

Industrial Boiler Pollution in Maryland

Evergreen Collaborative has published a [first-of-its-kind map](#) identifying nearly 14,000 industrial boilers across all 50 states and quantifying the air pollution they emit. Our analysis finds that industrial boilers are a massive pollution source in the U.S., generating 6% of all industrial nitrogen oxide (NO_x) emissions and 5-10% of all industrial carbon dioxide (CO₂) emissions. These boilers depend heavily on fossil fuels, especially fossil gas, to heat water for a wide range of industrial processes, including pulp and paper manufacturing, food processing, chemicals production, and more.

In burning fossil fuels to heat water, **industrial boilers produce a dizzying array of air pollutants**. These include not only CO₂, the primary driver of climate change, but also multiple contaminants that directly endanger human health, including NO_x, particulate matter, mercury, and hydrochloric acid. These pollutants can penetrate deep in the lungs and, depending on the pollutant, cause respiratory illnesses, heart disease, cancer, and premature death. Industrial boiler pollution is a public health crisis, but it doesn't have to be this way: Evergreen and Sierra Club's new report accompanying the national boiler map, *Embracing Clean Heat: Opportunities for Zero-Emission Industrial Boilers*, lays out a pathway to electrifying America's industrial boilers.

The national map and report highlight key opportunities—and urgent needs—in Maryland. **Maryland is home to 221 industrial boilers**. [Evergreen's Maryland dataset](#) indicates that boiler pollution is an acute issue in the state:

- About 26% of Maryland's industrial boilers are located in federally recognized disadvantaged communities (DACs), below than the national level of 40.3%.
 - Nationally, boiler units in DACs are twice as polluting on average than boiler units in non-DACs, but in Maryland the pattern is less clear-cut. On average, reported boiler units in Maryland DACs emit nearly five times less NO_x and half as much volatile organic compound pollution—but they also emit nearly four times more lead and almost twice as much hydrochloric acid.
- 71.5% of Maryland's industrial boilers are located in nonattainment areas, where ozone pollution already exceeds legal limits under the Clean Air Act—nearly triple the national average of 25%.
- Alliant Techsystems Operations, ST Engineering, and Sherwin Williams own the largest number of boilers in Maryland, with a combined 42 boilers across the state.
- The chemical manufacturing industry operates the largest number of units in Maryland with 53 units, followed by the food manufacturing and the transportation equipment manufacturing industries with 42 and 34 units, respectively.

- The top 5% of highest-emitting boilers in Maryland each emitted more than 15 tons of NO_x annually, cumulatively generating about 185 total tons of NO_x annually.
- The highest emitting reported unit in Maryland is owned by American Sugar Refining Inc, a food manufacturing company. The unit is located in Baltimore and produces 93.75 tons of NO_x annually. This makes this unit higher emitting than 96.93% of units in the U.S., by NO_x emissions.

Evergreen and Sierra Club's report lays out a policy agenda to tackle the massive pollution burden of fossil-fueled industrial boilers. That agenda hinges on replacing the current boiler fleet, to the greatest extent possible, with electric alternatives. The report argues that those alternatives—industrial heat pumps, conventional electric boilers, and thermal energy storage—are commercially available and technologically viable replacements for high-polluting legacy boilers. Particularly for industrial processes below 200°C, these alternatives can provide cost-effective pollution reductions compared to fossil fueled units. The time is ripe for state and federal leaders to advance ambitious measures to electrify America's industrial boilers.

Embracing Clean Heat recommends an ambitious policy approach to electrify America's industrial boilers. The policy tools detailed in the report include:

- **New State-Level Clean Air Rules** — States can put firm limits on criteria pollution from their industrial boilers, going above and beyond the Trump administration's standards.
- **Investments in Electrification** — State governments can make targeted investments to close the cost gap between fossil and electric boilers, clean up fenceline communities' air, and create jobs.
- **Utility Rate Reforms** — States' public utilities commissions can institute rates that reward industrial customers for electrifying equipment and deploying energy storage to enhance demand flexibility and grid stability.

See Evergreen Collaborative and Sierra Club's new report, *Embracing Clean Heat: Opportunities for Zero-Emission Industrial Boilers*, for more, including a detailed exploration of states' authorities to act on boiler pollution under the Clean Air Act.