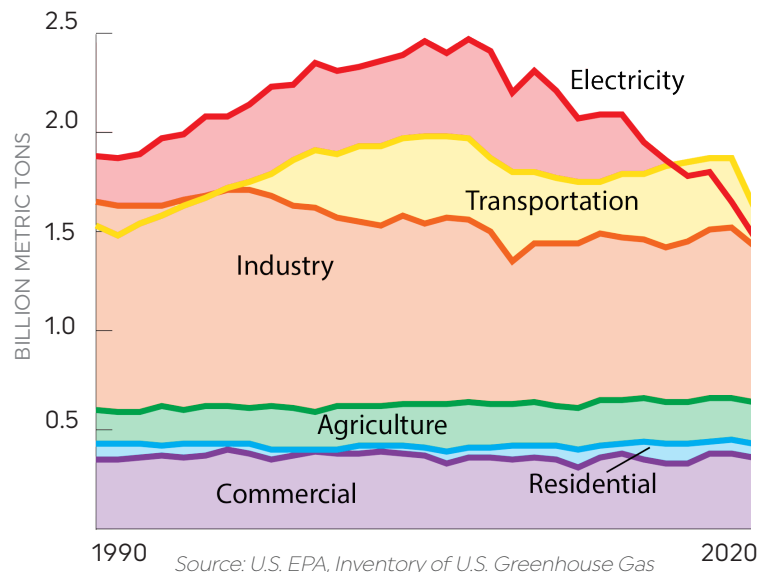
▶ Creating large-scale solar resources

Minnesota cooperatives have energized over 30 megawatts (MW) of solar installations through 2020 with more on the way. Co-ops will bring over 15 times that online by 2025.

▶ Developing significant wind energy resources

Wind is an abundant resource in the Midwest. Combined, energy suppliers to Minnesota cooperatives currently generate over 3,100 MW of energy, with an additional 1,200 MW anticipated by 2025.

U.S. Carbon Emissions



Source: U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020, February 2021

One of the cooperatives serving Minnesota operates the largest cooperatively owned wind project in the United States, and added 342 MW of generation from wind energy in 2020 alone.

▶ Leading on carbon capture technology

Cooperatives serving Minnesota have long been leaders in developing carbon capture technology, including operation of the largest coal-based CO₂ sequestration project in the world. More recently, Minnesota cooperatives are partnering to develop the Integrated Test Center where researchers will test carbon capture utilization and sequestration technologies. Through "Project Tundra," a cooperative supplying electricity to Minnesota is evaluating new carbon capture technology at one of its largest power plants.

▶ Pushing innovation

A Minnesota cooperative owns the largest energy storage project in the Midwest and another is working with a partner to develop the first "Iron Air" long-duration battery, which aims to provide 1.5 MW of battery storage, equating to 100 hours of continuous power.

From 2005 to 2025, electric cooperatives operating in Minnesota will:



decrease carbon-producing generation by **1,875 megawatts**



increase carbon-free generation by **4,867 megawatts**

A better approach

Though Minnesota cooperatives support a practical pathway for the clean energy transition, we feel overly prescriptive and restrictive carbon mandates risk increasing costs to Minnesota co-op members and degrading the reliability of their service. Rural low-income Minnesotans already face an energy cost burden that is three times that of the metro area, and energy costs are on the rise. To keep electric service safe, reliable and affordable for co-op member-owners, we must develop policies that are sustainable, allow a broad set of technologies and solutions, and maintain system reliability.

The task of decarbonizing the electric utility sector while maintaining highly reliable and affordable electric service is already tremendously challenging, especially as other sectors like transportation and home heating become more dependent on electricity to facilitate their own necessary decarbonization efforts. Poorly constructed, overly prescriptive mandates, though well-intentioned, will only hamper achieving this task.

How can you help us reduce carbon emissions in Minnesota?



Avoid setting arbitrary emission goals and benchmarks through policy.



Understand that reducing carbon emissions to zero will result in an exponential increase in costs to electric consumers.



Support load control programs that save member-consumers money and eliminate unnecessary barriers to those programs.



Exclude gas peaking generation from a clean energy target until cost-effective technologies are identified and provide comparable reliability benefits.



"All Tech on Deck": Policies to reduce carbon emissions should encourage a broad suite of technologies and fuels, and not simply focus on wind, solar and batteries. Nuclear generation, large hydropower, carbon-capture and sequestration and hydrogen should all be designated as a renewable resource.



Support electrification of other sectors including electric vehicles, and space and water heating.



To help you make more informed decisions regarding emission goals and renewable generation mix, contact MREA and we will connect you with a cooperative expert.

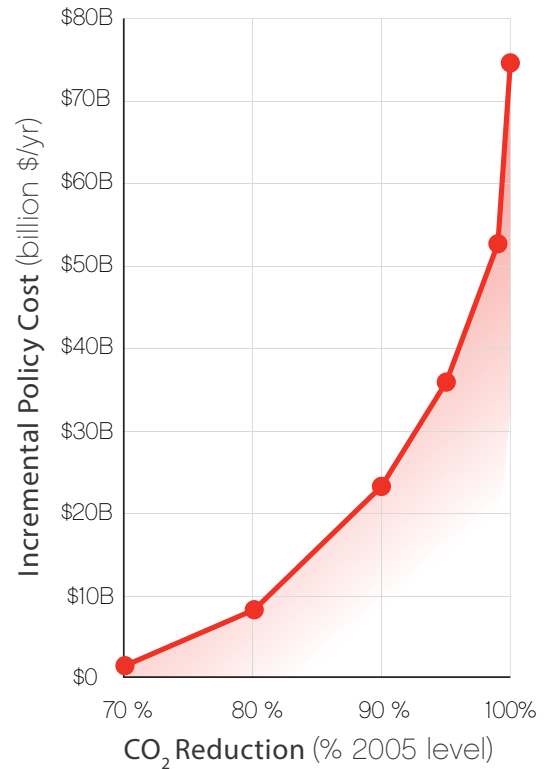


Minnesota Rural Electric Association

Who is MREA?

The Minnesota Rural Electric Association (MREA) is the statewide organization representing electric cooperatives in the state of Minnesota. We foster unity among and provide service to all of Minnesota's 50 electric cooperatives. Our mission is serving our members through collaborative leadership and expertise⁵

Policy Costs



Source: EPRI presentation to Minnesota PUC, Aug. 2020

According to an EPRI analysis, achieving a 100% Clean Energy Standard (CES) in Minnesota by 2050 is prohibitively expensive. Data shows, for nearly half the year in 2050, approximately 2 gigawatts (GW) of load (or 2,000 MW) could not be served with existing and future technologies for less than \$50,000/MWh. Compared with current average retail electric rates of \$120/MWh, it is clear that a cost-effective transition to 100% renewables requires more research and technology development.

The cheapest carbon reductions are often the first - the low hanging fruit has already been plucked. Deeper restrictions will need to be evaluated and implemented across all sectors of the economy. In the meantime, beneficial electrification combined with more modest clean energy goals can help reduce carbon and the risk of undesirable California-style rolling blackouts.

Source: EPRI's Minnesota High Renewable Standards Project, Back Pocket Insight, April 2020