INDUSTRIAL ELECTRIFICATION Factsheet

North Carolina

March 2023

Key Insights

- Electrifying recycled plastic and pulp & paper production in North Carolina can **significantly reduce emissions**.
- Electrifying recycled plastic, milk powder, container glass, soybean oil, cast aluminum, or beer production may **reduce energy costs** per unit of production.
- North Carolina must electrify industrial processes to meet its goal of reaching **net-zero no later than 2050.**

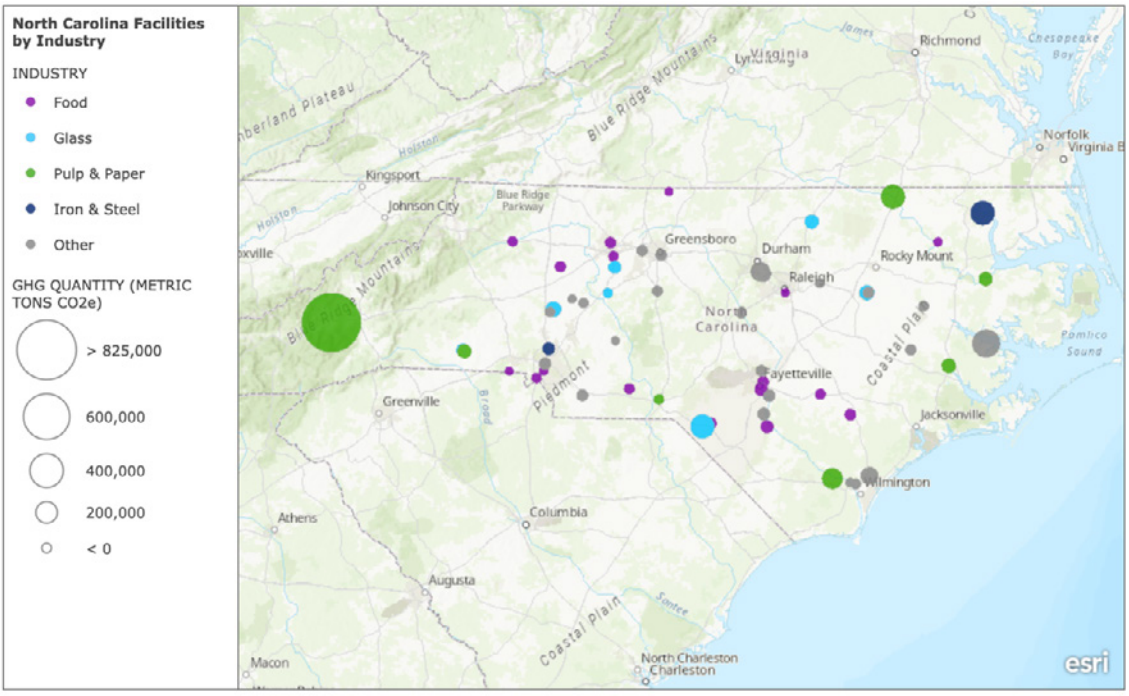
Quick Facts

- **8.1% of North Carolina's** GHG emissions are from industry.[1]
- The state is committed to achieve **net-zero no later than 2050**, including **cutting greenhouse gas emissions 50% by 2030** compared to 2005 levels.[2]
- As of 2022, the manufacturing sector employed **10.4% of the state's workforce** and accounted for more than **17% of total gross state product**.[3]

Electrifying industrial processes offers a significant opportunity to decarbonize North Carolina's industrial sector, which accounts for 8.1% 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 the state's 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 eight of North Carolina's industrial subsectors and the changes in energy use, CO_2 emissions, and energy costs that would occur if individual industrial processes were electrified. This report studied North Carolina's industrial pulp and paper, container glass, plastic recycling, milk powder, wet corn milling, aluminum casting, beer, and soybean oil sectors.

North Carolina's Industrial Emissions



Esri, USGS | Moore County GIS (NC), 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 North Carolina 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:

- Plastic recycling (389 kt CO_2)
- Pulp and paper (312 kt CO_2)
- Container glass (195 kt CO_2)

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 North Carolina to begin electrifying, and realizing emissions reductions, in the near-term. Within North Carolina today:

- The plastic recycling industry can electrify using electric melting technology, delivering immediate emissions and energy cost savings. The pulp and paper industry can deploy infrared dryers to see emissions savings by 2040.

- Electrification can bring energy cost savings across six industries, including plastic recycling, milk powder, container glass, soybean oil, cast aluminum, 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 and bringing North Carolina closer to its emissions reduction goals.

Key Actions to Accelerate Industrial Electrification in North Carolina

- Open a dialogue with the plastic recycling and pulp & paper industries to learn what hurdles prevent manufacturers from adopting commercially available electrified technologies, especially electric melting technology and infrared 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.
- 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] Cooper, Roy, "Executive Order No. 246 North Carolina's Transformation to a Clean, Equitable Economy," State of North Carolina, January 7, 2022.
[3] National Association of Manufacturers, "2022 North Carolina 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

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