

Key Insights

- Electrifying ammonia and methanol production in Texas can **significantly reduce emissions**.
- Electrifying milk powder production may **reduce energy costs** per unit of production.

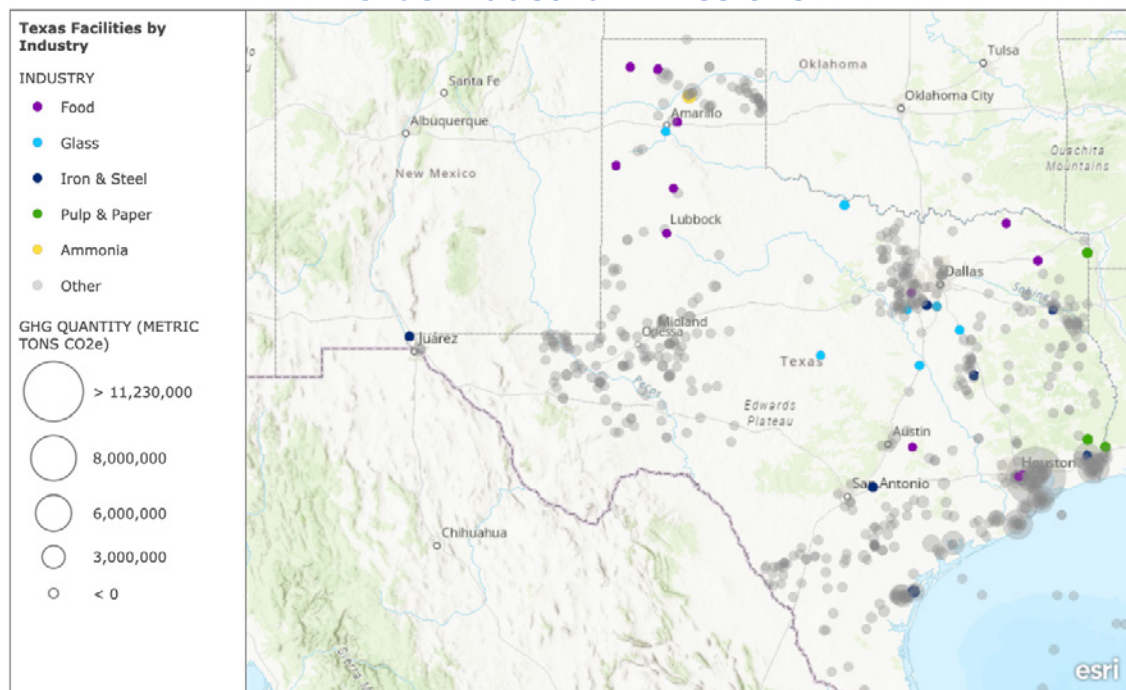
Quick Facts

- **30% of Texas's GHG emissions** are from industry.¹
- As of 2022, the manufacturing sector employed nearly **7% of the state's workforce** and accounted for almost **12% of total gross state product**.²

Electrifying industrial processes offers a significant opportunity to decarbonize Texas's industrial sector, which accounts for 30% 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 ten of Texas'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 Texas's industrial pulp and paper, container glass, ammonia, methanol, plastic recycling, milk powder, wet corn milling, aluminum casting, beer, and soybean oil sectors.

Texas Industrial Emissions



Esri, USGS | Texas Parks & Wildlife, CONANP, 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 Texas subsectors studied, the following have the potential to reduce emissions by the largest margins, ranked by the expected decrease in annual emissions by 2050 through electrification:

- Ammonia (1852 kt CO₂)
- Methanol (1650 kt CO₂)
- Plastic Recycling (592 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 Texas to begin electrifying, and realizing emissions reductions, in the near-term. Within Texas today:

- The ammonia and methanol industries can electrify by switching to green hydrogen, hydrogen produced using electrolyzers powered by renewable electricity, immediately delivering energy and emissions savings.
- Electrification can bring energy cost savings across the plastic recycling and milk powder industries if lower renewable electricity cost is used. Additional cost information can be found in the full report.
- Industrial electrification can be supported 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 Texas

- Open a dialogue with the methanol and ammonia industries to learn what hurdles prevent manufacturers from adopting commercially available electrified technologies, especially electrolyzers for producing hydrogen using renewable electricity.
- 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 and methanol 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 Marshall, Emma and Jesse Thompson, "Texas' Energy Base Drives Climate Concerns as Renewables Expand," 2019.

² National Association of Manufacturers, "2022 Texas Manufacturing Facts," 2022.

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>