



## News & Insights

# Climate TRACE Unveils Open Emissions Database of More Than 352 Million Assets

Dec 02, 2023

By Climate TRACE

News

**DUBAI, UAE — 3 December 2023** — Today, Climate TRACE published an inventory of unprecedented granularity that pinpoints nearly every major source of greenhouse gas (GHG) emissions around the world and provides independently produced estimates of how much each emits. Encompassing human-caused emissions from facilities — including power plants, steel mills, ships, and oil refineries — and other emitting activities — including fertilizer application, deforestation, and wildfires — Climate TRACE’s expanded database now tracks GHG emissions from more than 352 million assets, a 4,400x increase compared to the number of assets covered by the inventory last year. All Climate TRACE data are free and publicly available to help enable action and accountability at the massive scale necessary for global progress.

This level of detail enables private sector action, particularly for companies looking to decarbonize their supply chains. Major electric vehicle manufacturers Tesla and Polestar have already begun collaborating with Climate TRACE to enhance their emissions data on steel and aluminum suppliers. Boeing has committed to working with Climate TRACE to explore how the novel inventory can support their work to assess aviation’s paths to decarbonization, and many other organizations are harnessing Climate TRACE data to fill data gaps.

Derived from satellites, other forms of remote sensing, and additional public and commercial data, Climate TRACE provides emissions data that are unreported in traditional inventories. When emissions disappear from official reporting, Climate TRACE continues to track what the atmosphere sees. In fact, the majority of corporate emissions worldwide that are included in the Climate TRACE inventory are still not included in self-reported ESG databases.

“Leaders from the public and private sectors can now do what’s never been possible before. They can look clearly at the causes of the climate crisis all the way down to the individual source. They

can pinpoint where to take action almost immediately,” said former US Vice President and Climate TRACE this inventory at our fingertips, there’s no longer a valid excuse for governments, or otherwise — to turn a blind eye to the work that must be done to slash emissions significantly and quickly.”

Today’s data release represents a significant breakthrough in emissions monitoring at a time of increasing urgency for swift and targeted global climate action. According to the UN, the world must reduce emissions by at least 42% by 2030 in order to stay on the 1.5°C pathway.

Climate TRACE’s platform is a critical component of the world’s climate action toolkit; it is the most comprehensive and granular dataset of recent GHG emissions ever created. In line with the goals of the Global Stocktake, the Climate TRACE inventory allows for transparent assessment of each country’s progress toward the goals of the Paris Agreement with unparalleled precision and recency.

This highly granular level of information also enables companies to gain a better understanding of their own supply chains and the emissions intensity of the production of key materials across a wide range of suppliers. Even within a single company, the emissions intensity of their products can vary significantly, and is highly influenced by the location of the facilities and local government policies. For example, steel produced by ArcelorMittal’s Dofasco steel plant in Canada has an emissions intensity of 1.5 tonnes of CO<sub>2</sub> per ton of steel, whereas steel produced by the same company in Poland has an emissions intensity of 2.2 tonnes of CO<sub>2</sub> per ton of steel.

“To expand this dataset from 80,000 to 352 million assets in just one year is a feat that wouldn’t be possible without the endless dedication of every member of this growing coalition and its contributors,” said Gavin McCormick, executive director of WattTime and co-founding member of Climate TRACE. “By harnessing the power of AI and machine learning paired with the right data from satellites and beyond, our models are giving us a picture of the world like we’ve never seen before. And it’s allowing us to start making climate progress in a way some never believed possible.”

In the year of the Global Stocktake, Climate TRACE provides an important added level of detail to our understanding of the main drivers of emissions increases and reductions.

**—Emissions increased in 2022:** Global emissions increased 1.5% from 2021 to 2022 and have increased 8.6% from 2015 — the year of the Paris Climate Agreement — to 2022.

**—Sectors leading global emissions increases:** Since 2015 the largest increases in global emissions have come from electricity production and other energy use in China, electricity production in India, and oil and gas production in the US. The rise in emissions from just a handful of sectors in three countries account for nearly half of the increase in global emissions since 2015. In 2022, the change in emissions from oil and gas production in the US and Iran, as well as electricity generation in India, represented 17% of the rise in emissions worldwide.

**—Methane on the rise:** In the year after the Global Methane Pledge was announced, methane emissions increased 1.8%. China’s growing methane emissions accounted for 39% of that increase in 2022 — with China’s coal mining sector accounting for the biggest portion of their increase.



**Oil and gas footprint:** Flares are a significant and wide-ranging part of the oil and gas industry. Worldwide, flares are responsible for an average 15% of CO<sub>2</sub> from oil and gas production. Some countries, like the Netherlands, Norway, Israel, and Colombia are on the low end (<1% to 2%) while others like Algeria, Iraq, Mexico, and Russia are on the high end (20% to >40%). Curtailing flaring offers an immediate opportunity to cut CO<sub>2</sub> along with the methane that slips unburned during flaring.

**—Deforestation dropping in key regions.** While global emissions from deforestation remain high (4.5 billion tonnes CO<sub>2</sub>e) and increased slightly in 2022 (+5%), there have been significant reductions in some key regions. In Indonesia, emissions from deforestation and degradation have declined by 56% and 87% respectively, from 2015 to 2022. In the Congo Basin, emissions in 2022 from deforestation and degradation dropped by 7% and 19% compared to 2021. In Latin America, emissions did not change significantly throughout 2022.

**—Higher income countries drive road transport emissions:** Road transportation emissions increased 3.5% in 2022. Despite the increasing availability of electric vehicles, high- and upper-middle income countries were responsible for 68% of that total increase in emissions. 49% of all emissions from road transportation in 2022 came from high-income countries.

**—Aviation emissions reach new heights:** In 2022, the continued post-COVID travel rebound caused aviation emissions to surge, with the total from international flights rising 74% between 2021 and 2022, and domestic flight emissions rising 18%.

**—Shipping impacts Arctic region:** As Arctic sea ice declines, shipping traffic in the area has increased. The number of weeks where CO<sub>2</sub> emissions from ships were above 30,000 tonnes in the Arctic has doubled between 2018 and 2022.

**—The growing role of petrochemicals:** Emissions from ethylene production (via steam cracking) — a petrochemical included in the Climate TRACE inventory for the first time this year — have steadily been climbing. Resulting GHG emissions have jumped 22% since 2015.

Through a number of collaborations, Climate TRACE is putting these data in the hands of decision makers who can leverage the database to drive decarbonization. These data users include:

**—Tesla:** As the world's largest producer of electric vehicles, Tesla is accelerating the world's transition to a sustainable energy economy. As part of its responsible sourcing strategy, Tesla is collaborating with Climate TRACE to validate primary emissions data from its suppliers of steel and aluminum and to fill gaps where primary data are not yet available.

**—GM:** GM is working toward a sustainable raw materials supply chain. Building on its First Movers Coalition commitments to purchase low-carbon steel and aluminum, GM is launching a pilot with Climate TRACE and TimberRock to help corroborate the primary and indirect emissions of steel and aluminum suppliers.



estor has been a leader in approaching the automotive industry toward the company-wide goal of carbon neutrality by 2040, they are evaluating Climate TRACE data to help accelerate progress towards that goal with focus on steel and aluminum, and to increase the transparency and accuracy in their climate reporting.

—**Boeing:** Following Boeing’s announcement in May of their Cascade Climate Impact Model tool that assesses aviation’s major paths to decarbonization, Boeing is incorporating feedback from stakeholders across industries and adding new data to support the conversation on decarbonization. Boeing will work with Climate TRACE to understand how they can leverage their digital tools to enable data-driven decision making.

—**Carbon Glance:** Carbon Glance is collaborating with Climate TRACE to provide carbon pricing intelligence for organizations considering the implications of Carbon Border Adjustment Mechanisms (CBAM).

—**Clarity AI:** As a global sustainability tech company, Clarity AI leverages advanced technology to equip investors, organizations, governments, and consumers with unique and transparent data, methodologies, and tools for analysis and reporting. Clarity AI is integrating Climate TRACE physical asset data and emission estimates into risk analyses for the investment industry.

—**Climatiq:** Climatiq provides an API that allows companies to embed GHG emissions data into software solutions that manage energy, procurement, supply chain, and travel logistics, etc. Climatiq has partnered with Climate TRACE to add previously unavailable global emission factor data to its database, spanning several supply chain categories such as fuel, building materials, mined materials, and metals.

—**ecoinvent:** ecoinvent publishes the world's most consistent and transparent life cycle database. As part of its mission to promote and support the availability of high-quality environmental data worldwide, ecoinvent is launching a pilot with Climate TRACE to explore opportunities that demonstrate the added value of merging these two robust data sources.

—**Joint Impact Model:** Joint Impact Model is using Climate TRACE data to measure the impact of investment portfolios to estimate their financial flows through the economy (economic, social, and environmental).

—**Kearney:** For years, Kearney has helped organizations establish and implement decarbonization strategies. Thanks to a new partnership with Climate TRACE, Kearney clients can better understand and act on their GHG emissions footprint, gauge the accuracy of their GHG emissions metrics across their supply chains, and fill in gaps where no data were previously available.

—**Muir AI:** Furthering its mission to generate actionable data to report supply chain emissions and identify reduction opportunities, Muir AI has partnered with Climate TRACE to power its transportation emissions capabilities, building out deeper insights using recent and comprehensive shipping data.



capacity for the decarbonization of the steel sector, Steel Watch has been used to inform analyses of the emissions impact of upcoming blast furnace relining decisions.

—**World Benchmarking Alliance:** The World Benchmarking Alliance (WBA) is building a movement to measure and incentivize business impact towards a sustainable future that works for everyone. To complement this mission, WBA is exploring a collaboration with Climate TRACE to validate self-reported emissions data and fill gaps where no such data currently exist.

Climate scientists and other researchers can uncover valuable insights in the inventory's detailed metadata, including metrics such as facility type, estimated capacity, utilization rate and emission factor, along with confidence and uncertainty measurements. The Climate TRACE website provides peer-reviewed methodology papers covering the models used by each sector, supported by more than 30 peer-reviewed papers further detailing those methods.

The inventory is free to use and publicly accessible on the Climate TRACE [online platform](#). Users can browse individual assets and 2021-2022 totals via a map function, download full country- or sector-level datasets covering 2015-2022, compare various assets and sectors side-by-side, and download asset-level ownership data where available.

To explore the full inventory, visit [www.climatetrace.org](http://www.climatetrace.org). For those interested in formal collaborations or in contributing to the coalition's work, contact [coalition@climatetrace.org](mailto:coalition@climatetrace.org). You can also read this press release [on PRWeb here](#).

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## About Climate TRACE

The Climate TRACE coalition was formed by a group of AI specialists, data scientists, researchers, and nongovernmental organizations. Current members include Carbon Yield, CTrees, Duke University's Nicholas Institute for Energy, Environment & Sustainability, Earth Genome, Former Vice President Al Gore, Global Energy Monitor, Hypervine.io, Johns Hopkins University Applied Physics Lab, OceanMind, RMI, TransitionZero, and WattTime. Climate TRACE is also supported by more than 100 other contributing organizations and researchers, including: Descartes Labs, Google.org, Michigan State University, Minderoo Foundation/Global Plastic Watch, Planet Labs PBC, Synthetiaic, Universiti Malaysia Terengganu, and others.

## Media Contacts

Fae Jencks and Nikki Arnone for Climate TRACE  
[media@climatetrace.org](mailto:media@climatetrace.org)

[Read More](#)

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CLIMATE TRACE

VIEWS FROM ABOVE

## Gary Works (U.S. Steel)

Gary, IN, USA

NOV 02, 2023

# Views From Above: Gary Works (U.S. Steel), Gary, IN, USA

Located on the south shore of Lake Michigan and operational since 1908, Gary Works was once the largest steel plant in the world. According to Climate TRACE data, it was the steel industry's largest source of GHG emissions in North America for 2021.



**Nick Wise**  
OceanMind



DEC 27, 2023

# Conversations With The Coalition: Nick Wise

We recently caught up with Nick Wise, CEO & Founder of OceanMind, about emissions estimates for the shipping industry.



CLIMATE TRACE



FEB 26, 2024

# As Arctic Ice Thaws, Questions Around Arctic Shipping Heat Up

Ocean shipping could climb significantly in the years ahead, with maritime trade expected to triple by 2050. But there are concerns that the changing climate will open up previously unnavigable or unviable trade routes — especially in the Arctic.

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