COP30 Brazil: Uncertainty Grows 10 Years After Paris

October 30, 2025

Critical insights ahead of COP30 Brazil

BloombergNEF is hosting events Nov. 3-5 in Sao Paulo, Brazil, ahead of the 30th Conference of the Parties to the United Nations Framework Convention on Climate Change in Belem.

COP30 marks 10 years since the landmark Paris Agreement and arrives at a moment that trade and geopolitical frictions grow between nations. Some countries are quietly wavering on their climate commitments on the eve of the meeting while the US very loudly questions the entire concept of global warming.

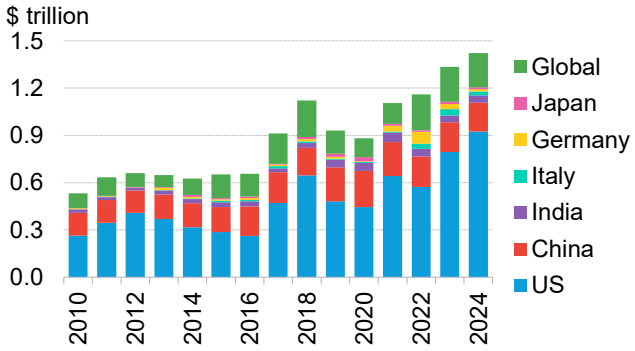
Even so, record amounts of capital continue to flow into clean energy technologies as solar and electric vehicle deployment rates reach new heights. Still, the transition to a lower-carbon economy is not moving nearly fast enough to deliver on the ambition for net-zero emissions agreed in Paris a decade ago.

This briefing summarizes BNEF's latest analysis on key climate and energy transition issues and provides data to support discussions during the week. Visit the website about.BNEF.com to find out more about our services and how we can support your organization.

Climate events wrought $1.4 trillion in damage in 2024

The physical impacts of climate change are already a significant financial risk that costs the global economy at least $1.4 trillion per year. A country's preparedness for these impacts can materially influence the probability of loss for the assets as well as for its companies and communities. BloombergNEF has developed a framework and country scorecard that examines the climate adaptation preparedness of major economies.

Climate-related damage by market and region



Source: BloombergNEF, Bloomberg Intelligence. Note: Total climate damage includes all categories tracked by BI, including government recovery spending, property losses, lost productivity from power outages, and crop damage. For the full dashboard, Bloomberg Terminal clients can see BI BESGG CLIMATEDAM <GO> and methodology at MMDL 403209647 <GO>.

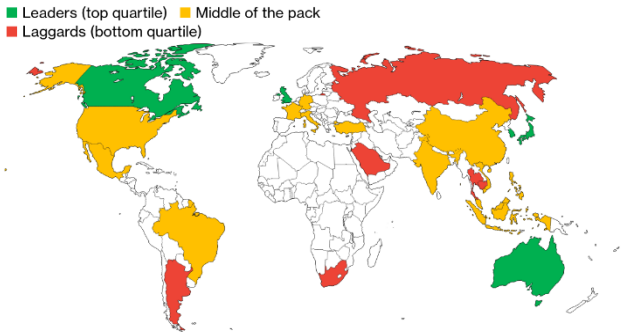
Canada and Singapore lead in adaptation preparedness among the Group of 20 and selected Southeast Asian markets. They are likely to experience greater economic resilience to the impacts of climate change, for instance through reduced climate losses or increased resilience of climate-sensitive industries like agriculture and resource extraction. Saudi Arabia and Russia rank among the least prepared to adapt, but they also are less exposed to physical climate impacts than others. The US suffers the greatest cost from worldwide climate damages today. Yet the country is middling at the federal level in its preparedness for the impacts of climate change, ranking 12th out of 25 countries analyzed.

The most effective way countries can accelerate adaptation is by dedicating budgets to it. Most countries are not doing so and instead pull from

generic and insufficient climate or disaster recovery funds.

Governments are starting to view climate resilience as a strategic investment, not merely a cost center. This aligns with how private investors view adaptation and could unlock much-needed capital flows.

BloombergNEF Adaptation Preparedness Scores



Source: BloombergNEF. Note: Markets in white not covered in report Ranking Resilience: Assessing Country Climate Adaptation *(web | terminal).*

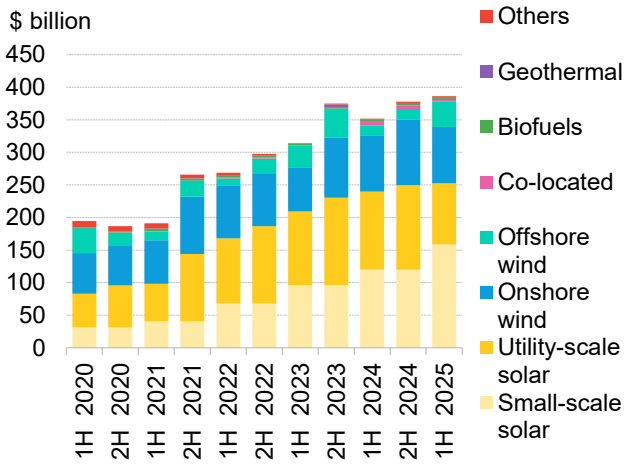
Clean energy investment rises, but not everywhere or for all technologies

Global renewable energy investment rose to record-breaking levels in the first half of 2025, according to BNEF's *Renewable Energy Investment Tracker* (press release | full report). Solar, wind and other renewable energy projects attracted a total of $386 billion in new commitments in the period – the highest half year on record and up 10% from the same period last year. The findings underscore the resilience of the clean energy sector in the face of policy and trade uncertainty. It also is a signal of the enduring competitiveness of wind and solar power.

Not all technologies and markets benefited equally. The bright spots include offshore wind, which may be seeing an investment recovery with more funding committed in 1H 2025 ($39 billion) than in all of 2024. Onshore wind in contrast was flat compared to 1H 2024, but overall wind investment was up 24% as a result of the surge in global offshore financings.

Solar investment grew 5% year-on-year, with strong gains for small-scale photovoltaics offsetting a drop in utility-scale investment. Utility-scale projects have suffered a slowdown due to power price cannibalization, curtailment risks and policy changes in important markets, such as China, Spain, Brazil and Greece. However, the investment drop of 28% was more than compensated for by a jump in the small-scale solar market, especially in China.

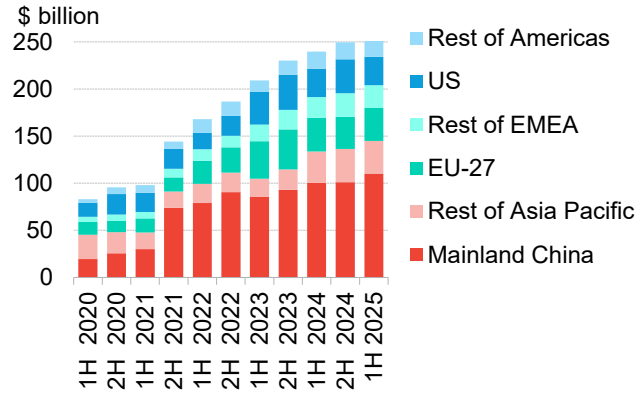
Global renewable energy investment, by sector



Source: BloombergNEF. Note: "Others" include biomass and waste, small hydro and marine.

Investment trends varied by market, too, and here a two-speed transition appears in stark relief. The US had a major drop in investment, down 36% half-on-half, as the new administration tore up the policy and trade landscape. The European Union, by contrast, delivered strong growth with a 63% surge since 2H 2024. Developers and investors may be starting to reallocate capital from the US to Europe. China remains the largest market for renewable energy investment, accounting for 44% of the global total.

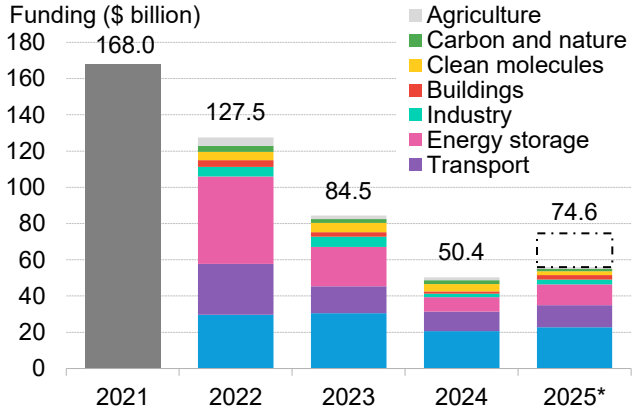
Renewable energy investment, by market



Source: BloombergNEF. Note: EU-27 refers to the European Union, while EMEA is Europe, the Middle East and Africa.

Another example of a two-track investment phenomenon is reflected in BNEF's *Climate-Tech Investment Radar* (for BNEF clients: web | terminal). Overall investment deployed to climate-tech firms through 2024 declined every year since 2021, when it hit $168 billion. However, investment for climate-tech in 2025 is already up from last year at $56 billion. On an annualized basis, investment could hit $74.6 billion this year.

Climate-tech funding by sector

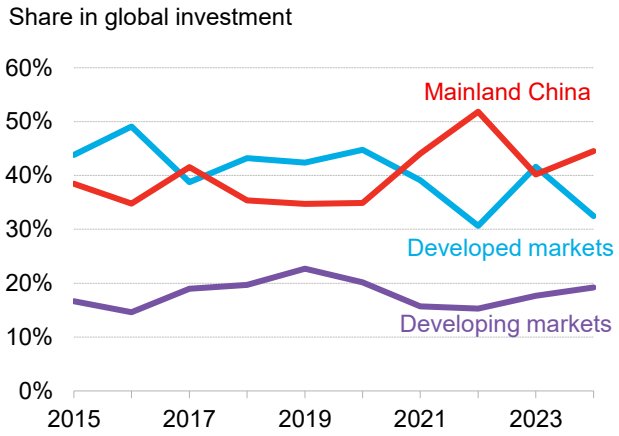


Source: BloombergNEF, Bloomberg Terminal MA <GO> and IPO <GO>, Pitchbook. Note: Figures include venture capital, private equity and funds raised via public stock exchanges. Data for 2025 up to Sept. 30. Dashed bar indicates implied total if funding continues at the current pace.

Renewable energy investment in emerging markets has almost tripled since 2015, but it still represents just 19% of the global total

Renewable energy investment in emerging markets excluding China rose from $49 billion in 2015 to $140 billion in 2024. Yet these economies captured only 19% of global clean-energy investment in 2024, averaging about 18% over the past decade. Most capital remains concentrated in a few larger or higher-income markets such as India, Brazil, and South Africa. Between 2015 and 2024, upper-middle-income countries received about 43% of total renewable investment. Low-income nations attracted only 1%.

Share of new-build renewable energy investment, by trade category



Source: BloombergNEF. Note: Includes new asset finance for renewables and investments in small-scale solar.

This imbalance is striking given that emerging markets account for roughly 40% of global emissions and more than 60% of the world's population. Aligning capital flows with this growing share of demand and emissions will be essential to achieving global decarbonization goals.

Solar has been the main driver of renewable investment across emerging markets, representing nearly three-quarters of total clean-energy spending in

2024. That year, small-scale solar accounted for more than 60% of investment, up from just 11% in 2015.

Solar's rapid expansion underscores the growing importance of decentralized generation. In 2015, only 22% of emerging markets had a net-metering or distributed-generation framework in place. By mid-2025, that share had climbed to 72%. The spread of consumer-oriented policies, together with a sharp decline in solar cell and module prices, has underpinned the boom in small-scale solar investment and installations. This supports both electricity access and demand growth.

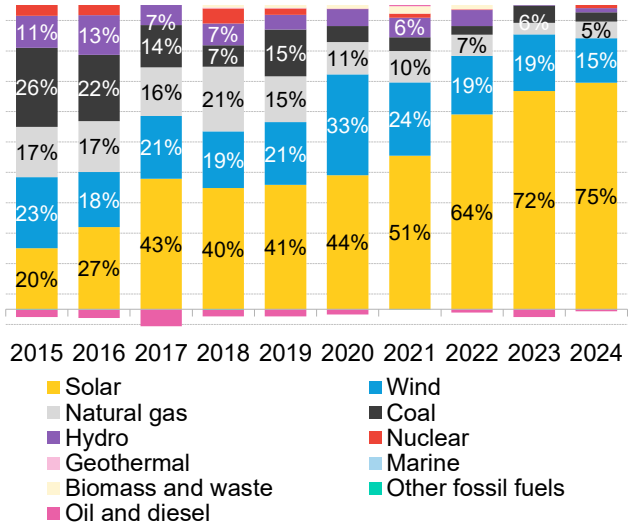
Solar: three-quarters of all new power-generating capacity built in 2024

Solar delivered 75% of the 806 gigawatts of new power generation capacity added worldwide in 2024, up from just 20% in 2015. Solar is the most widely adopted generation technology because of falling module prices, ease of deployment and scalability from rooftop to utility-scale projects.

Wind accounted for 15% of global capacity additions in 2024, or 119GW, with new projects largely concentrated in a few markets. China alone contributed to more than 72% of global new wind capacity. The US, Germany, the Netherlands, France and Finland together added 13GW, or 11% of the total, exceeding installations across all developing markets.

Low-carbon technologies continued to dominate new capacity build, with installed capacity up 16.5% from 2023 to 2024. Fossil fuels had a sluggish 1.4% growth rate in the same period.

Share of global power-generating capacity additions, by technology



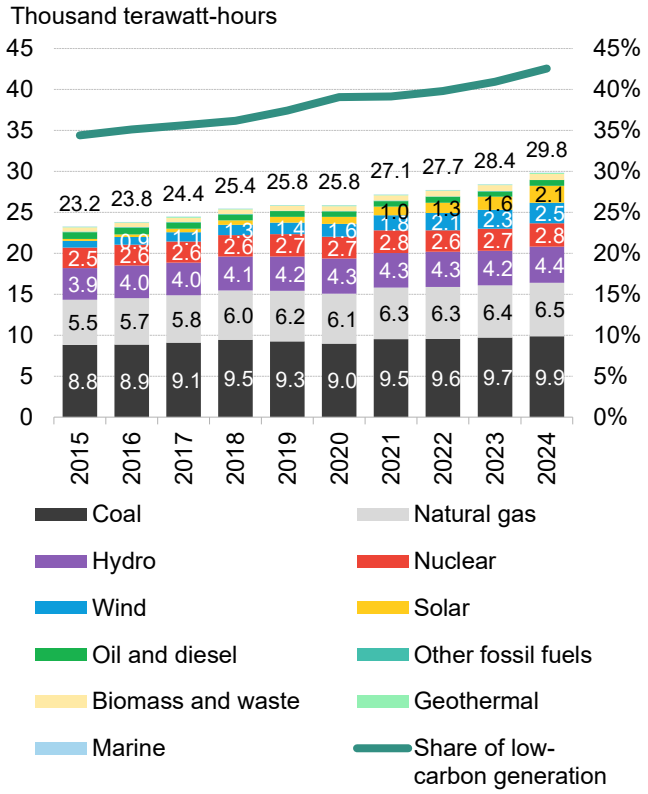
Source: BloombergNEF. Note: "Other fossil fuels" account for plants that use more than one fuel or fuels other than coal, oil and gas. Low-carbon technologies consist of solar, wind, biomass, geothermal, marine, hydro and nuclear. Solar includes utility-scale photovoltaic, small-scale PV and solar thermal.

Low-carbon power generation still represents a minority of the megawatts generated worldwide, but that share has also been rising. Low-carbon power generation reached an all-time high in 2024, totaling more than 12,650 terawatt-hours (TWh), a 9% year-on-year increase and the fastest growth rate in the past decade. These sources accounted for 43% of global electricity generation, up from 34% in 2015.

Solar and wind represented roughly a third of total low-carbon generation in 2024, or 15% of overall global power production. Together, they have more than quadrupled their generation, from just 1,067TWh in 2015 to 4,608TWh in 2024.

Despite this progress, coal remains a significant part of the power mix. Coal supplied about a third of global generation in 2024, up 1.6% from 2023. The increase was mainly driven by higher demand in China and India, where elevated temperatures significantly boosted electricity consumption for cooling.

Global annual power generation



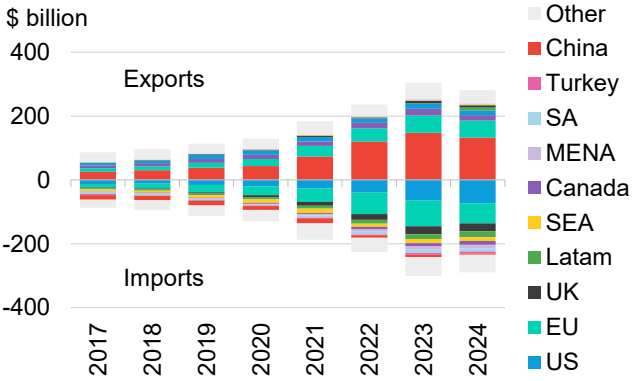
Source: BloombergNEF. Note: "Other fossil fuels" account for plants that use more than one fuel or fuels other than coal, oil and gas. Low-carbon technologies consist of solar, wind, biomass, geothermal, marine, hydro and nuclear. Solar includes utility-scale photovoltaic, small-scale PV and solar thermal.

Clean-tech trade takes center stage as nations jostle for a more than $2 trillion opportunity

Industrial policy is taking on renewed importance in the energy transition. China's entrenched lead in clean-tech manufacturing defines today's landscape, and governments elsewhere are seeking to preserve and develop local clean-tech manufacturing. Many nations seek to localize the manufacturing of electric vehicles (EVs), batteries, and solar and wind products. These include large emerging as well as developed economies.

Trade barriers to clean-tech equipment are rising. Recent tariff revisions in developed countries – notably the US – have grabbed the world's attention. But when it comes to clean tech, emerging economies have comparatively low barriers to trade. That could change: emerging markets have been active in raising trade barriers in recent years, and higher tariffs are being considered across many of these markets.

Global clean-tech trade by geography

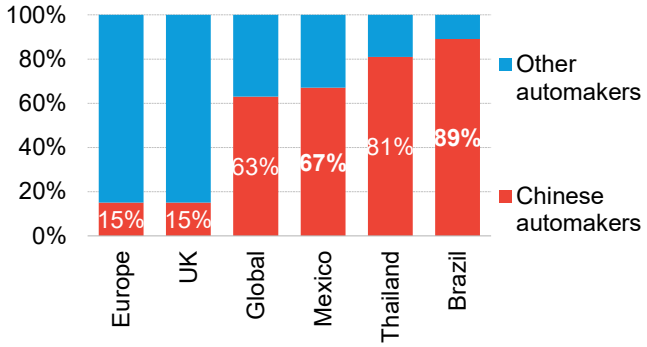


Source: Trade Map, BloombergNEF. Note: Clean energy products include solar cells, solar modules, wind turbines and components, lithium-ion batteries, battery-electric vehicles and plug-in hybrids. LATAM refers to Latin America; SEA refers to Southeast Asia; SA refers to South Asia; MENA refers to Middle East and North Africa. "Other" refers to the rest of the world. Trade data represent globally reported imports.

Higher tariffs are being weighed just as clean-tech prices dipped to new lows. China's exports to most emerging markets are booming. The low cost of China's products is accelerating the energy transition across energy storage, clean power generation and electrified transport. That is bringing clean energy within reach for emerging markets.

Chinese EV makers are making deep inroads in Latin American markets, accounting for two in three EVs sold in Mexico in 2024 and almost nine in 10 sold in Brazil. In all, EV sales could reach more than 420,000 vehicles in Latin America in 2025, with Brazil and Mexico accounting for the large majority.

Automakers' share of 2024 passenger EV sales



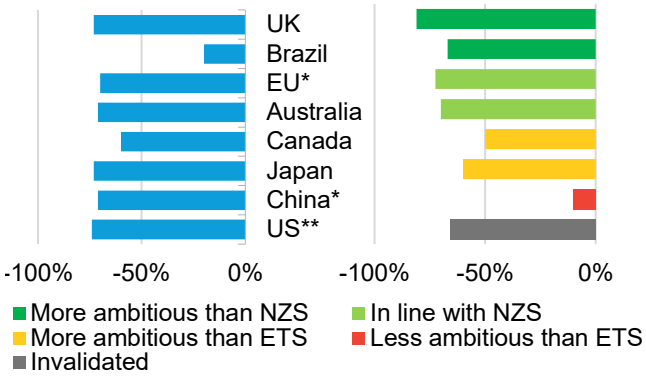
Source: BloombergNEF, MarkLines, Jato, Electro Movilidad Asociacion (EMA),Mexico's National Institute of Statistics and Geography (INEGI) . Note: EVs here include battery-electric (BEVs) and plug-in hybrid vehicles (PHEVs). Mexico figures are estimates for selected brands due to limited official data.

Governments face a choice between openness and taking a more defensive stance. A central question is whether to pursue the lowest-cost transition, or one that delivers more value for local companies and advances strategic goals. The *Clean Energy Trade and Emerging Markets* report (web | terminal), produced by BNEF and commissioned by Bloomberg Philanthropies, seeks to contribute to a balanced discussion of those trade-offs. It has data to support policymakers as well as business and investment professionals evaluating the state of supply chains and trade across EVs, solar products, batteries and wind turbines.

NDCs fall short of what nations can achieve even without policy support

BNEF has analyzed the 2035 targets of 13 major economies included in the *New Energy Outlook 2025* (web | terminal) – referred to as "NEO markets." We compare the change in emissions implied by their new Nationally Determined Contribution (NDC) goals for 2035 with the trend under our Net Zero Scenario, which covers energy-related CO2 emissions. This scenario represents a credible pathway to net zero worldwide by mid-century and holding planetary warming to 1.75C above pre-industrial levels. At the time of writing, seven of the 13 have submitted new NDCs or announced 2035 targets. The US invalidated its NDC when it withdrew from the Paris Agreement.

Selected major economies' 2035 emissions targets vs BNEF scenarios



*Source: BloombergNEF, ClimateWatch, United Nations. Note: NDCs refers to Nationally Determined Contributions. NZS is the Net Zero Scenario and ETS is the Economic Transition Scenario. *EU means the European Union, plus Norway and Switzerland. Applies parties' economy-wide, unconditional, greenhouse-gas targets, apart from China, which only has a carbon dioxide-related target for 2030. Where the target is a range, the most ambitious figure is used. For economies with intensity-based targets, BNEF estimated their absolute emissions targets. China and the EU have announced likely targets but have not submitted formal NDCs. The US plan was invalidated by an executive order from President Donald Trump withdrawing the US from the Paris Agreement.*

This year's host country, Brazil, was one of the first to submit its NDC, followed closely by the UK. Both targets are more ambitious than the Net Zero Scenario. Australia's pledge is also in line with the net-zero pathway. In contrast, Japan and Canada's 2035 stated targets would fall short of the Net Zero Scenario. But they are bolder than BNEF's Economic Transition Scenario, which models a least-cost evolution of the energy system based on techno-economic trends and in the absence of new policy regimes.

The EU, a longtime leader on climate ambition, has yet to submit its NDC 3.0. This is likely due to widespread

global geopolitical uncertainty and competing domestic priorities. But in September, the Council of the EU released a Statement of Intent outlining its likely 2035 target of between 66.25% and 72.5% below 1990 levels. This goal would keep the bloc on a net-zero trajectory – but only if it adopts and achieves the upper end of its proposed range.

China has also announced a 2035 target but has yet to submit its NDC. The new pledge maintains a similar lack of ambition as its 2030 target, which would see emissions exceed even BNEF's Economic Transition Scenario. However, the new target is significant in terms of climate diplomacy. It covers all greenhouse gases, not just CO2, and it is also based on absolute emissions rather than intensity. This shift is in line with repeated requests by developed economies and could signal China's intention to cement its relationship especially with the EU, in the context of weakening ties to the US.

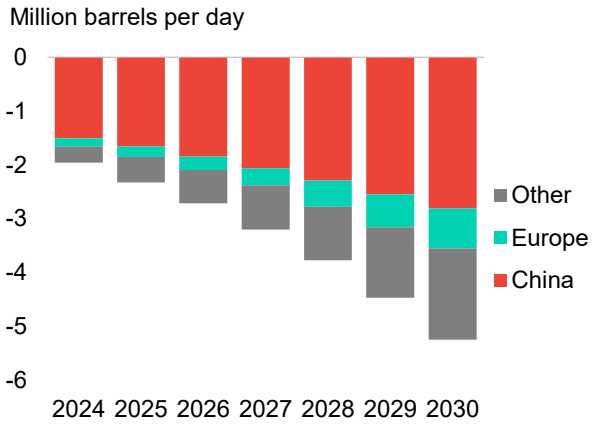
EVs start to dent global oil demand

The electrification of the road transport fleet is already displacing around 2 million barrels per day (m b/d) of oil as of 2024, up 12% against the previous year. This is equivalent to Germany's daily oil consumption. The continued pivot toward low-emission miles causes oil demand from road transport to peak by 2029 under our Economic Transition Scenario (ETS) at around 44.4m b/d, some 2.1m b/d higher than in 2024. This peak occurs two years later than in our previous outlook due to slower EV adoption in the US.

Consumption then declines to 34.8m b/d by 2040, as the penetration of low-emission miles spreads across multiple markets. Without the growth of alternative drivetrain vehicles, road fuel demand would rise to around 49.5m b/d by the end of this decade, and 53.7m b/d by 2040. Robust uptake of passenger EVs in markets such as China and Europe propels the steady increase in avoided oil consumption toward 2030 in the ETS, as disruption to the status quo spreads beyond the bus, and two- and three-wheeler segments around the world. These two markets collectively account for 68% to 85% of the displaced road fuel demand between now and the end of this decade.

The drop in fuel use is much more pronounced under the Net Zero Scenario (NZS), where global road fuel demand falls an additional 1.1m b/d by 2030 relative to the 44.3m b/d in the ETS. This gap widens to 10.7m b/d by 2040 as EV adoption picks up pace across all drivetrains.

Avoided road fuel use by alternative drivetrains in BNEF's Economic Transition Scenario

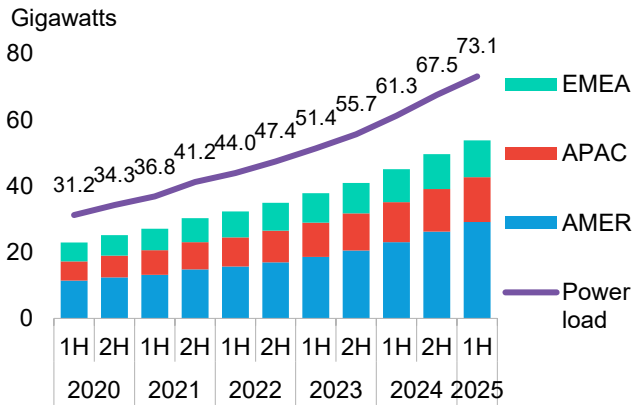


Source: BloombergNEF

AI data-center buildout puts pressure on grids – and potentially emissions

Since the release of ChatGPT in 2022, the four largest data center operators have spent more than $500 billion on capital expenditure, and the global power load of data centers is up by half. Global installed data center IT capacity grew by 8.3% in 1H 2025. Almost 70% of that was in the US. Most new capacity came from sites that broke ground in the early 2020s before the rise of ChatGPT. The rate at which projects are being started has since accelerated, which BNEF expects will increase capacity additions in the near future.

Data center IT capacity and power load, cumulative



Source: BloombergNEF, DCByte. Note: Total power load is calculated by multiplying total IT capacity by an estimated power usage effectiveness (PUE) of 1.36.

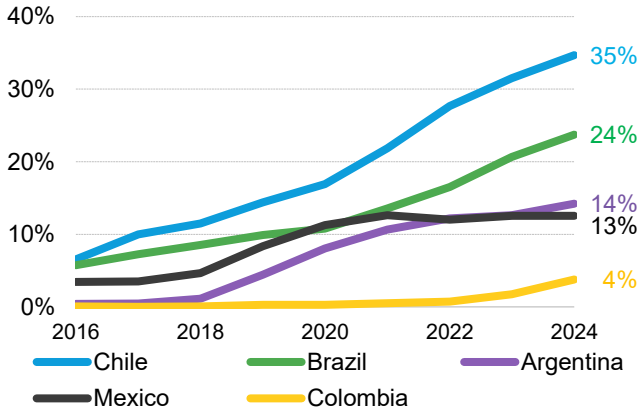
The capex of Amazon, Microsoft, Google and Meta more than tripled from $69.4 billion in 2019 to $217 billion in 2024, with analysts expecting it to top $350 billion this year. To date, this has mostly been financed from cash flows, but developers are starting to tap capital markets for project finance packages of more than $20 billion. Much of the new data center demand is driven by artificial intelligence labs such as OpenAI, Anthropic and xAI, which continue to see rising valuations. BNEF has tracked $82 billion of investment into seven "frontier" AI labs since 2021, over half of which came this year.

Power demand from data centers is generating significant new demand for gas. BNEF analysis suggests that the current pipeline of data centers could add 6.8 billion cubic feet per day of demand in the US by 2035, equivalent to about 8.4% of average daily consumption in 2024. For more, see *Fueling the Cloud: Data Centers' Bond With US Gas* (web | terminal).

Latin America's wind and solar penetration has surged

Wind and solar account for virtually all the new power-generating capacity additions in Latin America – 99% in 2024. Those technologies are breaking records with their contributions to grids in the region. Chile leads the way, with the technologies accounting for more than a third of all power production in 2024. Roughly 1 in 4 megawatt-hours generated in Brazil came from wind or solar, making a largely decarbonized grid even cleaner, building on the major contributions of large hydroelectric projects.

Latin America wind/solar generation share, by country



Source: BloombergNEF, Compañía Administradora del Mercado Mayorista Eléctrico SA (Cammesa), Operador Nacional do Sistema Elétrico (ONS), Comisión Nacional de Energía (CNE), Centro Nacional de Control de Energía (Cenace). Note: Brazil generation includes small-scale solar.

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