Electricity Mid-Year Update 2026

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Abstract

Amid the energy shock triggered by the war in the Middle East, the world's electricity consumption is set to increase strongly in 2026, driven by rising demand from industry, appliances, cooling needs, data centres and electrification.

This mid-year update builds on the comprehensive Electricity 2026 report published in February, providing an assessment of recent market developments and updated outlooks through 2027. It incorporates updated data for 2025 and new forecasts for 2026 and 2027, covering global electricity demand, generation by fuel, and carbon dioxide (CO_2) emissions from electricity generation, among other trends. The report also reviews the latest developments in major economies such as China, the European Union, India and the United States and provides updated tracking of wholesale electricity prices across markets worldwide.

Acknowledgements, contributors and credits

This study was prepared by the Electricity Systems and Markets (ESM) Division of the International Energy Agency's (IEA) Directorate of Energy Markets and Security (EMS). It was designed and directed by Eren Çam, Energy Analyst for Electricity.

The lead authors of the report were Eren Çam, Marc Casanovas, and Camille Paillard.

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Table of contents

Executive summary

Global electricity demand growth accelerates as markets navigate energy price shocks

Global power demand is on track to rise faster in 2026 and 2027 than in 2025, even as the Middle East crisis temporarily increases electricity generation costs and as emergency energy conservation measures are implemented in some regions. Electricity demand is forecast to grow by 3.6% in 2026 and accelerate further to 3.8% in 2027, up from 3% in 2025. Structural drivers – including industrial growth; increasing appliance ownership; the accelerating uptake of electric vehicles, air conditioning and heat pumps; and expanding data centre capacity – will continue to support growth in power consumption during the dawn of the Age of Electricity. As a result, global electricity consumption is set to reach 30 700 terawatt hours (TWh) in 2027, up from 28 600 TWh in 2025. Nevertheless, downside risks to the forecast remain amid ongoing military hostilities in the Middle East and broader geopolitical tensions, which could further weigh on the global economy and impact electricity demand.

Major economies have so far adapted to the loss of liquefied natural gas (LNG) supplies from the Strait of Hormuz while meeting rising power demand. New gas liquefaction projects, particularly in North America, and higher output from various LNG exporters, have helped ease market tightness. Nevertheless, the temporary loss of nearly 20% of global LNG supply has triggered significant price volatility, pushing natural gas prices in both Asia and Europe to their highest levels since the 2022-2023 energy crisis. The elevated gas prices have, in turn, prompted fuel switching from natural gas to coal in several Asian and European countries, while the continued expansion of power generation from renewables has played a key role in diversifying electricity supplies, thereby supporting energy security and helping limit the impacts of the shock.

The world's largest economies are set to see strong rises in electricity consumption, while higher energy prices and supply disruptions are curbing consumption in some price-sensitive markets. In China, electricity demand growth is expected to accelerate to 5.5% in 2026, from 5.2% in 2025, supported by higher manufacturing activity and increasing EV charging. In India, demand growth is forecast to rebound to 7% this year, up from a subdued 1.6% in 2025, when an early monsoon dampened electricity consumption. In the United States, electricity demand continues its strong upward trend, with consumption forecast to rise by close to 2% this year, led by growing power use from data centres, air conditioning (AC) and industries. In the European Union, demand

growth is set to strengthen to 2%, supported by ongoing electrification, as well as colder winter weather in the first quarter and increased cooling needs during heatwaves. By contrast, some emerging economies – particularly Bangladesh and Pakistan, which rely on LNG imports and are much more price-sensitive than many advanced economies – have been acutely affected by the crisis, prompting fuel conservation measures that have curtailed electricity consumption.

A stronger-than-expected El Niño event in 2026 could increase global electricity demand further by raising cooling needs in many regions. The El Niño weather pattern also typically affects electricity supply by reducing hydropower and wind generation, especially in regions such as Latin America and Southeast Asia, leading to greater reliance on coal and gas to prevent shortfalls.

Renewables take the lead in power generation

Electricity generation from renewables is set to overtake coal-fired output in 2026, widening their share in the global electricity supply mix. After reaching near parity with coal in 2025, global generation from renewables is forecast to grow by more than 8% in 2026. Its share in the electricity generation mix is set to rise from 33% in 2025 to 37% by 2027. As the deployment of renewables increases, the expansion and modernisation of grids, the enhancement of system flexibility, stronger locational price signals, and the more efficient use of existing infrastructure will all be critical to integrate growing shares of variable renewable energy such as wind and solar PV into systems.

Solar PV remains the largest contributor to electricity supply growth on a global basis. Output is forecast to increase by around 600 TWh in 2026, broadly matching the record annual expansion seen in 2025, with similar growth expected in 2027. As a result, solar PV is set to overtake wind power in 2026 to become the world's second-largest renewable source of electricity generation after hydropower.

Higher natural gas prices are expected to limit growth in natural gas-fired generation in 2026 while supporting increased coal-fired output. Globally, gas-fired output is forecast to remain broadly flat in 2026, which would make it the third year in the past ten without significant annual growth. A rebound in gas-fired generation is expected in 2027, although geopolitical uncertainties may continue to affect the outlook.

Nuclear power generation is expected to increase again in 2026, albeit at a slower pace, before accelerating strongly in 2027. Delays in getting new reactors online, as well as maintenance-related outages, are tempering growth this year. By contrast, in 2027, the addition of new reactors in China and India, continued strong output in the United States and France, and the completion of projects that had been delayed are set to underpin growth of more than 4%.

Carbon dioxide (CO_2) emissions from electricity generation are expected to increase by 1% in 2026 and then plateau in 2027. The forecast rise in emissions this year comes as some countries have been switching from gas to coal for power generation amid high natural gas prices and as weather-related factors boosted coal- and oil-fired generation during the first half of the year. Electricity sector CO_2 emissions are expected to remain broadly flat in 2027 as renewables, nuclear and natural gas all meet rising power demand, displacing coal-fired generation on a global level.

Surging natural gas prices drove wholesale electricity prices higher, but impacts differed widely across regions

The Strait of Hormuz crisis drove spikes in LNG prices, translating into higher costs for gas-fired electricity generation and pushing up wholesale electricity prices in several regions from March onward. In the second quarter of 2026, average spot wholesale electricity prices in the European Union and Japan increased by more than 30% year-over-year. However, the United States was much less affected by the LNG price shock, with the average wholesale electricity price in the second quarter largely unchanged from the previous year. And in India, average electricity prices increased by less than 10%, since LNG plays a relatively minor role in the power generation mix. Meanwhile, wholesale electricity prices in Australia were about 45% lower, as strong generation from renewables and rapidly expanding battery storage capacity helped reduce reliance on gas-fired plants during peak electricity demand periods.

While negative electricity prices have become a common occurrence across multiple markets, wide hourly price spreads during the day continue to highlight the growing value of flexibility. Negative prices are typically associated with insufficient flexibility in the system, reflecting technical, regulatory or contractual constraints. In South Australia and California, negative prices occurred during around 20% of wholesale market hours in the first half of 2026, similar to 2025 level. Meanwhile, in Spain, the share of hours with negative wholesale prices rose to 17% in the first half of 2026 amid strong renewables output, up from 10% in 2025. By contrast, the share of negative-price hours in Sweden and Finland declined from around 6% to just 2% over the same period as flexibility measures increased for both supply and demand. At the same time, intraday price volatility remained elevated across many markets. During the European heatwaves in June, price spreads between midday lows and evening peaks reached USD 600 per megawatt hour in several markets. Such conditions can create significant opportunities for flexible resources, including battery storage and demand response, which can shift generation and consumption across hours, capture value from price differentials, and support overall system flexibility.

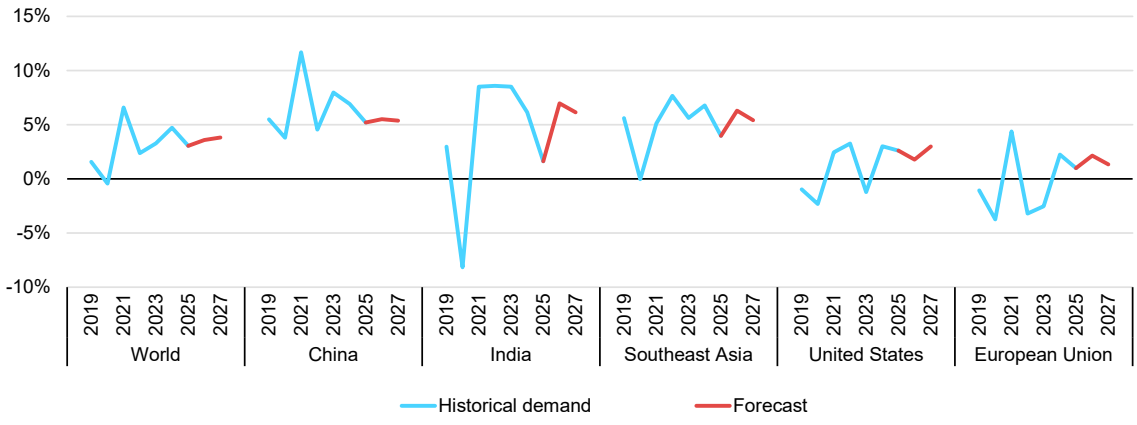
Demand

Global electricity demand remains resilient amid the energy crisis

Global electricity demand is forecast to increase by a robust 3.6% in 2026, accelerating from 3% in 2025. Amid the major energy supply shock caused by disruptions to shipping through the Strait of Hormuz, electricity consumption remained resilient and continued to increase strongly in the first half of 2026 in major economies of the world. Growth was also supported by weather-related trends, colder temperatures in Q1 2026 and higher cooling needs during the summer heatwaves in the first half of the year.

Demand growth is forecast to stay on a solid upward trajectory through 2027. Structural drivers – including industrial expansion, appliances, the rapid growth of data centres, and the accelerating adoption of electric vehicles, air conditioning and heat pumps – are set to continue underpinning electricity consumption worldwide. As a result, global electricity demand is forecast to exceed 30 000 TWh in 2027, led by average annual growth accelerating to 3.8%.

Year-on-year percent change in electricity demand in selected regions, 2019-2027



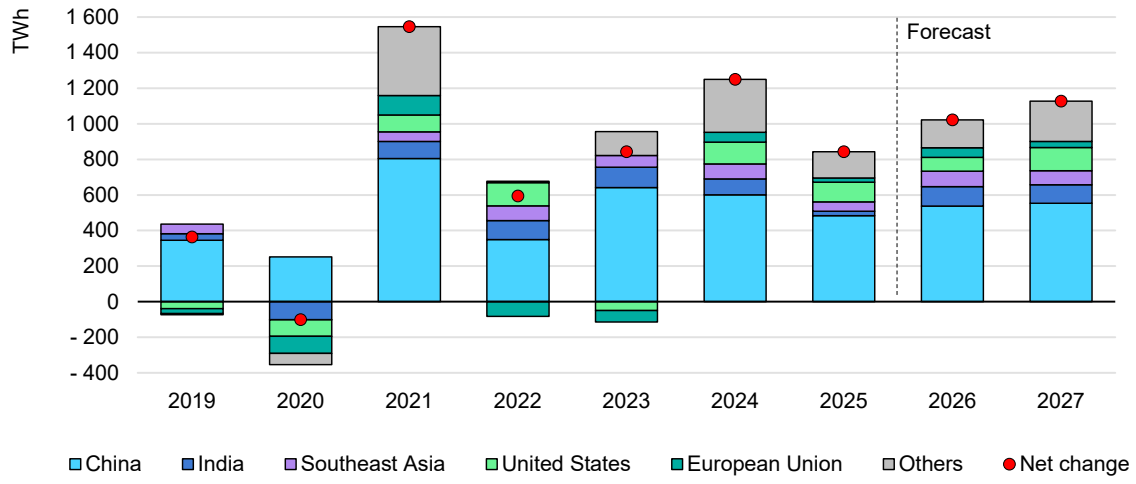
Note: The plots start from 2019, whereas the x-axis labels are shown only for the odd years due to limited space.

Nevertheless, downside risks to the forecast persist. The International Monetary Fund (IMF) has revised down its global GDP forecast for 2026 from 3.3% in its

January 2026 *World Economic Outlook* to 3.0% in its July update[1], reflecting a moderately weaker global economy following the crisis. Ongoing military hostilities and geopolitical tensions continue to weigh on the outlook at the time of writing, and further deterioration in economic conditions and their impact on electricity consumption cannot be ruled out in 2026.

Following a slight moderation in growth last year, electricity demand in China is forecast to accelerate in 2026. In India, where growth slowed markedly in 2025 due to the impact of an early monsoon season, demand is expected to return to solid growth this year. In the United States, electricity consumption is set to climb at a significant pace in 2026, following a solid expansion in 2025, driven by data centres, air conditioning and industries. Meanwhile, electricity demand in the European Union continues its recovery from the declines experienced during the energy crisis in 2022 and 2023.

Year-on-year change in electricity demand in selected regions, 2019-2027



Electricity demand accelerates in China and rebounds strongly in India

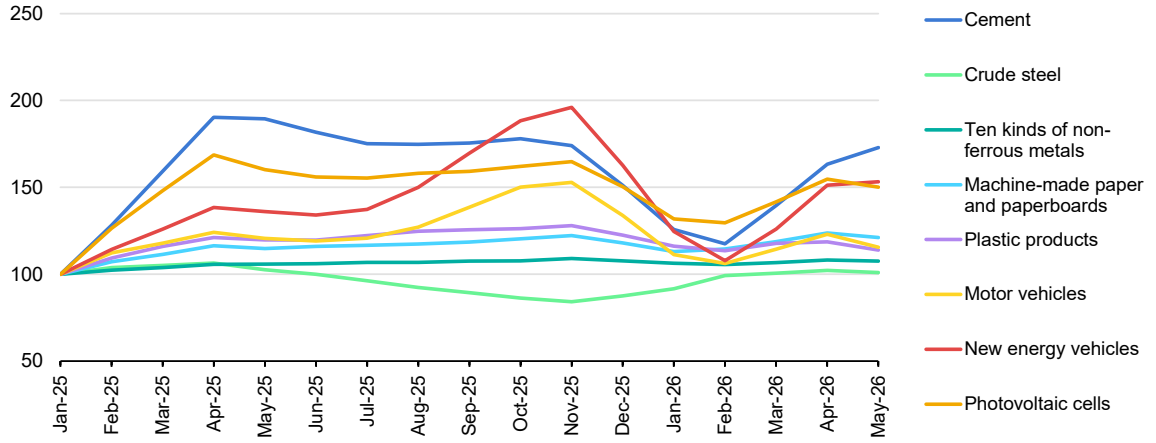
After rising by 5.2% in 2025, electricity consumption in **China** is forecast to increase by 5.5% y-o-y in 2026, following growth of 5.3% in the first half of the year. Electrification and expansion of new electricity-intensive activities continue to support electricity demand growth. High-tech and equipment manufacturing outperformed the industrial average, up by 9.8% and 5.3%, respectively, in H1 2026. In particular, production of lithium-ion batteries rose by 39.3% y-o-y in

[1] Note that the IMF report assumes the reopening of the Strait of Hormuz begins in mid-July, with conditions broadly returning to the prewar state of affairs by March 2027.

H1 2026, while output of all new energy vehicles (NEV)[2] returned to higher growth rates after a slower start to the year. China's services sector continued to show stronger gains, with electricity use up 8.0% y-o-y over the first six months of 2026, supported by the rapid expansion of power use from internet and digital services (e.g. data centres) and EV charging services. By contrast, activity in traditional industrial sectors remained weak, with crude steel output declining by 3.0% y-o-y and cement production falling by 4.3%, compared to H1 2025, reflecting continued pressure from the construction and real estate sectors. Electricity consumption in the residential sector increased by 3.1% in H1 2026, compared to the same period last year, with a rare drop recorded in June as relatively cool weather at the start of the summer reduced demand for air conditioning.

The rapid rise in demand for electric vehicle charging, combined with the continued build-out of charging infrastructure, continued to support Chinese growth in electricity use in the first half of 2026. By the end of May 2026, China's EV charging infrastructure had exceeded 22 million units, up 45% y-o-y. Electricity consumption from charging and swapping services rose by close to 57% in H1 2026, highlighting that transport electrification remains one of the fastest-growing sources of incremental power demand. According to the China Association of Automobile Manufacturers, new energy vehicle sales reached 58.5% of total new vehicle sales in June 2026, and they were 7.3% higher y-o-y for the H1 2026 period.

Production indices of selected products in China, 2025-2026



Note: Values for January and February have been estimated based on the 2 month-aggregate provided by the National Bureau of Statistics of China.

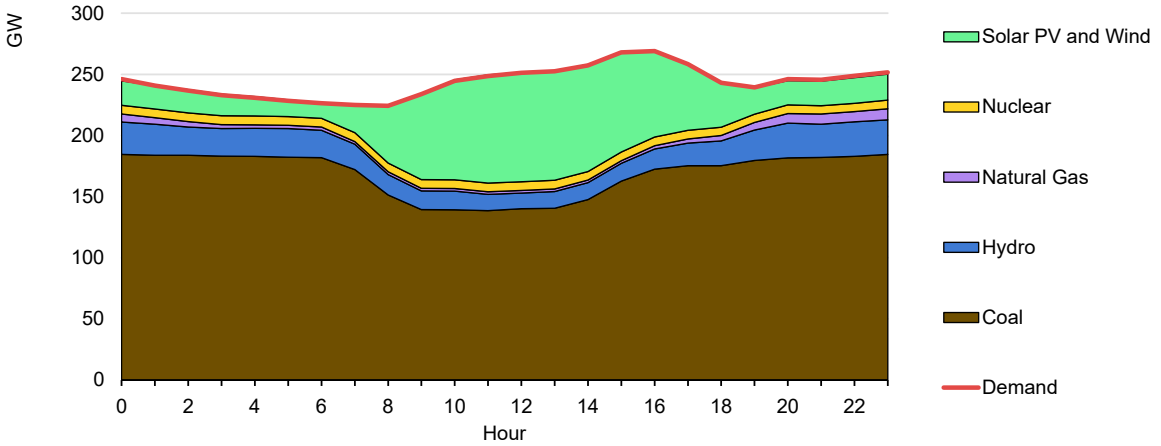
Source: IEA analysis based on data from the National Bureau of Statistics of China.

[2] New Energy Vehicle (NEV) is a term commonly used in China to describe all types of electric vehicles, including battery-powered, fully electric as well as plug-in hybrid vehicles.

Electricity demand growth in China is expected to remain robust through the rest of the year, supported by the continued expansion in high-tech manufacturing, electric mobility, data centres, and rising air conditioning use. With extreme weather events anticipated this summer, the national peak load is projected to reach new records, hitting 1 600 GW, up 90 GW compared to 2025, according to China's National Development and Reform Commission (NDRC). Provinces in East, Central and Southwest China, in particular, could face tight supply and demand balances during summer peaks and prolonged heatwaves.

In **India**, electricity demand rose by around 6% in H1 2026, led by stronger activity in industry and services and heatwaves sweeping the country between mid-April and early June. May saw an 11% y-o-y increase, as cooling degree days were also 7% higher in the country. Intense summer heat resulted in peak electricity demand hitting record-high values for four days in a row between 18-21 May, with peak load reaching 270.8 GW at 3.45 pm on 21 May. Peak demand was fully met thanks to higher thermal and renewable capacity, with solar PV covering 22% of the daytime peak (60 GW). However, growing summer peak net load (i.e. excluding load covered by VRE) in evening hours requires rapid ramp up of coal- and gas-fired generation during the day, in some cases leading to electricity shortages, which more than doubled in Jan-May 2026 compared to the same period last year. States in the Northern Region of India's national grid, such as Punjab, Haryana or Uttarakhand, showed the largest values of energy not supplied, reaching up to 2% of monthly demand in April.

Hourly electricity generation by source and demand in India, 21 May 2026



Notes: The data source used for this chart only provides data for aggregated variable renewable energy (VRE). Solar PV does not include rooftop solar PV plants.

Source: IEA analysis based on data from IEA Real-time Electricity Tracker and Merit India.

Following an unusually subdued increase of just 1.6% in 2025 due to the early onset of the monsoon, electricity demand in India is forecast to rise at a higher

pace for the remainder of the year, reaching an annual growth rate of 7% for the full year of 2026, supported by economic expansion and accelerating electrification. Weather conditions are expected to continue to play a major role in electricity demand growth trends this year. The monsoon onset was declared on 4 June, three days later than the average, and the India Meteorological Department (IMD) forecasts rainfall during the monsoon season to be the lowest in eleven years. This could lead to increased electricity consumption in the agricultural sector for irrigation pumps, as well as higher cooling demand across the country. We forecast similarly robust demand growth of about 6% in 2027.

United States and European Union see sustained growth in electricity consumption

In the **United States**, after rising by a strong 2.6% in 2025, a milder winter in Q1 2026 led to electricity demand growth of around 1% in the first half of 2026. However, trends diverged between sectors. Heating degree days were down by over 8% between January and March overall, resulting in lower demand for space heating, despite the January cold spell. As a result, electricity use was down by 1.7% in the residential sector in the first six months of the year. This decrease was more than offset by growth in both the services and industrial sectors. Electricity demand in the services sector rose by over 3% in H1 2026, supported by rising data centre consumption, while industrial use was up by 1%.

Electricity demand in the United States is set to rise further in 2026, after two consecutive years of posting record-highs. The growth is supported by data centres, electrification, and increased use of AC due to warmer summer temperatures. We expect demand to grow by 1.8% this year, followed by a 3% increase in 2027.

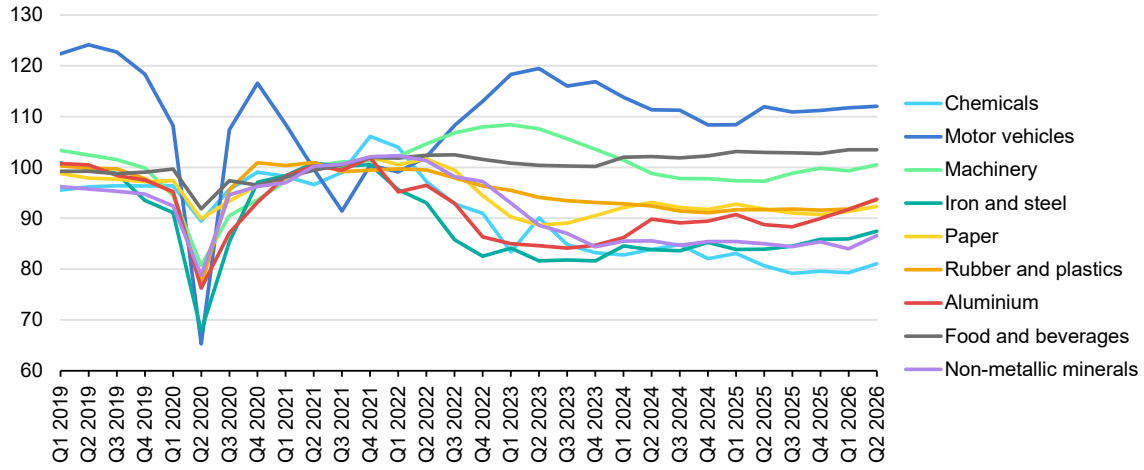
Data centres continue to be the main driver of electricity demand growth in the United States, as highlighted in our Electricity 2026 report. Industrial production and electrification are other major sources of electricity demand growth in the United States, with manufacturing output up by around 1% in H1 2026 compared to the previous year. High technology manufacturing sectors such as semiconductors, electronics, aerospace showed some of the largest growth rates year-on-year, but machinery and metals production also increased significantly in the first six months of 2026. Electrification of road transport and heating end uses is also ongoing. Representing around 10% of car sales in 2025, uptake of electric cars continued to support electricity demand growth despite a weaker Q1 2026, when electric car sales were one-third lower year-on-year. The drop reflects the end of federal tax credits after Q3 2025. Following a 11.6% y-o-y decline in 2025, sales of air-source heat pumps returned to growth, with a 1.4% increase in the first five months of 2026.

The **European Union**'s electricity demand rose by more than 2% in the first half of 2026, following an around 1% rise in 2025. Increased requirements for space heating and cooling due to weather conditions supported demand growth, while continued electrification of road transport and industrial output also contributed.

Colder winter temperatures in 2026 versus 2025, particularly in January and February, led to a marked increase in heating requirements across Northern and Central Europe in the first quarter, with heating degree days rising by 22% in Finland, 14% in both Poland and Sweden, and 12% in Denmark compared with the previous year. This was followed by record-high temperatures in May and June across most EU countries. Total EU cooling degree days increased by over 30% y-o-y, while countries such as France (+60%), Belgium (+100%), Germany (+110%) and Poland (+150%) recorded double- and triple-digit percentage increases. These exceptionally warm conditions drove a substantial rise in cooling-related electricity demand.

EV sales in the European Union rose by over 30% y-o-y in January-May 2026, supported by strong growth in many markets, including Italy (+80%), Spain (+44%), France (+41%) and Germany (+32%). The transport sector is forecast to contribute 30 TWh of additional electricity demand in the European Union between 2025 and 2027, and it is expected to account for a third of demand growth in 2026. As of 2025, one of every four cars sold in the European Union were electric, up from only one of every ten new car sales five years earlier. Demand from road transport accounted for 1.6% of total electricity consumption in the European Union last year, the same share as in China, and more than three times the share in the United States, and it is expected to reach 2.6% by 2027.

Production indices of selected industries in the European Union, 2019-H1 2026



Notes: The data is seasonally and calendar adjusted, with data presented as an index with 2021=100. Data for Q2 2026 is for April to May.

Source: IEA analysis based on data from Eurostat.

The EU manufacturing sector expanded in H1 2026, with the Purchasing Managers' Index (PMI) rising to a nearly four-year high of 52.2 in April. Manufacturing activity between February and June was supported by rising output and new orders growing at the fastest pace since mid-2022. Outputs from iron, steel and aluminium industries were particularly strong, reaching their highest levels since mid-2022, even as they remained well below 2021 activity.

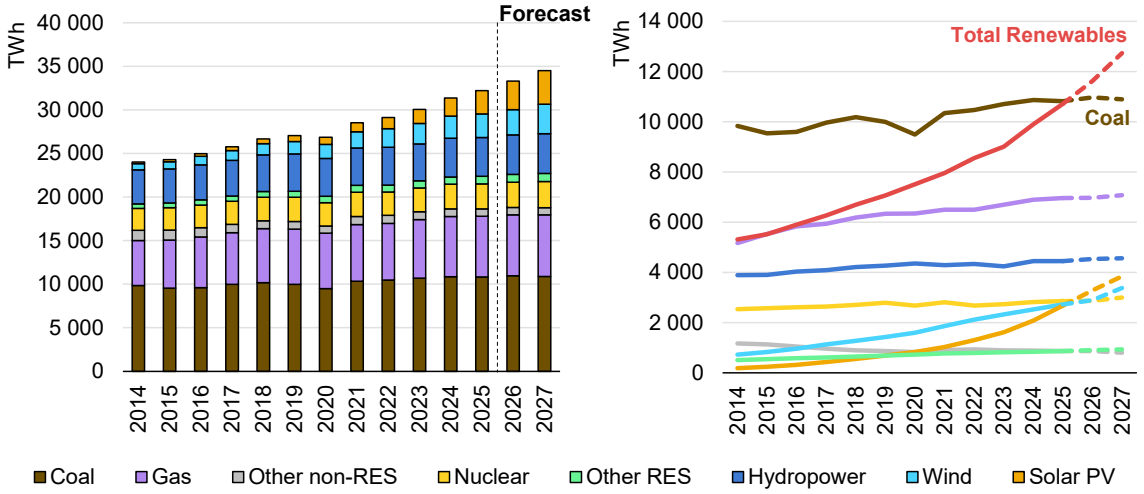
We expect electricity demand growth in the European Union to stay strong in H2 2026, leading to an updated forecast of 2.1% for full year 2026, up from 1.7% in our previous estimate. This is despite a downward revised economic growth outlook, with the IMF cutting GDP growth in 2026 from 1.5% to 1.2% between their January and July updates. For 2027, we forecast EU electricity demand to grow by 1.3% based on current trends, however downside risks remain in the case of further deteriorations in the economic outlook.

Supply

Renewables surpass coal-fired output, with their share set to widen through 2027

Renewables are overtaking coal[3] as the world's largest source of electricity generation, after reaching near parity in 2025. Global renewables generation is forecast to grow by about 8% in 2026 and by a further 9% in 2027. As a result, renewables' share of electricity generation is expected to rise from 33% in 2025 to 37% by 2027. Similarly, the share of variable renewable energy – solar PV and wind combined – is expected to rise from 17% in 2025 to 21% in 2027. Grid expansion and modernisation, enhanced system flexibility, and more efficient utilisation of existing network infrastructure will become increasingly important to successfully integrate the growing shares of VRE.

Global electricity generation by source, 2014-2027



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Note: RES = renewable energy sources; "Other non-renewables" include oil, waste and other non-renewable energy sources.

Solar PV remains the main driver of growth in electricity generation on a global basis, up by 23% this year, followed by a gain of 17% in 2027. Output is forecast to rise by 610 TWh in 2026, broadly matching the record expansion seen in 2025. As a result, solar PV is expected to surpass wind power in 2026, becoming the

[3] Coal-fired electricity generation comprises electricity produced from primary coal products (hard coal and lignite/brown coal), coal-derived fuels and coal-based gases, including coke oven gas and blast furnace gas, according to IEA energy statistics.

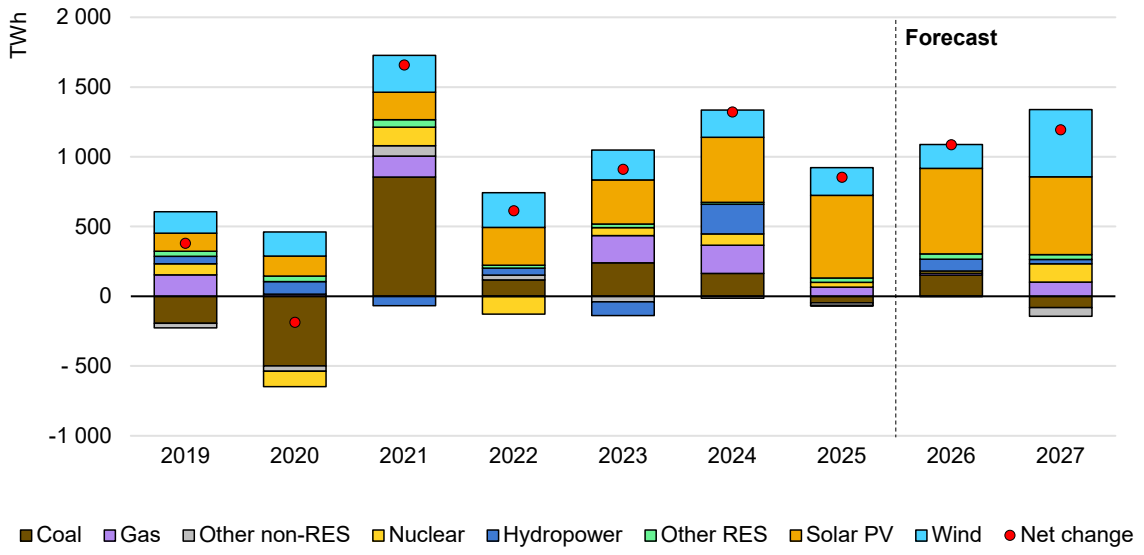
second-largest source of renewable electricity generation after hydropower. China continues to account for around half of the global increase in solar PV generation. At the same time, India and other Asian economies will play a growing role, with their combined contribution rising from almost 10% in 2025 to around 17% in 2026.

Wind generation is forecast to rise by more than 6% in 2026, similar to 2025. While growth in China is expected to slow in 2026 due to lower wind speeds and rising curtailment, generation in the European Union is set to sharply rebound following the weather-related weakness experienced in 2025, with significant growth of 9% this year and close to 10% in 2027.

Hydropower generation is projected to grow by slightly less than 2% in 2026, supported by growth in China and the United States in the first half of the year. These gains are forecast to more than offset declines in Latin America during the *El Niño* weather phenomenon, where less favourable hydrological conditions are expected to weigh on output. With these impacts likely to persist into the first half of 2027, global hydropower generation growth is projected to slow to less than 1% next year.

Global coal-fired generation is expected to increase by 1.4% in 2026, after remaining roughly constant in 2025. The gains are due to a combination of higher gas prices amid the Middle East Hormuz crisis, which led to gas-to-coal switching in many markets, as well as weather effects and the rising curtailment rates of renewables in some regions that led to increased coal power plant utilisation.

Year-on-year global change in electricity generation by source, 2019-2027



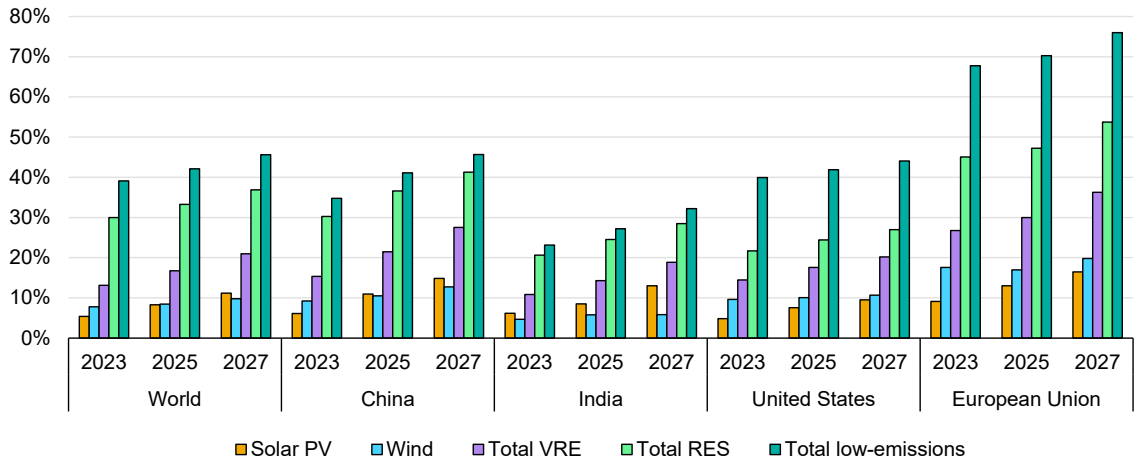
Notes: RES = renewable energy sources; "Other non-renewables" include oil, waste and other non-renewable energy sources.

China accounts for the largest share of the increase in coal-fired generation in 2026. In the first half of the year, lower wind speeds and rising curtailment rates reduced wind generation in China, leading to more reliance on coal-fired power plants to meet strong demand growth. Coal-fired generation is also expected to increase significantly in India, rebounding from its decline in 2025, when more modest demand growth and rapid renewables expansion weighed on coal power output. In the European Union, coal-fired generation is set to decline in 2026, albeit at a much slower pace than projected in our February forecast amid the crisis, as higher gas prices have improved the competitiveness of coal-fired generation. Assuming normal weather conditions and an easing of the shipping disruptions through the Strait of Hormuz, we expect global coal-fired generation to decline slightly in 2027, by less than 1%.

Global gas-fired generation is forecast to remain broadly flat in 2026, breaking from the sustained growth observed over most of the past decade. If realised, this would make 2026 only the third year in the last decade in which gas-fired output does not register significant growth, following the pandemic-related shock in 2020 and the energy crisis from the Russian Federation's (hereafter, "Russia") invasion of Ukraine in 2022. Growth in gas-fired generation in the United States, Latin America, Eurasia and Africa is expected to be largely offset by declines elsewhere, most notably in Europe and the Middle East. Global gas-fired generation is expected to resume growth in 2027, increasing by around 1.5%. However, geopolitical uncertainties may continue to weigh on the outlook.

Nuclear generation is forecast to increase at a moderate pace in 2026, rising by less than 1% globally. Although output in France is now projected to be higher than previously anticipated, this is largely offset by delays to new reactor projects in Türkiye and Bangladesh, slower growth in China and Japan, and reduced output in Korea and in the rest of the EU, excluding France, due to maintenance outages. Nuclear power generation is expected to grow faster by over 4.5% in 2027, as new reactors enter operation and maintenance-related reductions ease.

Shares of energy sources in total electricity generation in select regions, 2023-2027

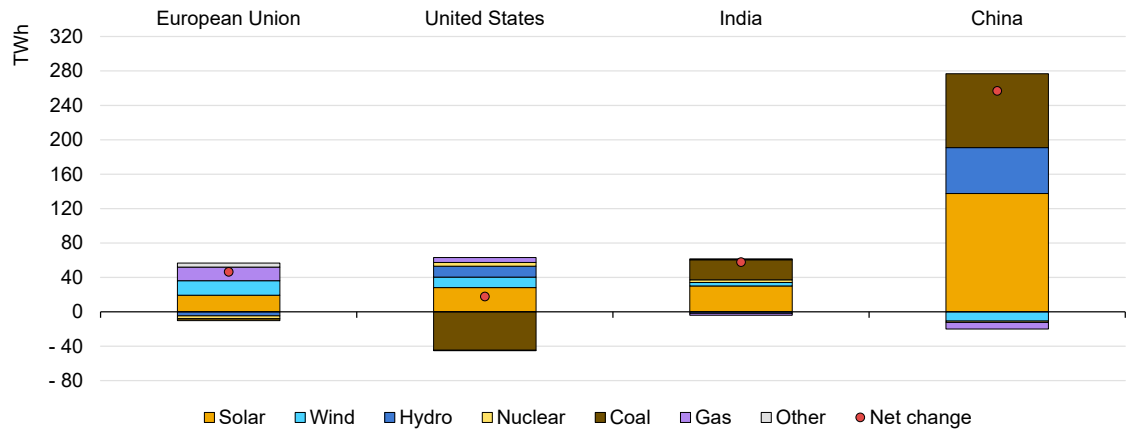


Notes: Total VRE = variable renewable energy (solar PV + wind); Total RES = renewable energy sources (VRE + other renewables); Total low-emissions = Total RES + nuclear energy. Data for 2027 are forecast values.

Coal-fired output rose in China and India after unusual simultaneous declines in 2025

In **China**, total electricity generation increased by 5.3% y-o-y in the first six months of 2026, with solar PV, coal and hydropower providing almost all the gains. In contrast to 2025, when record growth in low-emissions generation led to a decline in coal-powered electricity, this year coal-fired output rebounded by an estimated 3% in H1 2026. In the face of stronger electricity demand growth, this increase was due to lower wind generation, which declined by more than 1% due to exceptionally weak wind conditions and rising curtailment, as well as lower nuclear output (-0.7%) due to refuelling outages. Hydropower output also recovered in H1 2026 after a weak 2025 due to drought conditions in Sichuan and Yunnan, with data showing 9.3% y-o-y growth in hydro generation. Gas-fired output for the same period is estimated to have declined by close to 4% y-o-y, almost entirely due to shipping disruptions in natural gas supplies through the Strait of Hormuz. Solar generation continued to increase strongly, with an estimated more than 20% rise recorded in H1 2026. At the same time, higher curtailment rates – reaching 8.6% for wind power and 9.4% for solar power in Q1 2026 – and grid congestion limit the extent to which rapid clean capacity additions translate into lower coal burn.

Year-on-year change in electricity generation by source in selected regions, H1 2026

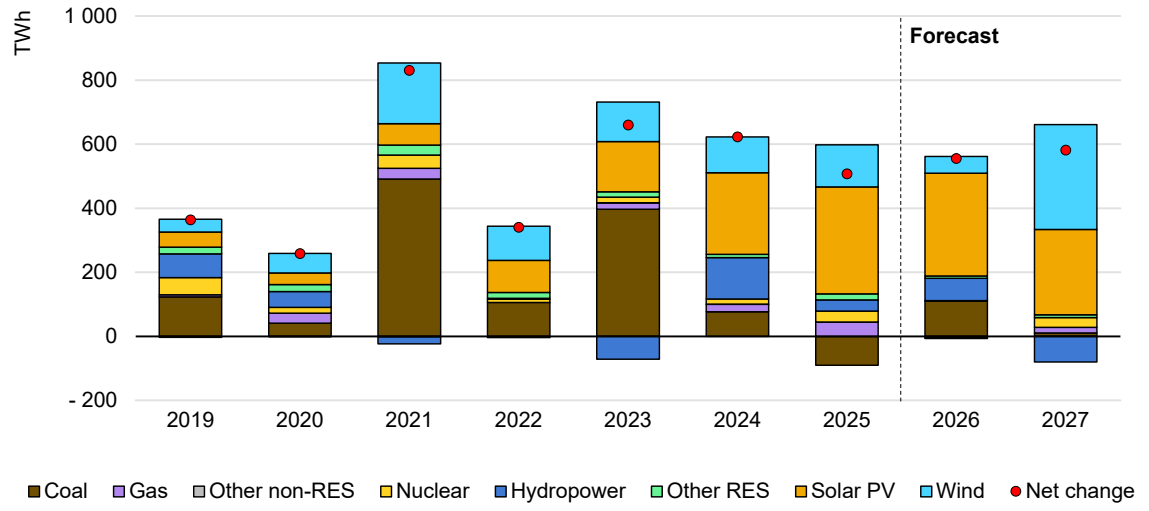


The share of VRE in China's electricity generation is forecast to increase from about 22% in 2025 to 24% in 2026, and to almost 28% by 2027. Solar PV generation is set to rise by 27% y-o-y in 2026, moderating from the exceptionally high growth rates of 44% in 2024 and almost 40% in 2025. In 2027, growth is expected to ease further, to 18%. Wind generation is projected to edge higher by only under 5% in 2026, following growth of around 13% in both 2024 and 2025. Lower wind speeds in the first half of 2026 have weighed on output growth. However, as substantial new capacity additions come online, and assuming normal wind speeds, wind generation in China is forecast to accelerate markedly, growing by more than 25% in 2027.

Hydropower generation is expected to rise by around 5% in 2026, supported by improved hydrological conditions compared with the previous year. Nuclear output is also projected to recover as reactors return from scheduled maintenance outages, although generation growth is forecast to remain below 1% in 2026. By contrast, in 2027 nuclear power is set to rebound sharply, with growth of 6%.

Against the backdrop of robust electricity demand growth and lower-than-usual wind capacity factors, coal-fired generation is expected to rise by around 2% in 2026, before broadly plateauing in 2027. By contrast, we forecast natural gas-fired generation to decline by around 1.5% in 2026 and then recover to a growth rate of about 5% in 2027.

Year-on-year change in electricity generation by source in China, 2019-2027



Note: RES = renewable energy sources; "Other non-renewables" include oil, waste and other non-renewable energy sources.

In **India**, coal-fired generation rose by 3.5% in the first half of 2026, following an unusual decline in 2025 due to modest demand growth amid an early monsoon and strong renewables expansion. As in previous years, the Ministry of Power mandated imported coal-based power plants to operate at full capacity between April and June, ensuring sufficient thermal capacity to meet the peak load, which reached a record-high 270.8 GW in late May, in line with the government's previous forecast.

Renewables generation continued to rapidly expand in H1 2026, with combined solar PV and wind output rising by over 25%, and reaching a 16.5% share of the supply mix, up from 14% in H1 2025. Solar PV generation rose by more than 30% and wind by slightly less than 10%, while weak hydrological conditions in May and June resulted in hydro output declining by over 2.5% y-o-y in H1 2026. Notably, nuclear generation rose by over 11% in the first half of the year, supported by the 700 MW Unit 7 of the Rajasthan Atomic Power Project (RAPP) reaching rated power in February.

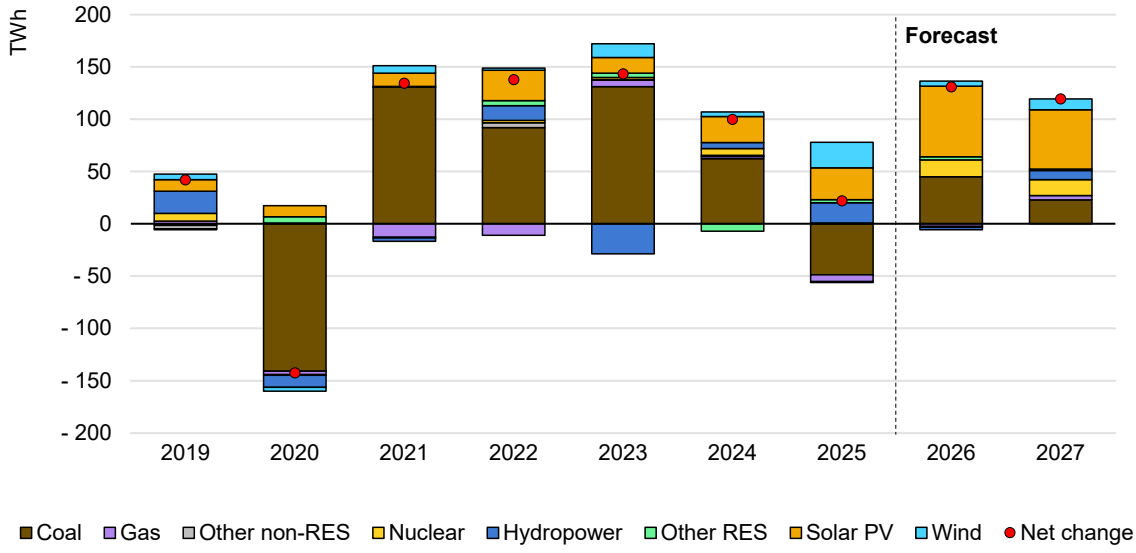
At the same time, gas-fired generation decreased by about 15%, compared to H1 2025, and was more than 40% below H1 2024 levels. Although around 70% of the natural gas used for power generation in India is domestically produced, high prices and disruptions to LNG flows through the Strait of Hormuz led to supply curtailments by the country's LNG importers, which particularly affected industry and captive gas-fired power generation.

Coal-fired generation is expected to continue increasing at a similar pace in H2 2026, resulting in an estimated growth of 3% for the full year, followed by a

further 1.5% rise in 2027. Gas-fired generation is projected to decline by around 5% in 2026, before rebounding by close to 10% in 2027.

The output increase from RAPP Unit 7 and expected start of operations of Unit 8 this year, together with the restart of two 160 MW reactors in Tarapur in June, are set to drive a 30% jump in nuclear generation in India in 2026, followed by a 22% increase in 2027. Variable renewable generation will maintain its growth momentum, with solar PV and wind increasing by 39% and 4%, respectively, in 2026, and posting slightly stronger rates of 24% and 8%, respectively, in 2027.

Year-on-year change in electricity generation by source in India, 2019-2027

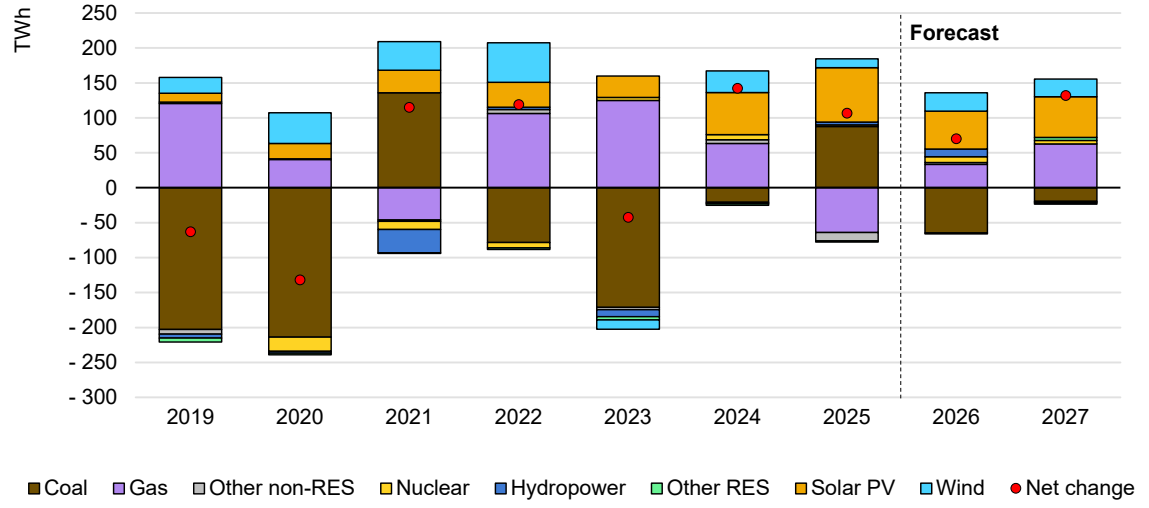


Note: RES = renewable energy sources; "Other non-renewables" include oil, waste and other non-renewable energy sources.

Solar PV rose strongly in the United States, while EU wind generation rebounded from 2025 lows

In the first half of 2026, renewables generation in the **United States** grew by close to 10% y-o-y. This was driven by strong gains in output from solar PV (+20% y-o-y), with ERCOT and MISO recording the highest absolute y-o-y increases in utility-scale PV generation in the country. A recovery in hydropower (+8.8% y-o-y), mainly due to improved hydrological conditions in the Northwest, further contributed to rising renewables output, while wind generation grew at a faster rate than the previous year, at around 5%. Nuclear output grew moderately, recording an increase of 1.1% during this period. Gas-fired power rose by 0.7% y-o-y, marking a reversal from the 3.3% decline in 2025, when US natural gas prices were higher. At the same time, coal-fired generation fell by around 12%, mainly due to a high base in H1 2025. Despite this drop, output from US coal power plants remained around 3% higher than in the first six months of 2023 and 2024.

Year-on-year change in electricity generation by source in the United States, 2019-2027

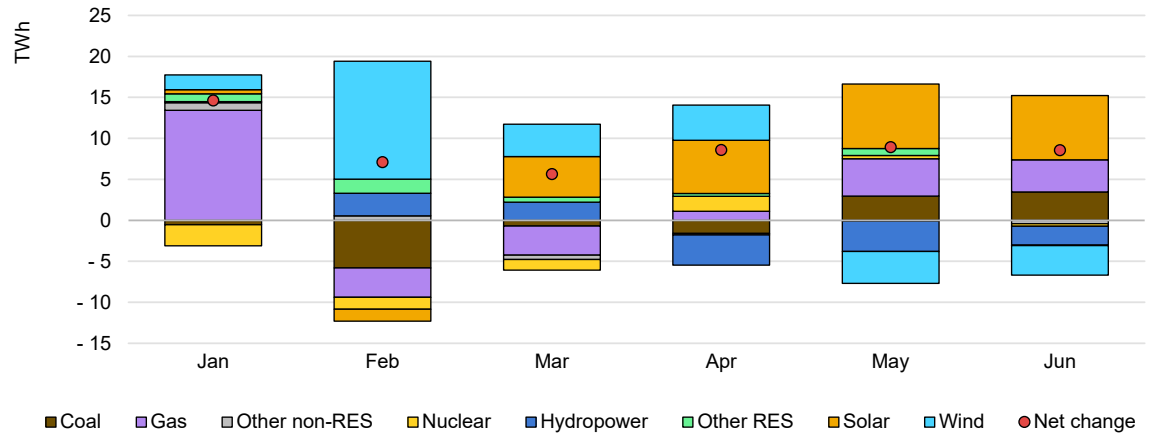


Note: RES = renewable energy sources; "Other non-renewables" include oil, waste and other non-renewable energy sources.

Our forecast expects no major changes in H2 2026 trends compared to the first half of the year, with natural gas-fired output increasing by close to 2% and coal-fired decreasing by around 8% in 2026. In 2027, gas-fired output is forecast to rise by over 3%, as coal-fired production is set to fall by around 2.5%. As outlined in the IEA's World Energy Investment Report, spending on fossil-fired generation in the United States is set to outpace China in 2026 for the first time in decades, as the data centre boom leads to surging gas turbine orders. Nuclear is forecast to rise by close to 1% on average in 2026 and 2027, reaching the highest output level since 2019. Solar PV is set to grow by 15% for full year 2026 and 14% in 2027. Hydropower is expected to rise by 4.5% this year before declining by less than 1% in 2027, while wind output is forecast to increase by over 5.5% in 2026 and 5% next year.

In the **European Union**, strong electricity demand growth pushed fossil-fired generation up by more than 3% y-o-y in the first half of 2026, even as renewable generation returned to growth of over 5% following a broadly flat 2025. Gas-fired generation increased by around 7% y-o-y, while coal-fired output declined by close to 2% y-o-y. However, the declines in coal have been lower than previously expected, as the sharp rise in gas prices following the onset of the war in the Middle East supported switching from gas to coal generation. In the first two months of the year, before the crisis, coal-fired generation was 10% lower y-o-y and gas-fired generation was up by 10%, driven by high demand due to a cold winter. However, in March, gas dropped by more than 9% and coal was only about 3% lower y-o-y.

Year-on-year change in monthly electricity generation by source in the European Union, H1 2026

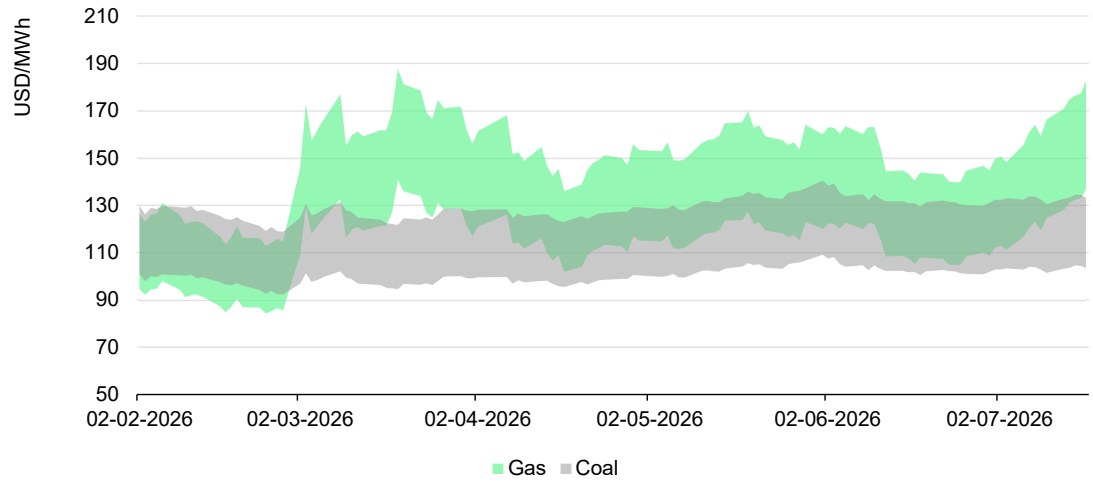


Notes: RES = renewable energy sources; "Other non-renewables" include oil, waste and other non-renewable energy sources. Solar includes PV and thermal. Data is preliminary.

The impact was particularly visible in countries with significant coal fleets. In Poland, coal-fired generation increased by 5% in H1 2026, after falling by more than 3% in 2025. In Germany, coal-fired output switched from a decline of over 4% y-o-y on average in January-February to growth of more than 4% between March and June. Over the same period, growth in gas-fired generation slowed markedly, from about 10% in the first two months of the year to just over 2% during the remainder of H1 2026.

At the same time, renewables generation continued to expand briskly. Solar PV generation rose by an estimated 10% y-o-y in H1 2026, while more favourable wind speeds than the previous year contributed to wind power output rising robustly, by 7.5%. Hydropower declined by over 2% y-o-y despite a strong first quarter, as conditions were drier than average in most of Europe during the April-June period. Nuclear output was around 1% lower y-o-y in the European Union, as growth in France and Finland was offset by lower output due to planned maintenance work in countries such as Sweden, Czechia, Belgium and Romania.

Gas and coal power generation costs in Germany, 2 February-17July 2026



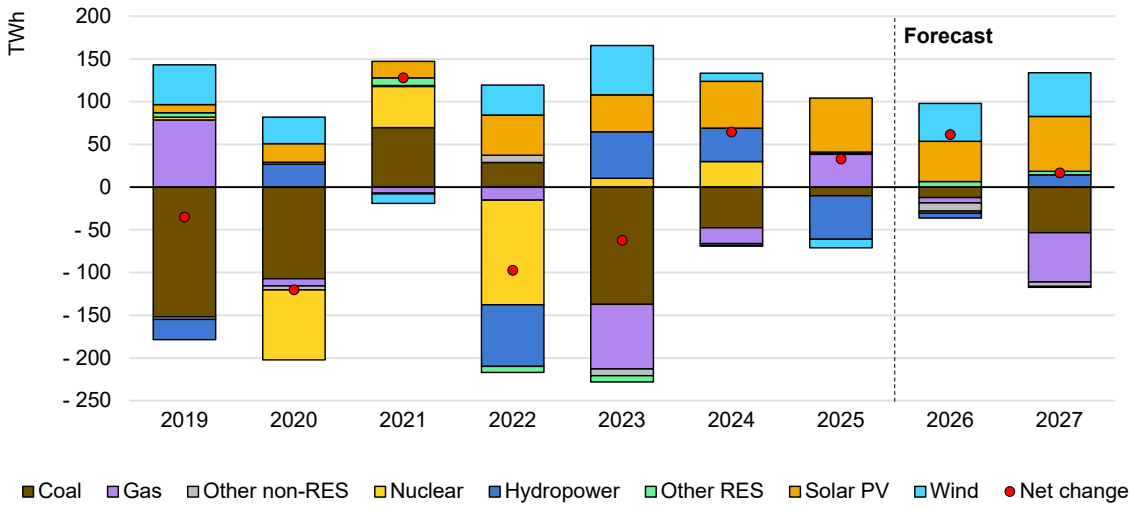
Note: Coal range reflects 35-45% efficiency; gas range reflects 45-60% efficiency.

Despite the temporary increase in coal power utilisation following the gas price shock, the broader transition towards a lower-emissions power sector remains firmly on track. Renewables generation is expected to increase more than electricity demand growth in the European Union over 2026 and 2027, driving a sustained decline in fossil-fired generation. By 2027, low-emission sources are projected to provide 76% of EU electricity generation, up from 70% in 2025.

Among renewable sources, solar PV generation is set to see the fastest growth, rising by 13% in 2026 and by over 15% in 2027. Wind follows closely, with growth rates surpassing 9% in both years. Hydropower output is expected to remain limited in H2 2026, resulting in a yearly decline of close to 2%, followed by a strong recovery of around 4.5% in 2027.

At the same time, gas-fired output is expected to decline significantly in H2 2026. As a result, gas-fired generation is forecast to fall by over 1% for full year 2026, and by 12% in 2027. Coal-fired generation is expected to follow a similar trend, declining by 4% and 19%, respectively, in 2026 and 2027, with the share of coal in the mix falling below 10% this year for the first time this century. Nuclear output will remain broadly stable through 2026 and 2027, as planned outages limit growth.

Year-on-year change in electricity generation by source in the European Union, 2019-2027



Note: RES = renewable energy sources; “Other non-renewables” include oil, waste and other non-renewable energy sources.

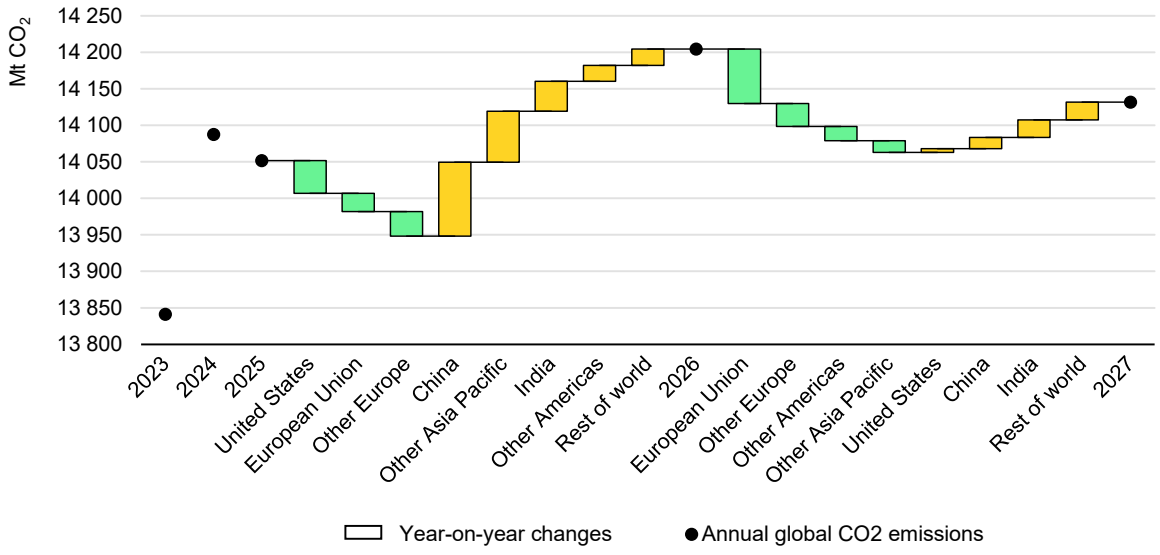
Emissions

Electricity generation CO_2 emissions set to increase in 2026

Global CO_2 emissions from electricity generation are expected to increase by more than 1% in 2026, versus 2025 when they remained effectively flat. In 2025, China and India posted decreases in emissions for the first time in over five years, as a boost in output from low-emission sources and moderate electricity demand growth constrained fossil-fired generation. In H1 2026, the crisis in the Middle East, which led to supply disruptions and higher natural gas prices, triggered gas-to-coal switching in several regions. Weather effects also supported coal- and oil-fired generation in recent months. Based on current economic and market trends, we expect CO_2 emissions from electricity generation to plateau in 2027.

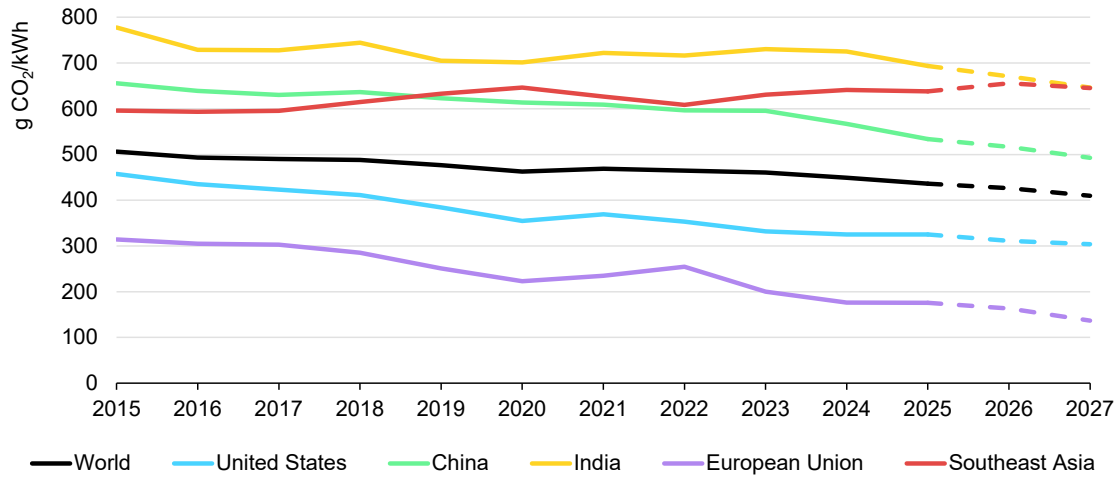
As opposed to 2025, when many regions in the world experienced a decrease in emissions from electricity generation, we forecast emissions to rise in most regions in 2026, particularly in emerging and developing economies. Increased emissions in China, India, Southeast Asia, Central and South America, Africa and Eurasia are set to be only partially offset by significant declines in Europe and in the United States. As a result, global emissions from electricity generation are expected to reach a new high this year.

Forecast changes in global CO_2 emissions from electricity generation, 2023-2027



The largest increase in terms of absolute emissions is set to be observed in China at around 2% this year, where high demand growth and lower-than-expected wind output drive higher fossil-fired generation. We expect emissions from electricity generation in China to remain relatively flat in 2027, although this is highly sensitive to fluctuations in electricity demand, which can result from deviations from the latest economic projections, as well as variations in weather conditions in individual years. Southeast Asia follows China, with an average rise of 6% per year over the 2026-2027 period, as strong demand growth is mainly met by higher fossil-fired generation. In India, after a 3.5% drop in 2025, emissions are set to increase by close to 3% in 2026, followed by 1.5% in 2027, as coal-fired generation keeps growing to meet rapid demand growth. CO_2 emissions from electricity generation in the United States are expected to contract by 3% in 2026 and remain relatively flat in 2027. The European Union is forecast to see the largest decrease in emissions in absolute terms at 5% in 2026 and 16% in 2027, with total emissions from power generation in 2027 less than half those in 2017.

CO_2 intensity of electricity generation in selected regions, 2015-2027



Note: The CO_2 intensity is calculated as total CO_2 emissions divided by total generation.

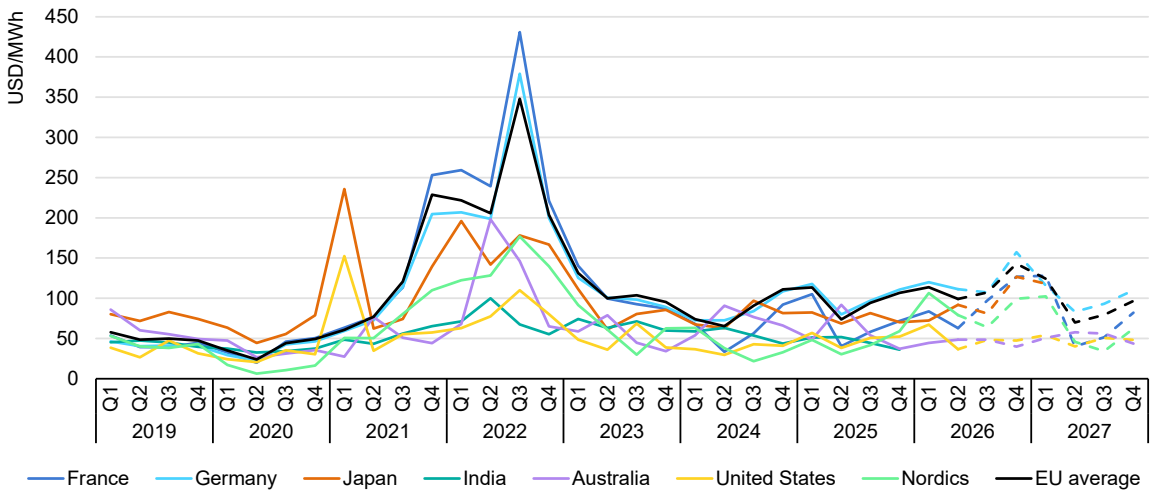
Despite the growth in total emissions, as the share of low-emissions sources increases, the carbon intensity of global electricity generation is forecast to decline at an average annual rate of 3%, falling from 435 g CO_2/kWh in 2025 to 410 g CO_2/kWh by 2027. The European Union is expected to lead this trend, with a steep average annual reduction of around 12%, dropping from 175 g CO_2/kWh to 135 g CO_2/kWh over the same period. China's emissions intensity is forecast to decline by 4% annually, falling from 535 g CO_2/kWh in 2025 to 495 g CO_2/kWh in 2027, while India's emissions intensity is expected to fall at a similar rate. In the United States, after remaining flat in 2025, emissions intensity is projected to post an over 4% average annual reduction between 2025 and 2027.

Prices

Gas market tensions drive wholesale power prices higher

Since hostilities began in the Gulf region at end-February, the disruption to LNG shipments through the Strait of Hormuz has become one of the defining features of global energy markets in 2026. So far, the impact from the current crisis on wholesale electricity prices has been more limited than after Russia's invasion of Ukraine in 2022. This reflects additional global LNG supplies, supported by new liquefaction projects in North America and higher output from some other exporters, being diverted to Asia and Europe to offset lost Middle East shipments. In addition, the growing share of renewables in electricity generation in many countries since 2022 has reduced the role of natural gas-fired power plants in setting marginal electricity prices. Nevertheless, countries in Asia and Europe have experienced significant increases in wholesale electricity prices.

Quarterly average wholesale electricity prices for selected regions, 2019-2027



Notes: Prices are in nominal values, converted to USD based on the average exchange rate of the quarterly period. Prices for Australia and the United States are calculated as the demand-weighted average of the available prices of their regional markets. Continuous lines show historical data and dashed lines refer to forward prices.

Sources: IEA analysis based on data from RTE (France) – accessed via the ENTSO-E Transparency Platform; Bundesnetzagentur (2026), SMARD.de; Australian Energy Market Operator (AEMO), (2026), Aggregated price and demand data; EIA (2026), Short-Term Energy Outlook, July 2026; IEX (2026), Day-Ahead Market; EEX (2026), Power Futures; ASX (2026), Electricity Futures. Reproduction of ASX content is subject to licence restrictions, (Full disclaimer on copyright page). Latest update: 17 July 2026.

Since the onset of the crisis, Asian spot LNG prices have averaged more than 65% above pre-crisis levels (+40% y-o-y), and European benchmark (TTF) gas prices have averaged more than 50% above pre-crisis levels (+33% y-o-y).[4] This increase in natural gas prices has translated into higher wholesale electricity prices, particularly in markets where domestic gas prices closely track international benchmarks and gas-fired plants frequently set marginal power prices. As a result, average wholesale spot electricity prices in both the European Union and Japan were around 20% higher year-on-year during this period. Elevated gas prices have also increased system services costs in many regions, as balancing and flexibility needs are often met by dispatchable gas-fired power plants.

Summer heatwaves and renewed supply stoppages in the Strait of Hormuz continue to weigh on prices. As such, electricity markets remain vulnerable to further disruptions and any resulting tightening of global LNG supply.

Markets signal elevated wholesale electricity prices in the second half of 2026

As of mid-July, futures prices for H2 2026 point to year-on-year increases in wholesale electricity prices of around 25% in the European Union and nearly 40% in Japan. By contrast, prices in the United States and Australia imply year-on-year declines for the same period of around 10% and 5%, respectively.

In the **European Union,** the price average for H1 2026 was around USD 105/MWh, a 15% y-o-y increase. Wholesale electricity prices in H1 2026 were 18% higher in Italy and 17% in Germany**.** In France**,** improved nuclear availability put downward pressures on prices, with overall averages in the first half of 2026 remaining relatively unchanged compared to 2025. In Spain, strong wind and solar PV generation, alongside very high levels of hydro reservoir levels, supported lower average prices in H1 2026, which were down by 16% y-o-y. Looking ahead, futures prices for H2 2026 in the European Union on average point to year-on-year increases in wholesale electricity prices of around 25%. Futures price increases are particularly pronounced in Q4 (+35% y-o-y), when tighter natural gas market conditions during the heating season are projected to exert additional upward pressure.

In the **Nordics**, wholesale electricity prices surged by more than 130% y-o-y in H1 2026. In particular, prices surged in January and February to twice the levels compared to the same period last year. This increase was driven by a large deficit in the hydrological reserves, with snow accumulation in Norway lagging seasonal averages, combined with weak wind conditions and dry and cold weather.

[4] This corresponds to the average price between 2 March and 16 July, compared to the price on 27 February.

Wholesale prices are expected to remain higher than usual this summer in Norway and Sweden due to low reservoir levels, as also indicated by the Nordic futures prices, which average around USD 80/MWh for the remainder of 2026, up 60% on year-ago levels.

In **Japan**, wholesale spot electricity prices averaged around USD 90/MWh in Q2 2026 following the effective closure of the Strait of Hormuz, up by more than 30% y-o-y. However, the increase for H1 2026 as a whole was limited to about 10%, as lower prices in the first quarter, supported by strong growth in renewable generation, partly offset the sharp rise in the second quarter. Futures prices point to average wholesale prices of around USD 105/MWh in H2 2026, up almost 40% y-o-y, reflecting elevated LNG prices and expectations of continued tightness in gas markets.

In the **United States,** average wholesale electricity prices rose to about USD 52/MWh in the first half of 2026, up 10% y-o-y. The increase was driven largely by record price spikes during the January cold spell associated with Winter Storm Fern, which significantly boosted heating demand. Looking ahead, US Henry Hub natural gas futures point to a roughly 10% y-o-y decline in wholesale gas prices in the second half of 2026, supported by ample supply. This trend is also reflected in the EIA's July Short-Term Energy Outlook (STEO), which currently projects average wholesale electricity prices of around USD 48/MWh in H2 2026, down 8% y-o-y.

In **Australia**, average wholesale prices in the National Energy Market (NEM) fell by 30% y-o-y in H1 2026, to USD 47/MWh. The market continued to be shaped by strong renewable output and rapidly expanding battery storage. Installation of new battery capacity contributed to a tripling of daytime-to-evening energy shifting in Q1 2026, which in turn helped mitigate price surges by reducing the amount of expensive gas and coal generation used during these hours. Futures for H2 2026 indicate a price decline of about 5% compared to the same period last year.

In **India**, wholesale electricity prices declined by around 10% y-o-y in the first half of 2026, averaging USD 48/MWh. Largely insulated from spot LNG given the marginal role of imported gas in its power stack, the Middle East war did not have a visible effect on India’s spot prices. By contrast, the impact of the crisis on electricity markets across Southeast Asia were more pronounced.

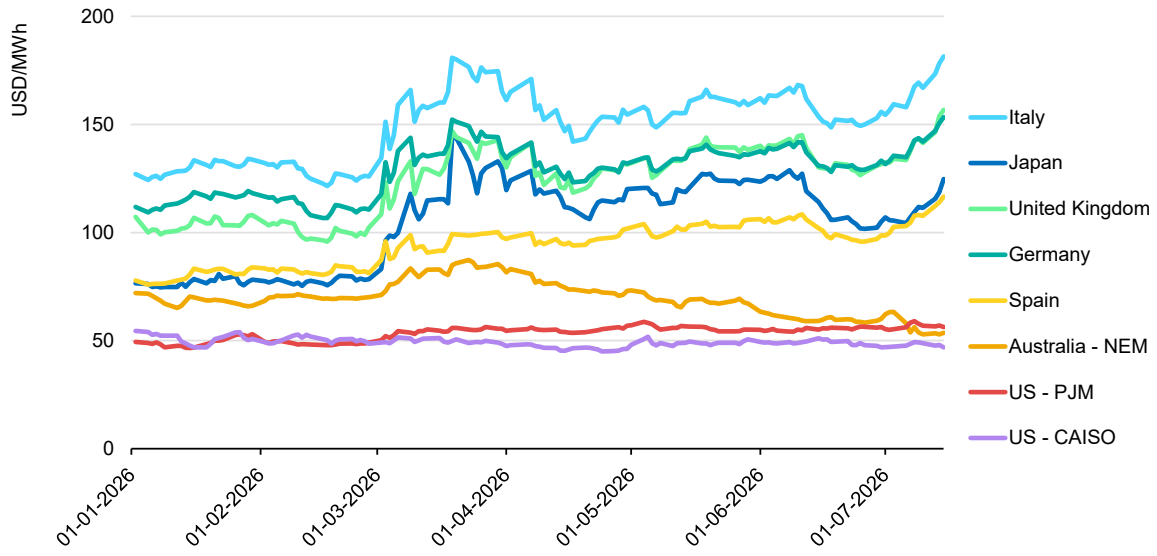
In **the Philippines**, noticeable events in H1 2026 included a temporary suspension of the Wholesale Electricity Spot Market (WESM) on 26 March as part of a series of emergency measures to address energy supply risks and price volatility following the outbreak of the war in the Middle East. Operations resumed on 1 May. In the meantime, an administered pricing mechanism was enforced, with priority dispatch given for renewables.

In **Singapore**, wholesale electricity prices are heavily correlated with variations in global gas prices, as imported natural gas represents 95% of the power mix. Three weeks after the start of the conflict, wholesale electricity prices had increased by around 20%, compared with their pre-conflict levels. However, similar to the Philippines, market price caps tend to limit the impact on end-consumers directly exposed to spot prices. The energy regulator of Singapore has warned that these increases are set to feed through retail tariffs with a lag, with a 17% rise in the regulated tariff announced for the July-September period.

Futures prices increased most in regions reliant on gas imports and gas-fired output

Electricity futures markets quickly reacted to the outbreak of the Middle East conflict, but the impact of higher global gas prices on power markets has varied significantly across regions. Two factors are particularly important: the extent to which domestic gas prices are affected by the price of LNG, and the share of hours during which gas-fired power plants set wholesale electricity prices. Markets exhibiting both characteristics have experienced the strongest price response. In Europe, Italy, Germany and the United Kingdom have seen significant increases in electricity futures prices, while in Asia, Japan has also recorded a pronounced surge. Futures prices reflect a range of factors, including seasonality and plant availability, but they provide a useful signal as they track the changes in expectations for average electricity prices over a future delivery period.

Daily evolution of electricity futures prices in selected markets for Q4 2026 delivery, 1 January-15 July 2026



Source: IEA analysis based on data from S&P Global Market Intelligence (2026). Reproduction of S&P Global Market Intelligence content is subject to licence restrictions, (Full disclaimer on copyright page).

In Japan, LNG prices rose by as much as USD 40/MWh$_{th}$ above pre-crisis levels in March, contributing to an increase of approximately USD 75/MWh in Q3 2026 electricity futures prices. A similar pattern was observed in Europe, where a roughly USD 30/MWh$_{th}$ rise in natural gas prices translated into higher power futures prices of almost USD 60/MWh in Italy, around USD 40/MWh in the United Kingdom, and about USD 30/MWh in Germany.

By contrast, markets such as Spain and Australia's NEM are also exposed to global gas prices, but the share of gas marginal hours is less, limiting spillover impacts on electricity prices. As a result, power futures rose by a more modest USD 10/MWh and USD 25/MWh, respectively, compared to pre-crisis levels.

Other regions have also been relatively unaffected from global gas markets and enjoy much cheaper domestic natural gas compared to imported LNG. For these markets, regardless of how often gas generation is setting the electricity market price, there has been no visible impact on electricity prices. This includes US markets PJM and CAISO.

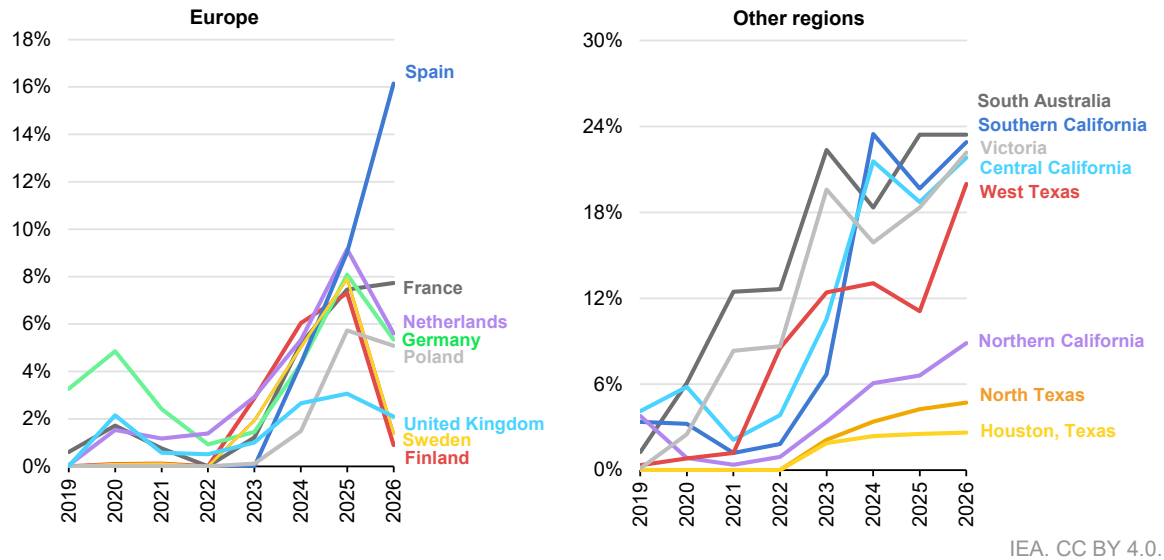
Negative electricity prices and high intraday spreads underscore need for increased flexibility

Major markets continued to exhibit a significant number of hours with negative wholesale electricity prices, which typically signal insufficient flexibility in the system due to technical, regulatory or contractual constraints. On 1 May, which is a public holiday in many countries across Europe, prices approached EUR -500/MWh in markets such as Belgium, Germany, France, the Netherlands, and Poland due to strong solar generation during a period with low electricity demand. Negative price occurrences reached record levels in Spain in H1 2026 amid strong renewables generation, when prices fell below zero in 17% of hours, compared with 10% in the same period last year. Negative prices also became more frequent in H1 2026 in France, rising from 6% to about 8% of the hours.

By contrast, negative prices in Finland and Sweden were much less frequent in H1 2026 at only around 1% of hours, with wholesale prices falling below zero, compared with 5-7% of hours in H1 2025. This decline may be attributed to lower filling levels at hydro reserves during the first half of the year providing upward pressure on prices, as well as structural changes, such as the launch of the joint Nordic automated balancing market in March 2025, which gave more incentives to VRE plants to adjust generation in response to market prices, including curtailing output during periods of very low or negative prices to limit imbalance costs. Investments in real-time control systems from VRE producers may also have contributed to reducing negative price occurrence, while flexible demand from electric boilers and growing battery deployment also played a role.

South Australia and Victoria in Australia's NEM continued to record the highest incidences of negative prices among the markets analysed, with wholesale prices below zero in more than 20% of hours during H1 2026. Despite this, the number of negatively priced hours in South Australia has remained flat compared to 2025, which can be attributed to the rapidly expanding installed battery capacity in the region.

Fraction of negative hourly wholesale electricity prices in selected regions in the first six months of the year, 2019-2026



Notes: Southern California corresponds to area SP15 in the state's zonal regions, Central California to area ZP26 and Northern California to area NP15. In Spain, negative electricity prices on the day-ahead market were permitted in December 2023 following the implementation of updated rules on the operation of electricity markets. For South Australia and Victoria, five-minute interval prices were converted to hourly averages to enable comparison.

Source: IEA (2026), Real-Time Electricity Tracker (data explorer).

At the same time, significant intraday price volatility was observed in a number of markets. In Europe, heatwaves in May and June contributed to very high price spreads within the days they occurred. On 24 June, for example, the price spread between midday lows and evening peaks reached as much as USD 600/MWh in several markets, including Belgium, Germany and the Netherlands.

In South Australia, several instances of prices exceeding AUD 5 000/MWh (Australian dollars) were observed in Q1 2026 during days under tight supply-demand conditions and network limitations.

In India, higher price volatility was observed in H1 2026, with more frequent near-zero prices instances in April and May compared to 2025, due to inflexible strong solar output during the day. At the same time prices surged during evening and night-time periods in May as a severe heatwave affected Northwest and Central India, increasing cooling demand. Prices hit the regulatory ceiling of INR 10 000/MWh (Indian rupees; USD 105/MWh) several times.

These developments underscore the increasing value of flexibility in power systems. Technologies such as battery storage, demand response and other flexible resources can shift generation and consumption across hours, and capture value from widening intraday price spreads. By doing so, they can reduce curtailment of renewables and support system reliability as the share of variable renewable generation continues to expand.

General annex

Summary tables

Regional breakdown of net electricity demand, 2024-2027

TWh	2024	2025	2026	2027	Growth rate 2024-2025	Growth rate 2025-2026	Growth rate 2026-2027
Africa	773	799	843	880	3.4%	5.5%	4.4%
Americas	6 334	6 494	6 612	6 799	2.5%	1.8%	2.8%
of which United States	4 205	4 315	4 392	4 523	2.6%	1.8%	3.0%
Asia Pacific	14 543	15 118	15 881	16 651	4.0%	5.0%	4.8%
of which China	9 288	9 772	10 310	10 863	5.2%	5.5%	5.4%
Eurasia	1 316	1 314	1 349	1 378	-0.2%	2.7%	2.1%
Europe	3 487	3 524	3 584	3 635	1.1%	1.7%	1.4%
of which European Union	2 495	2 520	2 574	2 608	1.0%	2.1%	1.3%
Middle East	1 287	1 333	1 338	1 393	3.6%	0.3%	4.1%
World	**27 739**	**28 583**	**29 606**	**30 737**	**3.0%**	**3.6%**	**3.8%**

Notes: Data for 2025 are preliminary; 2026-2027 are forecasts. Differences in totals are due to rounding. Summary tables include values for net electricity demand, excluding own use in the power sector. Any differences with previous editions in historical data and forecasts are due to this change in definition, in addition to normal updated revisions.

Breakdown of global electricity supply, 2024-2027

TWh	2024	2025	2026	2027	Growth rate 2024-2025	Growth rate 2025-2026	Growth rate 2026-2027
Nuclear	2 821	2 855	2 871	3 003	1.2%	0.6%	4.6%
Coal	10 870	10 823	10 974	10 893	-0.4%	1.4%	-0.7%
Gas	6 897	6 962	6 976	7 078	0.9%	0.2%	1.5%
Other non-renewables	885	866	865	802	-2.2%	-0.1%	-7.3%
Total renewables	9 900	10 720	11 627	12 731	8.3%	8.5%	9.5%

Notes: Data for 2025 are preliminary; 2026-2027 are forecasts. Differences in totals are due to rounding. Generation numbers refer to gross generation.

Global CO_2 emissions from power generation, 2024-2027

Mt CO_2	2024	2025	2026	2027	Growth rate 2024-2025	Growth rate 2025-2026	Growth rate 2026-2027
Total emissions	14 087	14 052	14 209	14 140	-0.3%	1.1%	-0.5%

Regional and country groupings

Africa – Algeria, Angola, Benin, Botswana, Cameroon, Congo, Democratic Republic of the Congo, Côte d'Ivoire, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Libya, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Senegal, South Africa, South Sudan, Sudan, United Republic of Tanzania, Togo, Tunisia, Zambia, Zimbabwe and other African countries and territories.[1]

Asia – Bangladesh, Brunei Darussalam, Cambodia, Chinese Taipei, India, Indonesia, Japan, Korea, Democratic People's Republic of Korea, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, People's Republic of China,[2] Philippines, Singapore, Sri Lanka, Thailand, Viet Nam and other Asian countries, territories and economies.[3]

Asia Pacific – Australia, Bangladesh, Brunei Darussalam, Cambodia, Chinese Taipei, India, Indonesia, Japan, Korea, Democratic People's Republic of Korea, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, People's Republic of China,[2] Philippines, Singapore, Sri Lanka, Thailand, Viet Nam and other Asian countries, territories and economies.[4]

Central and South America – Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Curaçao, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay, Venezuela and other Latin American countries and territories.[5]

Eurasia – Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan and Uzbekistan.

Europe – Albania, Austria, Belgium, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus,[6,7] Czech Republic, Denmark, Estonia, Finland, France, Germany, Gibraltar, Greece, Hungary, Iceland, Ireland, Italy, Kosovo[8] Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Republic of Türkiye, Ukraine and the United Kingdom.

European Union – Austria, Belgium, Bulgaria, Croatia, Cyprus,[6,7] Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain and Sweden.

Middle East – Bahrain, Islamic Republic of Iran, Iraq, Israel[9], Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, the United Arab Emirates and Yemen.

Nordics – Denmark, Finland, Norway, Sweden

North Africa – Algeria, Egypt, Libya, Morocco and Tunisia.

North America – Canada, Mexico and the United States.

Southeast Asia – Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam. These countries are all members of the Association of Southeast Asian Nations (ASEAN).

Advanced economies – OECD member nations, plus Bulgaria, Croatia, Cyprus, Malta and Romania.

Emerging markets and developing economies – All other countries not included in the advanced economies regional grouping.

[1] Individual data are not available and are estimated in aggregate for: Burkina Faso, Burundi, Cape Verde, Central African Republic, Chad, Comoros, Djibouti, Gambia, Guinea, Guinea-Bissau, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Reunion, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, Somalia, Eswatini and Uganda.
[2] Including Hong Kong.
[3] Individual data are not available and are estimated in aggregate for: Afghanistan, Bhutan, Macau (China), Maldives and Timor-Leste.
[4] Individual data are not available and are estimated in aggregate for: Afghanistan, Bhutan, Cook Islands, Fiji, French Polynesia, Kiribati, Macau (China), Maldives, New Caledonia, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga and Vanuatu.
[5] Individual data are not available and are estimated in aggregate for: Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Falkland Islands (Malvinas), Grenada, Guyana, Montserrat, Saba, Saint Eustatius, Saint Kitts and Nevis, Saint Lucia, Saint Pierre and Miquelon, Saint Vincent and the Grenadines, Sint Maarten, and the Turks and Caicos Islands.
[6] Note by Türkiye: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Türkiye shall preserve its position concerning the "Cyprus issue".
[7] Note by all the European Union member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.
[8] The designation is without prejudice to positions on status and is in line with the United Nations Security Council Resolution 1244/99 and the Advisory Opinion of the International Court of Justice on Kosovo's declaration of Independence.
[9] The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD and/or the IEA is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Abbreviations and acronyms

AC	air conditioning
AEMO	Australian Energy Market Operator
AI	artificial intelligence
AUD	Australian dollar
CAGR	compound annual growth rates
ERCOT	Electric Reliability Council of Texas
EU	European Union
EV	electric vehicle
GDP	gross domestic product
IEA	International Energy Agency
IMF	International Monetary Fund
INR	Indian rupees
MISO	Midcontinent Independent System Operator
NEVs	new energy vehicles
PV	photovoltaic
RES	renewable energy sources
TTF	Title Transfer Facility
USD	United States dollar
VRE	variable renewable energy

Units of measure

g CO_2	gramme of carbon dioxide
g CO_2/kWh	gramme of carbon dioxide per kilowatt hours
GW	gigawatt
GWh	gigawatt hour
kWh	kilowatt hour
MWh	megawatt hour
Mt CO_2	million tonnes of carbon dioxide
GW	gigawatt
T CO_2	tonne of CO_2
TWh	terawatt hour

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