Rhodium Group

Energy & Climate

Clean Investment Monitor: Global Database Methodology

March 18, 2026

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The Clean Investment Monitor (CIM), created by Rhodium Group and MIT's Center for Energy and Environmental Policy Research, tracks investments in the manufacture and deployment of clean energy and decarbonization technologies across all countries around the world. Through detailed, facility-level data and in-depth analysis, CIM provides insights into investment trends, the pace and scale of new clean technology manufacturing capacity and deployment, and the role of policy and market dynamics in shaping the evolving global clean energy landscape. All analyses are publicly available at cleaninvestmentmonitor.org.

To establish a historical baseline against which to assess recent developments, the CIM database includes all covered investments since 2018 and reports periodic investment totals for the manufacture and deployment of covered technologies, enabling consistent analysis of trends within countries and across regions.

This document details the methodology used for the CIM global database; as outlined below, investment amounts are temporally allocated and presented in real terms to ensure comparability over time, and the database includes facility-level project tracking alongside aggregated investment totals by country and region (and sub-national geographies where available). The database is updated periodically as new information becomes available; the current release includes data through Q4 2025, and the next release in the fall of 2026 will extend coverage through Q2 2026.

In addition to tracking project-level capital investment, capacity additions, and project status for the manufacture and deployment of covered technologies, CIM pairs these data with demand projections for clean electricity and clean transportation technologies to help assess the pace of the global clean

technology buildout. Demand projections are developed using the Rhodium Climate Outlook; methods, sectoral coverage, and key assumptions are documented in our Rhodium Climate Outlook methodology.

Methodology

CIM's global database builds on the methodological framework developed for our US database. The core concepts, definitions, and accounting conventions used to track investment in clean technology manufacturing and deployment are consistent with those described in the methodology for our US database. Where possible, CIM's global database applies the same approach to identifying projects, estimating investment values, and classifying technologies to ensure methodological consistency across analyses.

While the underlying framework remains aligned with CIM's US database, our global database extends this approach to additional geographies and incorporates region-specific data sources and methodologies. In particular, this document outlines how CIM tracks investment across China, Europe, and the rest of the world, drawing on specialized datasets and regional project-level tracking where available. Facility-level data on solar, battery, and electric vehicle manufacturing projects across European countries are incorporated through collaboration with Bruegel's European Clean Tech Tracker.

Covered technologies

CIM provides a consistent, project-level record of the world's clean energy buildout by tracking capital investment and facility status across major clean technology sectors. The database covers manufacturing and key inputs, industrial decarbonization, electric transport, and power-sector deployment of greenhouse gas (GHG) emission-reducing technologies.

To facilitate consistent reporting across countries and sectors, CIM's global database organizes technologies into a set of segments reflecting major areas of clean technology investment. We break out clean investment into four sectors: Manufacturing, which covers investment in facilities producing GHG emission-reducing technologies and key inputs; Industry, which captures investment in industrial decarbonization technologies and clean materials manufacturing used to reduce emissions from industrial production; Transport, which includes investment in deploying transport decarbonization technologies, including the purchase of electric vehicles; and Electric Power, which captures investment in deploying GHG emission-reducing technologies to produce and store utility-scale and distributed electricity.

TABLE 1
Technologies included in the Clean Investment Monitor global database

Sector	Technology	Subcategories
Manufacturing	Solar	Modules, cells, wafers, polysilicon
	Wind	Blades and nacelles
	Batteries	Electrode active materials, cells, modules
	Critical minerals	Lithium, cobalt, nickel, graphite
	Zero-emission vehicles	Battery electric vehicles, plug-in hybrid electric vehicles, fuel cell vehicles
Industry	Cement	Carbon capture and storage (CCS), low-carbon ordinary Portland cement (OPC), OPC alternatives, clinker substitution
	Iron & steel	Direct reduced ironmaking (DRI) with or without CCS, blast furnace with CCS, electrochemical approaches, cold-agglomerated iron ore, biomass-based traditional ironmaking
	sustainable aviation fuels	Hydroprocessed esters and fatty acids, alcohol to jet, biomass using Fischer-Tropsch technology, power to liquid
Electric Power	Solar	Solar PV, concentrating solar power
	Wind	Onshore wind, offshore wind
	Nuclear	Conventional and advanced nuclear reactors
	Other clean electricity	Geothermal, landfill gas, hydroelectric, biomass
	Storage	Batteries, pumped storage, long-duration storage
Transport	Purchase of zero-emission vehicles	Battery electric vehicles, plug-in hybrid electric vehicles, fuel cell vehicles

This taxonomy differs from CIM's US database, where investments are grouped by segments reflecting investment in manufacturing ("Manufacturing") and investment in the deployment of that technology, both to produce clean energy or decarbonize industrial production ("Energy and Industry"), and through the purchase and installation of that technology by individual households and businesses ("Retail"). In practice, this means that whereas distributed solar and retail purchase of vehicles are grouped in the Retail segment of the US CIM database, they are categorized as Electric Power and Transport,

respectively, in the global database. The underlying investment accounting methodology remains consistent across both analyses.

Sources and methods

This section provides details on how investments in covered technologies are identified and how investment amounts are calculated. All investment figures on cleaninvestmentmonitor.org are in 2024 US dollars. For the United States, investment values are adjusted using price indices from the Bureau of Economic Analysis (BEA). For projects located outside the United States, CIM applies country-specific price indices from the International Monetary Fund (IMF) to convert investment values into real terms and ensure comparability over time.

Investments are tracked through each of the following stages:

Intended (I): These are company announcements of an intent to invest in a new or expanded facility, but without a specific location listed or where the project is still in pre-FEED (Front-end Engineering Design) stage. These announcements are recorded in the CIM database, but not displayed on cleaninvestmentmonitor.org until they proceed to the next stage.

Announced (A): This is the announcement of a new or expanded facility with a specific location determined.

Under Construction (U): Construction on the new or expanded facility has begun.

Operating (O): Construction has been completed, and the new or expanded facility is operating.

Cancelled (C): An announced facility has been canceled before completion.

Retired (R): An existing or announced facility retired after entering operation.

Announced vs. actual investment

For the Manufacturing and Energy and Industry sectors, we report both announced and actual investment. **Announced** investment is the total reported or estimated investment amount for a facility or project.

Actual investment is the real dollars spent in the given quarter on new facility construction or EV purchases. We estimate actual investment by distributing the total investment proportionally over the construction window, based on either reported completion time (when available) or modeled completion time based on the average of past investments in that technology category. We conservatively assume a facility advances through construction stages only when we can identify evidence of a groundbreaking. If evidence is lacking, facility timelines are adjusted accordingly, with start dates pushed back. We incorporated explicit construction pauses that had occurred at a select few number of facilities into our actuals estimation, effectively pausing associated spending for the quarter.

CIM tracks capital investments in clean technologies across electric power, transportation, and industry, and in the manufacturing base that supports these sectors.

Manufacturing and Industry

CIM tracks manufacturing and industrial decarbonization projects at the facility level across the global clean technology supply chain. Each manufacturing plant or industrial site is treated as a discrete project with its own status, capacity, location, and investment history. Projects are classified using the same status categories used across the CIM framework: Announced, Under Construction, Operating, and Cancelled or Closed. Announced projects refer to facilities where a specific location has been identified and investment or timeline details are available. Projects move to the under-construction category once groundbreaking or construction activity has begun and are classified as operating once production has started. Cancelled or retired projects include facilities that were abandoned before completion or ceased operations after entering service.

For each project, total investment is allocated across the construction period to estimate the timing of actual capital spending. When project-specific construction timelines are unavailable, CIM applies modeled construction durations based on comparable projects in the same technology category. All investment values are presented in constant 2024 US dollars, with local currencies converted using contemporaneous exchange rates and adjusted using national price indices to ensure comparability across countries and over time.

In addition to tracking capital investment in clean technology manufacturing and industrial facilities, the CIM database records the expected and realized production capacity associated with each project. Capacity data are compiled at the facility level where available and reported, using technology-specific units such as gigawatts (GW), gigawatt-hours (GWh), or million vehicles per year, depending on the technology. These capacity estimates enable analysis of how the global pipeline of clean technology manufacturing projects compares with current and projected demand.

To support consistent analysis across technologies and regions, CIM classifies manufacturing capacity according to the development status of each project. These classifications are used in charts and analysis throughout the report to distinguish between currently operating capacity and the broader pipeline of projects expected to come online in the coming years.

Capacity in the CIM database is categorized as follows:

- **Current operational capacity**: capacity in facilities that are actively producing today and have reached their planned production levels.
- **Operational yet to come online**: capacity in facilities that have been built and entered operation but have not yet ramped up to their full planned production capacity.

For forward-looking analysis, CIM also tracks anticipated capacity associated with projects still in the development pipeline:

- **Under construction – anticipated capacity**: capacity associated with facilities where construction activity has begun and expected production capacity levels have been reported or estimated.
- **Announced – anticipated capacity**: capacity associated with publicly announced projects with stated production goals where construction has not yet started.

Together, these categories provide a comprehensive view of the current manufacturing base as well as the pipeline of planned projects that could expand global clean technology production capacity in the years ahead.

Data sources

CIM's global manufacturing and industry dataset integrates facility-level information from a wide range of public and proprietary sources. CIM avoids relying on official government estimates that can often be inflated. In contrast, our data reflects facility-level project announcements and investment in construction and equipment installation of those facilities, as reported by company announcements, regulatory filings, press releases, investor disclosures, and reporting by industry and trade publications.

For the US database, CIM relies on the facility-level project tracking, which combines public data sources with company disclosures and government datasets to track investments in manufacturing and industrial decarbonization technologies. This ensures methodological consistency between US and global investment estimates. Further details on data sources can be found in the Clean Investment Monitor's US methodology.

For Europe, CIM incorporates facility-level information from Bruegel's European Clean Tech Tracker, which provides data on solar, battery, and EV manufacturing projects. For wind manufacturing, where comprehensive facility-level datasets are limited, CIM supplements available information with reports from the European Commission's Joint Research Centre on the status of Europe's wind manufacturing industry. When facility-specific investment or capacity data are not available, CIM estimates values using reported averages for capacity additions and investment costs derived from comparable projects.

For countries outside the United States and Europe, the CIM database integrates facility-level manufacturing data from a range of specialized sources covering different segments of the clean-technology supply chain. Manufacturing projects are identified using company announcements, government disclosures, industry news aggregators, national manufacturing maps, and industry association reports. Facilities across key clean-technology supply chains—including batteries, electric vehicles, solar, wind, and critical minerals processing—are mapped using geographic information on manufacturing sites and project announcements compiled from industry publications and public datasets. Where centralized project databases are unavailable, CIM relies on systematic review of company announcements, industry reports, and other public disclosures to identify new manufacturing plants and facility expansions.

For the rest of the world, CIM compiles facility-level manufacturing data using national manufacturing maps, government announcements, industry association reports, and company disclosures.

The industry component of CIM, which tracks investments in facilities producing low-carbon industrial materials and fuels, is compiled from company announcements, government funding awards, regulatory filings, and industry reports. Project lists were derived from the Leadership Group for Energy Transition's Green Steel and Green Cement trackers, along with additional desk research.

When project-level investment or capacity data are unavailable, CIM first derives cost-per-capacity estimates from comparable projects within the CIM same technology

category. In these cases, missing capacity or investment information is inferred using observed relationships between reported capital investment and production capacity for similar facilities in the CIM database. This approach allows the database to maintain consistent coverage across projects even when individual announcements provide incomplete information. Where such comparisons are not available, CIM applies external cost benchmarks from industry research and public datasets to estimate investment values.

Electric Power and Transport

As described in the covered technologies section above, CIM's global database tracks deployment of low-emission electric power generation and transportation technologies. The methodology used to estimate investment values for these technologies follows the same approach used in CIM's US database.

For the US, investment in utility-scale clean electricity generation facilities is sourced from the Energy Information Administration (EIA)'s monthly 860 data. Distributed solar cumulative capacity estimates are from the EIA861M, and capacities for other eligible distributed generation technologies and storage are estimated from the Net Metering and Non-Net-Metering datasets from the same source. Cost estimates for installations come from the NREL Annual Technology Baseline (ATB).

Outside the US, CIM estimates investment in utility-scale and distributed electricity generation facilities by multiplying annual capacity additions by technology-specific capital expenditure estimates. Deployment data for 2018 through 2024 are sourced primarily from the International Renewable Energy Agency's Renewable Energy Statistics database, which compiles renewable electricity capacity data for more than 150 countries using national reports, industry sources, and government data. For the most recent year, CIM supplements IRENA data with monthly electricity capacity additions reported by Ember and other national energy agencies to capture the latest deployment trends. Capital expenditure values for each technology are derived from international cost benchmarks and converted to 2024 US dollars to ensure consistency across countries and technologies. Investment is allocated to the year in which new capacity enters operation.

Investment in transport decarbonization includes spending on zero-emission vehicle purchases. In the US, as a proxy for new purchases of battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell vehicles (FCV), we use Rhodium's previously published investment data up to Q1 2025 and in subsequent quarters apply growth rates, which vary by vehicle type, based on a combination of averaged monthly and quarterly EV sales data from Argonne National Laboratory (ANL) and Kelley Blue Book (KBB). Outside the US, CIM estimates investment by combining vehicle sales volumes with average vehicle purchase prices. Electric vehicle sale volume and price data are sourced from the EV Volumes database, which tracks electric vehicle sales and prices across more than 120 markets worldwide and provides consistent country-level sales data for battery electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles. CIM multiplies quarterly sales volumes by the average purchase price of each vehicle category (also from EV Volumes) to estimate investment in vehicle purchases.

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ACKNOWLEDGMENTS

This nonpartisan, independent research was conducted with support from the New Energy Industrial Strategy Center and the Hewlett Foundation. The authors would like to thank Rhodium Group colleagues Moni Adeyemo, Thilo Hanemann, Hannah Hess, and Charlotte McClintock for their support and Jaspreet Sohal and Maggie Young for their review and contributions.

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