



ENERGY INVESTORS **CAPITALIZE ON SOARING POWER DEMAND**



Image: REUTERS/Russell Cheyne

INTRODUCTION

The global energy transition is well underway, despite some roll-back of climate targets, as competitive low carbon technologies enable countries to meet surging power needs.

New demands are emerging in the form of power-hungry data centers and the electrification of transport and industrial processes. Meanwhile, population expansion, economic growth and urbanization continue to drive up energy demand worldwide.

Global electricity demand is set to grow at more than double the rate of total energy demand in 2025 and 2026 as electrification accelerates, according to the International Energy Agency (IEA).

Huge investments are required in low carbon technologies and transmission grids to meet demand and limit global warming.

Global gas demand is also surging on the back of soaring power demand, prompting a surge in LNG activity as developers look to capitalize on the fast-growing Asian market.

Meanwhile, geopolitics is reshaping global energy markets as countries prioritize energy security, spurring the onshoring of manufacturing in developed nations and the transformation of global supply chains.

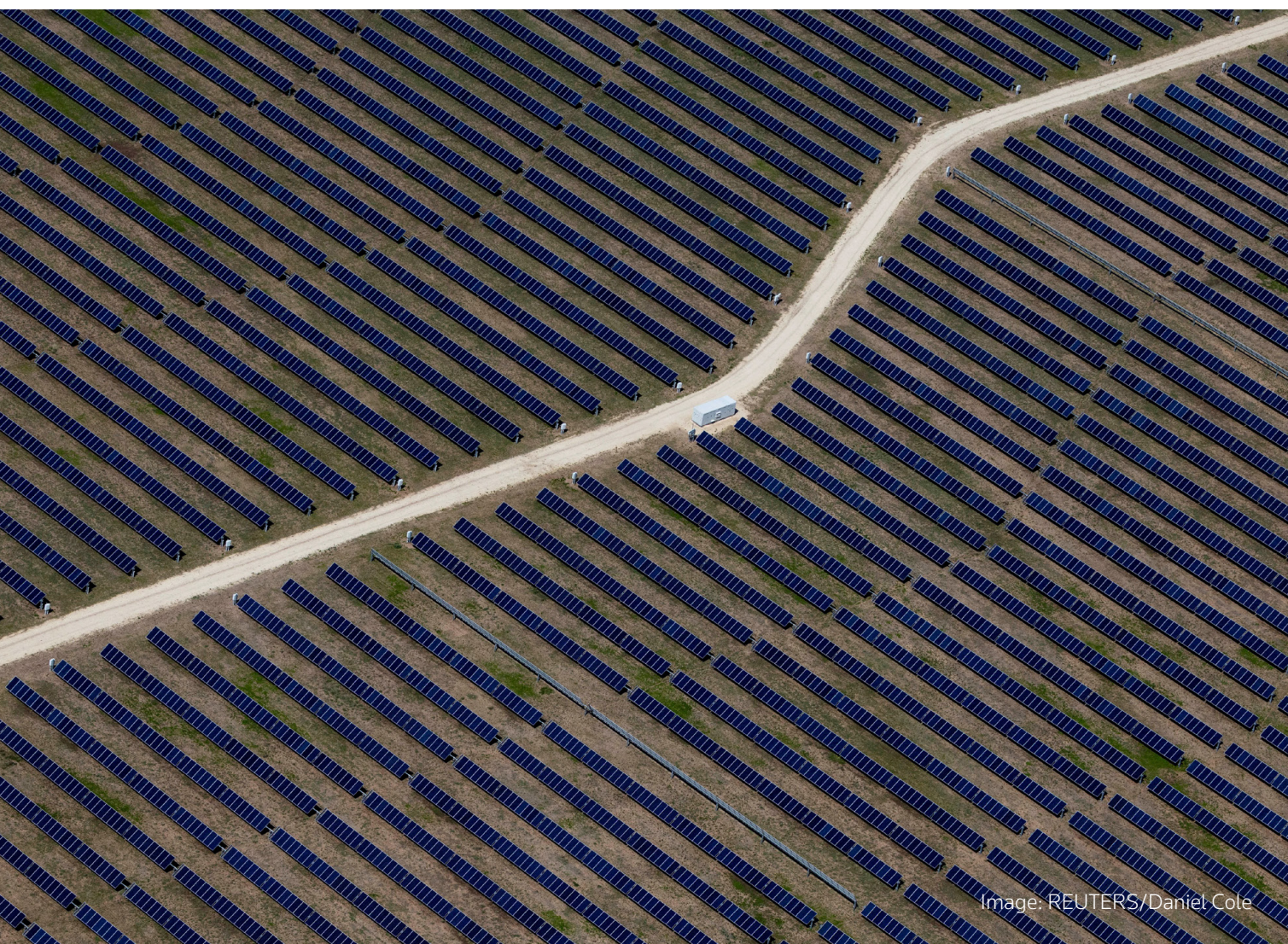


Image: REUTERS/Daniel Cole

GLOBAL DRIVERS OF RISING POWER AND GAS DEMAND

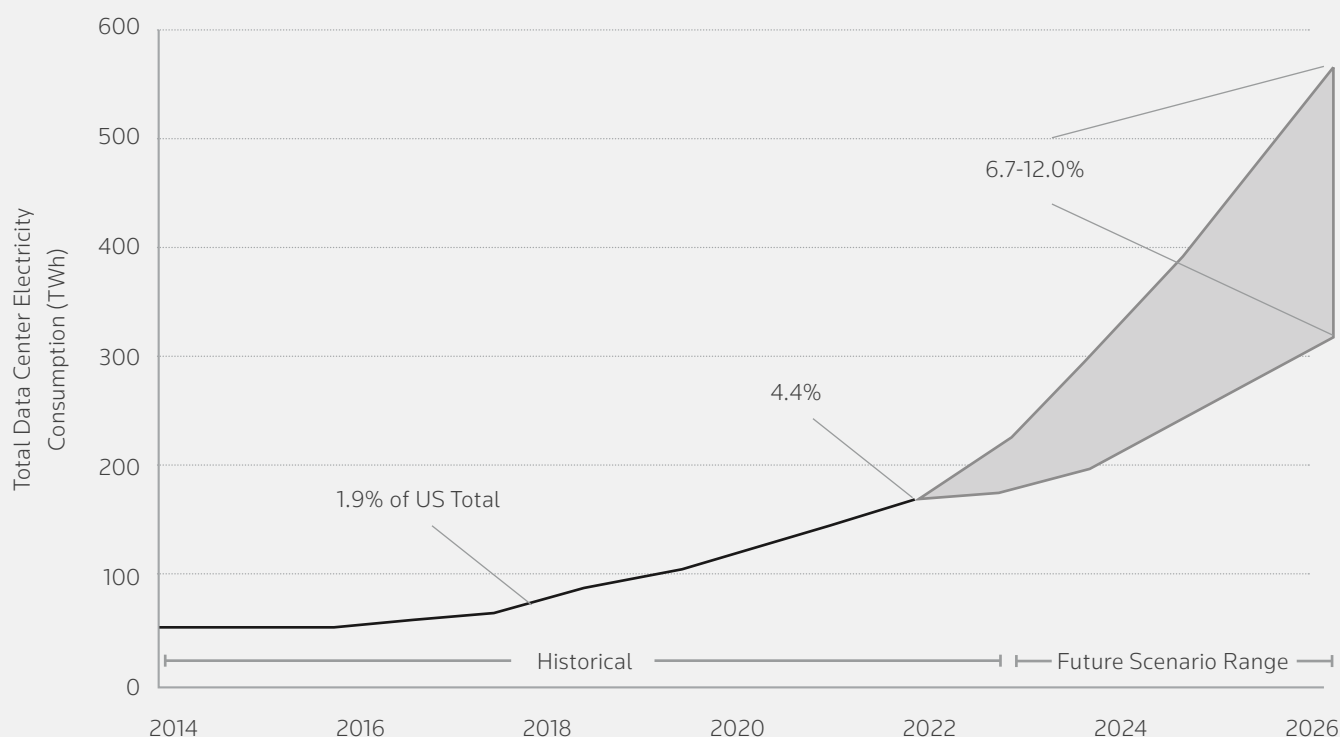
Region	Main Drivers of Power Demand	Main Drivers of Gas Demand
North America	- Data centers, including AI: the U.S. will remain the biggest center for AI development, with the sector accounting for almost half of increased power demand up to 2030, according to the IEA. - Manufacturing onshoring: new tariffs are encouraging the relocation of manufacturing within the U.S. - Electrification: growing uptake of EVs and heat pumps.	- Power Generation: it is already the biggest source of U.S. power generation and federal support for hydrocarbon development will sustain its role in baseload production.
Europe	- Electrification: including greater adoption of heat pumps, although high prices constrain uptake. - A modest rise in industrial production, although output will remain below pre-pandemic levels. - Extreme weather events: heatwaves will increase summer demand for cooling. According to Ember consultancy, the main global cause of increased power demand in 2024 was the use of air conditioning.	- Power Generation, including to continue the phase out of coal. Used to secure supplies when hydro and renewable energy production is low.
Asia	- Population growth, urbanization and economic growth. - Continued growth in EV uptake, particularly in China. - Increased use of air conditioning through more common heatwaves and rising living standards. - Industrial expansion, particularly in power-intensive manufacturing.	- Industrial use is the main driver of increased gas consumption. - Power Generation: used to support renewable energy development. - Natural Gas Vehicles: China already has the world's biggest NGV fleet, with growth in heavy duty NGV numbers continuing, although EVs are beginning to dominate in the passenger sector.
Africa and the Middle East	- Population growth and urbanization will triple electricity demand between 2025 and 2040. - National campaigns to bring electricity to the 600 million previously unserved are making progress in parts of Africa.	- Power generation: to displace oil and diesel generation, to complement renewables and to drive electrification campaigns.

US DATA CENTER RUSH

Data centers are the fastest growing driver of electricity demand in the United States and global annual consumption from data centers is forecast to double to 945 TWh by 2030, according to the IEA.

Data centers will account for nearly half of U.S. electricity demand growth between now and 2030, according to the IEA.

FORECAST US DATA CENTER ELECTRICITY DEMAND



Source: Berkeley Lab's 2024 United States Data Center Energy Usage Report, December 2024.

Big Tech and other large data center owners are investing in [new power generation](#) and grid infrastructure in a race to build new capacity. These companies are seeking 24/7 electricity supplies and investing in solar, wind, battery storage and gas-fired generation and supporting the development of small modular reactors (SMRs). Big Tech groups have favored clean power and

operators like Google and Meta have pledged to match 100% of energy consumption with clean energy sources while Apple has committed to 100% carbon-neutrality across its supply chain. Gas-fired generation will still be used by many sites, including Elon Musk's xAI site in Tennessee and OpenAI and Oracle's Stargate project in Texas.

Data center developers have favored sites with supportive market regulation and access to grid capacity in order to minimize development times, Rob Minter, SVP, Government and Regulatory Affairs, Engie, told Reuters Events. Development has soared in Texas, for example, where there is good land availability and grid connection times are typically shorter than other markets.

In October, Engie signed a power purchase agreement with Meta for Engie's 600 MW Swenson Ranch Solar project in Stonewall county, Texas, its biggest solar project to date. The \$900 million Swenson project is due for completion in 2027 and doubles Meta's offtake from Engie to 1.3 GW across four Texan projects.

Some developers are looking to co-locate power generation with new data center capacity to minimise long waits for grid connections and ensure reliable power supplies.

"Co-location can alleviate transmission constraints and enable optimized campus-wide energy planning, leveraging generation

and storage assets for local and grid support," Minter said.

Co-located projects must consider earlier coordination on siting and timing to secure land near grid connection points, and the integration of energy storage and advanced energy management, he said.

While data centers are transforming U.S. power demand in the short to medium term, in other parts of the world other drivers such as air-conditioning and electrification are playing a larger role.

"The Western narrative is overly focused on data centers at the moment. They are actually not that significant of a demand growth at global level," Daan Walter, Principal at research group Ember, told Reuters Events.

China is building almost as many data centers as the U.S. and this segment is just one of many new demand sources, Walter said. China has "an electrification growth engine AI demand can just fold into," he said.



Image: REUTERS/Noah Berger

GLOBAL ELECTRIFICATION

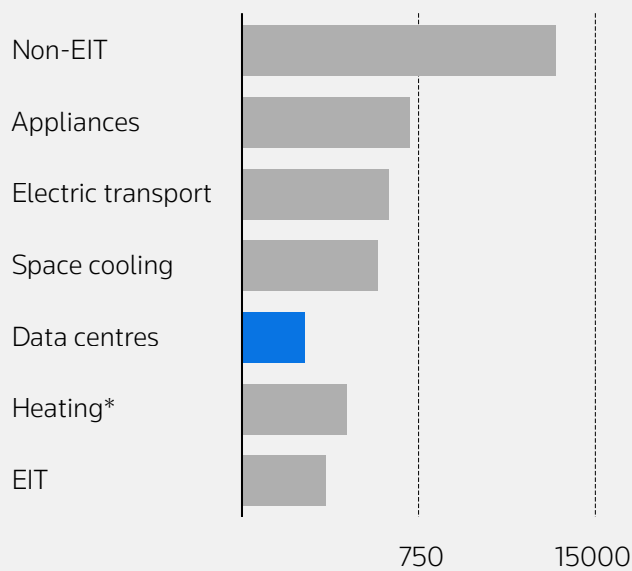
Electrification is a key area of global growth as countries seek to cut carbon emissions, reduce energy costs and bolster energy security.

“While AI is accelerating short-term demand and prompting some regions to rethink grid and generation strategies, it does not fundamentally alter the trajectory or priorities of the global

energy transition,” Sverre Alvik, Programme Director for DNV consultancy’s Energy Transition Programme, told Reuters Events.

The main challenge remains “scaling up renewables and grid infrastructure to meet a wide range of new loads,” he said.

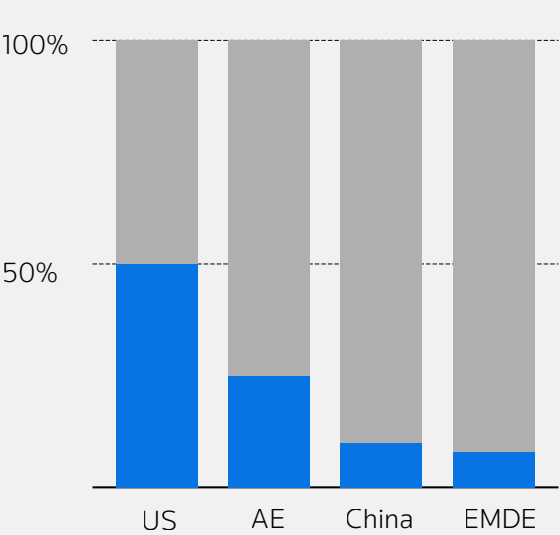
Global growth in electricity demand, 2024-2030 (TWh)



Note: EIT = energy intensive industries

Source: IEA WEO 2025

Electricity demand growth by region, 2024-2030



The growing use of electricity to propel vehicles and power industrial processes such as aluminium and steel smelting displaces fossil fuels, as long as electricity is sourced from low emissions technologies such as solar and wind.

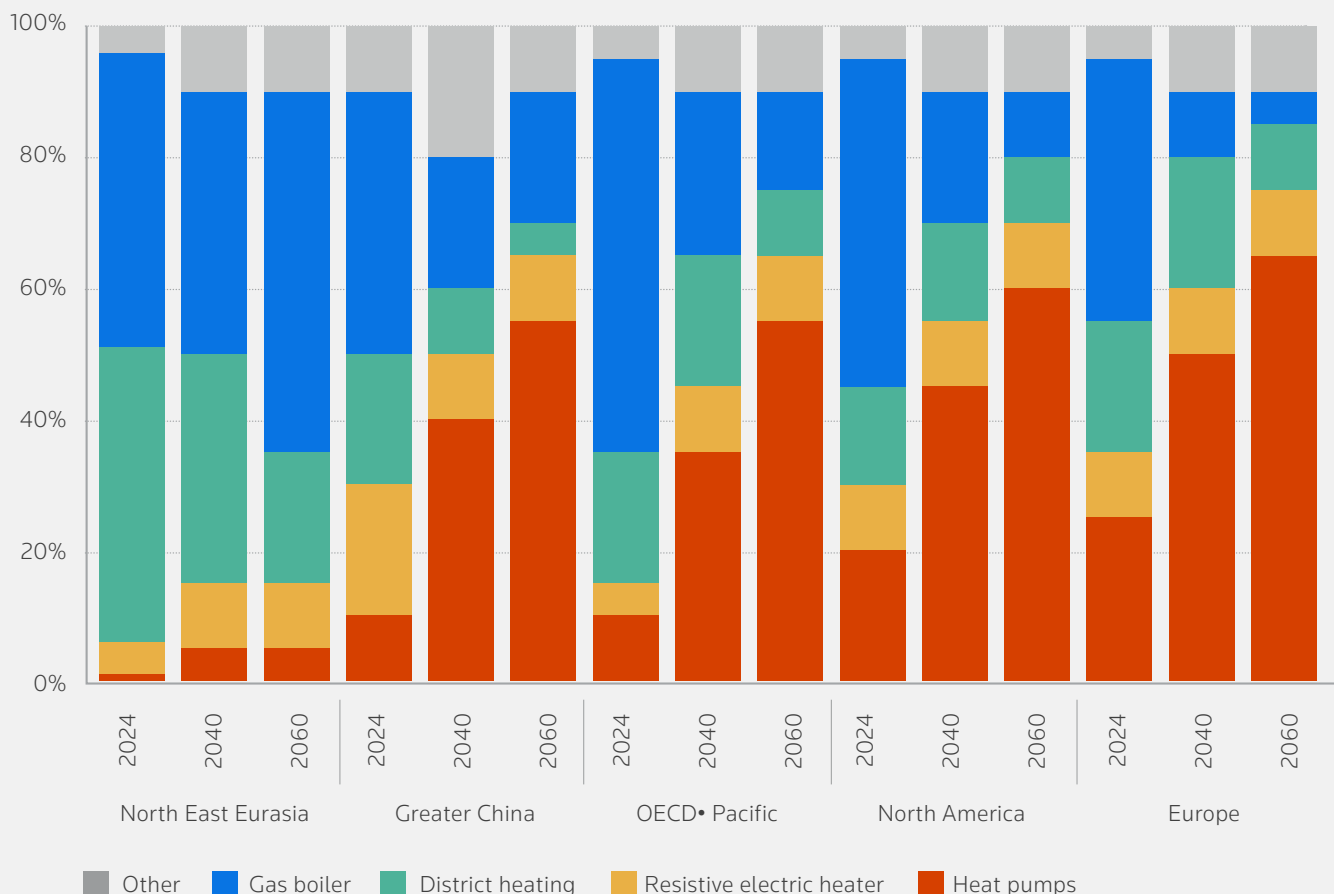
Electrification can also cut costs. Europe could save 250 billion euros (\$291 billion) a year by accelerating electrification and reducing costly fossil fuel imports, the World Economic Forum said in a report in November 2025. The cost of Europe’s imported fossil fuels can be two to four times more expensive than in other regions.

The number of electric vehicles in use worldwide surpassed 50 million in 2024 and global solar capacity exceeded 3,000 GW, primarily driven by growth in China, according to DNV.

“This is driven by a combination of [Chinese] state policy and the scale of its domestic market,” Alvik said.

While “China leads by a mile,” Europe and the U.S. are making progress with rising heat pump and electric vehicle sales, Walter said.

FORECAST DISTRIBUTION OF SPACE HEATING TECHNOLOGIES



Source: DNV, 2025

The electrification of transport, buildings and manufacturing is increasingly being driven by markets as key electrtech including solar power, battery storage and electric vehicles has become cost competitive with alternative technologies, Walter added.

Most new clean power projects provide power at a lower cost than fossil fuel alternatives and 65% of electric car sales in China in 2024 were at a lower price than conventional equivalents, 29% in Germany, and 17% in the United States, according to the IEA.

Europe is investing heavily in the energy transition through a combination of market dynamics and policy support, including via the EU Green Deal, which provides support for renewables, electrification and grid improvements. North America's investment is more market-driven and the Trump administration has slashed many of the supportive programs implemented by the Biden administration. Investment in South and South-east Asia is rising rapidly because of government initiatives and demand growth, noted Alvik.

“Overall, policy is the primary driver in the early stages, but as technologies become more competitive, market forces increasingly shape investment flows,” he said.

Electrification creates opportunities for increased renewable energy generation and the creation of more flexible, digitalized smart grids. For example, electric vehicle batteries can be used for storage and grid balancing and behind-the-meter solar plus storage can help to manage grid risks.

“In Europe, the growing adoption of solar-plus-storage systems helps mitigate midday price cannibalization and shifts generation into evening hours when prices are higher,” Alvik said.

Cutting industrial emissions is a huge area of potential growth. Replacing coal-based blast furnaces with electric arc furnaces (EAFs) can reduce emissions by up to 75% when renewable energy is used.

Tata Steel is currently building the world’s biggest EAF in Port Talbot in the United Kingdom that features 3 million tons/year (Mtpa) steel production capacity and is due for completion by the end of 2027. EAFs rely on a consistent supply of high-quality scrap steel but investing in sorting and processing technologies to remove contaminants can support operations.



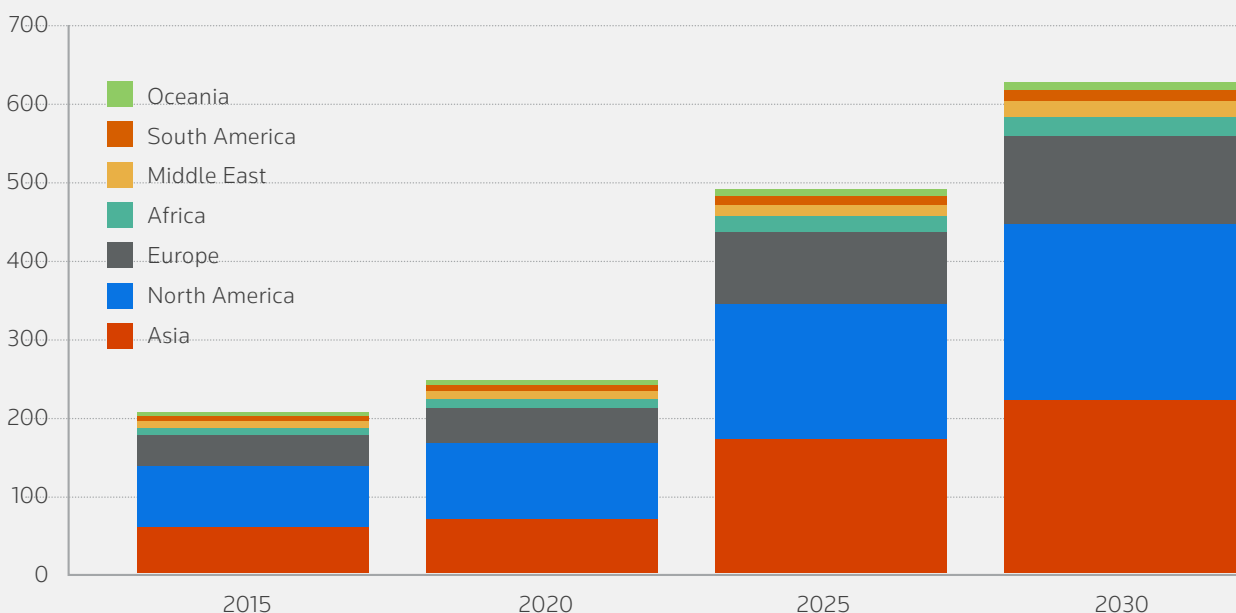
Image: REUTERS/Mike Blake

GRID OVERHAUL

Global investments in [power grids](#) have risen significantly in recent years due to rising power demand and electrification,

renewable energy deployment, and the need to upgrade existing transmission infrastructure.

FORECAST GLOBAL GRID INVESTMENTS BY REGION



Source: Rystad Energy

Clean power deployment requires more grid infrastructure to transport electricity from areas of high solar and wind resources to large load centers. The proportion of renewables in global power production will increase from 34% in 2025 to 55% in 2035, according to Rystad Energy.

Grids must also be upgraded and modernized to accommodate intermittent renewable energy flows. On mature grids in Europe and the U.S., many large power transformers at substations are close to or exceed the typical 45 year design life, Edvard Christoffersen, Senior Analyst, Supply Chain at analysts Rystad Energy, told Reuters Events.

Many transmission projects are being developed to balance regional and national differences in generation mixes and to promote energy security.

For instance, the Baltic Synchronization Project, which was completed in February 2025, integrated the power grids of Estonia, Latvia and Lithuania with the Continental

Europe Synchronous Area to end the Baltic States' reliance on Russia and Belarus.

India is investing \$29 billion in its national Transmission Roadmap between 2025 and 2030, including for the 6 GW Bhadla-Fatehpur HVDC line, due for completion in 2029, and a planned 1 GW HVDC interconnection between the Indian and Sri Lankan grids, with a target date of 2030.

Demand is driving up equipment costs, with demand for U.S. generation step-up transformers (GSUs) rising by 274% between 2019 and 2025, according to Wood Mackenzie. Surging demand for U.S. power transmission equipment has led to a wave of investments in [new factories](#).

Factors which could curtail grid investments going forward include growth in battery storage, the deployment of distributed power generation, smart grids that align demand and supply, and the "slower than expected general electrification and capacity buildout," Christoffersen said.

FINANCING THE TRANSITION

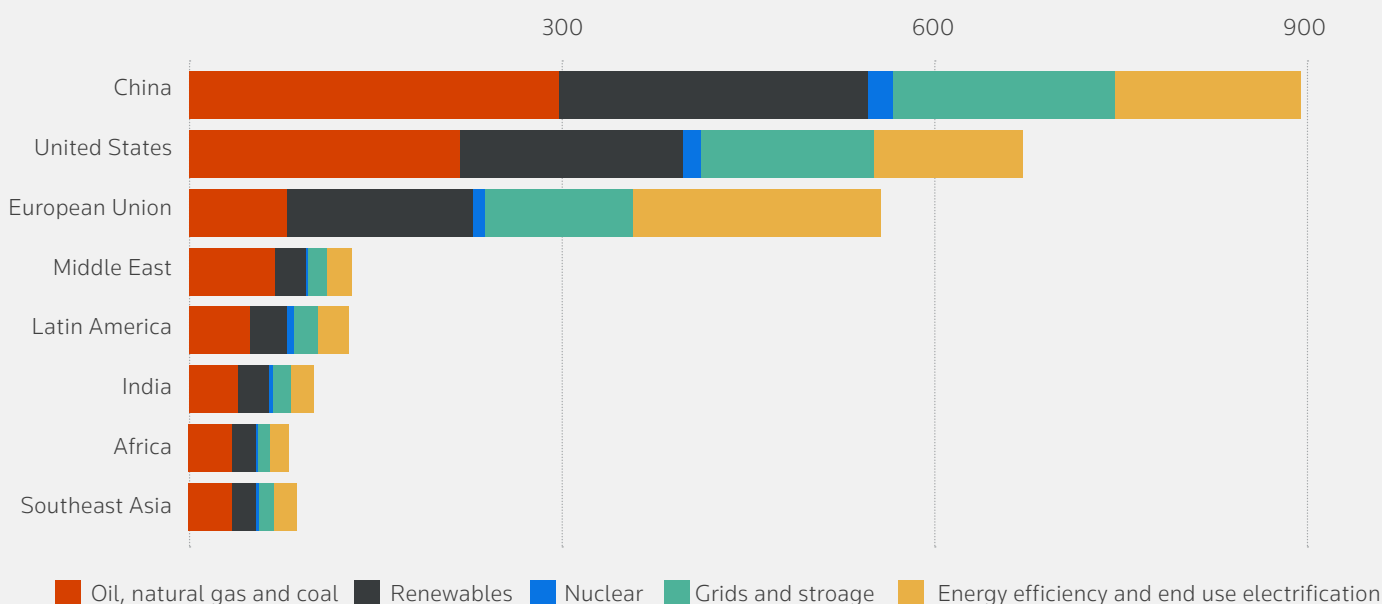
Around 63% of U.S. investors consider the energy transition unstoppable, compared with 75% in Europe, the Middle East and Africa and 70% in the Asia-Pacific, according to the Private Markets 700 report published by IFM investors in September 2025.

Some 72% of investors reported that energy transition investment was accelerating, although 75% of them still engaged in fossil fuel projects, mainly natural gas, KPMG said in

its Energy Transition Investment Outlook published in November 2024.

Years of cost reductions in solar, wind and battery technologies have made them [attractive to investors](#), while deployment of data centers, EV charging networks and smart meters are other priorities for investors looking for exposure to long-term trends, according to KPMG.

ENERGY INVESTMENT BY TECHNOLOGY, REGION IN 2025



Source: IEA, 2025

Investors are looking at everything from solar and wind farms to batteries, power grids, raw materials, synthetic fuels, green hydrogen and electric vehicle infrastructure. Dozens of emerging technologies — like floating offshore wind, direct air carbon capture and synthetic fuels — are also on the radars of some investors.

In October 2025, Brookfield Asset Management announced \$20 billion investment in its new energy transition fund from a wide range of investors, creating what it called “the world’s

largest private fund dedicated to the transition to clean energy.” Brookfield had already invested \$5 billion in global renewable power and battery storage operator Neoen, diversified U.S. developer Geronimo Power and Indian renewable energy joint venture Evren, it said.

The greatest challenges for investors in clean power and the energy transition are high upfront capital costs, stubbornly high interest and inflation rates, as well as policy uncertainty, underlined by President Trump’s slashing of support for clean

power. Investors must also be aware of emerging technologies that could become competitive with conventional systems.

To reduce risks, energy transition stakeholders must balance affordability and energy security to ensure affordable energy access for all and seek to reduce financing costs while mobilising capital for developing countries, the World Economic Forum said in a 2025 report. Specific financing tools should include blended finance, de-risking innovative technologies via insurance and guarantee instruments, and hedging off-taker risk.

Copenhagen Infrastructure Partners has invested 33 billion euros across its 13 funds and seeks to minimize risk by ensuring geographical and technological diversification, long-term contracting, and entering projects at an early stage where it can mitigate risks throughout their lifespan, according to the company's website.

Over the last 18 to 24 months, there has been a broad repricing of the U.S. renewables sector, "driven by policy volatility, mixed signals from Washington, slower capital formation, reduced M&A liquidity, and persistent financing friction," Dan de Boer, CEO of investment manager Greenbacker told Reuters Events. Investors now demand higher returns across project types, translating "into meaningfully higher discount rates and lower asset valuations, even for fully operating portfolios," he said.

"High-quality, well-structured projects can still attract deep pools of capital even as the sector reprices, de Boer said. He gave the example of the 674 MW Cider Solar project in New York where Greenbacker has assembled \$869 million in senior secured credit facilities, \$440 million in expected tax equity and \$81 million of mezzanine financing which combines elements of both debt and equity.



Image: REUTERS/Mike Blake

GAS DEMAND SOARS

Gas is also playing an increasing role in the energy transition as surging power demand increases the need for [new generation](#) and countries shift away from coal.

Natural gas provided 40% of the increase in global energy demand in 2024, mainly due to strong growth in the Asia-Pacific region, the IEA said.

"Asia is driving global gas demand growth, with deficits widening as consumption outpaces supply," a spokesperson for institutional investment firm EIG told Reuters Events. EIG invests in energy and related infrastructure, including renewables and the oil and gas sector.

"North America and the Middle East are also growing, but surpluses there will expand as supply rises faster than demand," the spokesperson said.

LNG developers have capitalized on rising gas demand and U.S. liquefaction activity has soared.

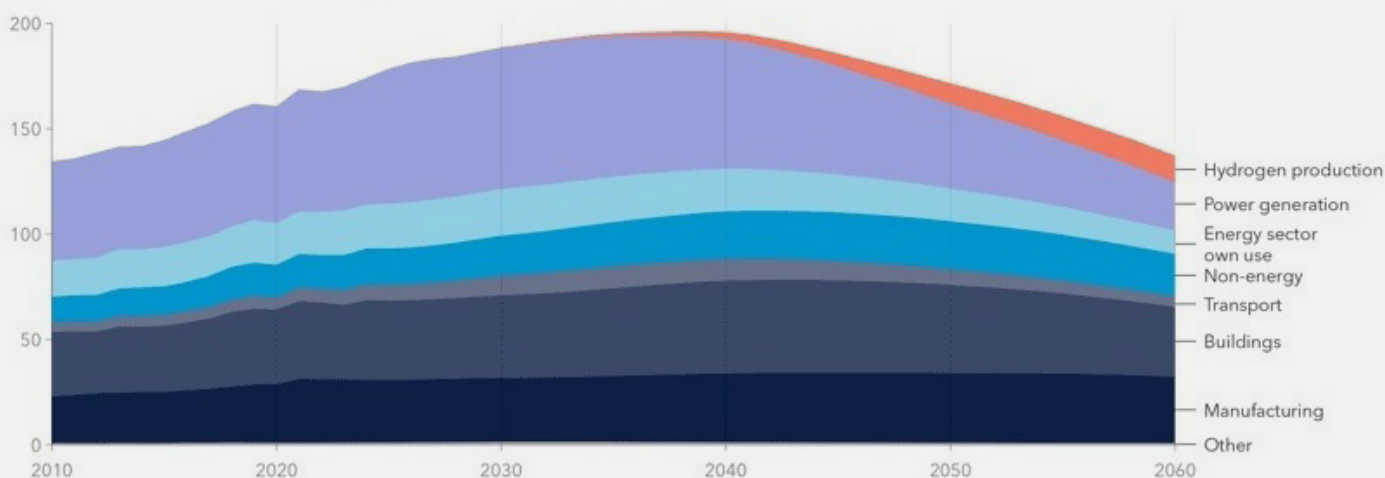
"Widening regional imbalances will fuel LNG growth. Global demand is about 400 mmtpa today, projected to reach 600 by 2030 and nearly 700 by 2035," EIG said. "Expect major liquefaction build-out in North America and the Middle East, regasification expansion in Asia, and rising investment in marine LNG infrastructure."

Asia's LNG demand will almost double over the next 25 years from 270 Mtpa in 2024 to 510 Mtpa by 2050, according to Wood Mackenzie.

Asian economies are looking to reduce their reliance on coal-fired generation and "shore up supply with declining regional production," while European demand for LNG is also growing, James Wyper, Senior Managing Director and Head of U.S. Private Equity at investment firm Stonepeak, told Reuters Events. Stonepeak acquired a 40% interest in Woodside Energy's 16.6 million tonnes per annum (Mtpa) Louisiana LNG project in April 2025.

FORECAST GLOBAL GAS DEMAND BY SECTOR

Natural gas demand by sector (EJ/yr)



Historical data source: IEA WEB (2025)

Source: DNV 2025

U.S. [LNG developers](#) continue to sign new offtake contracts and have announced final investment decisions on 60 Mtpa this year, with more investments expected soon, Wyper said. The U.S. already has the world's biggest LNG capacity at 120 Mtpa. Projects reaching FID in 2025 include Louisiana LNG (16.5 Mtpa), Rio Grande LNG Train 4 (6 Mtpa), and Port Arthur LNG Phase 2 (13.5 Mtpa).

Future gas demand is a key risk for LNG developers.

"Geopolitical shocks and economic swings pose the biggest risks to demand. Infrastructure assets, especially those that are contracted over long periods, can provide stability in a portfolio

in the face of uncertainty," EIG said. "Investing across the energy value chain—from upstream to power generation—also offers diversification as macro trends shift value along the chain."

LNG developers "typically sign long-term take-or-pay contracts for a substantial portion of production," Wyper noted. Production from many U.S. Gulf Coast projects is contracted on a Free On Board basis, whereby offtakers take responsibility for sales, he added.

Over the long term, most analysts expect gas demand to fall, particularly for power generation.



Image: REUTERS/Joel Angel Juarez

STRONGER SUPPLY CHAINS

Geopolitical instability, highlighted by conflicts in the Middle East and the Russia-Ukraine war, has led to major initiatives to strengthen energy security.

Governments and utilities “are working to diversify their energy sources and, whenever possible, broaden where they obtain key technologies and [raw materials](#),” a spokesperson for power technology supplier Siemens Energy said.

The increasing global emphasis on energy security has accelerated “investment in renewables, nuclear and other low-carbon technologies,” Alvik said. This is particularly true in energy-importing regions such as Europe, China and India, “where energy security concerns have reinforced policy support for renewables and nuclear as a means to reduce dependence on imports,” he said.

While energy security introduces “new complexities and costs to supply chains, it is tilting the balance in favour of decarbonization and a faster transition away from fossil fuels in many parts of the world,” Alvik noted.

Concerns over energy security are “shortening supply chains and reducing reliance on China as a supplier of components,” said Minter. Companies are onshoring more stages of production, supported by policies such as President Trump’s tariff and trade measures to support energy security. “Companies are moving production of critical grid equipment – such as transformers, switchgear, and large inverters back to the U.S. and geopolitically aligned countries,” Minter noted.

Recent investments in U.S. transformer manufacturing include Hitachi’s \$457 million facility in Boston, Siemens’ \$150 million factory in North Carolina and Hyosung HICO’s \$157 million plant in Tennessee.

While the U.S. is expanding its manufacturing of components such as transformers, inverters and battery storage, supply chain gaps remain.

There is “significant potential to expand domestic production of inverters, transformers, switchgear, and [battery storage] components to reduce risk, improve timelines, and align with U.S. grid requirements,” Minter said.

-- Neil Ford, December 2025



Image: REUTERS/Adam Cairns/Columbus Dispatch/ USA TODAY NETWORK