

Key Insights

- Electrifying the wet corn milling and ammonia sectors in Iowa can **significantly reduce emissions**.
- Electrifying recycled plastic, milk powder, soybean oil, cast aluminum, and beer production may **reduce energy costs** per unit of production.
- Electrifying just the subsectors in this study will **advance Iowa 2.3% of the way toward full industrial decarbonization** by 2050.

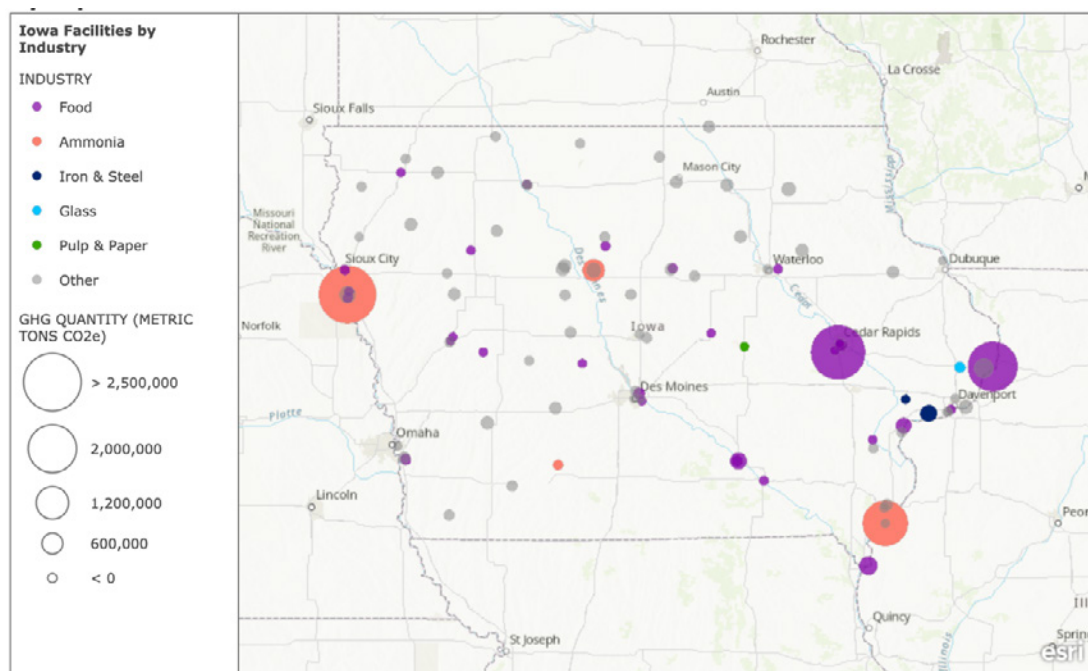
Quick Facts

- **29.3% of Iowa's GHG emissions** are from industry.¹
- As of 2022, the manufacturing sector employed **14% of the state's workforce** and accounted for **more than 17% of total gross state product**.²

Electrifying industrial processes offers a significant opportunity to decarbonize Iowa's industrial sector, which accounts for 29.3% of the state's greenhouse gas (GHG) emissions.¹ Industrial emissions originate from facilities throughout the state as shown in the map below. These emissions must be reduced to meet national emissions reductions and carbon neutrality goals. In numerous industrial subsectors, electrified technologies can shift production away from carbon-intensive fossil fuels to renewable electricity.

The report [Industrial Electrification in U.S. States](#) analyzes nine of Iowa's industrial subsectors and the changes in energy use, CO₂ emissions, and energy costs that would occur if individual industrial processes were electrified. This report studied Iowa's industrial pulp & paper, ammonia, plastic recycling, beet sugar, milk powder, wet corn milling, aluminum casting, beer, and soybean oil sectors.

Iowa's Industrial Emissions



Esri, USGS | County of Story, Iowa DNR, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

Built using ArcGIS online with U.S. Environmental Protection Agency's Facility Level Information on GHGs Tool (FLIGHT) 2020 data. U.S. Environmental Protection Agency, "Greenhouse Gas Reporting Program (GHGRP)," last accessed February 25, 2022, <https://www.epa.gov/ghgreporting>.

This map shows the relative emissions of large industrial facilities. Facility types that are included in the full report analysis are shown in colors while other industrial facility types are shown in grey.

The study found that, among the Iowa subsectors analyzed, the following have the potential to reduce emissions by the largest margins, ranked by the expected decrease in annual emissions by 2050 through electrification:

- Wet corn milling (2561 kt CO₂)
- Ammonia (1843 kt CO₂)
- Soybean oil (778 kt CO₂)

Deploying electric technologies would result in near-term emissions reductions, and, given the Biden administration's stated policy to achieve a "carbon pollution-free power sector by 2035," electrification could deliver even further decarbonization in the near- and medium-term.

Many electrification technologies considered in this study are commercially available, enabling Iowa to begin electrifying, and realizing emissions reductions, in the near-term. Within Iowa today:

- The wet corn milling industry can deploy electrical rotary and ring dryer technology, and the ammonia industry can electrify by producing hydrogen through electrolysis. Both can begin seeing emissions savings by 2030.
- Electrification can bring energy cost savings across five industries, including plastic recycling, milk powder, soybean oil, aluminum casting, and beer, if lower renewable electricity cost is used. Additional cost information can be found in the full report.
- Industrial electrification can be advanced by supporting electrified technology demonstration, financially incentivizing electrification, increasing the state's renewable electricity generation capacity, enhancing the electric grid, and developing the workforce. A decarbonized energy grid is crucial for realizing the full benefits of industrial electrification.

Key Actions to Accelerate Industrial Electrification in Iowa

- Open a dialogue with the wet corn milling industry to learn what hurdles prevent manufacturers from adopting commercially available electrified technologies, especially electrical rotary and ring dryers.
- Assist facilities in accessing the Inflation Reduction Act's incentives for electrification, such as the Sec. 48C Advanced Energy Manufacturing Credit and the Advanced Industrial Facilities Deployment Program.
- Support efforts to establish federally supported H₂ Hubs in the state, given the potential for hydrogen to decarbonize the ammonia industry with clean electricity.
- Leverage federal resources in the Investment in Infrastructure and Jobs Act (IIJA), including opportunities under the Advanced Energy Manufacturing and Recycling Grant Program and the Industrial Emissions Reduction Technology Development Program.
- Ensure sufficient renewable electricity generation resources are built to supply increasing demand and that grid infrastructure can adequately and reliably serve increased loads.
- Engage frontline communities and those working on environmental justice in this industrial transition.

Additional Factsheet Sources:

¹ U.S. Energy Information Administration, "[Introduction and Key Concepts: State Energy-Related Carbon Dioxide Emissions Tables](#)," Independent Statistics & Analysis, U.S. Department of Energy, October 2022.

² National Association of Manufacturers, "[2023 Iowa Manufacturing Facts](#)," 2023.

Download the full report and analysis here: <https://www.renewablethermal.org/state-electrification-report> or from here: <https://www.globalefficiencyintel.com/industrial-electrification-in-us-states>

