Rhodium Group

Energy & Climate

Preliminary US Greenhouse Gas Emissions Estimates for 2025

January 13, 2026
Michael Gaffney (mgaffney@rhg.com), Ben King (bking@rhg.com)

Based on preliminary economic and energy activity data, we estimate that in 2025, US greenhouse gas (GHG) emissions increased by 2.4%, marking a change from the prior two years of decreases in emissions. Emissions also grew faster than the economy in 2025, with real GDP expanding by a projected 1.9%—reversing the decoupling of emissions and economic activity of the prior two years. Emissions in 2025 were 6% below pre-pandemic levels in 2019 and 18% below 2005 levels.

The increase in emissions was driven primarily by the buildings and power sectors. Colder winter temperatures drove higher space heating demand in buildings, pushing up direct emissions from fuel use in buildings by 6.8%. Higher natural gas prices and growing power demand boosted coal electricity generation, resulting in a 3.8% rise in power sector emissions. Elsewhere, changes in emissions were more subdued. Industrial sector emissions rose modestly due to higher industrial activity, and oil and gas emissions ticked up slightly with increased production. Despite record travel activity, transportation emissions were essentially flat due to the growing adoption of hybrid and electric vehicles. US emissions in 2025 were not meaningfully impacted by policies enacted by the 119th Congress and the Trump administration, but we project that those policy changes could have increasing effects in the years to come.

Economic growth and rising emissions

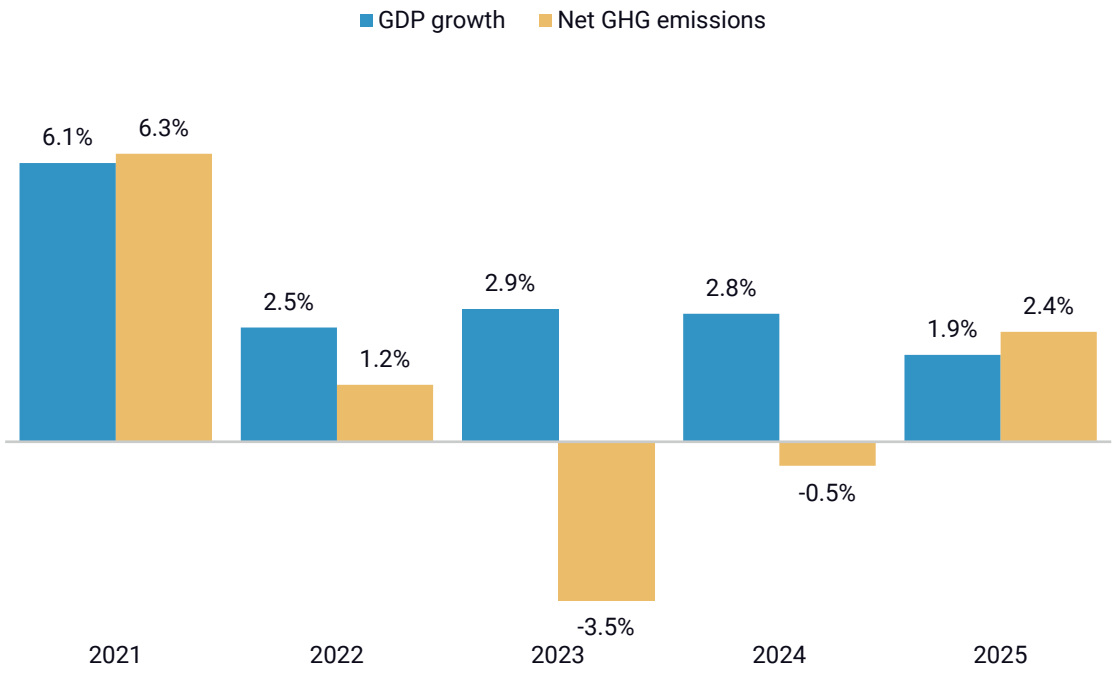
Economic growth is a major determinant of GHG emissions, and in 2025, the US inflation-adjusted gross domestic product (real GDP) expanded at a projected rate of 1.9%.[1] This marks about a 30% decline from the growth rates recorded in each of the prior three years. The economy grew despite significant economic turbulence and uncertainty

[1] This figure is based on forecasts conducted prior to the Bureau of Economic Analysis' Q3 GDP estimate, which came in higher than expected. However, the general consensus among forecasters continues to put growth at about 2%.

introduced by federal government changes to trade, tariff, tax, and energy policies, as well as the longest government shutdown in US history. Consumer spending, the core driver of US GDP, has so far remained resilient to these shocks and an inflation rate of nearly 3%, while continued investments in artificial intelligence infrastructure were another major source of economic growth.

We estimate that US GHG emissions grew faster than the economy, breaking a three-year trend of economic growth outpacing emissions growth. Using preliminary economic and energy activity data, we project that economy-wide emissions grew by 2.4% in 2025 (Figure 1). This puts US emissions 6% below pre-pandemic levels in 2019 and 18% below 2005 levels.

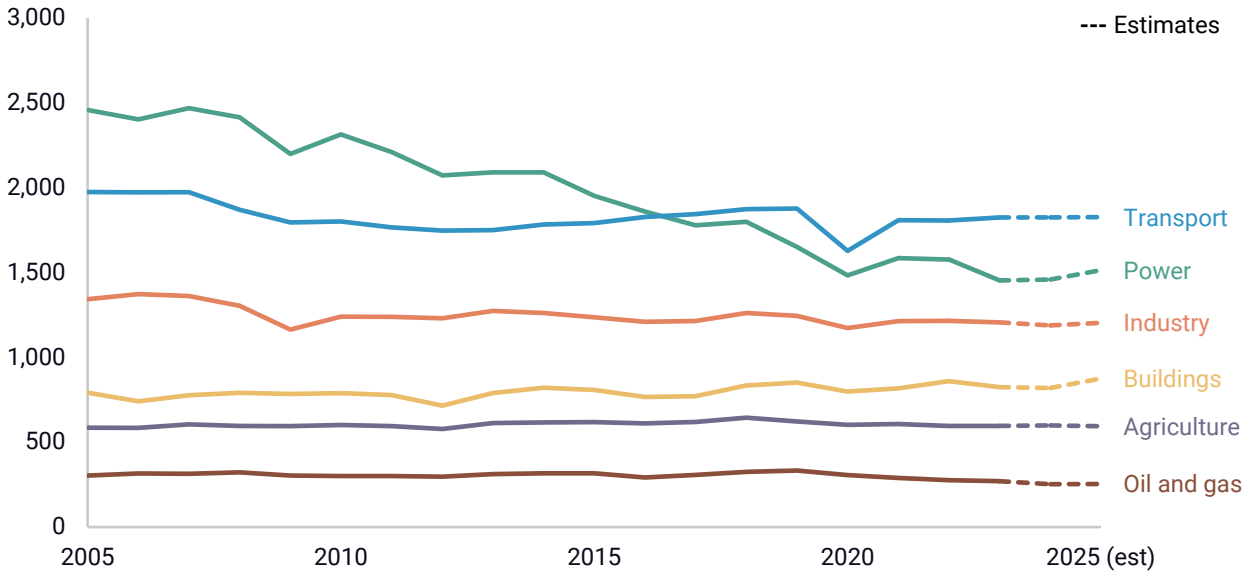
FIGURE 1
Change in US gross domestic product and net GHG emissions
Percentage change relative to the previous year



Source: Rhodium Group, World Bank Group, Federal Reserve Bank of Philadelphia. Note: 2024 and 2025 emissions growth are Rhodium Group estimates.

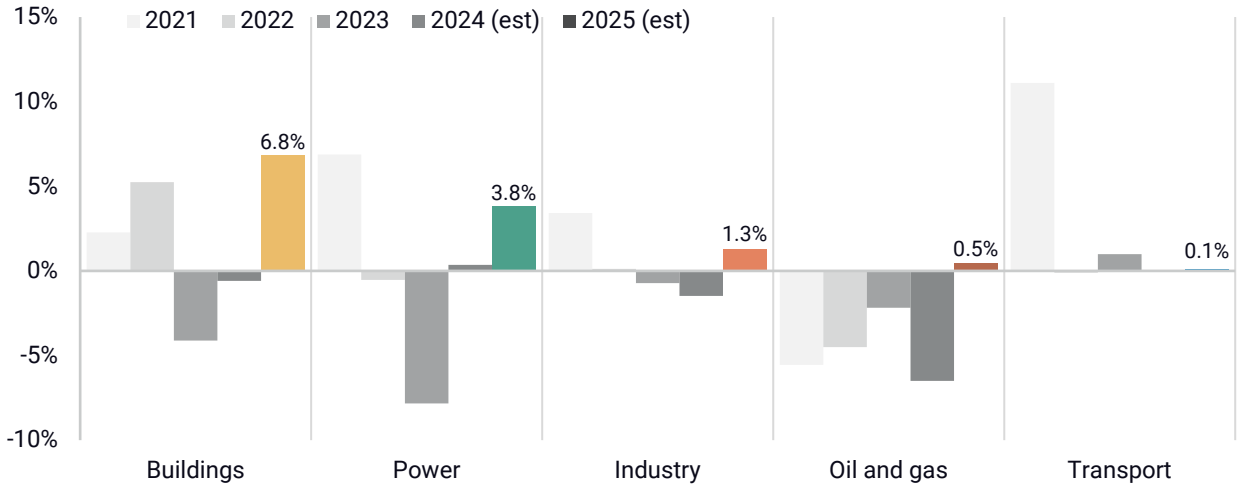
The increase in 2025 emissions was driven by increases of 6.8% in the buildings sector and 3.8% in the power sector (Figures 2 and 3). Transportation remained the highest-emitting sector, though emissions rose only slightly by 0.1% from 2024 levels. Emissions rose more modestly in the industrial and oil & gas sectors. We discuss the individual dynamics contributing to these sectoral outcomes later in this note.

FIGURE 2
US GHG emissions by major emitting sector
Million metric tons CO_2-equivalent



Source: Rhodium Group, EPA. Note: 2024 and 2025 emissions are Rhodium Group estimates.

FIGURE 3
Year-on-year change in emissions by major sector
Percentage change



Source: Rhodium Group, EPA. Note: 2024 and 2025 emissions growth are Rhodium Group estimates.

Higher space heating demand and a growing power sector

Increased demand for space heating currently correlates directly with increased emissions, as the majority of homes in the regions with the coldest temperatures rely on natural gas and other fossil fuels for heat. Colder 2025 winter temperatures led to increased direct combustion of these fuels in buildings, driving up emissions by 56 million metric tons (MMT), or 6.8%, compared to 2024.

In the power sector, a 2.4% increase in total electricity generation and a 13% increase in coal generation relative to 2024 pushed emissions from electricity generation up by 55 MMT (3.8%). This marks only the second year in the last 10 years that coal generation has increased—a notable departure from its general downward trajectory, in which coal generation has shrunk by 64% since its peak in 2007. Power sector emissions also increased in 2024; this stretch marks the first consecutive two-year period of power sector emissions growth since 2012-2013.

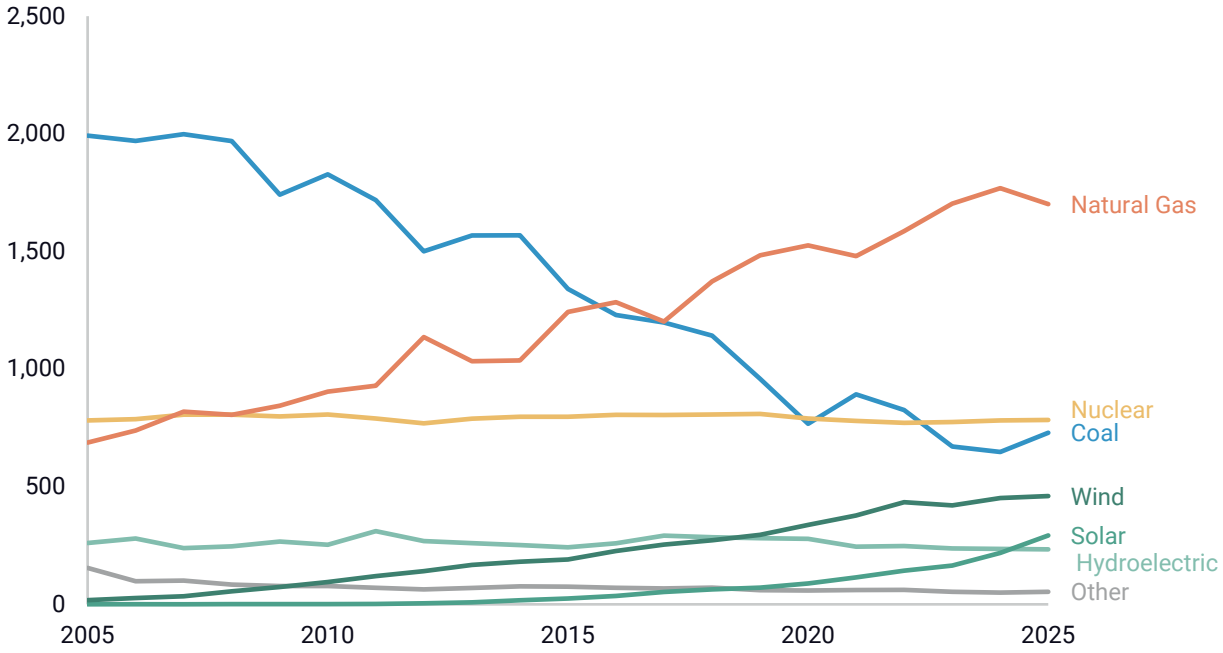
Based on historic and forecasted sectoral consumption data, the largest source of increased electricity use was commercial buildings, where data centers, cryptocurrency mining operations, and other large load customers drove electricity demand up by 2.4%. This growth was concentrated in Texas, the Mid-Atlantic, and the Ohio Valley regions. Residential buildings saw the next largest increase, with electricity demand up by 2.2%. This was primarily due to space heating demand from colder winter weather, but electric vehicle consumption is increasingly a significant contributor. Industrial power demand, which accounts for a smaller share of total power demand, increased by 1.9% due to increased output in electricity-intensive subindustries.

The main driver of higher coal use was higher natural gas prices, up 58% at Henry Hub in 2025 compared to very low levels seen in 2024, as a result of high space heating demand from colder temperatures and rising LNG exports (Figure 4). Generation from coal and natural gas together made up 57% of total generation, down slightly from 58% in 2024, illustrating how these resources compete with each other.

The pace of coal plant retirements also slowed, as utilities delayed planned retirements to help meet rising power demand and in response to orders from the Department of Energy. Through November, only 2.5 GW of conventional steam coal capacity had retired, compared with 4.5 GW in 2024 and an average of nearly 9 GW a year since 2020.

At the same time, the fastest growing power generation source in 2025 was solar, which surged by 34%—its highest growth rate since 2017. This pushed the grid share of zero-emitting sources up by one percentage point to 42%, despite only a modest increase in wind and flat nuclear and hydroelectric generation. Natural gas remained the single largest source of electricity, though it fell by nearly three percentage points to 40% of the grid mix.

FIGURE 4
US power generation by source
Billion kilowatt-hours



Source: Rhodium Group, EIA

Higher industrial output and fossil fuel production

Industrial emissions grew by 15 MMT (1.3%) relative to 2024, reflecting modest growth in total industrial output. The overall increase in output was driven by emissions-intensive subindustries such as chemicals, primary metals, and nonmetallic mineral production. However, that growth was moderated by broad declines in the manufacture of other consumer and commercial goods, including food and beverages, paper products, and motor vehicles.

Oil and gas production emissions were essentially flat—up by only 1 MMT (0.5%) relative to 2024—despite natural gas and petroleum production increasing by 4.4% and 2.8%, respectively. Over the past decade, state and federal regulations combined with a trend toward cleaner production practices, especially reductions in methane venting, have steadily reduced methane emissions per barrel of oil and per cubic foot of natural gas. We estimate that the methane intensity of gas and oil systems declined by 44% and 62%, respectively, between 2015 and 2025. The extent to which this trend will continue remains to be seen as EPA Administrator Lee Zeldin has targeted the federal regulations for oil and gas production methane emissions for repeal.

Flat transportation emissions

In transportation—the highest-emitting sector—emissions were virtually flat relative to 2024, increasing by only 2 MMT (0.1%). This was the result of increases in diesel and jet fuel emissions slightly outweighing gasoline emissions reductions (Figure 5). The US is on

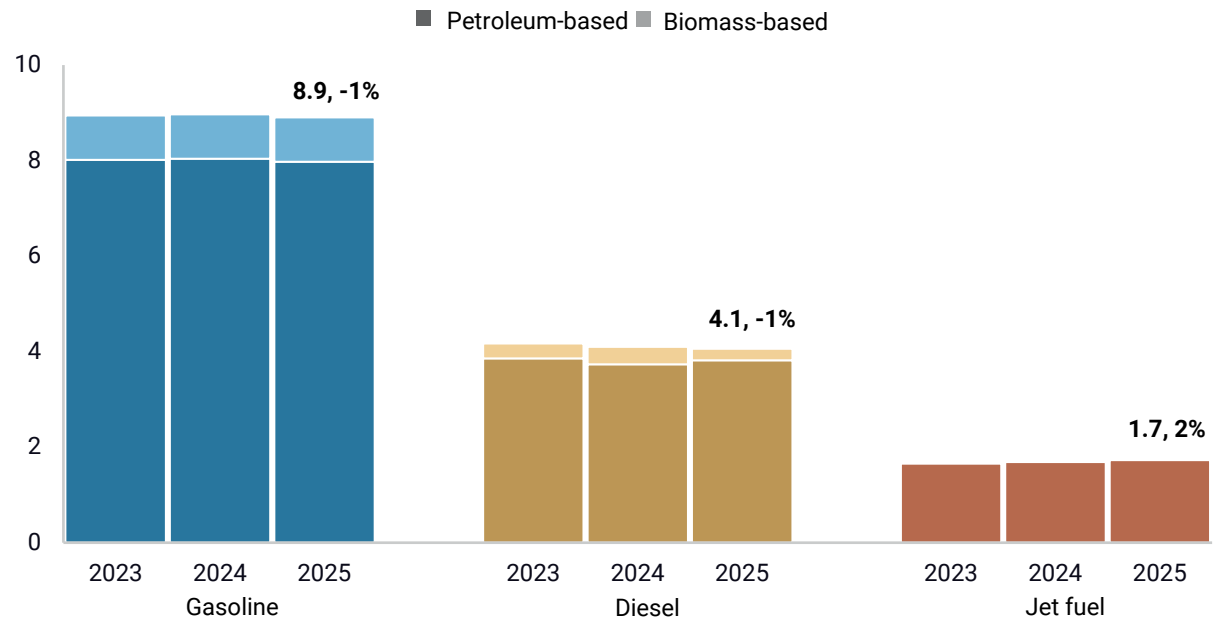
track for a fifth straight year of record-high road activity, with a 1% increase in road traffic volumes through October 2025 compared to the same period in 2024. And available seat miles—a measure of passenger flight capacity—are on track to set their own record in 2025, based on available data through September showing the metric up 2% year-on-year. Despite an increase in miles driven, gasoline consumption declined due to an increasingly fuel-efficient vehicle fleet. Battery electric vehicles (BEVs) and plug-in hybrid vehicles (PHEVs) made up nearly 10% of all passenger car and light truck sales in 2025, and traditional hybrids (HEVs) were another 12% of sales, based on data through November 2025. BEV sales growth was effectively flat, and PHEV sales declined by 14% compared to last year, while HEV sales showed continued, strong growth of 25% compared to 2024. BEV and PHEV sales dropped sharply in the fourth quarter after the expiration of clean vehicle federal tax credits for consumers and businesses.

Something unusual happened with diesel this year: consumption went down but emissions went up. Biomass-based diesel consumption was down 34% relative to 2024, reversing a steady growth trend and boosting consumption of petroleum-based diesel by 2%. Biomass-based diesel imports fell steeply because of their loss of eligibility for the 45Z clean fuel production tax credit this year. Domestic biomass-based diesel production also fell due to uncertainty about how Renewable Fuel Standard blending requirements would be updated by the EPA. Around a quarter of diesel consumption is in the industrial and buildings sectors, where higher industrial output and space heating demand also increased petroleum-based diesel use.

FIGURE 5

Fuel consumption by feedstock source

Million barrels per day and percentage change relative to the previous year

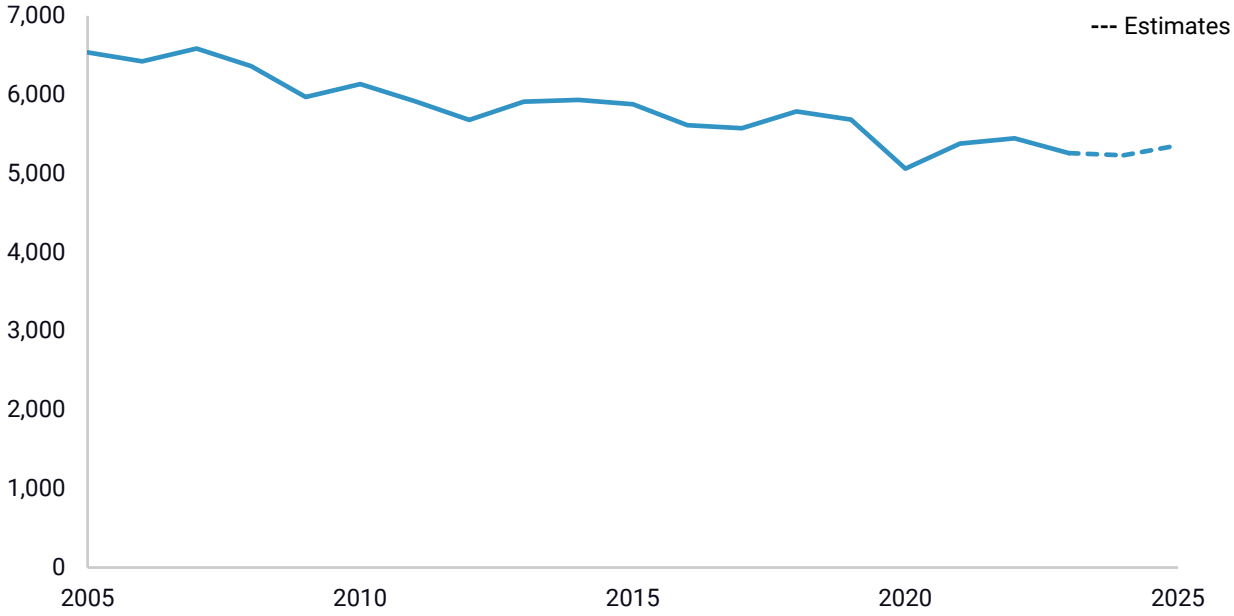


Source: Rhodium Group, EIA. Note: 2025 data is a mix of actual and projected data from EIA's Short Term Energy Outlook. EIA data does not break out sustainable aviation fuel (SAF), so it is not shown here. However, recent estimates put SAF at less than 2% of US jet fuel consumption.

Looking ahead

US GHG emissions have been trending downward since peaking in 2007, averaging about a 1% decline each year, even with the last few years of increasing emissions (Figure 6). Our longer-term outlook for US GHG emissions changed sharply this past year. In our 2025 edition of Taking Stock, our annually updated outlook for US emissions under current policy, we project US emissions will decline by 26-35% below 2005 levels in 2035. In the highest emission scenario, this reflects an even slower rate of decarbonization progress over the next decade than we've seen over the past 15 years. This year's projections represent a substantial slowdown in emissions reductions compared to our outlook in 2024, which projected a decline of 38-56% by 2035 relative to 2005. This slowdown is largely due to changes to energy tax credits made by the 119th Congress in the 2025 budget reconciliation bill and the repeal of climate regulations by the Trump administration. Apart from some modest contributions to increased coal generation from Department of Energy orders to keep a few plants running, we aren't yet seeing the direct effects of these policy changes in US emissions. That could change in the coming year or two, particularly if data center electricity demand continues to surge and the grid responds with more output from existing fossil generators instead of new, clean resources. The growth in electric vehicles, which has in part helped keep a lid on transportation sector emissions, may also stall in the absence of federal tax credits and regulatory policies.

FIGURE 6
Net US GHG emissions
Million metric tons CO_2-equivalent



Source: EPA, Rhodium Group. Note: 2024 and 2025 emissions are Rhodium Group estimates.

Beyond policy changes that will result in higher emissions, the Trump administration has also moved to stop collecting and reporting a multitude of data on GHG emissions and climate change. Two of these data products in particular—the EPA's annual GHG inventory and its Greenhouse Gas Reporting Program (GHGRP) for major emitting facilities—are integral inputs to our work. Typically, we would expect EPA to give the US its final GHG report card for 2025 in spring 2027. However, EPA only released the 2023 inventory earlier this year when compelled by a Freedom of Information Act request, and most of the work had already been completed under the Biden administration. Given the Trump administration's hostility to collecting and reporting data related to climate change, we may not receive any further inventories under this administration.

The loss of this data means we are heading into murkier waters when it comes to understanding the second-largest emitter of GHGs in the world. While US emissions rose, 2025 was the second- or third-hottest year on record across the globe. Because emissions and their impacts persist even when the government does not count them, we will continue to adapt to this new landscape in order to inform critical US energy and climate policy debates.

ABOUT RHODIUM GROUP

Rhodium Group is an independent research provider with deep expertise in policy and economic analysis. We help decision-makers in both the public and private sectors navigate global challenges through objective, original, and data-driven research and insights. Our key areas of expertise are China's economy and policy dynamics, and global climate change and energy systems. More information is available at www.rhg.com.

ACKNOWLEDGMENTS

The authors would like to thank Rhodium Group colleagues Maggie Young, Jaspreet Sohal, and Charlotte McClintock for their review and contributions.

DISCLOSURES

Rhodium Group's publications are intended to provide clients with general background research on important global developments and a framework for making informed decisions. Our research is based on current public information that we consider reliable, but we do not represent it as accurate or complete. The information in this publication is not intended as investment advice and it should not be relied on as such.

New York | California | Washington, DC | Paris

Website: **www.rhg.com**

Rhodium Group