State of Energy Policy 2026

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Executive summary

Governments are navigating a sustained period of risks and disruptions

In recent years, energy has been elevated to a core issue of national and economic security. Global supply chain disruptions after the Covid-19 pandemic, Russia's full-scale invasion of Ukraine, trade restrictions on key products including critical minerals, several years of extreme heat affecting energy systems and conflicts affecting major energy suppliers have unfolded in successive waves over the past five years. These events have brought long-standing energy security concerns back into sharp focus while exposing new vulnerabilities. They also highlight energy's central role in geopolitics, with recent shocks driving an exceptionally active period of energy policy-making across both conventional and emerging dimensions of security, reminiscent of the wide-ranging and extensive policy responses to the oil crises of the 1970s.

While no single narrative defines the shifts seen in 2025 in energy policy, the cost of living, competitiveness and resilient supply chains emerged as central themes alongside long-standing policy priorities relating to energy security, efficiency and sustainability. S*tate of Energy Policy 2026* draws on the IEA's Global Energy Policies Hub, which tracks more than 6 500 measures across 84 countries and more than 200 policy types, highlighting where recent policy changes represent a major shift from longer-term policy trends.

Foundations laid since the 1970s have strengthened the world's ability to respond to energy supply shocks, though no country remains shielded from such risks

Emergency measures to manage oil and natural gas supply disruptions are now legally in place in 60 countries. Since the 1970s, IEA members have been required to hold emergency oil reserves. Today, countries accounting for 95% of global oil imports have adopted stockholding and emergency response legislation, with requirements varying from 16 to 90 days of net imports. More recently, natural gas stockholding requirements have expanded, with gas storage requirements and strategic buffers adopted in close to 30 countries since Russia's invasion of Ukraine in 2022. Such measures are now in place in importing countries accounting for more than 40% of natural gas imports, compared with 11% in 2010. Disruptions resulting from the conflict in the Middle East have prompted the use of these emergency measures, including the collective action decision of 11 March 2026, which made 400 million barrels of oil from IEA emergency reserves available to the market. The current disruption has also triggered announcements of new and strengthened emergency storage capacity, notably in Indonesia and Viet Nam, as well as exceptional demand-restraint measures, including energy conservation campaigns, work-from-home policies and fuel rationing.

Decades of policy efforts have diversified countries' energy mixes and suppliers and improved efficiency. Fuel diversification efforts, also rooted in the energy crises, are now present in 150 countries, up from fewer than 20 in the 1970s. As a result, major economies now have more diversified energy mixes and supplier bases, reflecting increased deployment of renewables, nuclear power, fuel-switching policies, efficiency standards and performance regulations. Since the first energy efficiency regulation in 1975, more than 130 countries have adopted minimum energy performance standards, with more than 80% of global energy demand for cooling and industrial motors now covered by some form of efficiency standard.

Governments are also taking steps to address emerging risks in energy supply chains

The market concentration of critical minerals and key energy technologies has emerged as a strategic vulnerability. Governments are taking steps to address concentration in energy technology manufacturing, particularly for solar panels, batteries and other clean energy technologies, where the largest supplier accounts for more than 70% of manufacturing capacity for many key components. Geopolitical frictions have heightened these risks. Eleven of the 20 critical minerals essential to the energy sector were subject to export controls at some point in 2025, and 45 new policies affecting trade in key clean energy technologies were implemented in addition to the broad-based tariff measures implemented by the United States in 2025. Supply chain disruption risks also extend to other energy equipment, including transformers, gas liquefaction technology and other power electronics, though policy responses in these areas have been more limited.

Governments have introduced manufacturing incentives and trade measures in an effort to diversify supplies of critical minerals and key energy technologies. In 2025, 35 new policies affecting critical minerals were adopted in 19 countries, focusing on financial support for production, refining or recycling. Even so, most countries still have considerable scope to enhance emergency preparedness, including through stockpiling. Only four countries currently maintain formal stockpiling requirements for energy-related equipment, and many others are exploring their introduction. Public investment in advanced clean technology manufacturing has increased more than ten-fold since 2021, making up roughly 12% of total investment in clean energy technology manufacturing facilities, equivalent to USD 24 billion.

Government spending on energy has doubled since 2019

Direct financial support for energy peaked during the previous energy crisis and remains at historically high levels. In 2025, energy-related provisions are estimated to reach USD 405 billion annually, representing 1.4% of total government expenditure in that year, up from 0.8% just a decade earlier. Some countries, including the United Kingdom, Germany and Japan, saw much higher shares, nearing 3% or more. Much of this growth was linked to policy

responses following the Covid-19 pandemic, when energy investment measures were expanded in many recovery packages. Several of those provisions were revised downward in 2025, including the repeal of some energy-related tax credits in the One Big Beautiful Bill Act in the United States, the scheduled end of funding linked to the European Recovery and Resilience Facility and the phased reduction of renewables subsidies in China. Together, these changes reduced anticipated annual government energy spending from 2025 to 2030 by one-quarter compared with 2024 expectations.

Government energy spending is set to remain elevated through 2030. Even before the outbreak of the current conflict in the Middle East, government energy spending was expected to remain above 2019 levels through to 2030. Since then, many governments have launched new emergency measures to manage the impacts on energy markets, often pushing 2026 spending above budget expectations. The IEA will continue to monitor policy responses and government affordability interventions, as it did during the 2022 energy crisis.

Governments face pressure to manage energy prices and industrial competitiveness while balancing fiscal constraints

Emergency energy affordability measures have added significant budgetary burdens and historically have not been targeted at the consumers most in need. Following the 2022 energy crisis, governments introduced emergency energy affordability support and disbursed around USD 220 billion to households between 2022 and 2023, roughly ten times pre-crisis annual support levels. Renewed energy price volatility linked to the conflict in the Middle East is prompting new measures. Only 25% of short-term interventions since 2022 have targeted vulnerable households most exposed to price shocks, increasing the strain on national accounts. Similarly, long-term investment incentives to reduce households' exposure to price volatility, particularly in road transport, have often lacked targeting. In 2025, only about one-quarter of incentives for efficient or alternative-fuel vehicles were targeted, in line with short-term measures.

Many governments have shifted to market-based support schemes, particularly for solar and wind, helping to reduce fiscal burdens. Since 2010, about 20 governments have moved away from administratively set pricing schemes towards more market-based mechanisms as the cost of wind and solar projects has continued to decline. Auctions and market-based support mechanisms are now expected to account for nearly 60% of gross capacity additions from 2025 to 2030, based on the current pipeline of projects. This shift has gradually decoupled government spending from investment growth. Between 2021 and 2025, government investment in power generation and transmission rose by 8% annually, while private sector investment grew 16% per year.

Developing economies are renewing efforts to expand energy access, but global shocks threaten progress

Following a period of setbacks, policy momentum on clean cooking and electricity access is building, particularly in Africa. Limited fiscal latitude and affordability pressures, compounded by disruptions during the Covid-19 era, slowed progress on energy access from 2020 to 2024. Political momentum has returned as energy access moved back to the forefront of the international agenda and has been supported by increased international finance flows. Governments have reinvigorated domestic efforts, with 56 new electricity access policies implemented or announced since the 2024 IEA Summit on Clean Cooking in Africa, alongside 64 new clean cooking initiatives. Sub-Saharan Africa accounts for the majority of this renewed activity, with countries home to 70% of African people living without electricity access and 90% of those without clean cooking adopting new energy access policies over the past year.

Disruptions arising from the conflict in the Middle East are threatening progress, especially for clean cooking. Following the closure of the Strait of Hormuz, liquefied petroleum gas import prices increased by an average of 80% in March 2026 in developing economies where it is widely used for cooking. This rise prompted many governments to take steps to stabilise prices, often straining public finances or the finances of local energy companies. Some countries have implemented emergency demand-restraint measures, increased domestic production, rationed non-essential uses of liquefied petroleum gas and encouraged fuel switching where possible.

Substantial regulatory reforms in 2025 have, on balance, relaxed current and future energy standards

While some countries have introduced more stringent efficiency standards, broader regulatory rollbacks, particularly in the United States, were the dominant force in 2025. Last year, regulatory rollbacks outweighed measures that increased stringency or coverage, with 30% of energy consumption under regulation experiencing some form of rollback, compared with 17% subject to new, stricter rules. The most significant changes occurred in passenger cars, driven primarily by the resetting of fuel economy standards in the United States, affecting roughly one-fifth of end-uses covered by minimum efficiency standards, and by delays to compliance timelines for new vehicle emissions standards in the European Union. Carbon pricing schemes were also revised, in part due to greater scrutiny of energy measures that could affect household bills and industrial competitiveness. The most significant shifts occurred in buildings and transport fuel pricing, through the elimination of consumer carbon prices in Canada, the delayed implementation of the European Union's Emissions Trading System 2 from 2027 to 2028 and evolving discussions on carbon border adjustment measures.

As a result, mandated energy efficiency improvements are expected to progress at a slower pace through to 2030. Global coverage and stringency of energy efficiency and fuel-switching policies are expected to rise by 30% over the next five years. Without the relaxed, delayed and rolled back regulations introduced in 2025,

energy efficiency stringency would have increased by 50%. While intended to ease short-term cost impacts, these changes could leave households and businesses more exposed to energy price swings in the future.

In aggregate, climate targets submitted in 2025 reflect a more moderate focus on emissions reductions in near-term energy policy

The latest climate pledges, in aggregate, do not imply an acceleration in mitigation in the energy sector by 2035 compared with previous commitments. Overall, policy shifts in 2025 have tempered the pace of future emissions reductions, even though climate objectives remain a stated priority in many countries. As of April 2026, 65 of the 194 parties to the Paris Agreement had yet to submit new nationally determined contributions (NDCs) setting mitigation goals for 2035. Among those that had submitted new NDCs, more than 80% set out targets implying similar or slower rates of decline in energy-related emissions than those envisaged in their earlier NDCs with 2030 targets. If the energy component of all NDCs were met, energy-related emissions would decline by 0.3% annually until 2035. These mitigation levels are broadly comparable with the IEA Stated Policies Scenario, which projects global energy-related emissions declining by 0.8% annually.

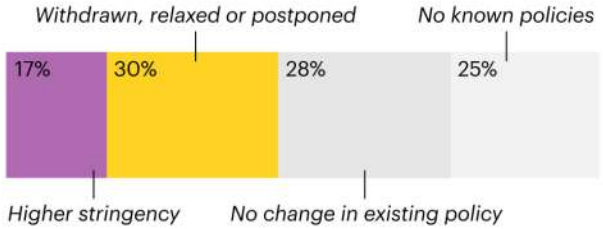
Like the 1970s, the current energy crisis may prompt a period of significant energy policy change

While most government responses as of April 2026 have focused on emergency measures, past shocks have often triggered more structural shifts in energy policy. Many countries are building on existing policy foundations to reduce long-term dependence on oil and gas imports, curb exposure to fossil fuel price volatility and accelerate the shift to low-emissions alternatives, alongside a near-term return to domestic coal in some jurisdictions. As of April 2026, 150 countries have active policies to advance renewable and nuclear deployment, 130 have energy efficiency and electrification policies, and 32 have policies to incentivise supply chain resilience and diversification across critical minerals and clean energy technologies. Unlike in the 1970s, the technological and policy foundations are now in place to enable faster and more substantial reductions in oil and gas consumption. Governments may also reinvigorate energy innovation for alternative fuels and greater efficiency, reversing the decline in spending on energy research and development since 2023. The IEA will continue to track policy responses to the current crisis, offering insight into how these evolving measures could reshape long-term energy trends and strengthen global energy security.

Overview

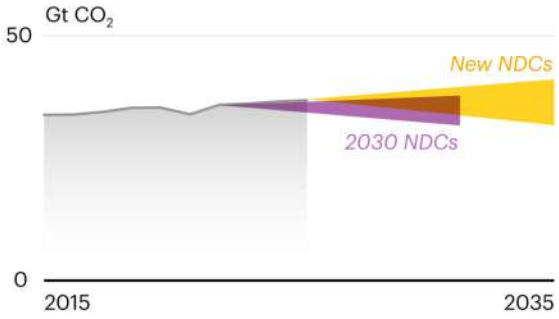
Delays and rollbacks in energy efficiency policies **outweighed increases in stringency**

Despite more stringent local standards, rollbacks affected close to one-third of the energy demand covered by these standards.



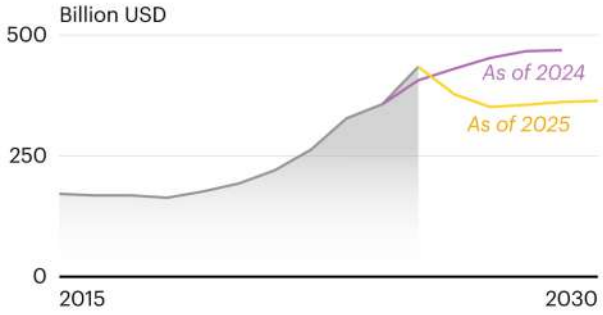
In aggregate, the latest NDCs **do not imply an acceleration** in energy sector mitigation

New NDCs were submitted by 134 countries, with mitigation objectives broadly comparable in ambition to the 2030 NDCs.



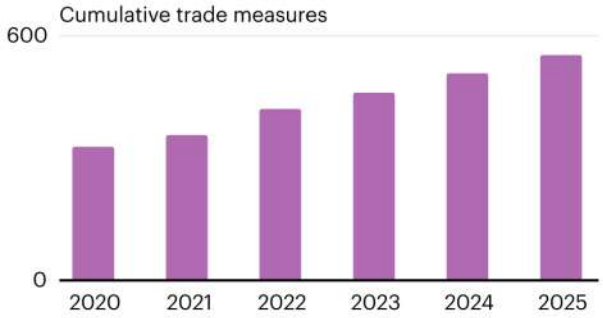
Government energy spending **is set to decline** but remains above historical levels

Initial budgets, excluding short-term interventions, are expected to decrease by about 15-20% in the next five years.



More countries introduced trade measures affecting energy-related equipment

In 2025, 45 new tariff and non-tariff measures specifically targeted energy-related components.



State of energy policy in 2025

Biofuel blending mandates ↗
+7 p.p. global coverage

Carbon pricing instruments: industry ↗
+43 p.p. global coverage

Critical mineral policies ↗
+35 new policies

Energy access policies (since 2024) ↗
+120 new policies

Government initial budgets ↗
+USD 83 billion

Government energy spending ↗
+USD 33 billion

Trade policies ↗
+45 new policies

Climate pledges →

Carbon pricing instruments: power →

Energy efficiency stringency indicator: air conditioners →

Flaring standards →

Oil and gas emergency measures →

Energy efficiency stringency indicator: industrial motors →

Energy efficiency stringency indicator: passenger cars ↘
-2.5 points

Feed-in tariffs ↘
-31 p.p. global coverage

p.p. = percentage points

Understanding the *State of Energy Policy 2026* report

State of Energy Policy 2026 provides an overview of the energy policy landscape in 2025, highlighting the key developments. It expands the coverage of the previous edition to include new indicators that show the evolution of policy across all energy sectors since 2015.

The report builds on an IEA-wide effort to track in detail the energy policies of its Member, Accession and Association countries, along with other major energy economies that drive global energy demand. It covers 84 countries, which together represent more than 90% of global energy demand and emissions. The report assesses policy progress across all demand sectors, namely buildings, industry, passenger cars, and mass and alternative transit, as well as power generation, fuel production and short-term energy affordability measures. All policy data used in the analysis are publicly available on the Global Energy Policies Hub, for which IEA officials review the policy entries for their respective countries each year. The Hub summarises more than 6 500 energy policies and provides a link to an official source for each.

This year's report expands its analytical coverage in several important ways. It broadens its examination of energy security policies to the period 1973-2025, along with incentive schemes and trade measures introduced for emerging technologies and commodities. It also introduces the first-ever tracking of government energy spending disbursements against budgeted provisions, using official budget documents. In addition, it provides in-depth analysis of how energy efficiency standards have evolved in both coverage and stringency since their initial implementation, benchmarking current standards against the best available technologies.

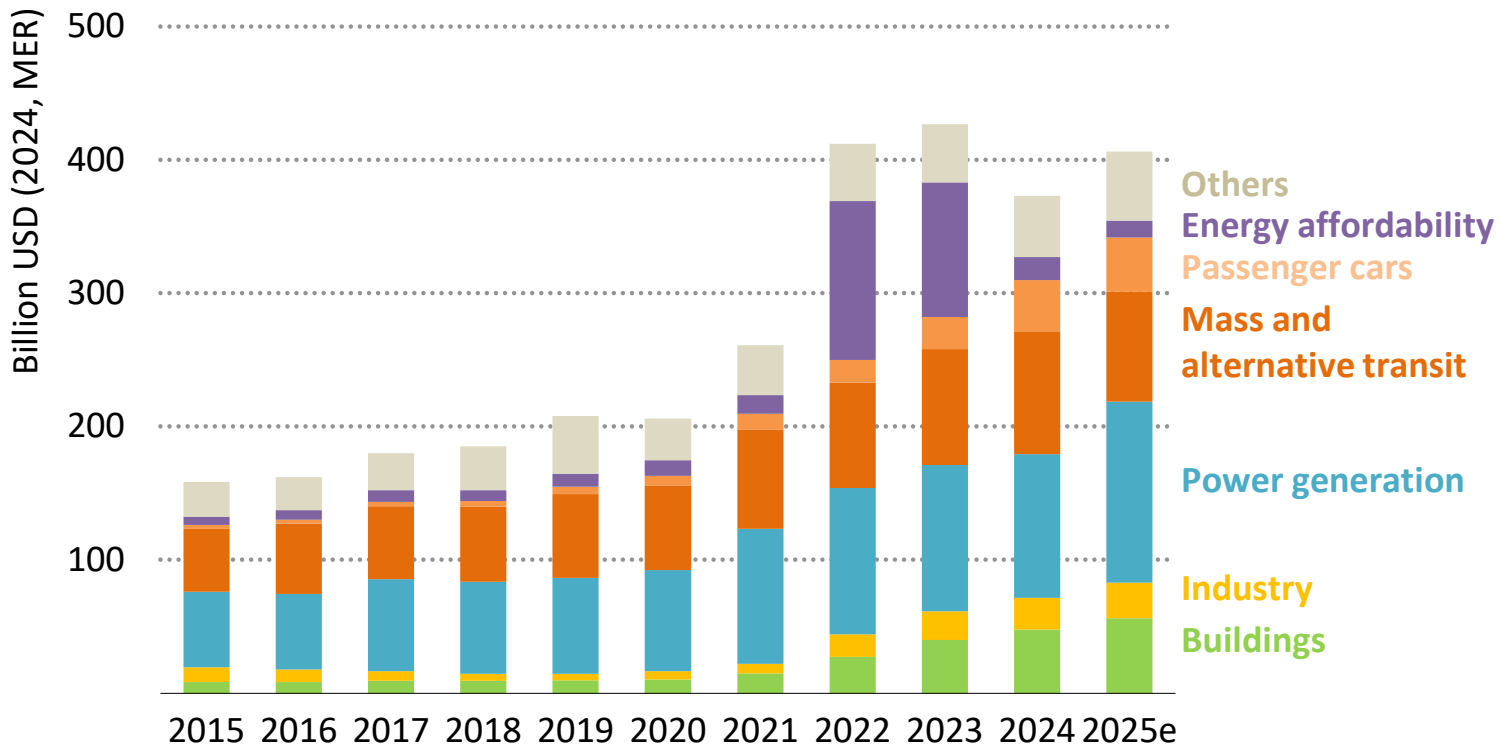
This year's edition includes:

- **An overview of the state of energy policy in 2025**, with a special focus on government spending, energy efficiency regulations, and the contribution of the energy sector to nationally determined contributions and long-term net zero pledges.
- **A spotlight on traditional and emerging energy security policies**, covering oil, natural gas, critical minerals and clean energy technologies, including heat pumps, electrolysers, batteries, and wind and solar technologies.
- **A focus on energy access**, including roadmaps, incentives, programmes and standards to support universal access to clean cooking and electricity globally, with a special focus on sub-Saharan Africa.
- **Energy sector snapshots**, with concise information by sector on the key policy evolutions in 2025.

Government energy spending

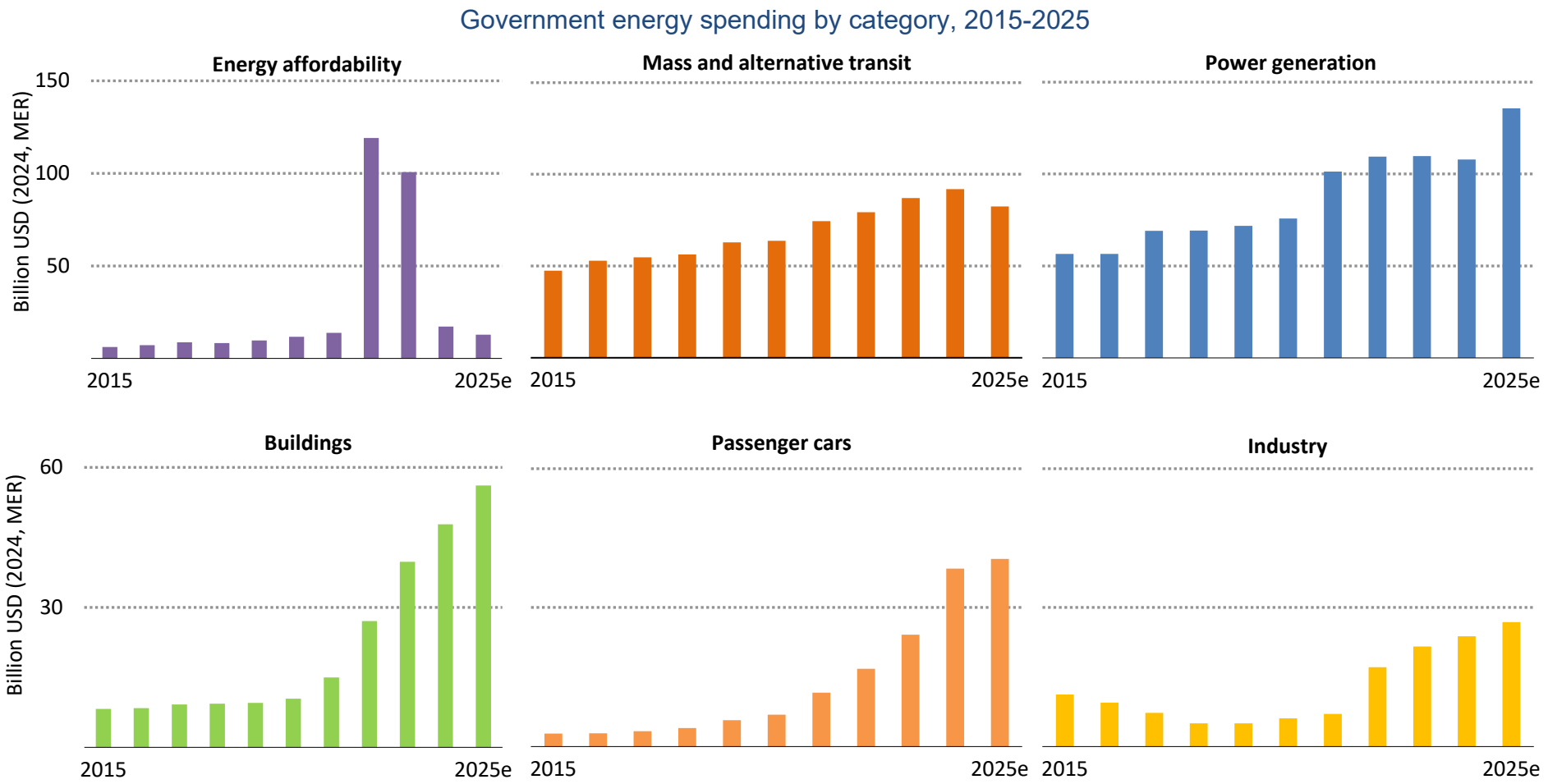
Government energy spending has climbed sharply over the past five years

Government energy spending by category, 2015-2025



Notes: MER = market exchange rate. Other government energy spending includes fossil and low-emissions fuel production and innovation funds. Further information on the content of each sector can be found in the Annex.

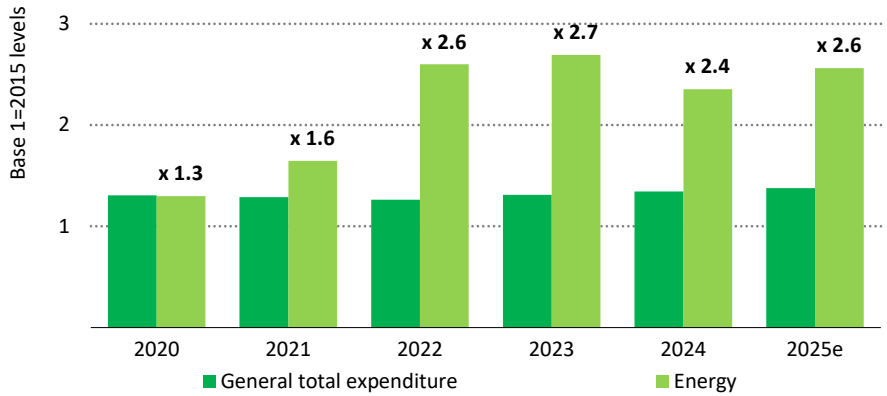
Spending is higher across all categories relative to 2015 levels



Government energy spending declined as affordability measures were rolled back after 2022 crisis, though investment support continues above historical levels

The energy sector has historically accounted for a relatively small share of government budgets, averaging around 1% in most countries. Over the past six years, however, government spending on energy has more than doubled compared with 2019 levels, reaching around 1.4% of total direct government expenditure in 2025. Levels have varied by country, with some reaching up to 5% of general expenditure. Although spending fell from its peak in 2023, disbursements in 2024 and 2025 remained significantly higher than in the 2010s, reaching respectively around USD 370 billion and USD 405 billion. Other economic sectors saw more modest growth: spending on areas such as health and social protection rose broadly in line with general total expenditure, by around 1.4 times over the same period, compared with more than doubling for energy.

Trends in total and energy-related government spending against 2015 levels



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Source: IEA analysis based on data from the International Monetary Fund (2025).

Energy provisions in national plans following the Covid-19 pandemic played a fundamental role in this growth, including the United States' Inflation Reduction Act, the European Union's Recovery and Resilience Facility and Japan's Green Transformation Policy. Since 2020, governments have earmarked close to USD 2 trillion to support clean energy transitions in the coming years. As of 2025, USD 1.6 trillion has been disbursed under these recovery packages.

The largest share of government spending on energy has flowed to power generation and grid infrastructure, more than doubling since 2015 and reaching USD 135 billion in 2025. Recent years, however, have seen declines in spending locally, largely driven by shifts towards market-based mechanisms, with more than ten countries launching capacity auctions for solar PV and wind over the past five years. Notably, China reduced its renewables subsidies and phased out feed-in tariffs for new projects in 2025. Similarly, Germany's corresponding budget position was paused in 2022 and 2023 due to high electricity prices, and the United States enacted legislation in July 2025 to end its solar and wind tax credits for new projects starting in 2026. In contrast, the United Kingdom allocated an all-time high amount to the Low Carbon Contracts Company, managing the contracts-for-difference in the country, with USD 56 billion in 2025 alone.

Since 2015, government spending in the buildings sector has grown sixfold to reach USD 56 billion in 2025, largely directed towards energy

efficiency retrofits and space heating electrification. Key programmes include Italy's Superbonus (USD 24 billion since 2021), the United States' tax credits for residential energy efficiency property (USD 39 billion since 2015), Germany's building efficiency and renewable energy programme (USD 56 billion since 2021) and China's trade-in programme for appliances (USD 12.9 billion in 2025).

Support for low-emissions passenger cars increased 15-fold within a decade, reaching USD 40 billion in 2025. The largest disbursements in 2025 came from China's trade-in programme (USD 21 billion) and purchase tax credit (USD 2 billion), France's ecological bonus (USD 1.5 billion) and the United States' clean vehicle tax credit (USD 9.5 billion) and refuelling property tax credit (USD 360 million).

Spending on industrial programmes, including provisions for energy technologies and critical mineral mining, rose from around USD 11 billion in 2015 to USD 26 billion in 2025. China led global expenditure from 2015 to 2021, averaging USD 4.8 billion annually for mining. Japan's Green Transformation programme for critical material and battery supply chain resilience totalled USD 25 billion from 2022 to 2025, while the United States introduced advanced manufacturing investment and production tax credits amounting to USD 9.4 billion since 2022. In July 2025, India launched the Assistance in Deploying Energy Efficient Technologies in Industries and Establishments programme to accelerate industrial energy efficiency through subventions, with an initial budget of around USD 120 million.

Finally, spending on mass and alternative transit programmes remained significant, rising to USD 82 billion in 2025 from USD 47 billion in 2015. Major programmes included China's Railway Construction Design (USD 110 billion since 2015), the United Kingdom's High Speed Two (about USD 60 billion since 2015) and the United States' Transit Formula Grants for urban public transport (USD 114 billion since 2015).

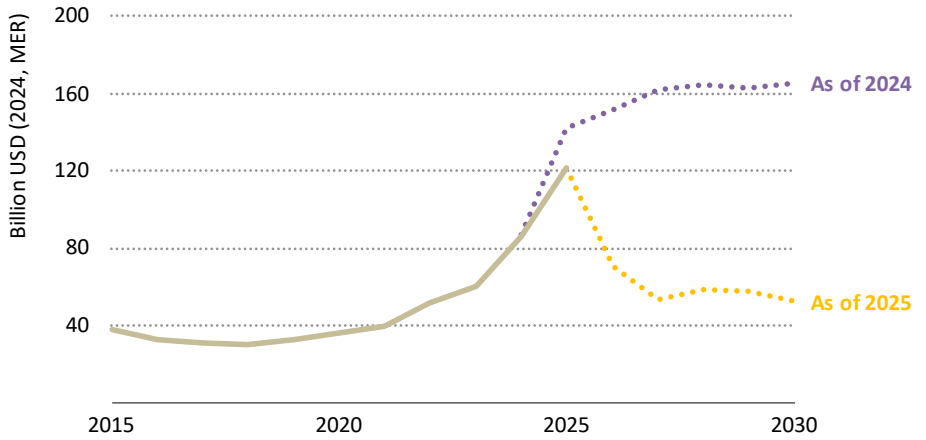
Short-term affordability measures played a key role in the surge in government energy expenditure in response to the 2022 energy crisis. The highest spending on energy affordability measures was in the United Kingdom, at a cumulative USD 61 billion in 2022 and 2023, followed by Germany (USD 46 billion) and Japan (USD 45 billion). These measures, mainly short-term consumer subsidies to help offset high oil, electricity and gas prices, accounted for 20-30% of government energy spending in 2022 (USD 119 billion) and 2023 (USD 101 billion).

Overall, budget revisions in 2025 reduced projected energy spending through the end of the decade by an average of USD 110 billion annually, compared with earlier plans. Despite this, total allocations remain more than double their levels at the end of the last decade, with most countries still maintaining higher energy spending and some even increasing it further.

Several high-profile policy changes drove this shift. In the United States, the One Big Beautiful Bill Act repealed or curtailed most tax credits introduced under the Inflation Reduction Act and the Infrastructure Investment and Jobs Act. It also introduced restrictions on foreign entities related to components and financing, lowering projected annual spending from USD 165 billion to USD 50 billion through 2030. In Europe, the European Union's Recovery and

Resilience Facility green transition pillar, which is due to provide roughly USD 85 billion in grants and loans for energy efficiency, low-emissions vehicles and power generation until 2026, is set to expire. National programmes were also scaled back: China shifted renewable energy support towards competitive auctions for new projects, reducing the budget by almost USD 10 billion, alongside cuts to government funding for railway construction (from USD 16 billion to USD 10 billion). Italy's Superbonus for building retrofits was reduced from a 110% tax deduction to 65% in 2025 and will end in 2026.

Initial energy-related budget allocation in the United States, 2015-2030



However, not all countries followed this trend. In 2025, India increased its initial solar budget to USD 2.5 billion and raised urban transit and metro spending to USD 4 billion, while Japan allocated around USD 585 million in 2025 alone to next-generation nuclear technology development. The United Kingdom increased its total initial budget to a record USD 97 billion in 2025, although last spending estimates in Spring 2026 are significantly lower, with a 30% decrease in allocation for the LCCC, responsible for contracts-for-difference in the country, and a reduced number of contracts being signed for green hydrogen.

As with Covid-19 and the 2022 energy crisis, several governments have adopted emergency measures to manage price spikes and scarcity following the conflict in the Middle East as of April 2026, likely raising spending above 2025 budget expectations. The IEA will continue to monitor policy responses and affordability interventions as it did during the 2022 energy crisis.

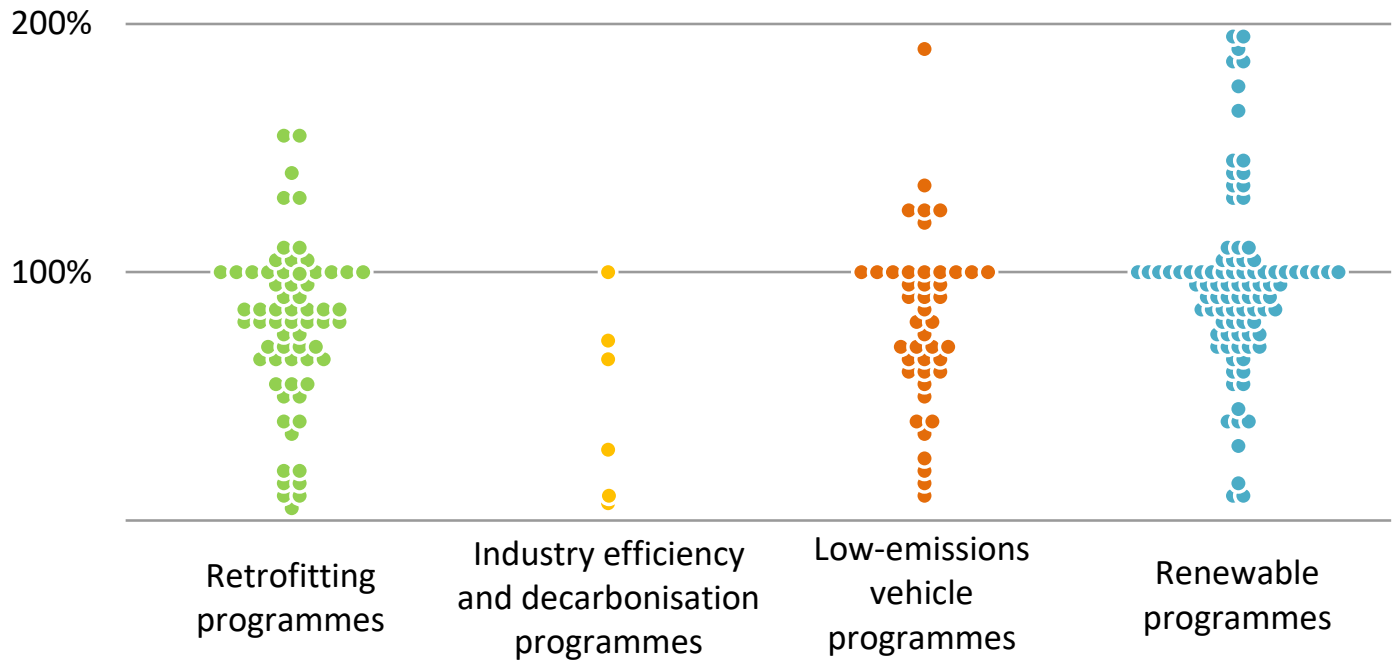
Government spending methodology and differences from *State of Energy Policy 2024*

The main methodological enhancement in this edition of *State of Energy Policy* relates to government spending data. Since April 2020, the IEA has monitored government spending allocations to energy through its Government Energy Spending Tracker (formerly the Sustainable Recovery Tracker), which assesses the impact of sustainable recovery policies enacted by governments in response to the Covid-19 pandemic and the energy crisis. In 2022, the Agency expanded the scope of the tracker to include measures aimed at cushioning domestic consumers from the impact of the global energy price crisis. The scope of the tracker included total fiscal support following the Covid-19 pandemic and the energy crisis, e.g. to offset company revenue losses or electricity price rises for customers; economic recovery spending, including expenditure on large infrastructure, such as roads; and direct government support for clean energy technologies. The data collection focused on official government announcements of forward-looking funds, initially set out in recovery plans and budget laws.

This year's analysis captures more detail than the previous edition. In addition to tracking forward-looking funds, it tracks actual disbursements across national and federal energy programmes and compares these with the initial budget allocations. The analysis provides a detailed account of federal government budgets and the annual reports of energy ministries and agencies, capturing both initial budgets for the upcoming fiscal year and estimated disbursements for the previous year. More than 20 000 budget lines were compiled from ten countries, representing two-thirds of global government expenditure. The dataset now extends beyond 2020 and provides a 10-year time series for all ten countries. In addition, the analysis has expanded beyond clean energy technologies to include public stockholding of oil, gas and coal in its fuel sector estimates. General and critical mineral and mining funds are also included in the industry support values. The scope is restricted to public investment, grant schemes and tax credits and excludes financing for general maintenance and general infrastructure, such as roads, as this is only loosely linked to the energy sector. Further details on the methodology and sources are listed in the Annex.

Industry programmes have historically underspent, while disbursements have been higher for buildings, renewables and vehicle incentives

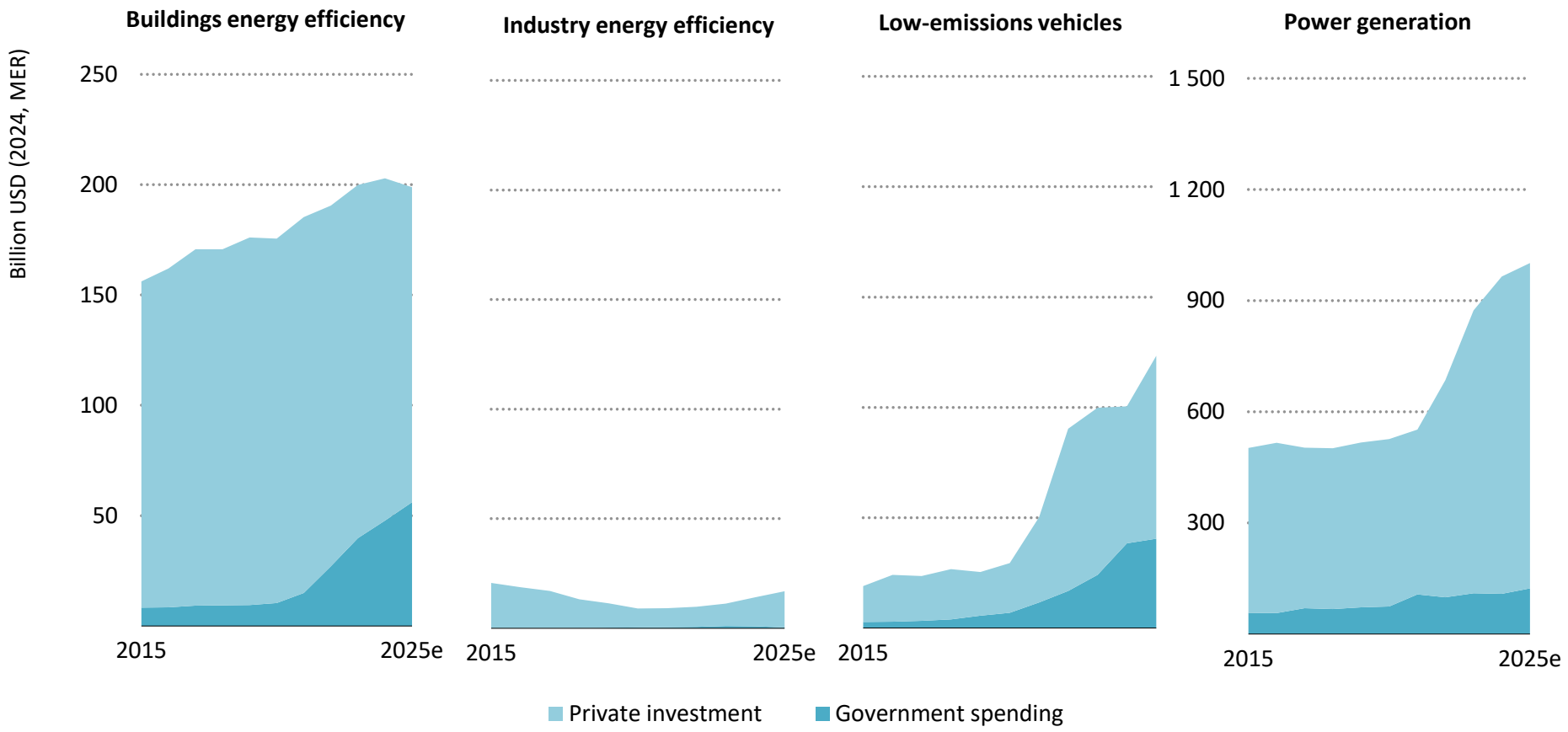
Government energy spending disbursements relative to the initial budget level per selected programme, 2015-2025



Notes: The graph only displays programmes with disbursements higher than USD 500 million (or for renewable programmes, USD 1 billion). Disbursement levels are rounded to 5%, and programmes that run over multiple years are represented for each year individually.

Government spending has influenced energy investment trends, although in some sectors market dynamics and other policies have been more consequential

Government spending and private energy investment for selected regions by sector, 2015-2025



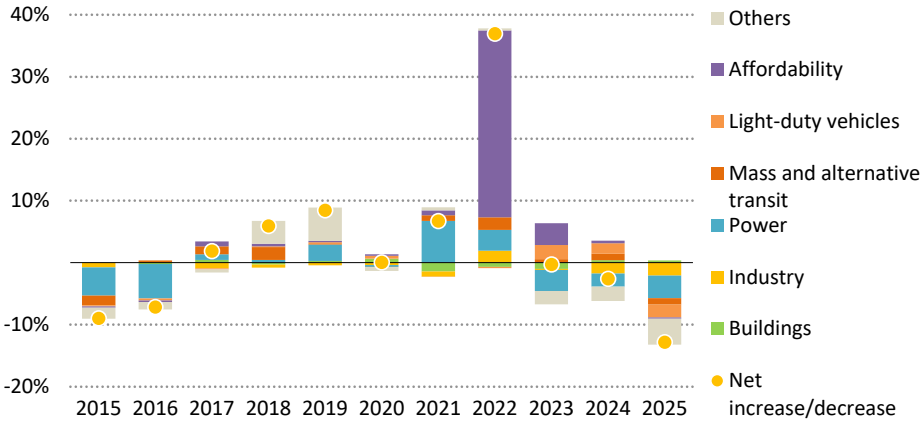
Note: Private investment figures focus on the same subset of regions as government spending to ensure comparability.

The impact of government spending on investment largely depends on programme design and the broader policy context

Government spending has played an undeniable role in the rise of global energy investment across all sectors. The IEA's World Energy Investment series tracks annual energy investment by sector and region. Global energy investment rose from around USD 2.5 trillion in 2019 to an estimated USD 3.3 trillion in 2025, strongly aligning with the surge in government spending directed towards energy investment. However, the relationship between spending and actual investment is complex, influenced by market dynamics, technology trends, consumer preferences and investor appetite. Energy efficiency investment in the buildings, industry and transport sectors is closely tied to government support. For example, recent incentives for electric vehicle purchases have closely tracked rising electric vehicle sales in many markets. Conversely, in the power sector, a shift towards more market-based support in view of declining costs for solar and wind technologies has helped decouple government spending from capacity growth over the past four years. This partly explains why investment in low-emissions power generation has continued to rise even as government spending has stabilised.

Policy design is a key determinant of how effectively government spending achieves its intended outcomes. Comparing disbursements with initial budgets can provide insights into how programmes are designed and help governments calibrate eligibility and targeting requirements. Since 2015, governments have, on average, exceeded planned energy budgets by 8% annually. About half of this overspend was due to emergency affordability support measures introduced during the 2022 energy crisis to support end users with electricity, fuel and gas bills, while underspending in other sectors has gradually increased in recent years.

Disbursement levels against initial budgets, 2015-2025

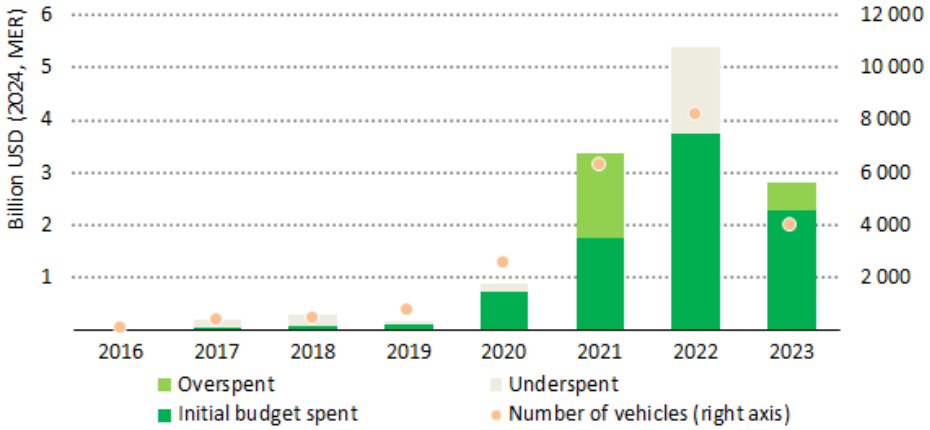


Gaps between planned and actual spending often reflect how programmes are designed and whether enough projects come forward that meet the eligibility criteria. This has been particularly true for industry energy efficiency and decarbonisation initiatives in recent years, where disbursements have generally lagged well behind initial budgets, with only around 30% of allocated funds spent in aggregate.

In Germany, for instance, around USD 4.4 billion has been allocated since 2022 for industrial decarbonisation through the Decarbonisation of the Industry sub-programme under the Climate and Transformation Fund, but only around USD 100 million has been disbursed so far. Similarly, a programme supporting hydrogen use in industrial production under the European Union's Important Projects of Common European Interest framework has spent only half of its original budget.

Consumer-facing subsidies are also often difficult to gauge, as uptake depends on how households respond to programme design and timing. Germany's Environmental Bonus, subsidies for electric vehicle purchases, surged just before the introduction of more stringent application requirements and then rose again immediately before the programme ended unexpectedly in December 2023, leading to USD 540 million in overspending. In France, the budget for MaPrimeRénov' was increased in line with previous demand growth, but the number of renovations fell following structural revisions to the programme in 2023, resulting in only 45% of the initial budget being spent in 2024. In practice, the number of renovations supported by the scheme has tended to track actual spending more closely than the initial budget allocation.

Initial budget and disbursements for Germany's Environmental Bonus, 2016-2023

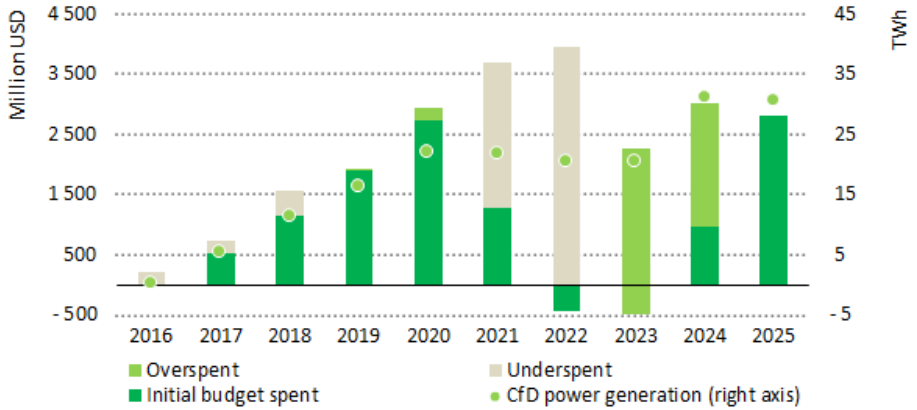


Source: IEA based on data from the Federal Office for Economic Affairs and Export Control (2024).

Some underspending reflects the inherent uncertainty of mechanisms without fixed caps, where costs depend on market conditions. For example, government-backed contracts for difference pay out based on wholesale prices: when electricity prices are high, government outlays fall. In the United Kingdom, payments through the Low Carbon Contracts Company fluctuated from a peak of USD 2.9 billion in 2020 to negative payments, i.e. net revenue of USD 440 million in 2022, well below the roughly USD 4 billion in net spending initially expected. Since 2020, however, renewable electricity generation supported under this framework has been largely unaffected by these fluctuations, following a general upward trend before stabilising during the energy crisis. Tax credits for

manufacturing, exploration or new asset construction show similar patterns, as total costs depend on market uptake and investment activity rather than predetermined spending limits.

Initial budgets and disbursements for contracts for difference in the United Kingdom, 2016-2025

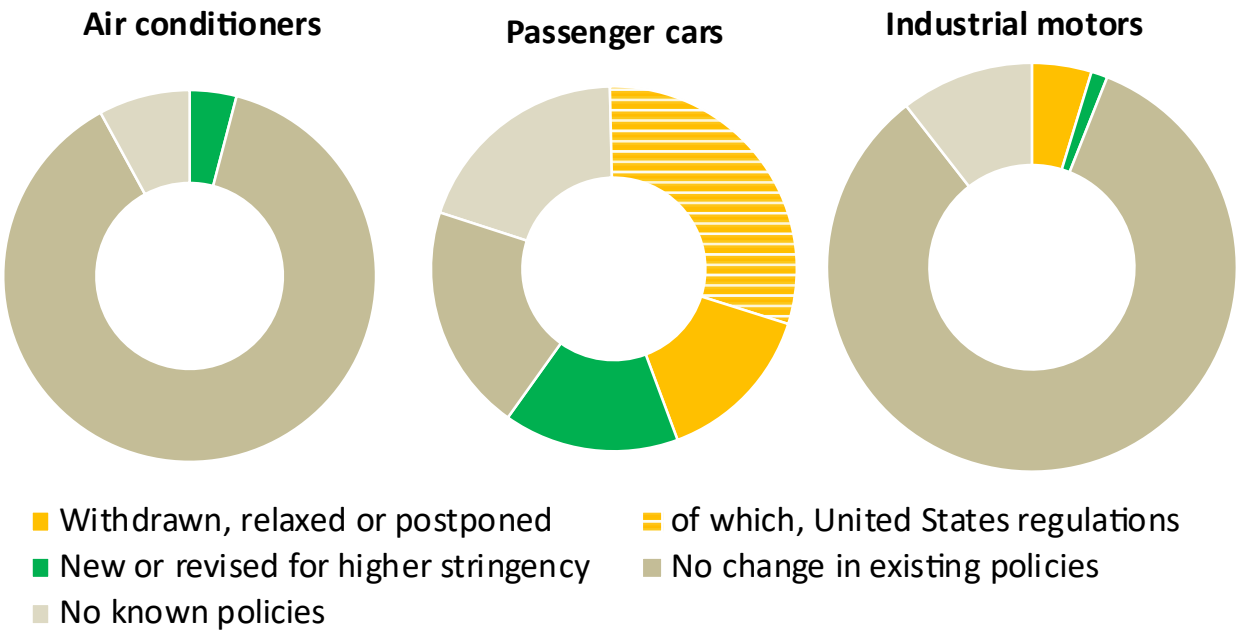


Notes: CfD = contract for difference. Initial payments are based on the historical advanced two-year forecast of the Low Carbon Contracts Company made in March of the previous year. In 2023, the initial expectation was a net revenue, while the actual outcome meant a net outlay.
Source: IEA based on data from Low Carbon Contracts Company (2025).

Energy efficiency and fuel switching regulation

Energy efficiency and fuel switching standards were relaxed overall in 2025, most notably for passenger cars in the United States

Share of energy demand covered by a minimum energy performance standard by policy status, 2025

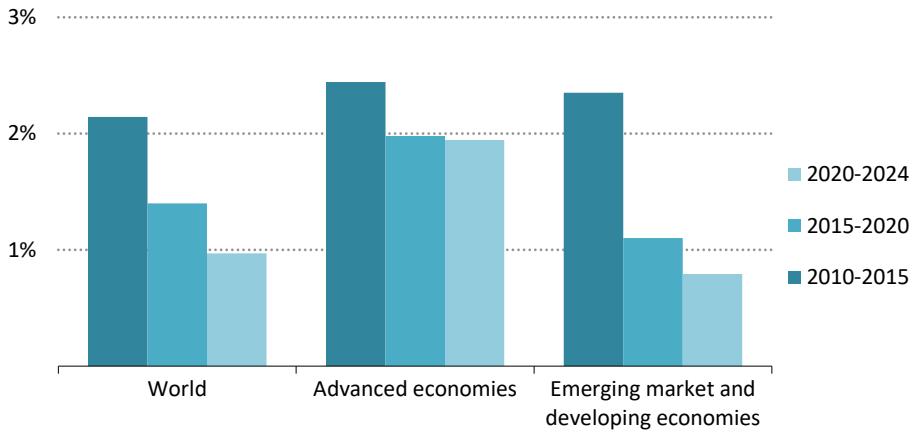


Note: The policy status of air conditioners, passenger cars and industrial motors are weighted by their respective energy demand.

More than 130 countries have energy efficiency or fuel switching regulations in place, but some were revised, delayed or withdrawn in 2025

Energy use has become more efficient around the world since 2000. Global energy intensity has improved by around 30% over the past 25 years, meaning the world uses about 30% less energy per unit of economic output today than it did in 2000, with differentiated trends by key end uses: passenger cars and air conditioners have notably seen efficiency improvements for new sales of 30% and 45%, respectively since 2005. However, the pace of improvement has slowed over the past 15 years, from an annual rate of about 2.2% in the early 2010s to about 1% in 2024, alongside a general slowdown in industrial value-added growth.

Average annual change in energy intensity by region, 2010-2024



Minimum energy performance standards (MEPS) and fuel switching policies play an important role in improving energy efficiency by providing long time horizons for industry to develop and produce increasingly efficient new appliances and technologies. The first MEPS were enacted in 1975 in the United States and in 1979 in Japan as an immediate response to the oil crises of the 1970s, and in 1978 in the European Economic Community for water and space heaters. By 2025, more than 130 countries had at least one energy efficiency standard in place. *State of Energy Policy 2026* provides the first long-term view of how the stringency of MEPS has evolved for a few key end uses of cooling and heating, road transport and industrial motors.

In 2025, 15 countries saw changes to MEPS take effect, with some increasing stringency and others decreasing it. Overall, the changes in 2025 marked a historic reduction in coverage and stringency, with significant withdrawals, relaxed legislation and postponements coming into force. MEPS covering 30% of global energy demand were made less stringent or saw implementation delayed, while only 17% of demand covered by MEPS saw increased stringency. The most significant decreases in efficiency stringency were in the United States, where the One Big Beautiful Bill Act removed corporate average fuel economy civil penalties, and the Department of Energy repealed earlier energy conservation standards for selected appliances. These changes are expected to have large

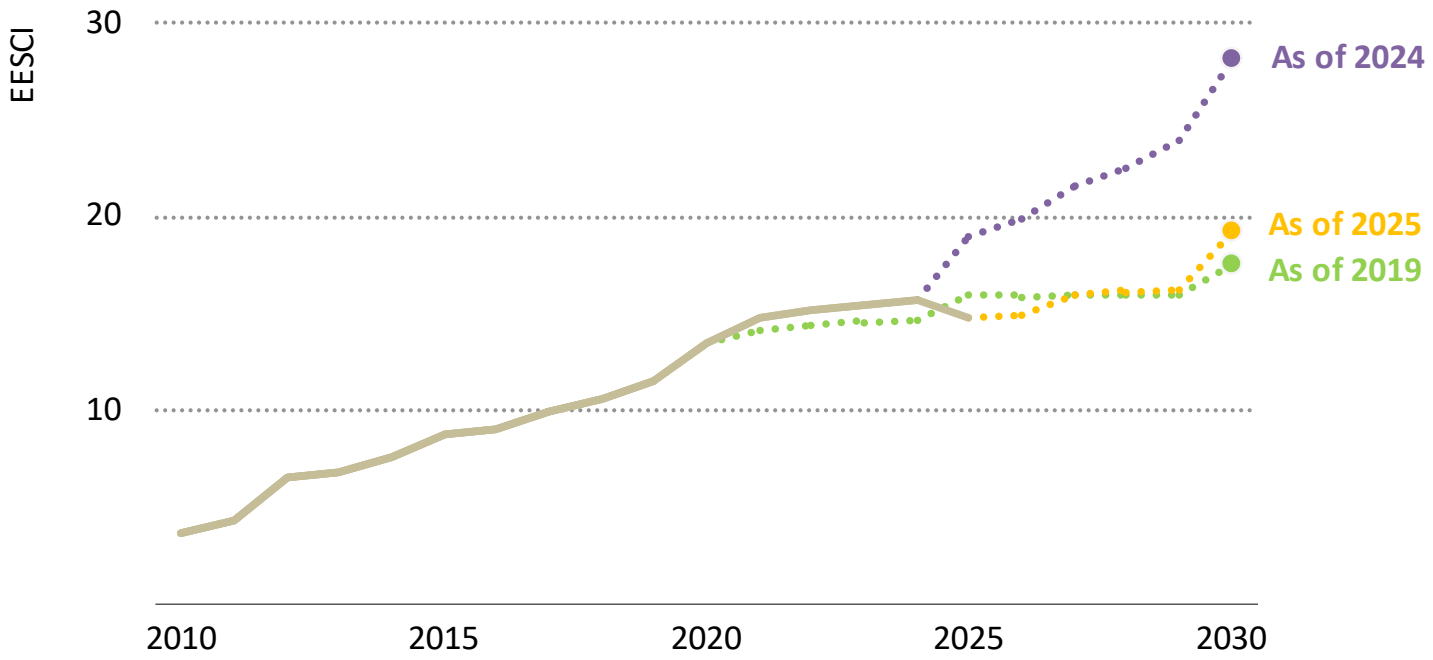
impacts on MEPS compliance out to 2030. Other notable delays or decreases in stringency included revisions to the United Kingdom's plans to phase out new gas boiler installations, Canada pausing its 2026 zero emissions vehicle mandate to give the automotive industry additional time to prepare, and the Eurasian Economic Union (comprising Armenia, Belarus, Kazakhstan, the Kyrgyz Republic and the Russian Federation) delaying the implementation of MEPS for energy-consuming devices and industrial motors from 2025 to 2028. Rolling back minimum performance standards does not cause an immediate drop in efficiency, but over time it can shift the types of appliances sold and reduce pressure on manufacturers to develop more efficient products. Moreover, the global nature of appliance markets means that standards in other jurisdictions can still shape which products are produced, at what efficiency levels and, ultimately, which are available in different markets.

Higher levels of energy efficiency stringency came into force in other regions in 2025 but at an aggregate level did not offset the reduced stringency and coverage elsewhere. The most notable updates were in the road transport sector. China implemented a new fuel economy standard for passenger cars, tightening it to 4 L/100 km compared with 5 L/100 km in 2020, and the European Union's new emissions standards for vehicles came into effect, albeit with flexibilities for meeting the new emissions targets through multi-year averaging in 2025. Fifteen countries updated their MEPS, with notable revisions in Mexico, Morocco and South Africa to energy efficiency standards and labelling programmes for most appliances, including industrial motors, raising requirements to the Premium Efficiency (IE3) standard.

MEPS coverage and stringency have progressed much more slowly than in the past, as most countries already have some standards in place and have focused on developing their policy portfolios towards incentives programmes. MEPS for cooling appliances, for instance, are in place for 90% of today's global cooling demand, and coverage has remained stable over the past ten years. MEPS for boilers and space heating show a similar trend. Today, they cover about 80% of global heating demand, and ten countries representing about 6% of global heating demand have updated these standards over the past ten years. New MEPS for industrial pumps, compressors and motors have also hardly advanced beyond the prevailing standards today. The European Union and its main trade partners represent one of the most significant recent updates in this area, enforcing the Super Premium Efficiency (IE4) standard for industrial motors between 75 kW and 200 kW in 2023, while most other major economies enforce IE3. The slowing trend has been less pronounced in road transport regulations, where 48 countries, covering more than 80% of global passenger vehicle sales, have enforced new fuel efficiency standards in the past ten years, leaving only Eurasia and sub-Saharan Africa as the main regions without such standards.

The stringency and coverage of energy efficiency standards dropped for the first time in 2025

Energy Efficiency Stringency and Coverage Indicator, 2010-2030



Notes: EESCI = Energy Efficiency Stringency and Coverage Indicator. The EESCI ranges from 0 (no minimum energy performance standards implemented) to 100 (most stringent standards passed as of 2025). It scores MEPS for air conditioners, passenger cars, trucks and industrial motors for selected economies, weighted by their respective energy demand. Details on the methodology are available in the Annex.

Rollbacks of energy efficiency and fuel switching standards have affected the stringency of both current standards and those planned for future implementation

Rules and regulations on energy efficiency introduced in 2025 have affected not only compliance standards for manufacturers but also the planned ratchetting up of stringency through to 2035. The IEA has developed a new Energy Efficiency Stringency and Coverage Indicator (EESCI), which assesses where each country's current energy performance standard sits relative to the most stringent MEPS announced for that end use globally. This harmonised approach makes it possible to explore the evolution of MEPS coverage and stringency over time – a first for this report.

The EESCI shows that energy efficiency standards have strengthened steadily since 2010. Historically, both the coverage and stringency of standards have been higher in advanced economies. Emerging markets and developing economies have often adopted frameworks based on those already in place in advanced economies, contributing to rising average EESCI scores up to 2024.

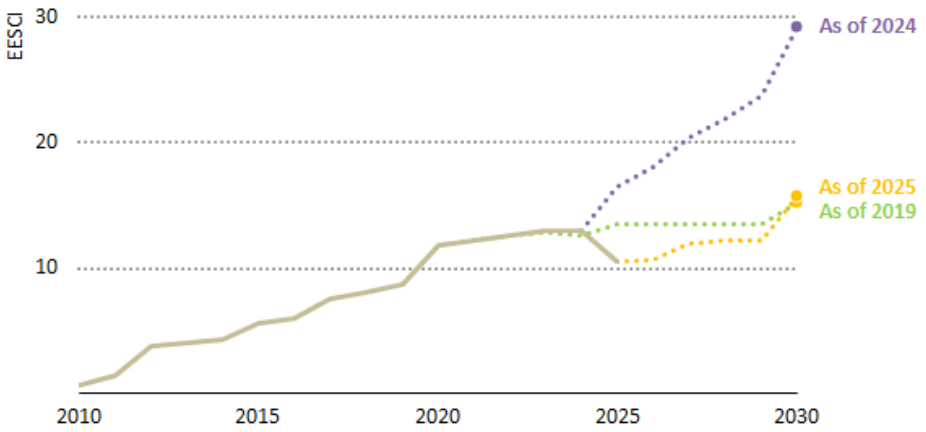
Energy Efficiency Stringency and Coverage Indicator methodology

State of Energy Policy 2026 provides, for the first time, a detailed assessment of the coverage and stringency of selected energy efficiency standards. The indicator is a harmonised measure of minimum energy performance requirements for air conditioners and industrial motors, and fuel economy standards for passenger cars and trucks. It assesses the energy efficiency performance of each sector and weights these sectoral indicators by energy demand to best reflect the overall impact of standards. The indicator ranges from 0, meaning no efficiency standard is in place anywhere for that subset of energy demand, to 100, indicating the most stringent standard passed to date applies everywhere. The overall indicator is weighted by the energy demand for the relevant end use in the countries where the standard applies, thus producing a global or regional aggregate. Consequently, if all countries worldwide were to enforce the most stringent standard (e.g. the revised European Union Regulation 2019/631 for passenger cars), the global indicator would reach 100. Further details on this methodology are available in the Annex.

Developments in 2025 marked a break from this trend. Rollbacks of MEPS have altered the aggregate picture: passenger car efficiency standards in advanced economies are now broadly on par with those in emerging markets and developing economies. Much of this shift reflects changes in the United States. The withdrawal and revision of planned increases in stringency have had a particularly pronounced effect when assessing standards through 2030, as previously expected tightening, especially for passenger cars, has been removed.

The impact of rollbacks has been most significant in the transport sector. The elimination of the United States' corporate average fuel economy civil penalties has weakened policy signals for manufacturers, both in standards in force today and in expected increases through to 2035. Similar effects are likely to arise from plans to delay or cancel standards and mandates in Canada, the European Union and the United Kingdom. Conversely, most emerging markets and developing economies are set to implement new standards through to 2030, which will lead to consistent increases in stringency, led by China's Phase VI fuel consumption standard, India's fuel consumption standards and Brazil's Green Mobility and Innovation vehicle emissions programme. In aggregate, the energy efficiency signals provided in 2025 stand at similar levels to those of legislation enforced in 2019.

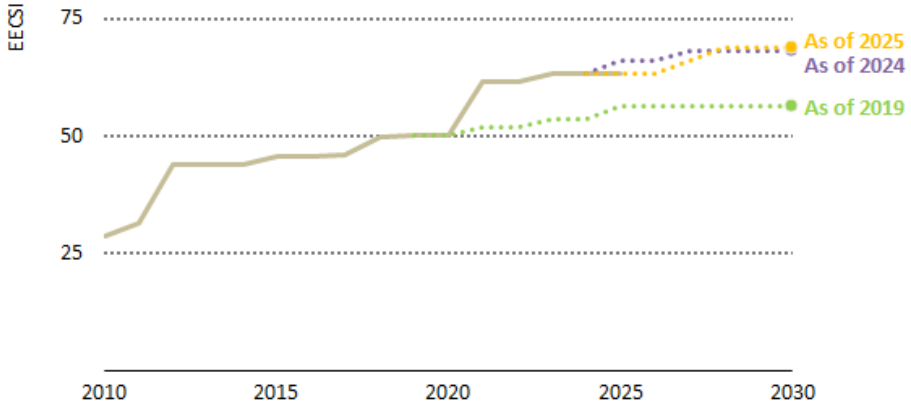
Energy Efficiency Stringency and Coverage Indicator for passenger cars, 2010-2035



Notes: EESCI = Energy Efficiency Stringency and Coverage Indicator. The EESCI ranges from 0 (no minimum energy performance standards implemented) to 100 (most stringent standards passed as of 2025, in this case the European Union Regulation 2019/631 setting CO_2 emission performance standards for new passenger cars). Details on the methodology are available in the Annex.

A similar, yet less marked, pattern has unfolded in the industry sector. The most impactful regulatory change for industrial motors in 2025 was in the Eurasian Economic Union, which accounts for 5% of global electricity demand for motors. It postponed the implementation of its standard from 2025 to 2028. This effectively reduced the expected aggregate increase in stringency: the average EESCI score reached 63 in 2025, compared with 66 under stated policies as of 2024. However, the policy signals provided for 2030 remain broadly in line with legislation in place in 2024, with no complete withdrawals, downscaling or upgrades of industrial efficiency standards globally.

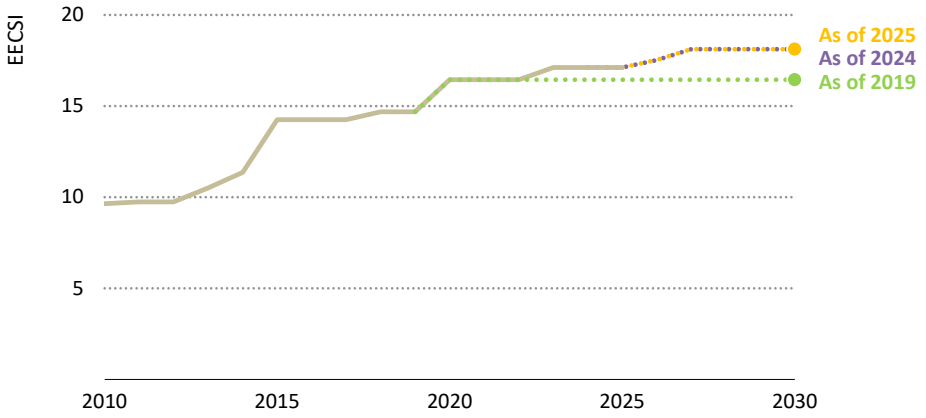
Energy Efficiency Stringency and Coverage Indicator for industrial motors, 2010-2030



Notes: EESCI = Energy Efficiency Stringency and Coverage Indicator. The EESCI ranges from 0 (no minimum energy performance standards implemented) to 100 (most stringent standards passed as of 2025, in this case the European Union Regulation 2019/1781 laying down ecodesign requirements for electric motors). Details on the methodology are available in the Annex.

Recent setbacks in buildings energy efficiency policies largely reflect revisions to standards scheduled to take effect through to 2035, notably the scaling back or delaying of bans on fossil fuel boilers. Overall, these rollbacks have had only a limited impact on EESCI scores. The pace of increases in appliance efficiency stringency has been persistently slow, and few new, more demanding standards for major appliances are scheduled to take effect in the coming years. Air conditioners provide a clear example. Following significant step changes, such as the introduction of new air conditioner MEPS in the European Union in 2013 and China's standards revision in 2019, appliance standards have remained largely stable in both advanced economies and emerging markets. Where new measures have been introduced, they have generally had only a modest effect on aggregate EESCI scores. Looking ahead, only a limited number of more stringent standards are due to enter into force, most notably under Japan's Top Runner programme, which will raise requirements from 2027 and gradually lift EESCI scores thereafter.

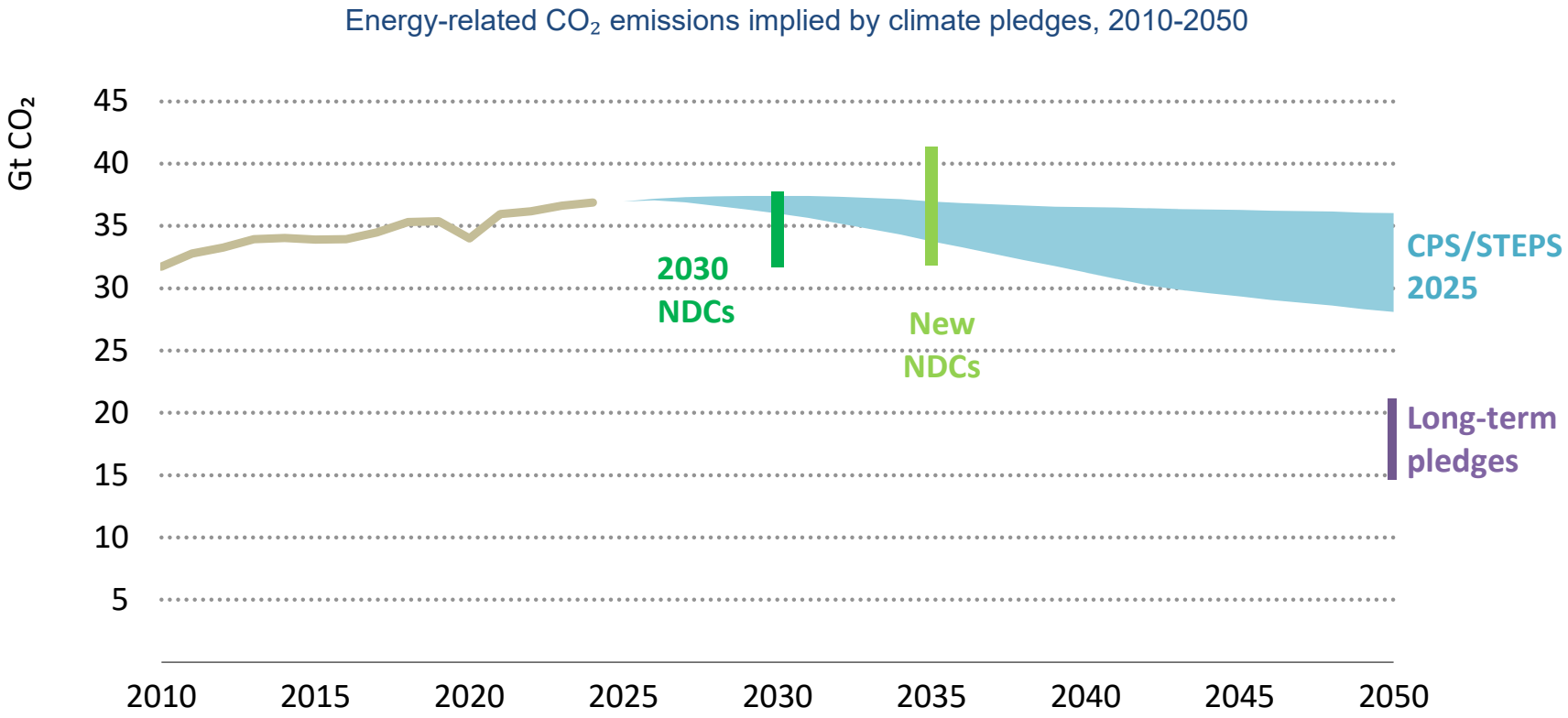
Energy Efficiency Stringency and Coverage Indicator for air conditioners, 2010-2030



Notes: EESCI = Energy Efficiency Stringency and Coverage Indicator. The EESCI ranges from 0 (no minimum energy performance standards implemented) to 100 (most stringent standards passed as of 2025, in this case Japan's Top Runner programme). Details on the methodology are in the Annex.

Climate pledges

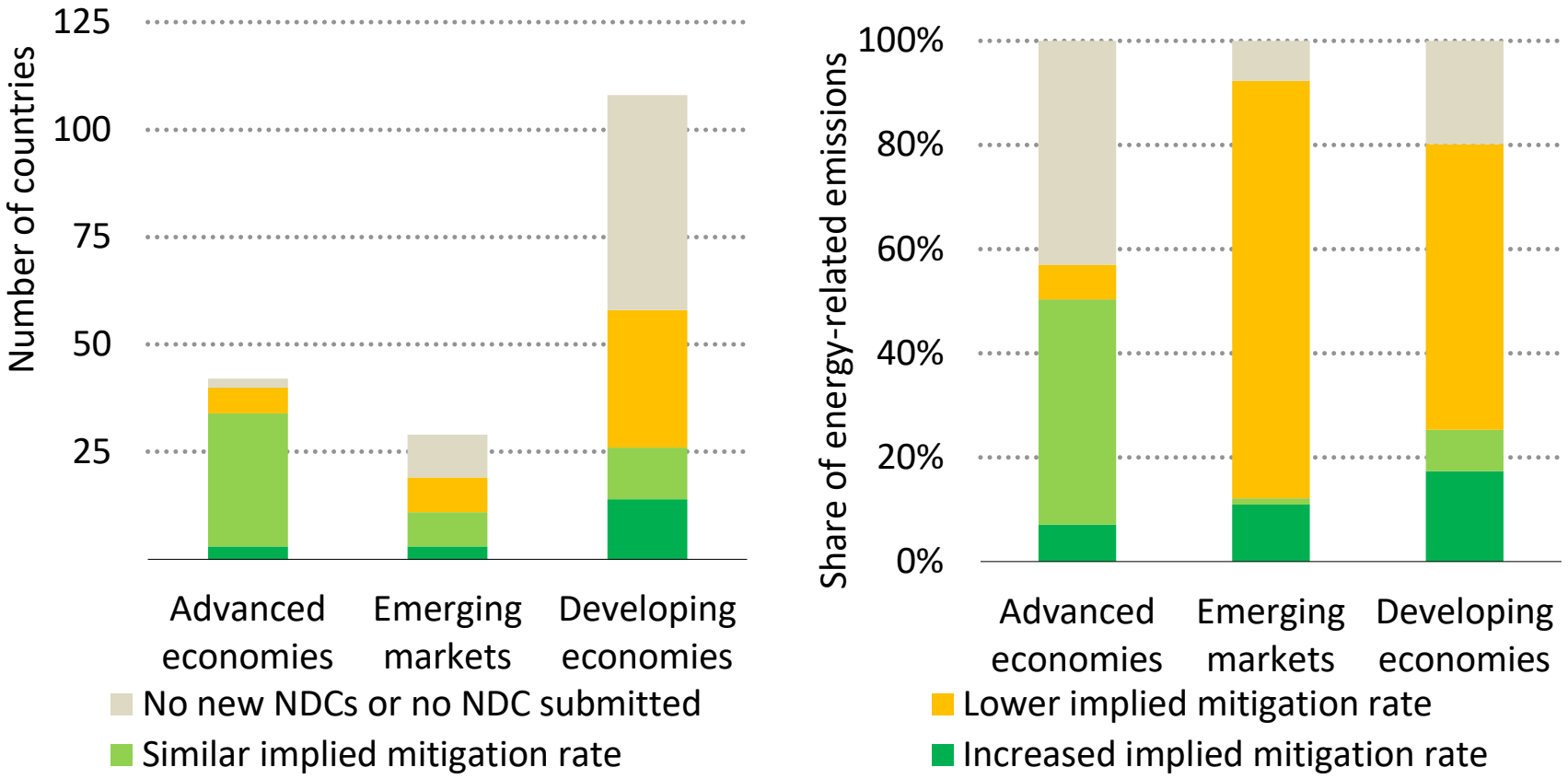
New climate pledges do not point to faster energy sector emissions reductions than the previous round



Notes: CPS = Current Policies Scenario; NDC = nationally determined contribution; STEPS = Stated Policies Scenario. Estimates exclude international bunkers. Ranges for 2030 NDCs and new NDCs reflect the conditionality of international support for the full achievement of pledges from developing economies, and the uncertainty over the contribution of the energy sector in economy-wide targets. The analysis covers new NDCs submitted until 27 March 2026. Countries without new NDCs are assumed to have the same rate of mitigation as in their latest NDC, except for the United States, which has exited the Paris Agreement. Detailed methodology can be found in the Annex.
Source: IEA (2025), Climate Pledges Explorer.

Most updated NDCs imply emissions reduction rates similar to previous pledges, though many developing economies have yet to submit theirs

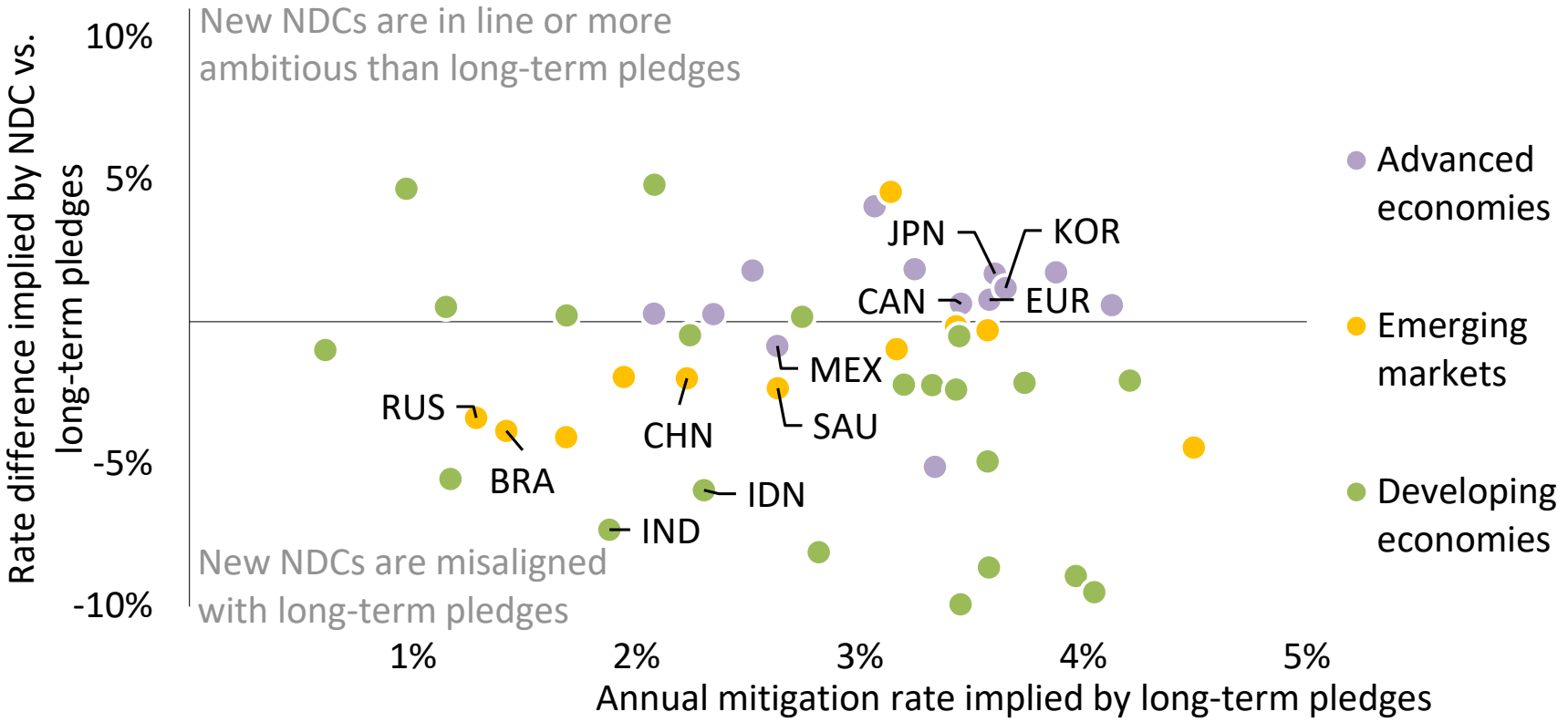
New nationally determined contributions by economic grouping and implied energy emissions mitigation rate



Notes: NDC = nationally determined contribution. Advanced economies refer to OECD and European Union Member countries. Other countries with income above USD 20 000 per capita are classified as emerging markets, while those below this threshold are considered developing economies. The analysis covers new NDCs submitted until 27 March 2026. The United States is classified as having no NDC submitted, due to its withdrawal from the Paris Agreement.

New near-term targets in 47 countries are consistent with the emissions reduction rates implied by their long-term net zero pledges

Annual mitigation rate implied by long-term pledges, and the ambition gap between new nationally determined contributions and long-term pledges

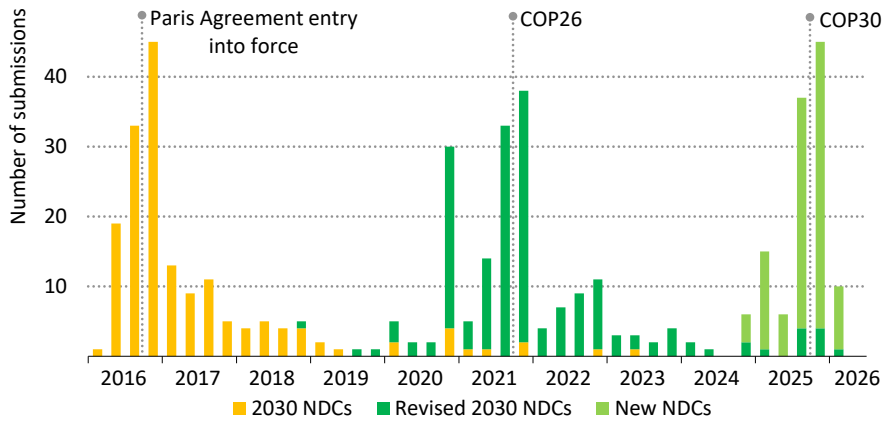


Notes: BRA = Brazil; CAN = Canada; CHN = China; EUR = European Union; IDN = Indonesia; IND = India; JPN= Japan; KOR = Korea; MEX = Mexico; NDC = nationally determined contribution; RUS = Russian Federation; SAU = Saudia Arabia. The visualisation shows only countries that submitted a new NDC between 1 January 2024 and 27 March 2026 and have pledged to reach net zero emissions by any given date. Labelling is limited to the ten highest emitters that submitted their new NDCs, for ease of reading. The annual mitigation rates are based on compliance in full and on time of the NDCs and long-term pledges, including any conditional components. Detailed methodology can be found in the Annex.

The new round of NDCs does not imply stronger annual emissions reductions than the previous 2030 NDCs

The past year marked a key milestone in the Paris Agreement's ratcheting mechanism, under which countries update their climate pledges every five years. As of 27 March 2026, more than 130 countries had submitted new NDCs out of the 194 parties to the Paris Agreement that had previously submitted NDCs under the UNFCCC framework, with the vast majority setting new targets for 2035. In total, these submissions cover close to 75% of today's energy-related greenhouse gas emissions.

Nationally determined contribution submissions by type, 2016-2026



Note: COP = Conference of the Parties; NDC = nationally determined contribution.

Some regions have not yet submitted, or have withdrawn, their updated commitments. In January 2025, the United States initiated the process of withdrawing from the Paris Agreement, effective from January 2026. The withdrawal implies the abandonment of the commitments made in April 2021 and December 2024, and this is reflected in the methodology and aggregate figures in this report. Countries accounting for around 85% and 45% of regional emissions in North Africa and the Middle East, respectively, also remain poorly covered by new NDCs.

The annual pace of mitigation in the new NDCs is, in aggregate, not significantly higher than in the revised 2030 NDCs submitted around COP26 in Glasgow. The IEA estimates that the new round of NDCs implies global energy-related CO_2 emissions continuing to increase by an average of 0.4% per year from 2024 to 2035, and declining slightly by 0.3% if conditional commitments are met in full and on time. This represents a net deceleration from historical levels of annual emissions growth, which have hovered around 1.1% since 2010, and from the first round of 2030 NDCs submitted in 2016 (0.6%). However, it also implies a slower pace of abatement than the previous round of revised 2030 NDCs set at Glasgow, which included targets implying annual emissions reductions of about 1% until 2030.

Advanced economies' new NDCs imply the sharpest decrease in energy-related emissions, at 5.5% annually to 2035. They also represent the largest share of countries that have NDCs with mitigation rates aligned with their long-term climate pledges: 38 of the 41 advanced economies with a net zero emissions target have NDCs implying annual energy emissions reductions equal to, or greater than, the pace required to meet their long-term goals. The European Union has put forward a 66-73% reduction target by 2035 relative to 1990 levels, in line with its 90% reduction target for 2040 and its net zero goal by 2050. Japan's latest NDC also sets a target of 73% emissions reduction by 2040 relative to 2013 levels, consistent with the annual reductions required to meet its net zero target for 2050.

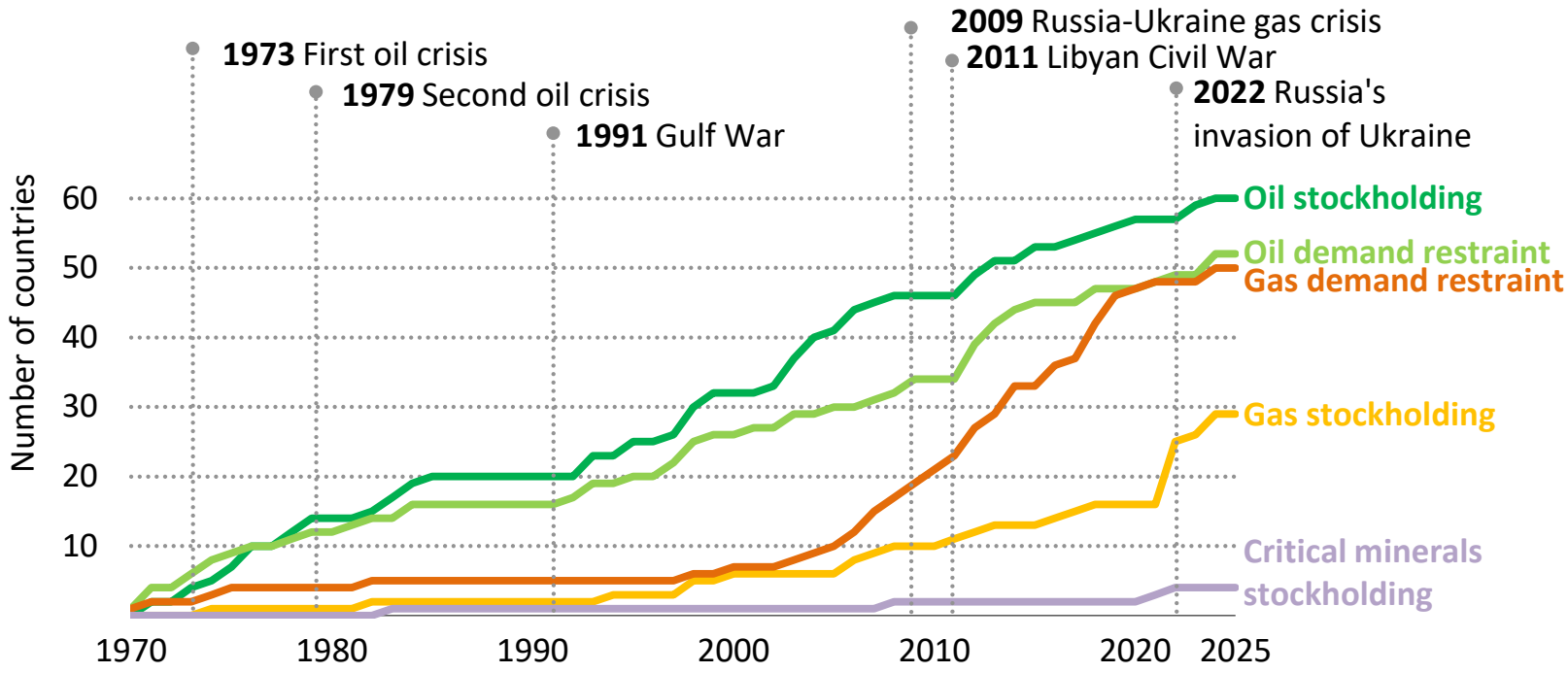
Most emerging markets and developing economies have pledged to reduce emissions against a baseline of faster growth, while still implying a net increase in energy sector emissions over the next decade. Emerging markets' conditional NDCs point to slightly negative annual emissions growth of 0.03% to 2035, while developing economies indicate positive annual growth of 2.6%. For the latter group, this is a slight improvement relative to historical growth (3.1%) and the previous round of NDC updates (2.7%). Few developing economies have put forward ambitious pledges aligned with their long-term emissions reduction targets. One notable example is Nigeria, which has shifted away from a baseline approach to an absolute emissions reduction target, pledging to cut emissions by 32.2% by 2035 relative to 2018 levels.

Overall, the energy component of NDCs remains misaligned with the ambition of limiting the rise in global surface temperature to 1.5 °C by the end of the century.

Spotlight 1:
Delivering traditional and emerging energy security

Governments are now better positioned to respond to energy security risks than in the past

Number of countries with selected emergency response policy in place, 1970-2025



Note: The analysis focuses on 84 countries, covering 93% of global energy demand, 87% of global oil demand and 95% of global natural gas demand.

Emergency stockpiles and measures to buffer oil and natural gas shocks are now in place in most importing countries

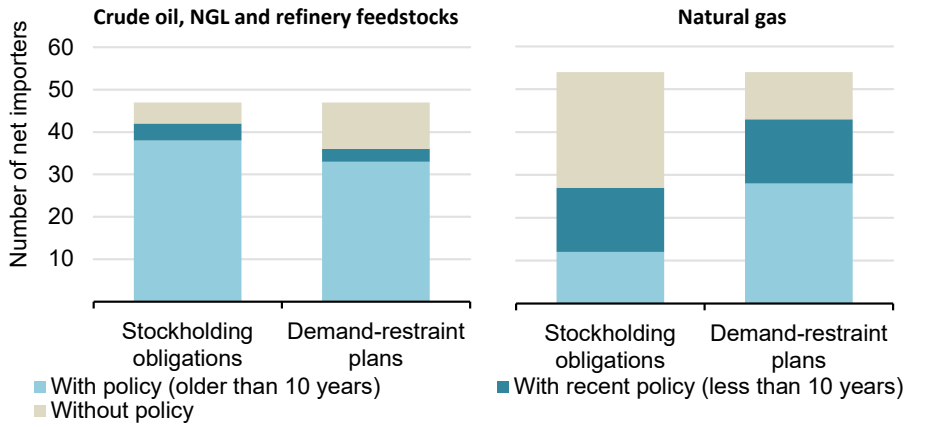
Energy security has long been a central focus of energy policy-making. It encompasses both emergency measures, such as stockpiling, and longer-term strategies, including diversification of energy sources and suppliers and improvements in energy efficiency. *State of Energy Policy 2026* features a special focus on the evolution of key energy security policies, tracing the development of emergency responses, supply diversification efforts and more recent measures addressing emerging risks related to critical minerals and clean energy supply chains. While a wide range of energy policies contribute to energy security, many of which are explored throughout this report, this special focus narrows in on the foundational policies that underpin modern energy security and highlights areas where gaps remain.

This first section focuses on strategic reserves and emergency measures for oil and gas. Governments have played a role in managing energy security for centuries, from early stockpiling of wood for ensuring heating and military readiness to the first formal policies in the 1930s aimed at securing oil and coal for strategic and military purposes. Since the first oil crisis in 1973, the IEA has put in place a robust emergency response system under which member countries act collectively. This system has laid the groundwork for modern fuel security, including stockholding requirements, demand-restraint measures and broader emergency preparedness for oil and natural gas. Over time, emergency measures and strategic stockpiles have proliferated, becoming one of the most fundamental tools of energy security, supported by a wide array of complementary policies.

Oil stockholding requirements are in place in countries representing virtually all oil imports

With oil accounting for nearly half of global energy demand in 1970, the first policy interventions for energy security addressed looming supply interruptions. In 1974, 17 countries signed the International Energy Programme, committing to maintain oil reserves initially equivalent to 60 days of net imports, later increased to 90 days. The Programme included agreements on collective action to restrain demand when needed and promote greater energy efficiency, diversification and innovation. As of 2025, the Programme has 32 members, with Latvia and Lithuania the most recent to join. Since its creation, IEA member countries have undertaken five co-ordinated stock releases: the first in the lead-up to the Gulf War in 1991; one following Hurricanes Katrina and Rita in 2005, which caused major disruptions to oil infrastructure in the Gulf of Mexico; one in 2011 to offset supply losses from the Libyan Civil War; and two more in 2022, both prompted by Russia's full-scale invasion of Ukraine.

Energy security policies of net importers of oil products and natural gas, 2025



Notes: NGL = natural gas liquid. The analysis focuses on 84 countries, 47 of which are net importers of oil products covering 95% of global imports, and 54 of which are net importers of natural gas covering 87% of global imports.

The adoption of oil security policies extends beyond the International Energy Programme. Emerging markets and developing economies, which are driving most of the rise in oil demand, have implemented policies to establish strategic oil reserves or mandate stockpiling for industry. In 2024, Indonesia implemented a law on energy buffer reserves, establishing reserves for gasoline, liquefied petroleum gas and crude oil. The level of these stocks differs depending on the national context, ranging from 16 days of oil imports to the similar requirements set in advanced economies. As of 2025, 42 net-importing countries maintain emergency oil stocks, together accounting for 95% of global oil imports.

Natural gas security measures have multiplied over the past decade

Historically, security measures have been less common for natural gas. However, the growing role of natural gas in the energy systems of advanced economies, from 22% of total energy demand in 2000 to almost 30% in 2024, has elevated it as a top priority for governments over the past decade.

One key turning point was in Europe. In response to the Russia-Ukraine gas crisis in 2009, the European Union adopted its first legislation to safeguard the security of gas supply and mandated the development of gas emergency plans. These plans included both market and non-market measures, such as production and import flexibility, storage obligations, fuel switching, load shedding and interruptible contracts. In 2022 and 2023, the EU Gas Storage Regulation strengthened demand-restraint measures and introduced an annual minimum fill level for member states' storage facilities, initially 80% and later raised to 90% of capacity by November of each year. This regulation was most recently revised in 2025 to provide greater flexibility.

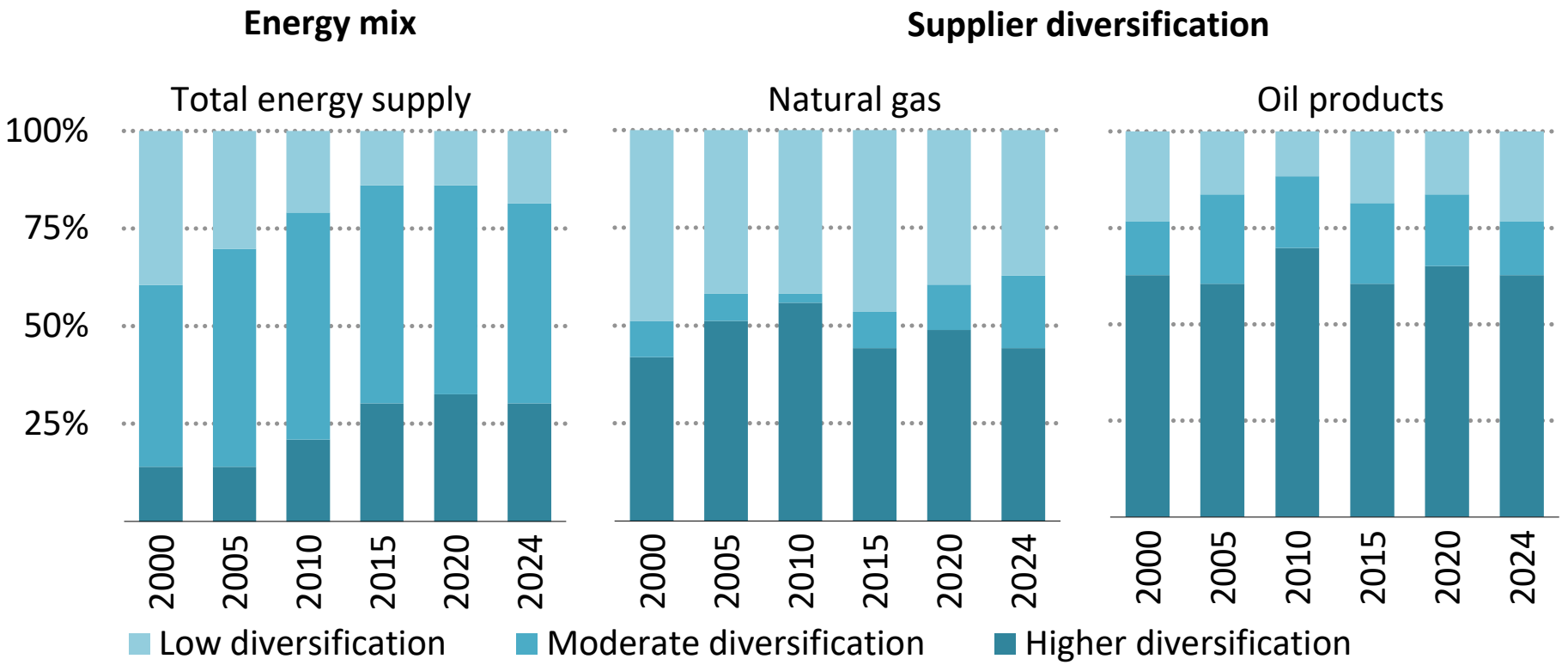
Russia's full-scale invasion of Ukraine in 2022 also prompted other regions to move towards gas stockpiling policies. As a result, more than 40% of global gas imports are now destined for countries with

gas stockholding requirements. Japan, notably, established the Strategic Buffer LNG to hold liquefied natural gas cargoes ready in case of supply emergencies.

Recognising the importance of natural gas for energy security, the IEA has published its Global Gas Security Review annually since 2016. In January 2025, it established the permanent Working Party on Natural Gas, building on the Agency's longstanding gas security activities, including the work of the Task Force on Gas and Clean Fuels Market Monitoring and Supply Security. The Working Party's fundamental role is to facilitate data and information exchange among members and to promote dialogue between producers and consumers.

Efforts to diversify the energy mix and supplier base have progressed steadily

Share of advanced economies by supply diversification level, 2000-2024



Notes: The values for 2024 are estimates. The diversification classification uses the Herfindahl-Hirschman Index (HHI) to measure the concentration of energy sources in each energy mix, as well as the concentration of fuel imports from trade partners. Higher diversification corresponds to a reverse HHI ranging between 0 and 2 500, moderate diversification between 2 500 and 3 500, and low diversification between 3 500 and 10 000.

Long-term policy efforts have supported greater diversification in countries' energy mixes and supplier bases

Diversification is often described as the "golden rule" of energy security. This principle was reaffirmed at the IEA's 2025 Summit on the Future of Energy Security, where policymakers emphasised the need to broaden both energy sources and supply chains to enhance resilience. Many energy policies are rooted in this security imperative, including energy efficiency and performance standards, mandates to diversify the fuel mix, fuel switching measures, incentives for energy research and development, requirements to diversify energy suppliers, and trade policies governing energy-related equipment and commodities. *State of Energy Policy 2026* tracks nearly 200 distinct energy policy instruments that directly or indirectly support the diversification of energy supply.

Globally, countries have diversified their energy mix since the first oil crisis. In 1973, oil accounted for over half of primary energy demand in nearly 20 current IEA member countries. Today, almost all advanced economies are classified as having a moderate or highly diversified energy supplies, largely through the expanded role of natural gas, renewables and nuclear energy. Worldwide, most countries have enhanced energy efficiency substantially since 1970, with energy powering a global economy five times larger than in 1970 while using only three times more energy.

Most advanced economies have also diversified their suppliers of imported energy commodities, with the most relevant progress seen in natural gas. This improvement has been driven in part by the expansion of liquefied natural gas terminals relative to pipeline connections, which has provided greater sourcing flexibility, and by major efforts in Europe to diversify away from Russia. Lithuania, for example, reduced its reliance from near-total dependence in the early 2010s to a full phase-out by 2023, while Germany cut peak reliance of two-thirds of its imports from Russia in 2020 to a more balanced mix including other European suppliers. This trend is expected to continue, with the European Union set to implement a full ban on liquefied natural gas imports by 31 December 2026 and on pipeline gas imports by 30 September 2027.

The picture for oil imports is more mixed. Many advanced economies have maintained relatively high supplier diversification since the 2000s, with only ten countries relying heavily on a small subset of suppliers. However, some countries have seen increasing concentration in recent years. For instance, Chile and Iceland have both experienced sharp rises in the share of oil imports sourced from a single partner over the past two decades.

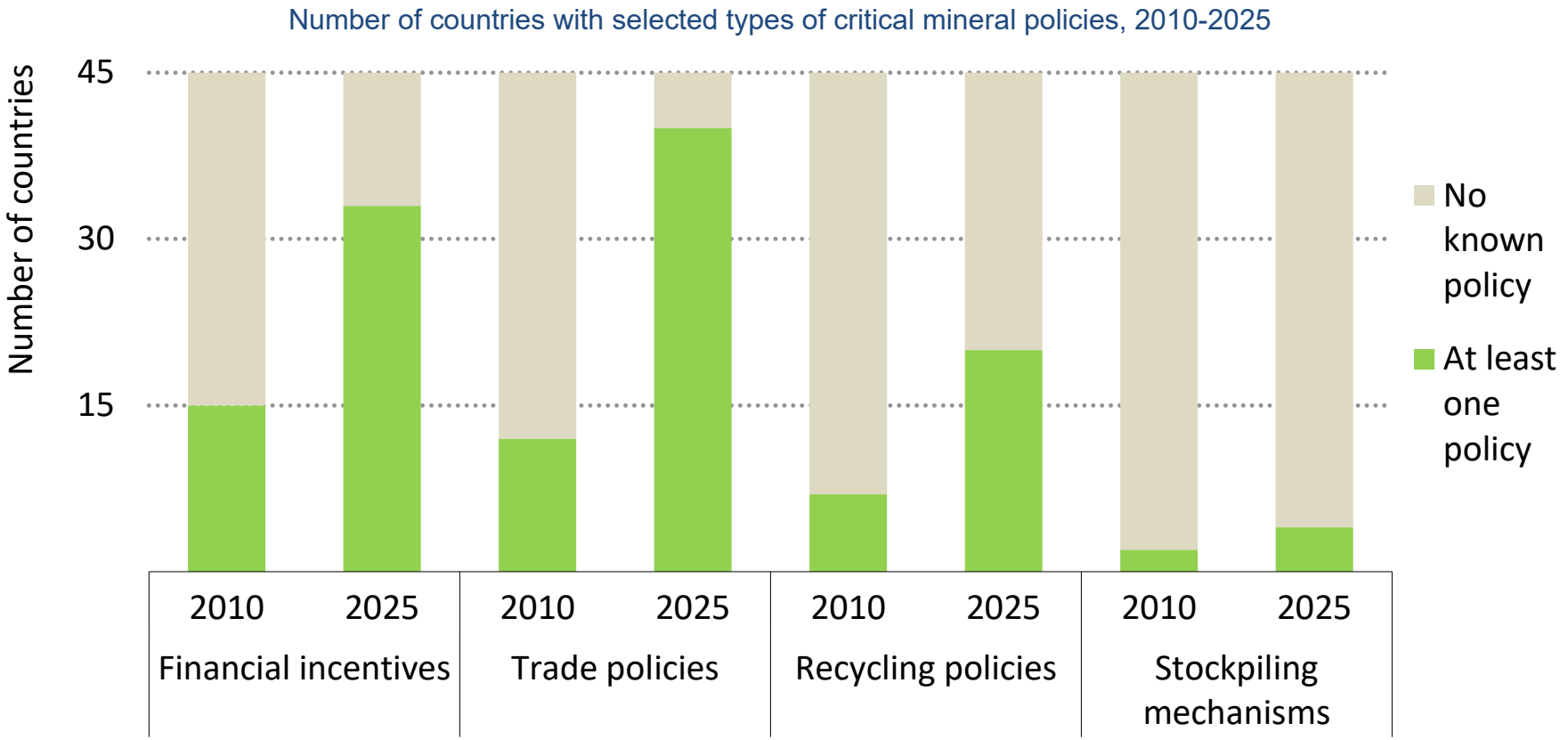
Countries with domestic fossil fuel resources have complemented import diversification with efforts to strengthen domestic production. Since 2015, tax credits totalling USD 20 billion have supported oil and natural gas exploration and development in the United States. This has been accompanied by additional policy support, including

preferential permitting processes and special provisions for tax write-offs to de-risk exploration. Levels of support have fluctuated over time but have remained relatively stable overall.

Emerging markets and developing economies generally have less diversified energy mixes, although progress has been made over time. Countries accounting for around 65% of energy demand are now considered to have low diversification, down from almost 80% in 2000. This gap persists even when excluding countries that remain heavily reliant on traditional biomass for cooking.

The Age of Electricity, and the fuel switching it implies for most end-uses, may, during its transition phase, introduce a shift in import dependence from fuels to technologies, components and raw materials. Critical mineral and energy technology supply chains, in particular, are highly concentrated, posing risks for countries pursuing both energy security and energy transition. Diversification in these areas remains a key focus for policy makers worldwide and is a central theme of the remainder of this chapter.

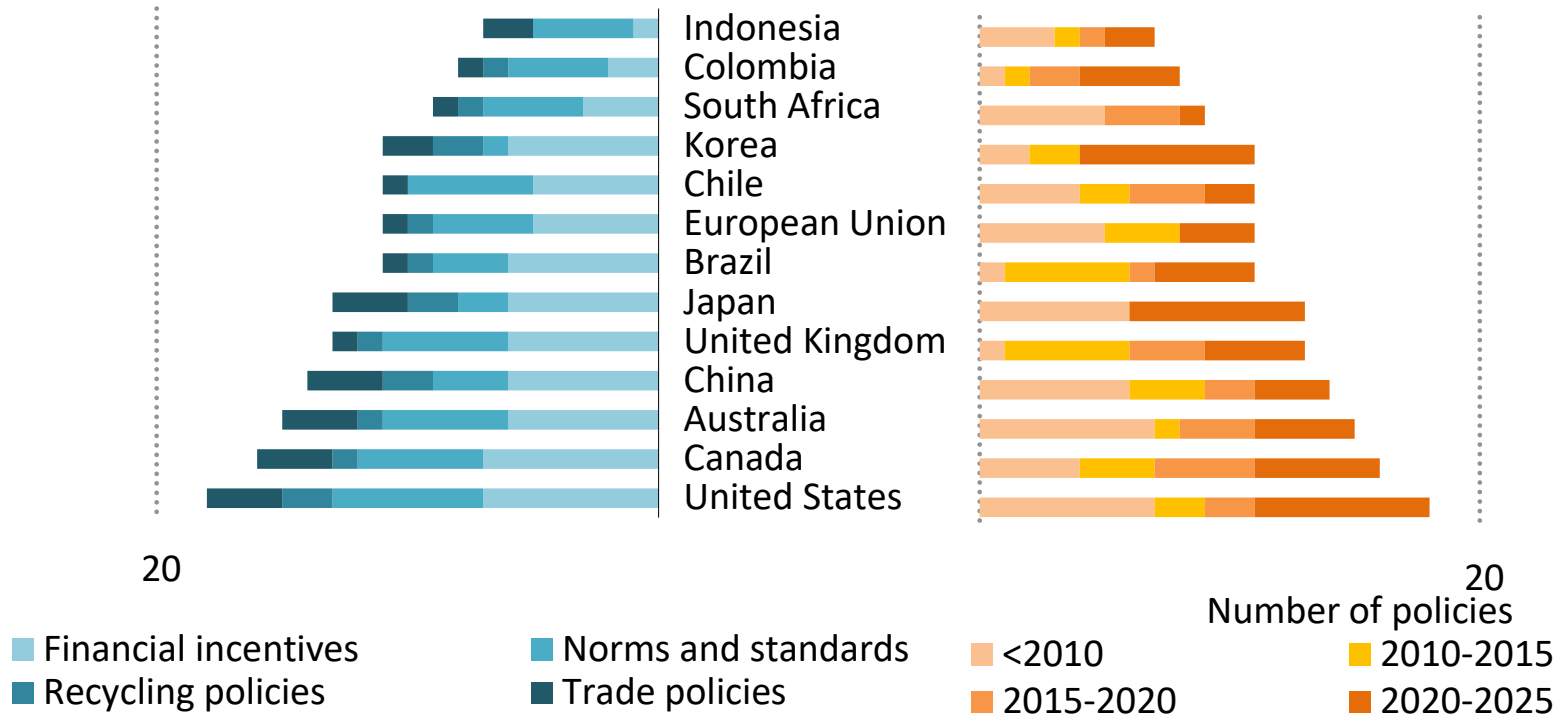
Critical mineral policies aimed at increasing production and securing trade have surged since 2010



Notes: Financial incentives include financing, tax credits, loans and innovation funds. Trade policies include lifting and tightening of import tariffs, import and export bans and quotas, and local content incentives for battery-grade lithium chemicals, nickel final products, final refined cobalt products, battery-grade manganese sulphate and battery-grade phosphoric acid.
Sources: IEA data and analysis based on the IEA (2025), Critical Minerals Policy Tracker (which currently analyses 45 countries) and Global Trade Alert (2025).

In the last five years, countries have introduced new critical minerals policies emphasising norms, standards, supply chain incentives and trade measures

Number of critical mineral policies in selected countries and regions by policy type and year of implementation



Notes: Financial incentives include financing, tax credits, loans and innovation funds. Norms and standards include transparency norms, social and environmental standards and due diligence obligations. Trade policies include lifting and tightening of import tariffs, import and export bans and quotas, and local content incentives for battery-grade lithium chemicals, nickel final products, final refined cobalt products, battery-grade manganese sulphate and battery-grade phosphoric acid. The chart displays the countries with the most policies in place out of the 45 countries analysed in the IEA Critical Minerals Policy Tracker.
Sources: IEA data and analysis based on the IEA (2025), Critical Minerals Policy Tracker (which currently analyses 45 countries) and Global Trade Alert (2025).

Critical mineral security has become a key focus for energy policy

Critical minerals, and their use in various clean energy technologies and other industries, have become a central concern for energy and economic security in recent years. Over the past five years, the concentration of refining capacities for key minerals used in batteries, solar panels and wind turbines has grown steadily, highlighting both strategic opportunities and potential supply risks. The Global Critical Minerals Outlook 2025, which provides an overview of demand and supply for key energy transition minerals, estimates that China accounted for more than half of global refining capacity for lithium (70%), cobalt (78%), graphite (96%) and rare earths (91%) in 2024. These concentration levels are higher than those that historically triggered global structural emergency response policies for oil and natural gas. The growing use of export controls on critical minerals has further elevated concerns over the security of current supply chains.

In response, countries have introduced a wider range of policy tools to diversify critical mineral supply chains and support domestic and regional production. One-third of the critical mineral policies tracked by the IEA have been implemented in the past five years, largely in advanced economies. *State of Energy Policy 2026* includes analysis of 45 countries from the IEA Critical Minerals Policy Tracker on financing mechanisms, tax credits and loan incentives, innovation funds, import tariffs and export controls, local content requirements, mineral recycling policies, stockpiling mandates and strategic mineral lists.

Export controls on critical mineral have prompted a wave of policies to better manage and secure supply chains

China has introduced export controls on various critical minerals since 2022, including graphite, gallium and germanium. Additional export controls were introduced in April and October 2025 on certain medium and heavy rare earth items. These measures had immediate impacts: rare earth prices rose significantly, with European prices reaching as much as six times those in China in August 2025. South Africa also implemented export controls on chrome ore in 2025 to restore competitiveness in its ferrochrome industry, building on previous controls on critical mineral scrap introduced in 2012. The Democratic Republic of the Congo announced a four-month suspension of cobalt exports in 2025, followed by an export quota system in October 2025. Overall, 11 of the 20 critical minerals important to the energy sector were under some form of export control as of October 2025.

Incentive schemes play a central role in diversifying critical mineral supply chains

About half of the programmes incentivising supply chain diversification have been implemented in the past five years. These schemes support a wide range of measures, including developing new supply sources, strengthening local processing chains and enhancing overall supply chain resilience. Several initiatives to strengthen supply chain resilience have been launched since 2021, with Australia, India and Japan leading the way. Some of the largest government spending has come from Japan, which spent USD 6 billion in 2023 to support the expansion of domestic production capacity, diversify supply sources, build production bases and introduce alternative materials. In the United States, the government established a ten-year price floor commitment in July 2025 to support rare-earth magnet manufacturing. Other notable examples include Australia's Critical Minerals Development Programme grant in 2023, which supports projects that develop domestic downstream processing, and France's critical minerals and metals investment fund, set up in 2023, which has allocated USD 540 million in equity to mining companies pursuing critical minerals projects. Canada is currently leading the Critical Minerals Production Alliance and has recently announced USD 4.7 billion in spending and is co-ordinating efforts across countries to strengthen supply chains. China has also, over the past decade, explicitly moved to secure greater access to upstream mining. In 2015, it launched the "One Belt, One Road" Mining Industry Development Fund, with the aim of raising USD 28 billion to invest in countries such as Kazakhstan, the Kyrgyz Republic and Tajikistan.

Given limited domestic resources, some countries have shifted focus from mining and processing incentives towards downstream recycling and the circular economy of critical minerals. In 2025, 20 countries had critical mineral recycling incentives, programmes or requirements, up from seven in 2010. The 2024 European Critical Raw Materials Act requires at least 25% of the European Union's annual consumption of key raw materials to come from recycling by 2030, and the RESourceEU Action Plan, adopted in December 2025, sets out the first policy milestones to reach this target. In the United States, the revised Strategic and Critical Materials Stock Piling Act established an Intergovernmental Critical Minerals Task Force in 2024 to identify opportunities for increasing the domestic production and recycling of critical minerals. In India, the 2025 Critical Minerals Recycling Incentive Scheme under the National Critical Minerals Mission has allocated USD 180 million in incentives over six years to boost recycling of electronic waste, batteries and end-of-life vehicles, aiming to strengthen domestic supply chains and reduce import dependence on strategic minerals.

Emergency stockpiling policies for critical minerals are becoming more prevalent but remain far less common than those for oil and natural gas

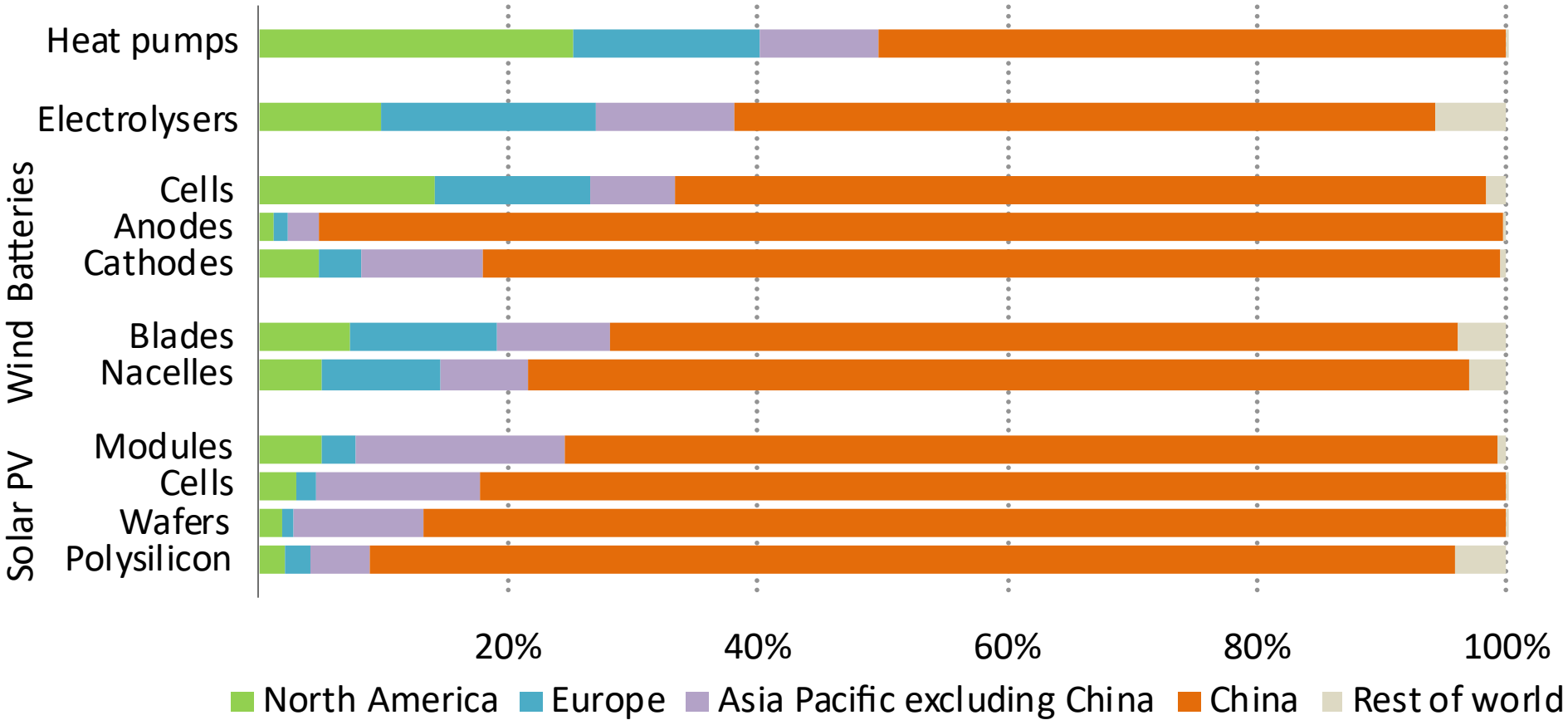
Only a handful of countries, namely China, Korea, Japan and the United States, have implemented stockpiling strategies for key critical minerals. Japan's International Resource Strategy set a target of holding 60 days of stocks for different types of critical minerals.

The United States aims to ensure it has sufficient critical minerals to enable full replenishment within three years following a national emergency. Most recently, China revised its Mineral Resources Law, effective from July 2025, to increase its strategic reserves and boost the production capacity of strategic minerals. A further 21 countries, as well as the European Union, are finalising assessments of their exposure and developing new or updated strategic mineral lists but have yet to introduce formal stockpiling requirements. In 2024, the European Union introduced the Critical Raw Materials Act to establish a list of 34 critical raw materials and, within that, 17 strategic raw materials deemed to face especially high demand or supply risks.

The IEA works with its member countries through initiatives such as the Critical Minerals Security Programme, including joint preparedness exercises, with the second exercise held in November 2025. These activities are part of a broader effort by the IEA to build collective capacity among governments to anticipate, prepare for and respond to disruptions in critical mineral supply chains. The Global Critical Minerals Outlook provides further analyses and a detailed assessment of the latest market and investment trends, along with their implications for critical minerals security.

Manufacturing capacity for clean energy technologies is highly concentrated in China

Share of manufacturing capacity for selected energy technologies by region, 2024



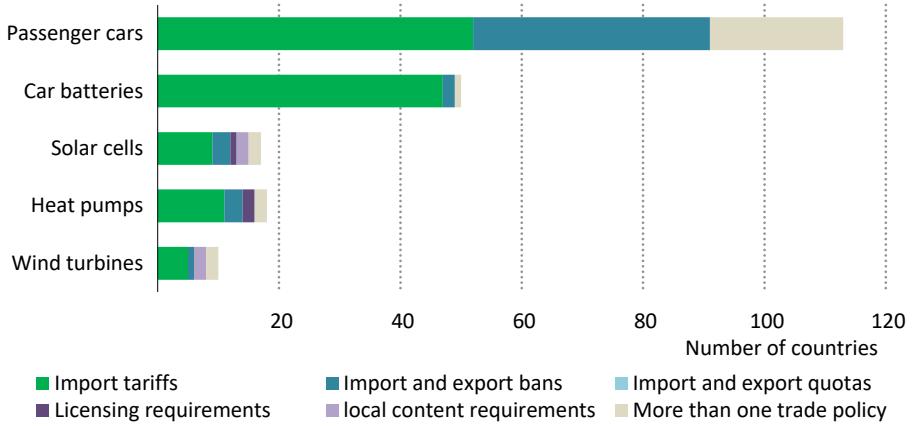
Source: IEA (2025), World Energy Outlook 2025.

Supply chains for emerging clean energy technologies are highly concentrated, but countries are increasing policy focus on diversification

Emerging clean energy technologies, such as heat pumps, electrolysers, batteries, solar PV and wind power, have expanded substantially over the past five years. Their market size is projected to have grown to USD 1.2 trillion in 2025, a 25% increase from 2024, and is expected to continue growing rapidly in the coming years. However, manufacturing capacities remain highly concentrated. China accounts for over 70% of key components, including wind turbine blades and nacelles, as well as battery cathodes and anodes. This level of concentration exceeds historical levels for traditional energy commodities – for example, the Organization of the Petroleum Exporting Countries accounted for roughly half of global crude oil production in the 1970s. While equipment markets differ from consumable fuels, addressing this concentration has become an increasingly prominent policy priority for governments, both for security and economic reasons. *State of Energy Policy 2026* documents the evolution of policy interventions targeting key energy equipment, including domestic advanced manufacturing incentives, import tariffs, quotas and local content requirements.

Government spending to support the growth of domestic supply chains has been a key policy tool in many countries. Total disbursements for financial incentives for domestic manufacturing reached USD 24 billion in 2025, doubling in less than a year and accounting for 12% of total global clean technology manufacturing investment. Incentive volumes are rising and are expected to increase further as new manufacturing capacity comes online in the coming years. In the United States, despite rollbacks of some provisions under the Inflation Reduction Act, the One Big Beautiful Bill Act maintained manufacturing tax credits for semiconductors and increased them from 25% to 35% of eligible costs. These credits can also apply to inverters and batteries. In Canada, manufacturing tax credits for clean technology investments have supported renewable energy, nuclear and low-emission vehicle components, with an estimated USD 1.6 billion allocated in 2025. Other countries have broader industrial support programmes that include provisions for automotive and energy-related manufacturing, such as Brazil's Nova Indústria programme.

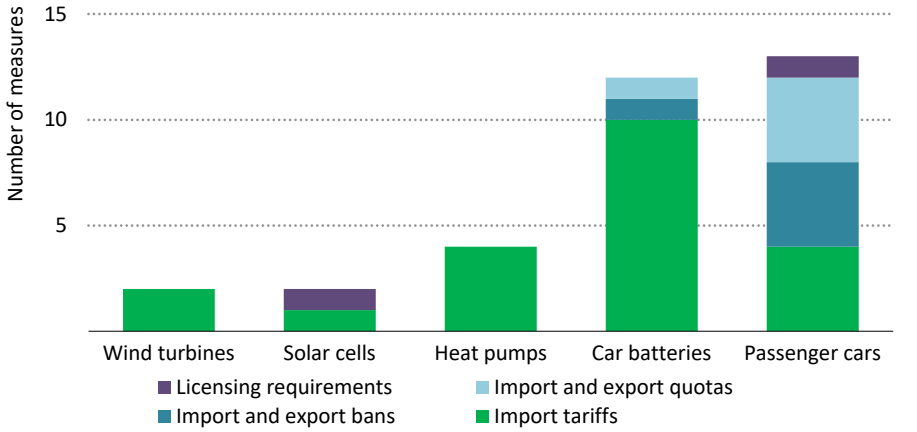
Countries with enforced trade measures by clean energy technology, 2025



Source: IEA based on data from Global Trade Alert (2025).

More than 120 countries have implemented trade measures that incentivise or restrict imports or exports of clean energy technologies, with 45 new measures introduced in 2025 alone. Most recent policies have focused on electric vehicles and batteries, accounting for more than ten effective tariff changes in these sectors. Notable measures include Türkiye and the United States imposing 25% tariffs on passenger car imports, with Türkiye applying an additional 30% tariff on electric vehicles and plug-in hybrids. A further eight measures in 2025 targeted heat pumps, solar cells and wind turbines, including Brazil raising PV module tariffs from 9.6% to 25%.

Trade measures implemented by clean energy technology, 2025



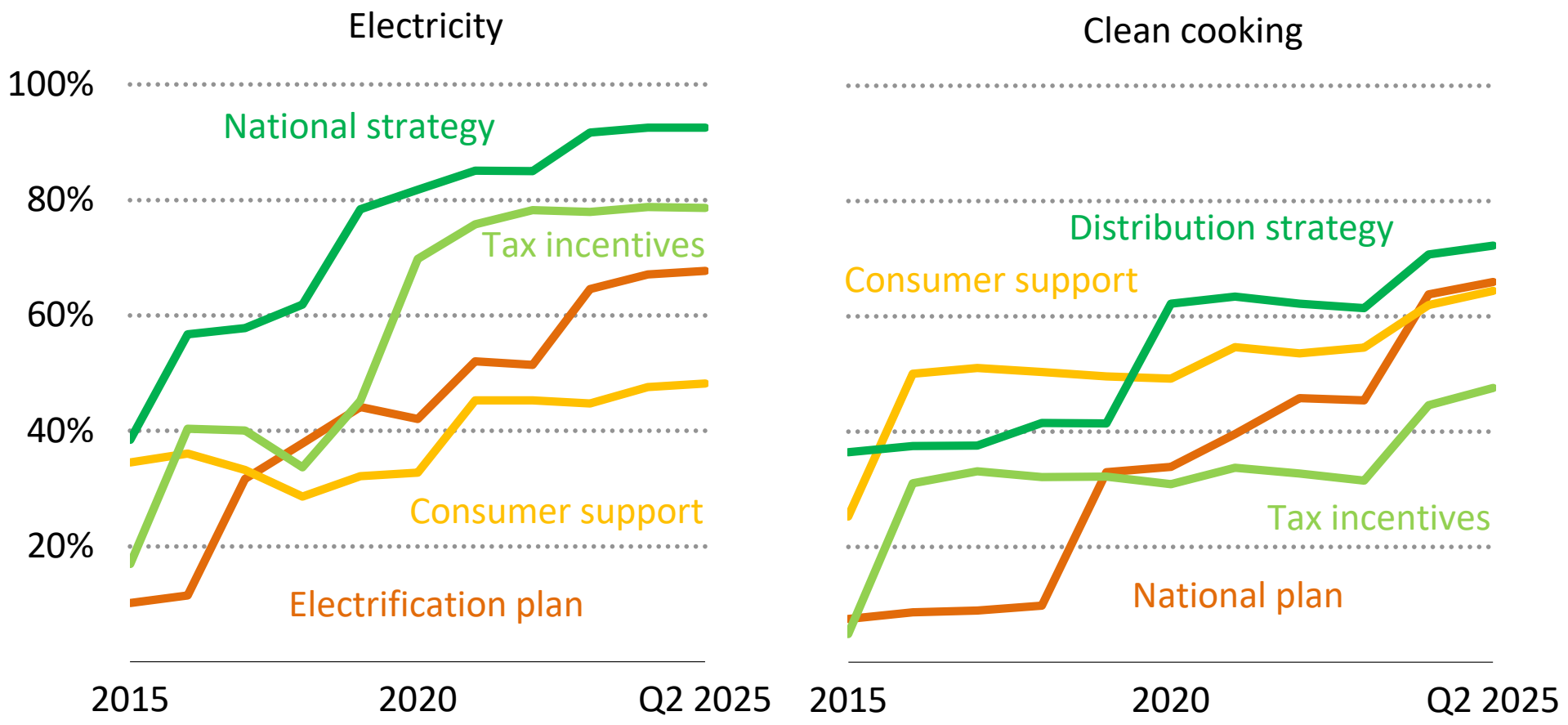
Source: IEA based on data from Global Trade Alert (2025).

These developments are occurring amid wider global tariff reassessments. While clean energy equipment previously represented a large share of recent tariff changes, it now represents only one part of a wider set of trade policy adjustments. Some countries have reduced tariffs, often as part of broader trade negotiations, including Argentina expanding duty-free quotas for hybrid and electric vehicles and Pakistan lifting restrictions on commercial imports of used cars less than five years old. The detailed global impacts of these policies are further analysed in the Energy Technology Perspectives 2026.

Spotlight 2:
Accelerating energy access policy adoption

Energy access policies have advanced considerably over the past ten years

Share of overall population without energy access located in countries with access policy by type, 2015-Q2 2025



Source: IEA based on data from World Bank (2024), Regulatory Indicators for Sustainable Energy database.

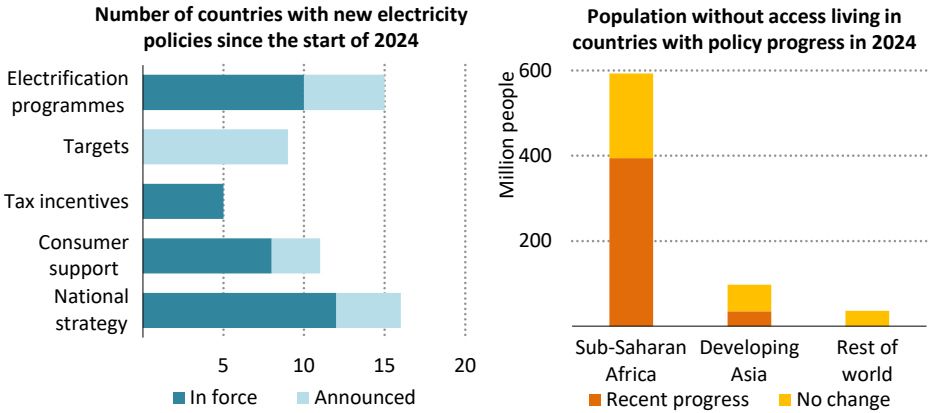
Around 60% of the global population without electricity access live in countries that have seen recent policy progress, with 56 new policies implemented since 2024

Access to affordable, reliable, sustainable and modern energy remains a cornerstone of economic growth, education, health and social development. Millions of households, businesses and public institutions, such as clinics and schools, still operate without reliable modern energy, constraining productivity and slowing socio-economic development.

Recent IEA publications, including the World Energy Outlook 2025 and its electricity access commentary, indicate fragile progress on new connections in 2025. Electricity access continues to receive considerable political attention through initiatives such as Mission 300, but the concrete policies currently in place are insufficient to deliver universal access to electricity by 2030.

Several countries have introduced or updated national strategies to strengthen their electrification agendas. Today, 93% of the global population without access to electricity live in a country with a national strategy in place, and 90% live in countries with an electricity access target. However, some strategies lack clear implementation plans or adequate financing mechanisms. In 2025, 29 countries updated their targets and pathways through the Energy Compacts agreed by African countries at the African Energy Summit in Dar es Salaam.

Recent progress in electricity access policies by type and region



Note: The tracking period is from January 2024 to March 2025.

Concrete policy frameworks to support these new ambitions for electricity access have been strengthened in several countries, with 56 related policies implemented or announced since the start of 2024. These include national electrification strategies, rural electrification and last-mile connection programmes, tax exemptions and affordability support for consumers. Around 60% of the global population without electricity access live in countries that have recently strengthened their access policy frameworks. Much of this progress has been in sub-Saharan Africa, where two-thirds of those

without access live in countries that have introduced new policies, including Ethiopia, Ghana, Kenya, Madagascar and Nigeria.

Fiscal policies, such as tax incentives and exemptions from customs and import duties, can reduce upfront costs and improve affordability. In turn, they can support the expansion of electricity access by enabling additional generation and improving the commercial viability of decentralised solutions, such as solar mini-grids and solar home systems. From 2024 to March 2025, five countries introduced or updated their tax measures for clean energy equipment. For example, in 2024, Côte d'Ivoire adopted exemptions from VAT and customs duties for solar PV, battery storage and other devices needed for the production and distribution of renewable energy that allow energy saving and respect the environment. The measure also provides a three-year exemption from tax on banking operations for loans and interest contracted by companies in the renewable energy sector to finance the acquisition of renewable energy goods and equipment from the second year of investment. In the same year, Madagascar exempted imported solar power plant equipment from taxes and customs duties, and Cameroon's Finance Act 2024 introduced a tax exemption scheme for renewable energy.

Tariff reforms and broader consumer support mechanisms continue to play a central role in improving the financial viability of electrification for households and utilities. Several countries have introduced measures to ease the financial burden of electricity services for lower-income households. In 2025, around half of the people without electricity worldwide were located in countries with at least one consumer support measure in place. Examples include South Africa's National Free Basic Electricity policy (2024), tariff adjustments in Zambia (2024) and budget allocations for electricity access in Togo (2025). However, Ethiopia's electricity tariff adjustments (2024-28) are intended to raise tariffs to ensure cost reflectivity, strengthen the financial sustainability of Ethiopian Electric Power and enhance the capacity of Ethiopian Electric Utility to invest in the distribution network.

Electrification programmes with adequate funding mechanisms, including instruments that leverage public funds and private capital through public-private partnerships and concessional finance, are supporting the rapid expansion of connections, especially in rural and peri-urban areas. Overall, around 70% of those lacking access live in countries with electrification programmes. In 2024, Kenya allocated substantial funding to its Rural Electrification programme through the Kenya Off-Grid Solar Access Project for underserved counties, as well as projects led by the Rural Electrification and Renewable Energy Corporation, aimed at connecting public facilities such as schools, health centres and dispensaries in remote areas. Kenya has also secured around USD 200 million to connect 280 000 households under the Last Mile Connectivity Project. Pakistan launched the National Electricity Plan 2023-27, prioritising measures such as integrated energy planning, distributed energy resources and incentive schemes to ensure universal access by 2030 through the Universal National Electrification programme. Bolivia introduced the Arcopongo Regional Northern District Electrification Construction Project in 2025 to boost electricity access in rural communities.

Electricity access policy coverage by type and region, Q2 2025

	Target	National strategy	Tax incentives	Consumer support	Electrification programmes
Sub-Saharan Africa	◕	◕	◕	◑	◑
Central Africa	◕	●	◕	○	○
East Africa	◕	◕	◕	◔	◕
Southern Africa	◕	◕	◕	◕	◕
West Africa	◕	●	◕	◑	◕
Developing Asia	◕	◕	◕	◑	◕
Latin America	◔	●	◕	○	◔
World	◕	◕	◕	◑	◑

Share of population without access within each region with policy currently implemented or announced:

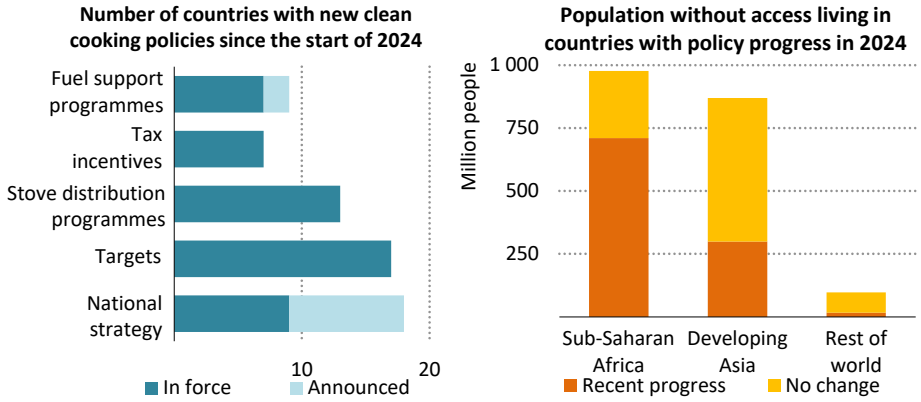
○ <10% ◔ 10-39% ◑ 40-69% 70-99% ● 100%

Over 60 new clean cooking policies were introduced in the past year, mostly in Africa, where three-quarters of those without access live in countries showing policy progress

Recent momentum has led to a rise in clean cooking policy adoption. *State of Energy Policy 2026* tracks progress on the development of policy frameworks across a range of measures, including national strategies, targets, government incentives and delivery plans. The IEA-hosted Summit on Clean Cooking in Africa played a significant role in raising political commitment and fostering partnerships among decision makers to tackle this challenge. Building on this momentum, the G20 endorsed the Clean Cooking Infrastructure Investment and Action Plan, an outcome of South Africa's G20 Presidency, which lays out concrete steps countries can take to advance progress on clean cooking. The G7 also reiterated its commitment to supporting clean cooking access as part of its Call to Action on Enhancing Energy Security.

Since the start of 2024, 64 new clean cooking policy initiatives have been adopted or announced in emerging markets and developing economies. Almost 55% of the global population without access to clean cooking now live in countries that have adopted or announced at least one such initiative. Progress has been strongest in Africa, where three-quarters of people without clean cooking access live in countries that recorded positive policy progress in 2025. Many countries also updated or introduced new clean cooking targets in 2025. As a result, more than 70% of the global population without access to clean cooking now live in countries with a clean cooking target.

Recent progress in clean cooking access policies by type and region



Notes: The tracking period is from January 2024 to March 2025. Over 70% of the "rest of world" population without access are in Latin America and the Caribbean.

National strategies for clean cooking are expanding rapidly, particularly in sub-Saharan Africa. Since early 2024, more than 50 clean cooking policies, including 17 new national targets, have been adopted. Countries such as Ghana, Kenya, Malawi, Mozambique, Nigeria, Tanzania, Uganda and Zimbabwe now show the broadest coverage across key clean cooking policy areas. Tanzania's National Clean Cooking Strategy (2024-34) targets 80% access by 2034 through measures to raise public awareness and enhance the accessibility and affordability of clean fuels and appliances while

promoting investment and harmonising existing policies. Ethiopia launched its National Clean Cooking Roadmap in 2025 to support its ambition of universal access to clean cooking. In March 2024, Nigeria's Federal Executive Council approved the National Clean Cooking Policy, which includes comprehensive measures to create a sustainable local clean cooking industry and boost access. The development of new strategies and targets, as well as the strengthening of existing ones through clear and detailed implementation plans and funding mechanisms, can support the rapid expansion of clean cooking solutions.

Tax measures to reduce the cost of clean cooking equipment and fuels for consumers also feature in recent policies. Since 2024, seven countries have changed their VAT rules or tariffs on clean cooking equipment or fuels. Kenya reduced its VAT on denatured bioethanol to zero in 2025. Nigeria's National Clean Cooking Policy exempts liquefied petroleum gas (LPG) and biogas, along with related equipment such as conversion kits, biogas digesters, compressors and clean cooking accessories from VAT. Uganda removed VAT from biomass pellets and bioethanol and ethanol stove components, and Tanzania has announced plans to lower taxes and levies on clean cooking appliances and energy-efficient stoves.

This progress on clean cooking access can be fragile in view of crises. In March 2026, following the closure of the Strait of Hormuz, LPG import prices increased by around 80% on average in developing economies where LPG is widely used for cooking. Supply disruptions and price increases have immediate effects on energy use, with an estimated one out of six households expected to shift from LPG back to traditional use of biomass for cooking. This rise already prompted many governments to take steps to stabilise prices, often straining their own finances or those of local energy companies. Some countries are implementing emergency demand restraint measures, increasing domestic production where feasible, prioritising supply to households, hospitals and schools, rationing commercial use of LPG, and encouraging fuel switching where possible. The IEA tracks Energy Crisis Policy Responses, and will assess their impact in its forthcoming Clean Cooking report 2026.

Clean cooking access policy coverage by type and region, Q2 2025

	Target	National strategy	Tax incentives	Consumer support	Distribution strategy
Sub-Saharan Africa	◕	◕	◑	◕	◕
Central Africa	◕	◕	◕	◕	◕
East Africa	◕	◕	◔	◕	◕
Southern Africa	◕	◕	◕	◑	◑
West Africa	◕	◕	◑	◑	◕
Developing Asia	◑	◑	◔	◑	◕
Latin America	◕	◑	◔	◔	◔
World	◕	◑	◑	◑	◕

Share of population without access within each region with policy currently implemented or announced:

○ <10% ◔ 10-39% ◐ 40-69% 70-99% ● 100%

Success stories in clean cooking access policy

Progress on clean cooking access in Africa has been slow in recent decades. Experience in countries such as India and Indonesia, however, demonstrates that rapid gains are achievable. Drawing on the policy approaches that enabled these countries to close their clean cooking gaps quickly could help African countries accelerate progress, adapted to their own national contexts.

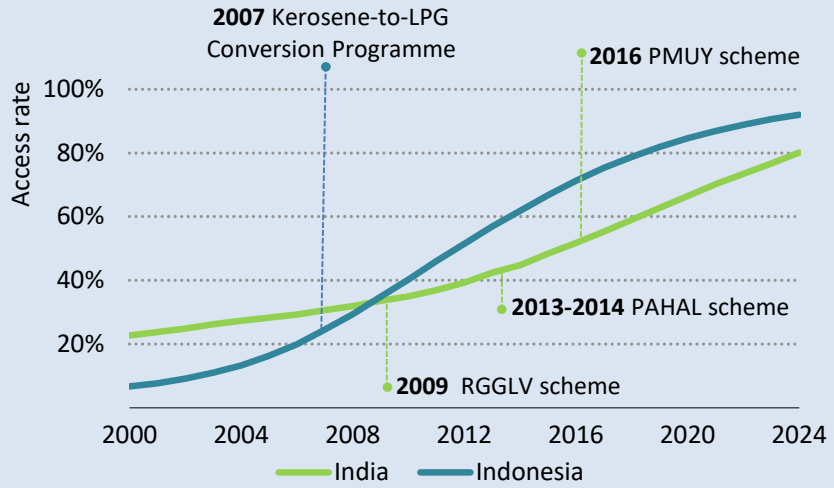
In India, only 34% of the population had access to clean cooking solutions in 2009. By 2024, access had risen to more than 80%. A major early intervention was the Rajiv Gandhi Gramin LPG Vitrak (RGGLV) scheme, introduced in 2009, which provided affordability support for LPG by reducing the purchase price for households and reimbursing oil market companies for the difference. While successful, the scheme imposed a heavy fiscal burden on the government. India later launched the Pratyaksh Hanstantrit Labh (PAHAL) scheme in 2013-14, redirecting subsidies directly into consumers' bank accounts. This approach allowed for better targeting than broad-based subsidies and eventually evolved into India's flagship scheme, Pradhan Mantri Ujjwala Yojana (PMUY), launched in 2016.

The scheme provided free LPG connections to women in households below the poverty line, covering the costs of the stove, regulator and initial refill. By 2019, the programme had already reached 80 million households and subsequently expanded to over 100 million in its second phase.

This early success prompted the government to raise the target to between 53 million and 56 million households in subsequent years.

Pertamina, the state-owned oil company, played a pivotal role in the transition by leveraging its existing kerosene supply chain to expand LPG infrastructure. The company rapidly established new LPG distribution points to ensure widespread availability.

Policy impact on the clean cooking access rate in India and Indonesia, 2000-2024



Note: IEA based on data from the World Health Organization (2025).

Indonesia's progress is also a success story. Access to clean cooking in the country rose from 7% in 2000 to over 90% in 2024, largely driven by its kerosene-to-LPG conversion programme launched in 2007. The programme distributed free LPG starter cooking kits to households and micro-businesses, delivering 44 million starter kits in just two-and-a-half years, ahead of the initial goal of 42 million over three years.

Sector snapshots

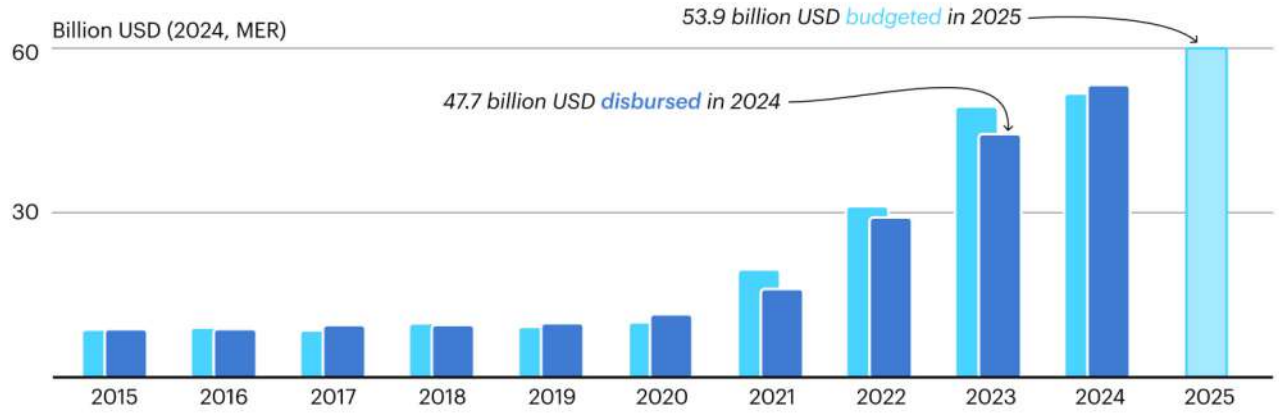
Buildings

Buildings

Energy demand **28.6% (2015) > 28.0% of total final consumption (2024)**
CO_2 emissions **14.5% (2015) > 13.6% of total final consumption (2024)**

Government spending

Government spending for buildings energy efficiency measures escalated since 2020 before slowing down in 2023. They account for about 13% of total energy sector government spending in 2024.



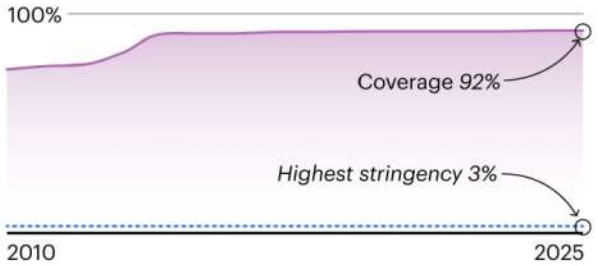
Main disbursed programmes in 2024:

- Promotion of energy efficiency and renewable energy measures in the building sector
  Germany (USD 15.3 billion)
- Superbonus
  Italy USD 6.7 billion
- Credit for residential energy efficient property
  United States (USD 6.4 billion)

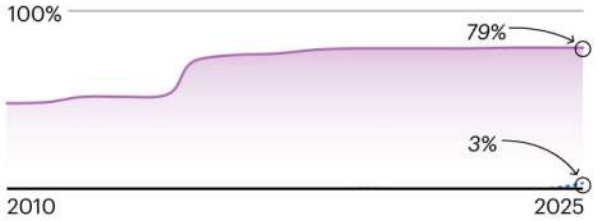
Regulations

The coverage and stringency of key energy performance standards in the building sectors plateaued since 2015.

Cooling demand covered by a MEPS



Heating demand covered by a MEPS



6/85
countries
adopted or revised a MEPS for air conditioners in 2025

0/85
countries
adopted or revised a MEPS for boilers in 2025

Notes: MEPS = minimum energy performance standards. Government spending includes energy-efficient retrofit, appliance and heat pumps programmes. Highest stringency coverage includes countries with an Energy Efficiency Coverage and Stringency Indicator higher than 75 out of 100. For air conditioners, this implies cooling energy demand covered by MEPS higher than 7.2 Wh/Wh (ISO CSPF). For boilers, this implies heating energy demand covered by a MEPS for gas boilers requiring an efficiency rate above 91%.

Few buildings energy regulatory updates came into effect, aside from stricter data centre standards

The global regulatory framework for buildings did not change dramatically in 2025, with only about 20 new or more stringent policies coming into effect. *State of Energy Policy 2026* provides a detailed analysis across key areas, including building energy codes, energy efficiency standards for key appliances, government spending programmes for retrofits and energy equipment replacement.

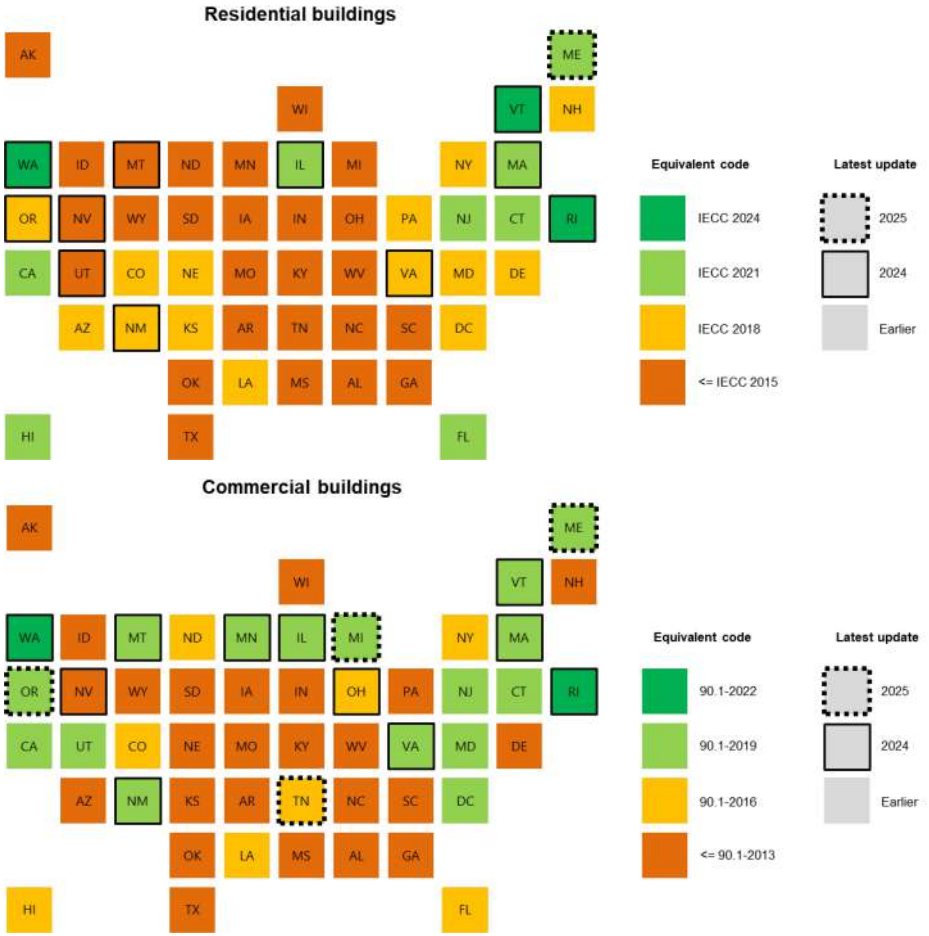
Building energy codes advanced slowly, with some delays and rollbacks

As of 2025, 63 out of 84 tracked countries had building energy codes (BECs), which are typically updated every ten years. Of these, two updated national codes came into effect in 2025. Most codes continued to focus on envelope efficiency and general energy savings, with enforcement often uneven, particularly in countries with large informal construction sectors, informal settlements, or sizeable second-hand building and appliance markets. One of the most significant changes in terms of the coverage of buildings energy demand was in Japan, where the revised Building Energy Efficiency Act required all new buildings to comply with energy saving standards from April 2025, with all new buildings to become net zero energy buildings from 2030 onwards. One country implemented its first BEC: Kenya's National Building Code 2024 came into effect in March 2025.

The Code aims to promote energy-efficient building designs, renewable energy integration, and the use of energy-saving materials and technologies. In India, the process of updating BECs for residential buildings and new large commercial buildings continued, with Kerala leading implementation by publishing its state rule.

In 2025, some countries reviewed their standards, with some delaying the expected implementation of new codes or holding off on full implementation. In the United Kingdom, the government scrapped its planned ban on gas boiler sales by 2035, while in Australia, the state of Victoria rolled back proposals requiring houses and businesses to replace gas appliances with electric alternatives, highlighting the challenge of embedding fuel switching requirements in BECs. In the United States, the Department of Energy postponed the compliance date for its rule on Clean Energy for New Federal Buildings and Major Renovations from May 2025 to May 2026. State-level efficiency codes, which are the major driver of efficiency progress in the United States, continued to progress, with four states (Maine, Michigan, Oregon and Tennessee) updating residential or commercial BECs in 2025. This was in line with typical renewal cycles, with an average of around five states per year updating their standards.

Building energy code adoption in the United States, 2025



Notes: IECC = International Energy Conservation Code. The building energy codes follow the IECC for residential buildings); American Society of Heating, Refrigerating and Air-Conditioning Engineers 90.1 for commercial buildings.

Global appliance efficiency progress remains slow

Coverage of minimum energy performance standards (MEPS) currently in force for appliances ranges from 40% of global cooking demand to 90% for cooling. In 2025, 15 countries implemented or updated appliance MEPS, although many of these were modest updates that had little impact on overall stringency. Korea updated its Energy Efficiency Labelling and Standards for washing machines, electric air conditioners, heat pumps and lighting (MTIE 2025-145). Mexico introduced new standards for central air conditioners (NOM-011-ENER-2025). China's new MEPS and labelling system for heat pumps and water chillers (GB 19577-2024) came into force in February 2025. In Japan, the Top Runner Programme set new energy efficiency targets for water heaters in 2025, including heat pumps and gas and oil water heaters, while demand response-ready standards for heat pump water heaters were clarified under the seventh Strategic Energy Plan. In the United States, federal energy conservation standards for ceiling fans, dehumidifiers, external power supplies, battery chargers, residential dishwashers, clothes washers and microwave ovens were removed. The Environmental Protection Agency also indicated that it may terminate or restructure the Energy Star efficiency labelling programme.

Government spending rose sharply, despite some major markets rolling back efficiency incentives

Disbursement in the buildings sector soared to reach around USD 56 billion in 2025, up from USD 8 billion in 2015. This growth was mainly driven by retrofitting and space heating electrification

programmes that expanded through economic recovery packages in response to the Covid-19 pandemic and the 2022 energy crisis. In 2025, Canada implemented its Greener Homes Affordability Program to offer no-cost home retrofits, such as insulation and heat pumps, for low- to median-income households. Denmark proposed new tax-exempt subsidies to support building-envelope renovations and energy efficiency upgrades. Hungary adopted the Home Renovation Programme to enhance residential energy efficiency loans, with the requirement that retrofits deliver at least a 30% reduction in primary energy consumption per building. In China, a trade-in subsidy for highly efficient appliances drove more than 129 million efficient appliance purchases in 2025 alone and has played a major role in supporting appliance sales in recent years.

At the same time, several buildings energy efficiency incentive programmes were discontinued. In the United States, the One Big Beautiful Bill Act abolished federal home energy tax credits. Italy's Superbonus was reduced from a 110% rebate in 2023 to 65% in 2025, and will be terminated ahead of schedule in 2026, while the existing Ecobonus, Bonus Casa and Conto Termico continue to provide ongoing support.

Coverage of data centre energy efficiency regulations grew significantly in 2025

The development of artificial intelligence is driving a rapid expansion of data centres and related energy needs around the world. The IEA's Energy and AI report highlighted that data centre electricity consumption is set to more than double by 2030, increasing from 1% of global electricity consumption today to 3% in 2030, and thus putting pressure on electricity generation and networks.

Governments have introduced several energy efficiency regulations and incentives in response. Efficiency standards have mainly focused on the power usage effectiveness (PUE) metric, defined as the ratio of a facility's total power and cooling consumption to the energy consumed by its IT equipment. A higher PUE indicates a less efficient data centre, on average. As of 2025, countries representing around 25% of data centre capacity had PUE standards in place, although in some jurisdictions these apply only to new centres.

China introduced a green development action plan for data centres in 2024, setting a limit for overhead power consumption to be at most 50% of IT equipment consumption by 2025, equivalent to a maximum PUE of 1.5. Similarly, Australia introduced new standards for data centres requiring a PUE of 1.4 or lower from mid-2025. In addition to energy efficiency standards, some countries developed specific programmes or guidelines. The European Union published the 2025 Best Practices Guidelines for data centre energy efficiency to provide harmonised industry measures. Singapore set out its Green Data Centre Roadmap in 2024, and the United States made tools available to support data centre owners through its Electricity Demand Growth Resource Hub.

Power usage effectiveness (PUE) in data centre standards, 2025

Region	Average PUE (2023)	PUE mandate	Share in overall electricity demand (2024)
California (United States)	1.21	1.5 by 2014 (all data centres)	3.4%
France	1.36	40% building energy use reduction by 2030	2.0%
Germany	1.42	1.2 by 2026 (new data centres), 1.3 by 2030 (existing data centres)	1.9%
Australia	1.44	1.4 by 2025 (all data centres)	2.4%
Japan	1.53	1.4 by 2022 (all data centres)	1.0%
China	1.56	1.25 by 2025 (new data centres), 1.5 by 2025 (existing data centres)	1.0%
Global	*1.43*		*1.3%*

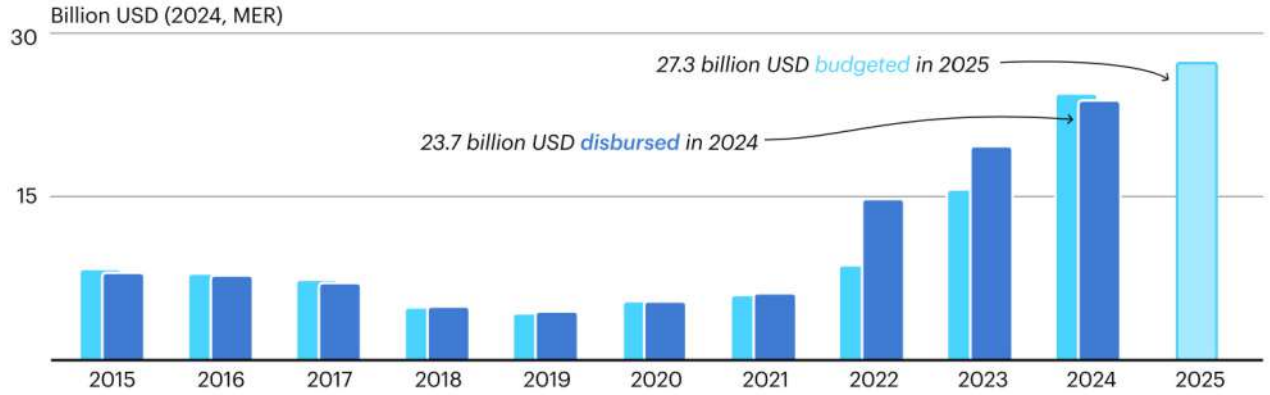
Industry

Industry

Energy demand **37.8% (2015) > 38.5% of total final consumption (2024)**
CO_2 emissions **44.4% (2015) > 43.8% of total final consumption (2024)**

Government spending

Government spending in the industry sector has risen since 2021, reaching almost USD 24 billion in 2024, of which 54% were allocated to advanced manufacturing. The sector accounted for 6% of total energy sector government spending in 2024.



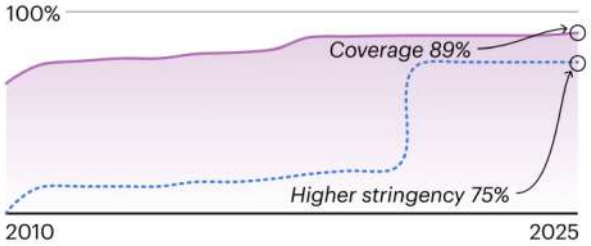
Main disbursed programmes in 2024:

- Advanced manufacturing investment credit
  United States (USD 3.2 billion)
- Exploration, mining and preparation of other resources
  China (USD 1.9 billion)
- Battery manufacturing supply chain resilience support project
  Japan (USD 1.5 billion)

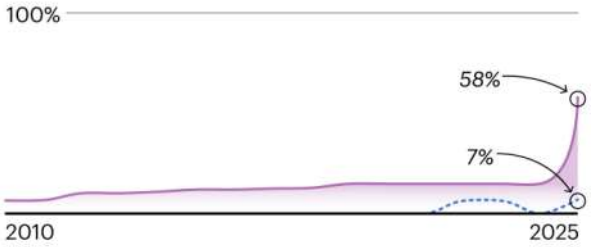
Regulations

The coverage and stringency of carbon pricing instruments in the industry sector significantly increased in 2025.

Industrial motors electricity demand covered by a MEPS



Industry emissions covered by a carbon price



2/85
countries
adopted or revised a minimum energy performance standard for industrial motors in 2025

1/85
countries
adopted or revised a carbon pricing instrument in 2025

Notes: MEPS = minimum energy performance standards. Government spending includes advanced manufacturing, energy efficiency and decarbonisation industry programmes. Highest stringency coverage includes countries with an Energy Efficiency Coverage and Stringency Indicator higher than 75 out 100. For industrial motors, this implies industry energy demand covered by International Efficiency ratings 3 and 4. For carbon pricing instruments, highest stringency coverage includes countries' industry greenhouse gas emissions from fuel combustion covered by an explicit carbon price above USD 63/t CO_2 which corresponds to the lower end of the price range recommended by the High-Level Commission on Carbon Prices.

Carbon pricing has expanded in industry, while energy efficiency policy increasingly supports clean-tech manufacturing incentives

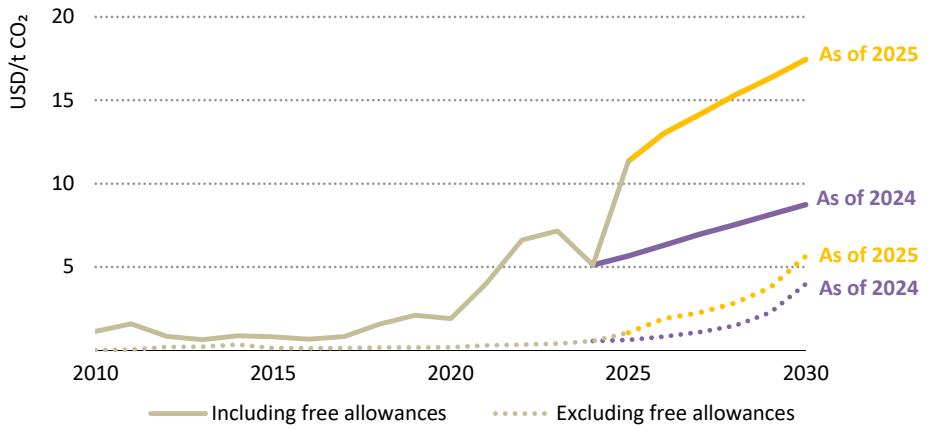
More than 60 jurisdictions have developed industrial strategies with energy-related components, tightened regulations and carbon pricing schemes. Seven of these revised their strategies in 2025, setting new ambitions and policies. *State of Energy Policy 2026* provides a snapshot of policy evolution in the industry sector, with a specific emphasis this year on advanced manufacturing incentives for energy-related equipment, energy efficiency regulations and carbon pricing instruments.

Industrial carbon pricing coverage expanded substantially in 2025, though its effects may be felt later

Emissions trading systems (ETS) and carbon taxes have been operating for many years in the power sector but have been slower to cover industrial CO_2 emissions, where international competition among manufacturers often makes emissions trading more challenging to implement.

As of 2025, more than half of industry-related emissions are covered by a carbon pricing scheme, up from 15% in 2024. This means that as much industrial CO_2 emissions are now covered by carbon pricing as power sector emissions. The most notable expansion has been in China, where, in 2025, the National ETS was expanded to include the cement, steel and aluminium industries. However, this global increase in coverage has not yet translated into a significant rise in stringency in the industry sector. Given the historical risk of carbon leakage, most industry emissions covered under carbon pricing schemes are fully or partially covered by free permits. In China, entities received 70% of their allowances for free in 2025 through pre-allocation, and in 2026 they are expected to receive free allowances covering at least 97% of their total emissions. Reflecting this, excluding free permits, the global weighted carbon price in the industry sector grew to USD 1/t CO_2 in 2024 and remained at that level in 2025, compared to around USD 11/t CO_2 when free permits are not excluded. Carbon adjustment mechanisms have been developed to gradually phase out these free allowances while addressing carbon leakage concerns. The United Kingdom announced in April 2025 the introduction of a carbon adjustment mechanism on imports of aluminium, cement, fertiliser, hydrogen, and iron and steel, tied to a gradual phase-out of free allowances from January 2027. Similarly, in December 2025, the European Union detailed the implementation of its mechanism, including the gradual phase-out of free allowances from 2026 onwards.

Weighted carbon price for the industry sector, 2010-2035



Notes: The carbon price of each scheme is weighted by the industry-related greenhouse gas emissions it covers, implying a price of zero when industry emissions are not covered. Projections up to 2030 are based on the gradual increase in stringency planned in carbon schemes already in effect and programmes that are expected to be implemented in the coming years.

Global coverage of industrial emissions by carbon pricing schemes is set to continue to rise in the next five years, with new or modified schemes scheduled to be enforced in five countries. Japan has provided new guidelines on the mandatory phase of its Green Transformation ETS, due to come into effect in 2026. Türkiye adopted its Climate Law in July 2025, enabling the implementation of a national ETS in 2027, with a pilot phase starting in 2026. Brazil voted in its first Greenhouse Gas Emissions Trading System, which is expected to ramp up to full implementation in 2030. India also laid out additional plans to transition its currently active Perform, Achieve, Trade energy efficiency credit trading scheme into a carbon credit trading scheme covering nine industrial sectors. Together, the policy changes implemented in 2025 are projected to have a substantial effect on the global average carbon price for industry. When accounting for free allowances, the average price is expected to be twice as high by 2035 as it would have been without these new expansions and changes in stringency.

Government incentives for the manufacturing of energy-related equipment have grown rapidly since 2021

Announced government support for the domestic manufacturing of energy equipment, such as solar PV modules and batteries, and the decarbonisation of industrial processes has expanded rapidly since 2021, growing from USD 1.9 billion in 2021 to USD 24 billion in 2025. This reflects the growing importance that governments are placing on competitiveness and the diversification of their supply chains. The largest disbursed allocations in 2025 included the United States' advanced manufacturing production credit and advanced manufacturing investment credit (USD 4.2 billion), Japan's battery manufacturing supply chain resilience support project programme (USD 2.7 billion in 2024) and France's 2030 industrialisation programme (USD 1.2 billion in 2024). In February 2025, the European Union launched its Clean Industrial Deal, earmarking more than USD 100 billion to support clean technology manufacturing from 2025 to 2030. Korea's Green Infrastructure Overseas Export Support Fund also plans to allocate USD 730 million to promote domestic low-carbon technology investments, available from 2024 to 2028.

On average, spending under programmes supporting advanced energy-related manufacturing exceeded expectations, with disbursements overshooting initial budgets by an average of 60% in

2022 and 2023. This pattern can be seen across many countries. Canada's Clean Technology Investment tax credit disbursed around five times its initial budget of USD 150 million in 2023. India's Production-Linked Incentive scheme for Advanced Chemistry Cell Battery Storage disbursed around eight times its original allocation in 2023. However, its Production-Linked Incentive scheme for Automobiles and Auto Components spent only 10% of its total 2024 allocation. Programmes in other countries also faced challenges in disbursing their full allocations for manufacturing incentives, although these cases were in the minority. Germany's industry decarbonisation programme disbursed only USD 44 million of the USD 713 million initially planned in 2024, and the United States is expected to have disbursed USD 30 million of its manufacturing investment credits in 2025 against an initial budget of USD 6 billion.

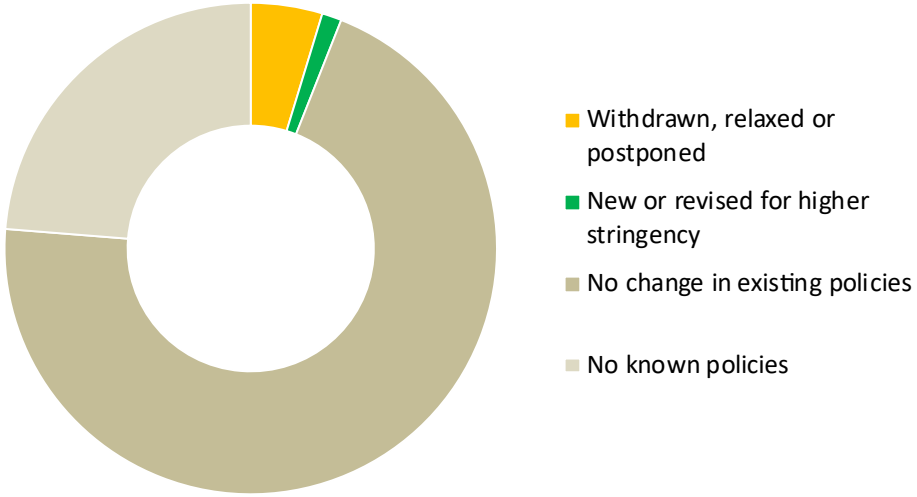
In 2024, the majority of energy spending for industry was directed towards manufacturing incentives, accounting for more than 61% of the total industrial budget. In the United States and Canada, investments targeting manufacturing capacity made up 90% of industry-related spending. In Brazil and China, industry-related energy programmes targeting mining and critical minerals accounted for the vast majority of industry-related energy spending.

Industrial motor efficiency standards faced delays in 2025, but energy efficiency signals remain

Industrial energy efficiency standards remain largely focused on MEPS for key equipment that cuts across most industrial uses. In 2025, 71 countries enforced MEPS for industrial motors, covering around 90% of global electricity demand from motors.

In 2025, the Eurasian Economic Union, which comprises Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia and accounts for around 5% of global electricity demand from motors, delayed implementation of its MEPS for key appliances and industrial motors from 2025 to 2028. However, two new efficiency standards came into force. South Africa enforced its first standard for electric motors with a minimum efficiency compliance level equivalent to IE3 (Premium Efficiency), as planned in 2024. Similarly, Morocco enacted a new standard with a similar level of stringency.

Status of global industrial motor efficiency standards, 2025



Notes: Each country policy status is weighted by its share in global electricity demand from industrial motors.

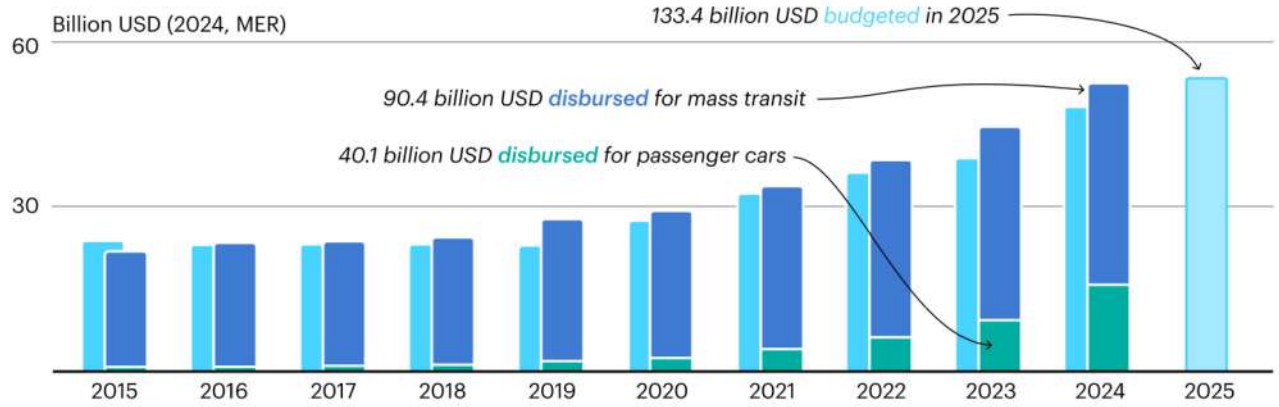
Transport

Transport

Energy demand **27.9% (2015) > 27.5% of total final consumption (2024)**
CO_2 emissions **38.7% (2015) > 40.5% of total final consumption (2024)**

Government spending

Government spending grew to reach an all time high in 2024, accounting for about 35% of total energy sector government spending. Mass and alternative transit programmes represent the vast majority (69%).



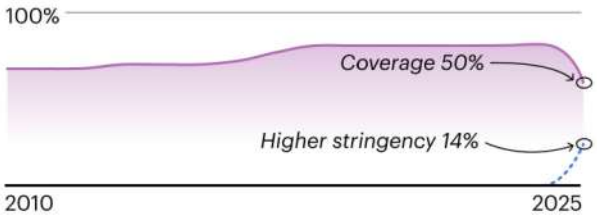
Main disbursed programmes in 2024:

- Tax credit for clean vehicles
  United States (USD 16 billion)
- Auto trade-in subsidy programme
  China (USD 12.5 billion)
- Purchase tax
  China (USD 2.2 billion)

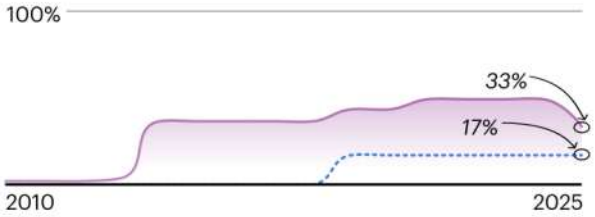
Regulations

The coverage of fuel economy standards dropped in 2025, while few jurisdictions enacted more straingent regulations for both cars and trucks.

LDVs energy demand covered by a fuel economy standard



HDVs energy demand covered by a fuel economy standard



2/85
countries
adopted or revised a fuel economy standard for light-duty vehicles in 2025

3/85
countries
adopted or revised a fuel economy standard for heavy-duty vehicles in 2025

Notes: LDV = Light-duty vehicles. HDV = heavy-duty vehicles. Government spending estimates include direct investments, grant schemes and tax credits for mass and alternative transit (urban transit, rail) and passenger cars. Highest stringency coverage implies energy demand covered by a fuel economy standard higher than 21.6 km/L for LDVs and a fuel economy standard implying a relative reduction of at least 25% compared to 2010 levels for HDVs.

Diverging trends in fuel economy and emissions standards in 2025 point to an overall weakening of minimum vehicle efficiency standards

Government energy-related spending in the transport sector reached new highs in 2024. Much of this increase was concentrated in support for more efficient and electric vehicles. However, in 2025, several existing and planned vehicle performance standards were repealed, delayed or relaxed. *State of Energy Policy 2026* analyses these diverging signals across 14 transport policy types, including fuel economy standards for passenger cars and heavy-duty vehicles, biofuel blending mandates, government support for consumers and producers to accelerate the uptake of low-emissions vehicles, technology bans and carbon pricing schemes.

Existing and planned fuel economy standards were eased in 2025

In 2025, two opposing trends emerged in vehicle fuel efficiency and emissions standards: several countries eased planned regulations, while others proceeded with new requirements or strengthened existing ones. Taken together, these movements resulted in a net setback for expected global improvements in vehicle efficiency, as progress in many regions was outweighed by regulatory weakening elsewhere.

The most significant change occurred in the United States, where civil penalties for non-compliance with corporate average fuel-economy standards were repealed, effectively removing the long-standing fuel economy programme. This repeal, along with further announcements in December 2025, had immediate effects on stringency in 2025 and also removed planned upgrades previously due to come into effect in 2026.

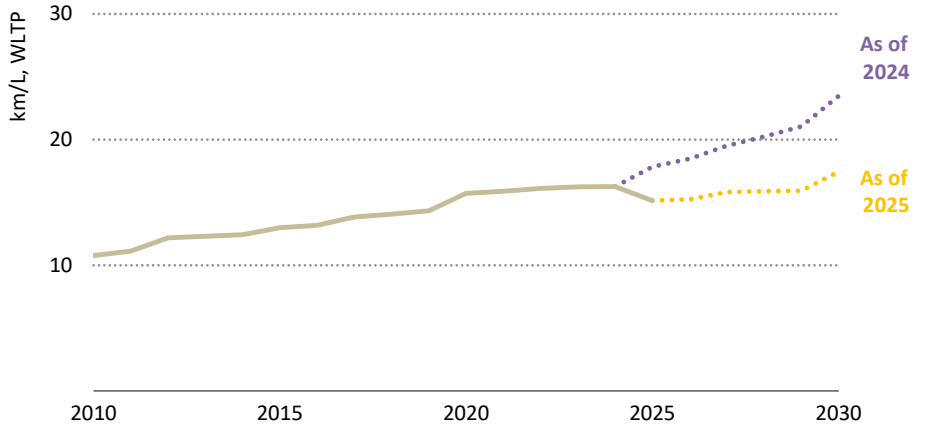
The European Union's first milestone under its 2019 vehicle emissions standard took effect in 2025, requiring a 15% reduction in emissions per kilometre from 2021 levels. However, the European Council approved additional flexibility in June 2025. Car manufacturers can now meet the initial target based on average performance across 2025-27, rather than strictly within 2025, implying starker improvements in emissions efficiency in 2026 and 2027. Future increases in stringency have also come into question, although no formal action has been taken yet. In December 2025, the European Commission presented its Automotive Package to review existing emissions standards for cars and vans. If adopted, this revision would target a 90% reduction in tailpipe emissions by 2035, down from 100% under the current target. The United Kingdom also introduced greater flexibility in meeting its zero-emission vehicle mandate by allowing higher shares of plug-in hybrids. Canada paused its 2026 zero-emission vehicle mandate for review to give the automotive industry additional time to prepare.

Some countries increased vehicle efficiency standards in 2025, although these did not offset the aforementioned revisions. China entered Phase V of its fuel economy standards for passenger cars, lowering the fleet-average target to 4.0 L/100 km (New European

Driving Cycle), down from 5.0 L/100 km five years earlier. It also published an updated development strategy in April 2025, aiming to achieve a 10% share of electricity in the transport sector by 2027. Australia implemented its first national New Vehicle Efficiency Standard, requiring manufacturers to achieve an average of 141 g CO_2/km across all light-duty vehicles sold.

Overall, despite the adoption of stringent standards in some jurisdictions, the setbacks caused the weighted average regulated vehicle-efficiency requirement to decline in 2025, for the first time on record. Delays to future tightening cycles also reduced expected regulated fuel-efficiency levels in 2030 by about 30%.

Weighted average of energy efficiency levels of light-duty vehicle standards, 2010-2030



Notes: WLTP = Worldwide Harmonized Light Vehicles Test Procedure. The estimates include fuel economy and GHG emissions standards normalised to km/L and the WLTP according to International Council on Clean Transportation methodology. For the weighting, demand which is not subject to any standard is reflected as the lowest standard on record (10.5 km/L).

Government fiscal support continued to grow in 2024 and 2025

Government support for efficient and electric passenger cars has risen significantly over the past five years, climbing to USD 40 billion in 2025. This includes major disbursing programmes, such as the United States' tax credit for clean vehicles, which reached USD 9 billion in 2025. China's purchase tax exemptions also continued to grow, with USD 2.2 billion spent in 2025, 30% more than in 2023, alongside its trade-in programme, which reached USD 12 billion in 2024. Nigeria started to exempt electric vehicles and charging infrastructure from VAT in late 2024, and India scaled up its PM Electric Drive Revolution in Innovative Vehicle Enhancement Scheme to nearly its initial budget of USD 450 million in 2025. However, a number of these incentive schemes are set to wind down in the coming years. In September 2025, the United States' tax credits ended for electric and other low-emissions vehicles.

Significant investments in mass and alternative transit totalled around USD 82 billion in 2025, with railways receiving the largest allocation. China's railway network construction programme increased over the past ten years, reaching a peak in disbursement of USD 15.6 billion in 2024. High Speed Two in the United Kingdom has also received more than USD 60 billion in government budget since 2015. More than USD 4 billion of public funding was secured through the Connecting Europe Facility for the construction and renovation of railways in the Baltic countries. The United States' urbanised area programmes reached their highest disbursement, at USD 8.4 billion in 2025. Metro projects under India's Ministry of Housing and Urban Affairs rose from USD 1.5 billion in 2020 to USD 3.2 billion in 2025.

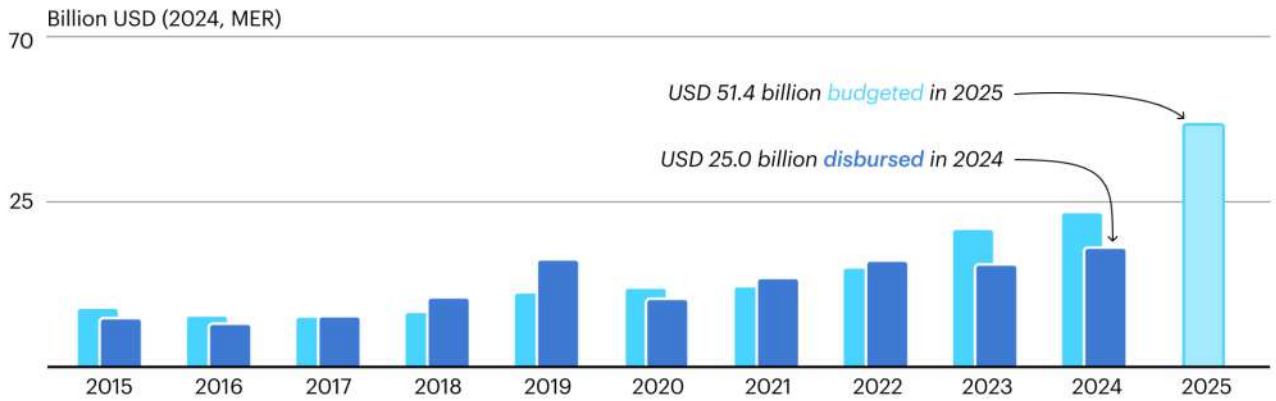
Fuels

Fuels

Oil and natural gas production **310 EJ (2015) > 342 EJ (2024)**
Fugitive methane emissions **4.4 Mt (2015) > 4.4 Mt (2024)**

Government spending

Government spending for fuel-related production has been steady in the last ten years. This sector accounted for about 7% of total energy sector government spending in 2024.



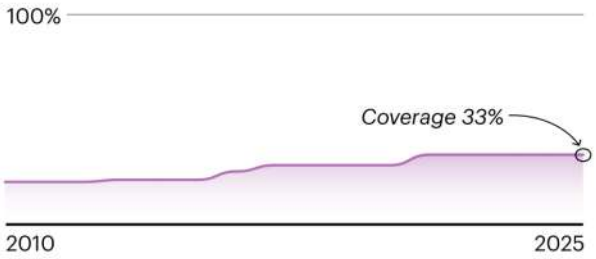
Main disbursed programmes in 2024:

- Transfers of participations for the production of oil and natural gas
  Brazil (USD 9.7 billion)
- Excess of percentage over cost depletion
  United States (USD 1.4 billion)
- Carbon capture usage and storage and hydrogen
  United Kingdom (USD 1.1 billion)

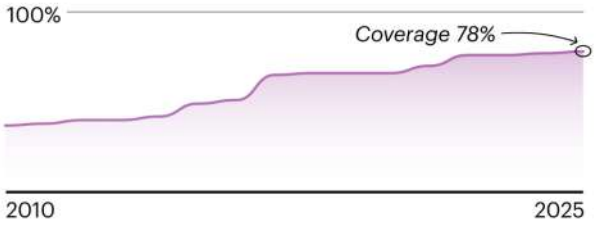
Regulations

The coverage of flaring regulations has been steady, while a larger number of countries have implemented biofuel blending mandates.

Methane emissions covered by a flaring standard



Road energy demand covered by a biofuel blending mandate



0/85
countries
adopted or revised a flaring standard in 2025

3/85
countries
adopted or revised a biofuel blending mandate in 2025

Note: Government spending includes direct investments, grant schemes and tax credits for direct oil and gas production support, oil reserves, hydrogen, biofuel production, and carbon capture, utilisation and storage.

Elevated energy security concerns are leading countries to review fuel security plans

State of Energy Policy 2026 expands the scope of policy types covered in the fuels sector compared with the previous edition. It now analyses in depth traditional emergency measures for oil and gas disruptions, including stockholding requirements and demand-restraint measures; permitting regimes; and regulations, mandates and incentive schemes for methane abatement, hydrogen and biofuel development. Fewer than ten countries implemented one or more of these new measures in 2025.

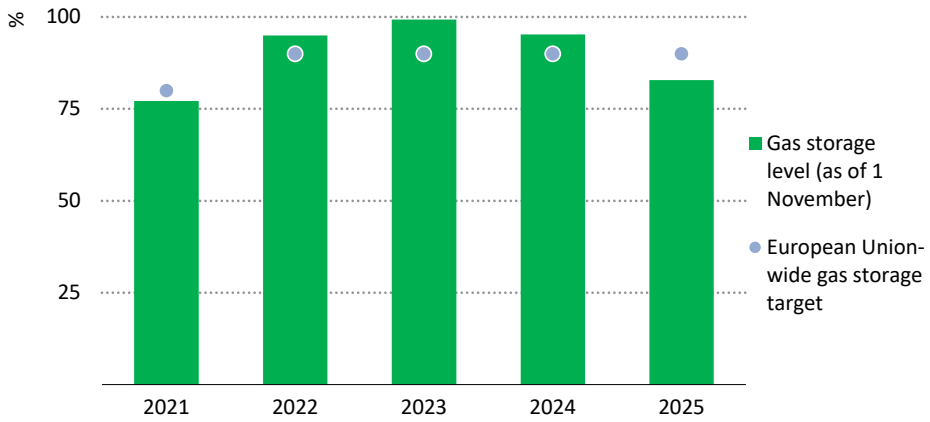
More countries hold strategic oil and natural gas stocks

Since 2000, most oil-importing countries have maintained some form of oil stockholding requirements and emergency response measures. All advanced economies already have these measures in place, while coverage in emerging markets and developing economies is lower. However, net-importing countries without such measures account for less than 5% of total oil imports.

In 2025, global policies on oil stockholding requirements remained stable. Korea's Special Act on National Resources Security (2024) improved early warning systems and coordination processes for key resources, including oil, natural gas, coal, uranium and hydrogen. India's Ministry of Petroleum and Natural Gas allocated an initial budget of USD 661 million in 2025 for its strategic oil reserves, up from USD 75 million in the previous year. Similarly, Indonesia revised its energy buffer reserves law in 2024, aiming to expand its reserves of gasoline, liquefied petroleum gas and crude oil.

Natural gas stockholding and emergency measures are expanding in response to recent disruptions and security-of-supply risks, notably in Europe. About 42% of gas imports are now covered by gas stockholding requirements, with 29 countries having such policies in place, up from 24% just five years ago. Most of these requirements are seasonal stock obligations. The European Union's 2022 Gas Storage Regulation set a filling target of 80% by 1 November 2022 for each member state with stock facilities, rising to up to 90% each year from 1 November 2023 onwards. The European Council extended this measure by two years, to the end of 2027, and introduced new flexibility of plus or minus 10%. In this context, Germany recently revised its required filling level, under the Gas Storage Filling Level Ordinance, back to 80% from 1 November 2025 through 2027. For deeper analysis on this topic, see the spotlight section on energy security policies.

Evolution of gas storage in the European Union, 2021-2025



Source: IEA based on data from Gas Infrastructure Europe (2025).

Fossil fuel subsidies have declined from 2022 highs but remain elevated, alongside rising support for oil and gas production in some countries

As oil and gas demand continues to rise, some countries have expanded financial support to encourage increased production. Global oil and natural gas production reached new peaks in 2024, at 100 mb/d and 4 300 bcm, respectively – around 10% higher than in 2015. The OECD Inventory of Support Measures for Fossil Fuels estimates that production-linked incentives for oil and gas reached USD 27 billion in 2024. Notable increases include Brazil, where support for oil and gas production rose from USD 6 billion in 2020 to USD 11 billion in 2024. In the United States, tax support for exploration and development costs increased steadily, from USD 1.8 billion in 2015 to USD 2.5 billion disbursed in 2024. The US Treasury expects further expansion in line with the executive order Unleashing American Energy, with the latest annual budget bill earmarking USD 19 billion over the next five years. India also launched Mission Anveshan in October 2024, providing incentives for seismic surveys to map oil and gas deposits, with initial budgets of USD 40 million and USD 67 million in 2024 and 2025, respectively.

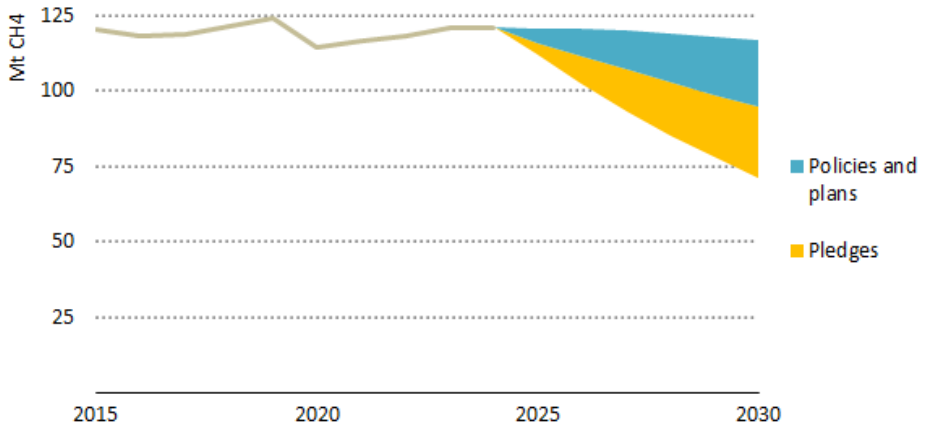
This production-linked government support differs from consumer fossil fuel subsidies, which occur when governments use regulatory or pricing schemes to keep fuel prices below prevailing global levels. The IEA tracks fossil fuel subsidies, which reached record levels during the 2022 energy crisis, as governments implemented both explicit affordability measures and regulated price controls that effectively acted as subsidies for consumers. Fossil fuel consumption subsidies fell to USD 600 billion in 2024, down from USD 1.2 trillion in 2022, but this remains the third-highest level in the past 15 years. The vast majority of consumption subsidies are concentrated in emerging markets and developing economies.

Efforts to mitigate methane emissions from fossil fuel production continue to lag pledged action

Many countries have pledged to reduce fugitive methane emissions, a potent greenhouse gas. Based on the IEA's Global Methane Tracker, energy-related fugitive methane emissions remained stable in 2024 at 4.4 Gt CO_2 equivalent, a slight increase from the previous

year. In total, 160 countries have joined the Global Methane Pledge, a high-level commitment to reduce global methane emissions by 30% below 2020 levels by 2030. Together, these countries represent around 80% of global fossil fuel production. No additional countries joined in 2025.

Methane emissions reductions in the fossil fuel sector from current policies, plans and pledges to 2030



Source: IEA (2025), Global Methane Tracker.

Not all pledges are currently supported by concrete policies and regulations such as zero non-emergency flaring and venting requirements, leak detection and repair programmes, and enhanced technology standards. Few regulatory changes for enhancing oil and gas methane abatement occurred in the past 12 months. China issued a new coalbed methane air pollution standard, mandating coal mine operators to mitigate emissions in mines where gas has a methane concentration of 8% or higher. The first requirements under the EU regulation on the reduction of methane emissions in the energy sector came into effect in January 2025, mandating leak detection and repair in oil and gas facilities from 2025, banning routine flaring from 2026 and limiting venting at thermal coal mines from 2027.

Overall support for alternative fuels remained stable in 2025

New regulations and funding measures have continued to support growth in liquid biofuels and hydrogen production, which rose to 7% of total liquid fuel production in 2024.

Three major biofuel blending standards came into effect in 2025. Indonesia fully implemented its B40 biodiesel programme, Brazil increased ethanol blending from 27% to 30% in August 2025 and Ukraine introduced its first E5 bioethanol requirement in May 2025. The European Union and the United Kingdom also began implementing their Sustainable Aviation Fuel Mandate, starting at a 2% blend. Additional pledges to increase blending and other biofuel support were also announced. At COP30 in Belém, 23 countries pledged to quadruple sustainable fuel production and use by 2035, supported by Brazil, India, Italy and Japan. Investment programmes also increased funds for sustainable fuels, with a stronger focus on aviation. Under its Green Transformation Policy, Japan allocated an initial budget of USD 183 million for 2025 to support manufacturing and supply systems for sustainable aviation fuel. Germany allocated USD 161 million in 2026 to promote renewable fuel technologies for

aviation and shipping. In January 2025, Brazil's National Bank for Economic and Social Development approved USD 185 million for the production of second-generation ethanol.

In contrast, support for low-emissions hydrogen production and demand declined in 2025. Global Hydrogen Review 2025 notes that announced public funding fell by nearly two-thirds compared with 2024. A major factor was the United States' decision to end its clean hydrogen production credit in January 2028, which is expected to reduce cumulative budget outlays through 2030 by USD 5 billion. Fewer commitments and projects announced in 2025 further contributed to the decline. Germany scaled back elements of its hydrogen support while expanding others. Funding from the Climate and Transformation Fund for low-emissions hydrogen is expected to increase to USD 1.7 billion for 2025 and USD 1.8 billion for 2026. Other countries are also expanding their programmes, but these increases do not fully offset reductions elsewhere. For example, Canada's Clean Hydrogen Investment Tax Credit, introduced in 2023, is expected to reach USD 600 million in 2025.

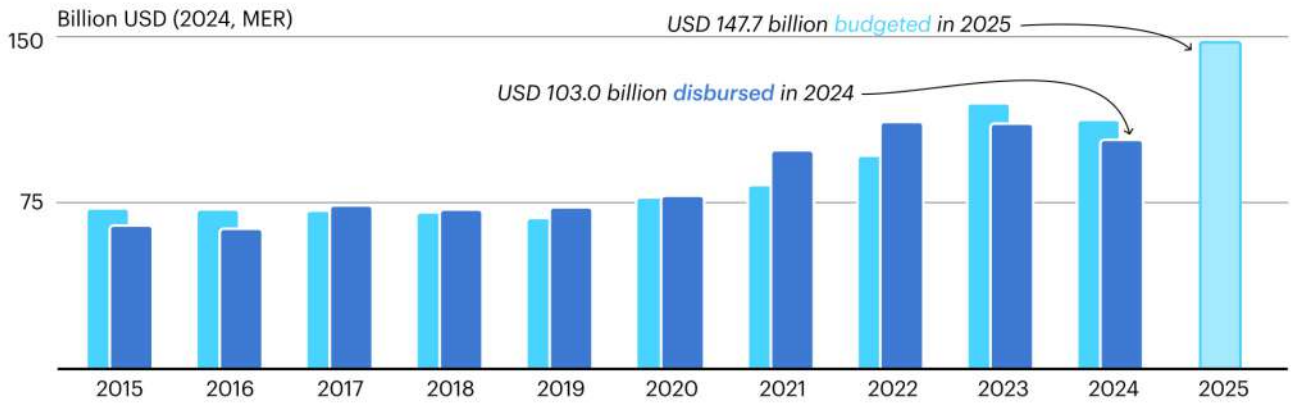
Power

Power

Energy demand **37.9% (2015) > 40.5% of total energy supply (2024)**
CO_2 emissions **38.3% (2015) > 40.9% of total energy supply (2024)**

Government spending

Government spending for power generation and grids has fluctuated since 2015, accounting for nearly 30% of total energy sector government spending in 2024.



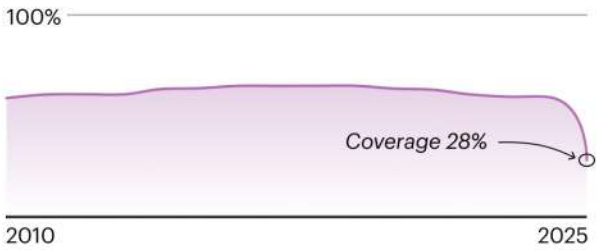
Main disbursed programmes in 2024:

- Energy investment credit
  United States (USD 24.2 billion)
- Renewable Energy Sources Act (EEG) federal financing
  Germany (USD 20 billion)
- Renewable energy price subsidy
  China (USD 16.6 billion)

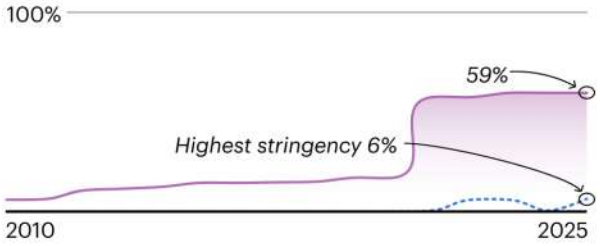
Regulations

The coverage of feed-in tariffs for new projects sharply decreased in 2025, while the coverage of carbon pricing instruments remained stable.

Electricity generation covered by a feed-in tariff



Power sector emissions covered by a carbon price



1/85
countries
revised their feed-in tariffs in 2025

0/85
countries
adopted or revised their carbon pricing regulations in 2025

Notes: Government spending includes support for power generation, grid infrastructure and batteries. Coverage for feed-in tariffs only accounts for new projects. Highest stringency coverage includes countries' industry greenhouse gas emissions from fuel combustion covered by an explicit carbon price above USD 63/t CO_2 which correspond to the lower end of the price range recommended by the High-Level Commission on Carbon Prices.

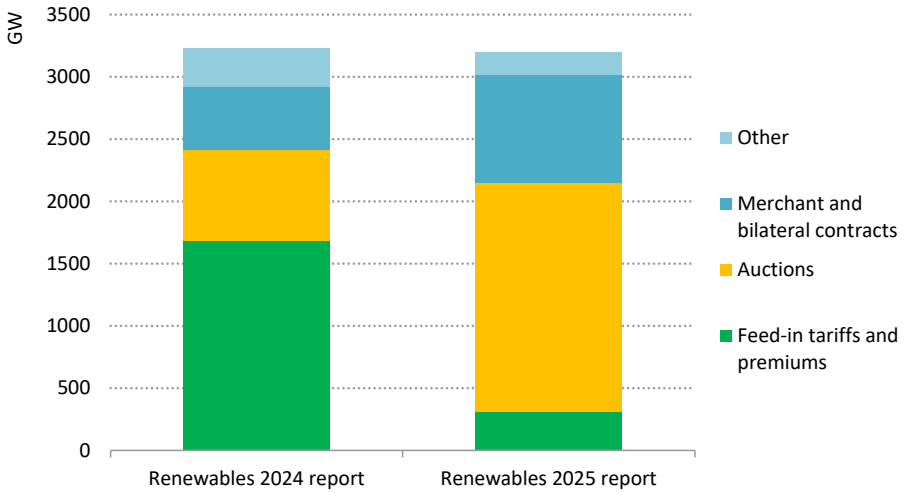
Power sector policies continue to shift away from direct government subsidies to more market-driven mechanisms

Over the past ten years, the power sector has been the largest recipient of energy-related government spending. However, many countries have begun to shift the policy tools they use to drive further investment in the sector. *State of Energy Policy 2026* focuses on several policy types in the power sector: direct government incentives and spending towards power generation technologies, grids and battery infrastructure; market-based instruments; and renewable portfolio and emissions standards.

Renewable power incentives are moving from fixed tariffs and tax credits to auctions and bilateral contracts

Government spending directed towards the power sector accounted for around 30% of total energy-related government spending in 2025, totalling USD 135 billion. This spending has stabilised from previous years, reflecting, in part, the phase-out in many countries of traditional feed-in tariffs and tax credit schemes for new projects, in favour of more market-based renewable procurement mechanisms. The IEA's Renewables 2025 report projects that auctions and market-based procurement will account for nearly 60% of gross capacity additions from 2025 to 2030, up sharply from less than 25% in the 2024 outlook.

Gross renewable utility-scale capacity additions by procurement type, 2025-2030



Note: 'Other' covers state-owned utility projects, green certificates and unspecified procurement mechanisms.
Source: IEA (2025), Renewables 2025.

China represented the largest shift. Its new Energy Law and feed-in tariff reform phased out fixed tariffs for new solar PV and wind projects in favour of auctions from June 2025. The country's renewable energy price subsidies fell to USD 18 billion in 2024, down from an all-time high of USD 48 billion in 2022, following earlier market-driven reforms of its feed-in tariffs for onshore wind and solar

in 2021 and offshore wind in 2022. This aligns with broader movements in other markets, including parts of Europe, which have similarly moved away from feed-in tariffs towards auctions and private contracting structures. In the United Kingdom, the Department for Energy Security and Net Zero has supported the deployment of renewable capacity through contracts for differences since 2016 and had is estimated to have reached USD 56 billion in 2025, an increase of USD 53 billion compared to the previous year. In the United States, federal tax incentives for new solar and wind projects will be phased out for projects constructed from 4 July 2026 or those entering operation after 31 December 2027. This sits within a broader policy framework, including a moratorium on new wind projects introduced in January 2025.

Government support for nuclear energy continues to grow

More than 30 countries have committed since COP28 to encourage the inclusion of nuclear energy in power master plans and to triple nuclear energy capacity by 2050. Direct government support has grown over the last five years, reaching about USD 9 billion in 2025. In the United States, zero-emission nuclear power production credits peaked at an estimated USD 2.5 billion in disbursements in 2025, and allocations are expected to cumulatively reach around USD 14 billion by 2035. Japan allocated an initial budget for 2025 of nearly USD 595 million for projects to strengthen industrial infrastructure for next-generation innovative nuclear reactors, a 50% increase compared to 2024. In the United Kingdom, a multi-year spending review in June 2025 initially allocated USD 18 billion to build the Sizewell C nuclear plant, setting the final investment decision after an initial proposal made in 2009.

Carbon pricing coverage in the power sector remained stable in 2025

Coverage of carbon pricing schemes, including carbon taxes and emissions trading systems, stabilised in 2025, with 59% of global power-related emissions now covered by a carbon price. This coverage could rise to 70% in 2030, following new programmes for carbon pricing in the power sector passed in 2025 for future implementation. Türkiye published its 2025-2027 Medium Term Plan, providing the legal framework for the creation of the Turkish Emissions Trading System, with full compliance by 2027. The Brazilian Greenhouse Gas Emissions Trading System entered into force in December 2024 and started its first phase in 2025, during which Brazil will enact the regulations needed for full implementation of the system by the end of the decade. Morocco also announced the implementation of a carbon tax in its Finance Law, due by 2026.

Annex

Methodology

Tracking government energy spending

Government spending is a central part of the analysis in the *State of Energy Policy* series. It captures actual disbursements across all energy programmes, compares them with initial budget allocations and includes short-term spending estimates for the next five years. The scope of analysis for government energy spending focuses on ten countries: Brazil, Canada, China, France, Germany, India, Italy, Japan, the United Kingdom and the United States, representing around two-thirds of global government expenditure in 2025.

Coverage and scope

Government energy spending in this report covers federal budget allocations by the relevant ministries and agencies. It includes direct grants, loans and, where estimated, tax exemptions for households and companies for energy-related activities. It includes, but is not limited to, programmes for:

- **Buildings**: Energy-efficient retrofits and appliances, and programmes supporting low-emissions and efficient new buildings. The data collection exceptionally includes provincial data for China due to its significant weight in the overall national budget.
- **Energy affordability and just transitions**: Short-term, temporary programmes to address energy poverty, retraining programmes and clean cooking programmes.
- **Fuels**: Biofuel production, sustainable aviation fuels, oil exploitation, natural gas exploitation, hydrogen, oil reserves, and carbon capture, utilisation and storage.
- **Industry**: Advanced manufacturing, energy efficiency, decarbonisation and mining programmes.
- **Innovation**: Research, development and demonstration programmes for fuel production, nuclear energy, renewables and transport technologies.
- **Mass and alternative transit**: National urban transit, aviation, highways, waterways and railways. This excludes maintenance expenditure.
- **Passenger cars**: Consumer support for the purchase of passenger cars and commercial vehicles, and programmes for charging and refuelling infrastructure.
- **Power generation**: New generation capacity, grids and storage programmes.

The main sources for each country are as follows:

Country	Ministries covered	Sources
Brazil	Ministry of Mines and Energy; Ministry of Ports and Airports; Ministry of Environment and Climate Change; Ministry of Transport	Annual Budget Law; Budget Guidelines Law; Public Expenditure Transparency Portal
Canada	Housing, Infrastructure and Communities Canada; Transport Canada; Natural Resources Canada; Public Safety Canada; Environment and Climate Change Canada; Innovation, Science and Economic Development Canada; Canada Revenue Agency; Report on Federal Tax Expenditures	Transfer Payments: Estimates; Canada Growth Fund; Investment Tax Credit for Clean Technology
China	Ministry of Finance	Central Government Final Accounts; National Government Final Accounts; Notices of Energy Efficiency Subsidies; Notices of Subsidies for Old Trade-in Vehicles.
France	Ministry of Ecological Transition, Energy, Climate and Risk Prevention; Ministry of Higher Education and Research; Ministry for the Economy, Finance and Industrial and Digital Sovereignty; Environment and Energy Management Agency	Annual Performance Reports; Annual Performance Planning
Germany	Federal Ministry for Economic Affairs and Energy; Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety; Federal Ministry for Housing, Urban Development and Building; Federal Ministry of Research, Technology and Space; Federal Ministry for Transport; Climate and Transformation Fund	Ministry-level Budget Statements

Country	Ministries covered	Sources
India	Ministry of Railways; Ministry of Steel; Ministry of Power; Ministry of Ports, Shipping and Waterways; Ministry of Petroleum and Natural Gas; Ministry of New and Renewable Energy; Ministry of Mines; Ministry of Housing and Urban Affairs; Ministry of Heavy Industries; Ministry of Coal; Department of Atomic Energy	Union Budget Documents: Expenditure Budget
Italy	Ministry of Environment and Energy Security; Ministry of Infrastructure and Transport; Ministry of Economy and Finance	Balance Sheets for Personnel Expenses; Hearing as Part of the Fact-finding Investigation into the Economic and Public Finance Effects of Tax Incentives in the Construction Sector; Decrees of Allocation into Chapters
Japan	Ministry of Economy, Trade and Industry	Overview of Initial Budget (2015-25)
United Kingdom	Department of Energy and Climate Change (2015-16); Department for Business, Energy and Industrial Strategy (2017-23); Department for Energy Security and Net Zero (2024-25); Department for Transport (2015-25)	Annual Reports and Accounts; DESNZ Main Estimate Memorandum 2025-26
United States	Department of Energy; Department of Housing and Urban Development; Department of Transportation; Department of the Treasury	Department Budget Justification Supporting Documents; Technical Supplement to the Budget; Tax Expenditure Estimates

Historical annual government spending estimates

Initial budgets were collected for fiscal years 2015-25 in nominal terms for all focus countries and converted into real (2024) terms using the International Monetary Fund gross domestic product deflator. World Bank period-average 2024 exchange rates were used for conversion to US dollars. Actual disbursements were collected for all focus countries up to fiscal year 2025, with the exception of Canada and Japan. As final accounts are yet to be published in 2026, the analysis treats Canada's and Japan's initial budget as actual spending for 2025. Budgets were also adjusted to account for differences in fiscal-year definitions and to produce calendar-year estimates. As quarterly disbursement or budgetary data are not available, budgets are assumed to be spread evenly across the four quarters of the year.

Estimated future annual government energy spending

The report provides short-term budget estimates for the next five years for all focus countries. Where available, these estimates are based on expenditures stated in budget documents and other official spending projections by budget account, such as those from the United States Congressional Budget Office.

Where detailed spending projections are not available, initial budget allocations are estimated as the median of the following three different cases for each energy sector. All three cases are based on general government expenditure projections from the World Economic Outlook 2025 to 2030, but follow different assumptions:

- **Case 1: Status quo.** The share of each energy subsector in total government expenditure is assumed to remain constant over time and to grow with general government expenditure.
- **Case 2: Sustaining current trends.** The most recent trends seen in the previous year are assumed to continue. This may imply a continued spending drop to zero or growth towards limited cap levels.
- **Case 3: Reverting to former priorities.** Recent trends over the past five years are interpreted cautiously. This may imply significant fluctuations in spending if 2025 was an exceptional year.

Each energy subsector is modelled under these three cases and then combined to generate 6 561 possible energy budget values per year. The median value for each country is then aggregated to produce a global estimate for the next five years.

Tracking energy efficiency performance standards

State of Energy Policy 2026 provides, for the first time, a detailed assessment of the coverage and stringency of selected energy efficiency standards. The Energy Efficiency Stringency and Coverage Indicator is a harmonised measure of minimum energy performance requirements for air conditioners and industrial motors, and fuel economy standards for passenger cars and trucks.

The indicator focuses on the respective subset of energy demand and weights each sectoral efficiency performance indicator by its share of energy demand to best reflect the impact of standards on the overall picture. The indicator ranges from 0, meaning no efficiency standard worldwide for the relevant subset of energy demand, to 100, meaning the most stringent standard passed to date covering all countries.

Air conditioner energy efficiency standards

The indicator harmonises national air conditioner energy efficiency standards into a common metric based on the International Organization for Standardization (ISO) Cooling Seasonal Performance Factor, enabling cross-country comparability. National efficiency metrics are converted to ISO Cooling Seasonal Performance Factors by mapping test results to ISO-equivalent operating conditions, including bin hours and zero-load temperature settings. The harmonisation is verified using measured air conditioner test data from accredited laboratories. The efficiency levels are then normalised to 100, based on the most stringent standards passed as of 2025 (7.2 Wh/Wh).

The analysis covers 84 countries representing 65% of global buildings cooling demand in 2024. Countries not covered by a standard were assigned a null baseline value. Country-level indicators were subsequently weighted by their individual share in global cooling demand, ensuring that the indicator reflects the relative importance of energy performance standard coverage across markets.

Industrial motor energy efficiency standards

The indicator is constructed using efficiency values for four-pole, 50 Hz electric motors specified in IEC 60034-30-1 (2014), with 75 kW adopted as the nominal power reference point. The efficiency levels in these categories are: International Efficiency (IE) 0 (91.2%), IE1 (92.7%), IE2 (94%), IE3 (95%) and IE4 (96%). These levels are normalised to 100, based on the most stringent standard passed as of 2025 (IE4). This implies: IE0 = 0, IE1 = 31, IE2 = 58, IE3 = 79 and IE4 = 100.

The analysis covers countries representing 83% of global electricity demand from electric motors in 2024. Countries not covered by a standard were assigned a baseline value corresponding to IE0.

Country-level indicators were subsequently weighted by their individual share in global industrial motor electricity demand, ensuring that the indicator reflects the relative importance of energy performance standard coverage across markets.

Fuel economy and CO_2 standards

The indicator harmonises fuel economy and CO_2 standards for passenger cars to the Worldwide Harmonised Light-Duty Vehicles Test Procedure, expressed in kilometres per litre, using conversion factors from the International Council on Clean Transportation. For trucks, it uses the reduction rate compared to a fixed 2010 level implied by standards as a benchmark. The efficiency levels are normalised to 100, based on the most stringent standards passed as of 2025, i.e. 0 g CO_2/km, or 55 km/L for passenger cars, and a 100% emissions reduction for trucks.

The analysis covers 64% of global energy demand from passenger cars and trucks in 2024. Countries not covered by a standard were assigned a baseline value corresponding to the lowest efficiency standard set in the last 20 years, i.e. 10.5 km/L for passenger cars, and 2010 fuel consumption levels for trucks. Country-level indicators were subsequently weighted by their individual share in global energy demand from passenger cars and trucks.

Tracking climate pledges

The climate analysis in the *State of Energy Policy* series builds on the IEA's Climate Pledges Explorer, which tracks country-level climate pledges in nationally determined contributions (NDCs) and long-term net zero pledges. The Explorer aims to facilitate the analysis of all mid- and long-term climate pledges since 2016 by more than 190 countries by visualising the implied contribution of the energy sector's greenhouse gas emissions for each target. For each pledge document, the analysis also integrates qualitative information, including sectoral and gas coverage, economy-wide emissions targets and financial requests from developing economies.

Methodology

For some pledges, isolating the share of energy sector emissions in the economy-wide mitigation target is not feasible due to a lack of information in official documents. Considering the economy-wide target for the energy sector could overestimate the mitigation ambition of countries, especially if a country intends to rely more heavily on other non-energy sectors, such as land use, land-use change and forestry, to reach its goal.

To address this, three methods are used to isolate energy-related emissions, listed in order of preference, based on the availability of data for the country's NDC:

1. If the NDC specifies energy-related emissions in the NDC target year, this is reflected directly in the Explorer. As of March 2026, this methodology applies to 70 countries.

2. If the NDC only specifies economy-wide estimates, but other official documents issued by the country that refer to the same target provide more details (e.g. Biennial Transparency Reports, Biennial Update Reports and National Communications), then these estimates are used to isolate the energy sector. As of March 2026, this methodology applies to one country.

3. If the NDC specifies economy-wide estimates, and no other source can be used to single out the energy sector, assumptions for the trajectory of non-energy sectors are made as described below. The uncertainty that results from this bottom-up approach provides lower and upper values for the possible contribution of the energy sector. As of March 2026, this methodology applies to 112 countries.

For pledges falling into the third category, the IEA computes upper and lower values for each of the covered sectors:

• Land use, land-use change and forestry estimates follow values provided by governments in their Biennial Transparency Reports, when available, for the "with existing measures" and "with additional measures" scenarios. Where no official estimates are available, assumptions follow the stated policies or announced pledges trends modelled by the International Institute for Applied Systems Analysis.

• Agriculture emissions either follow the stated policies or announced pledges trends modelled by the International Institute for Applied Systems Analysis, or the same mitigation rate as the economy-wide target.

• Industrial processes emissions either follow the regional trend from the IEA Stated Policies Scenario, the trend from the IEA Announced Pledges Scenario or the same mitigation rate as the economy-wide target.

• Product use and waste emissions either follow the rate of increase or decrease in emissions over the past five years, remain constant at current levels or follow the same mitigation rate as the economy-wide target.

Upper and lower values for the energy sector can be computed from the conditionality of the NDC and this bottom-up methodology. The upper value for the energy sector reflects more ambitious decarbonisation in non-energy sectors, implying a lesser need for the energy sector to play a role in the economy-wide target. Conversely, the lower value reflects less ambitious mitigation in non-energy sectors, implying a stronger need for the energy sector to mitigate its emissions to reach the overall target.

To aggregate country-level estimates at the regional level and to 2030, 2035 and 2050, all values are interpolated using the annual rate of change induced by the NDC between the target date and the latest available inventory year (2022). For countries and regions without quantifiable pledges set in their NDCs, and for those that did not ratify the Paris Agreement, the analysis assumes a similar relative growth or reduction in emissions to that observed over the past five years.

Methodology additions for *State of Energy Policy 2026*

The analysis in *State of Energy Policy 2026* includes an additional set of assumptions for the global energy emissions estimates for new NDCs. For countries that did not submit a new NDC (68 as of January 2026), a country-level value is estimated for 2035 as a continuation of the 2030 NDC mitigation rate, implying continued, constant growth or decline in emissions in the following five years. In the specific case of the United States and its withdrawal from the Paris Agreement, the 2016, 2021 and 2024 NDCs are not included unless stated otherwise. Estimates based on current energy policies are used as replacements for the 2030 and 2035 NDC global estimates. A different assumption is also considered for Brazil. Although the bottom-up approach (method 3) is used, uncertainty over the contribution of the land use, land-use change and forestry sector leads to a wide range for energy sector emissions from around -600 Mt CO_2 to 590 Mt CO_2. To reduce this uncertainty and provide a more reliable estimate, the IEA uses, as a default average value, the estimate in Brazil's Ten-Year Energy Expansion Plan 2034, which is closer to the upper bound of the computed range (544 Mt CO_2).

Abbreviations and acronyms

BEC	building energy code
CO_2	carbon dioxide
EESCI	Energy Efficiency Stringency and Coverage Indicator
ETS	emissions trading system
HDV	heavy-duty vehicle
HHI	Herfindahl-Hirschman Index
IEA	International Energy Agency
IECC	International Energy Conservation Code
LDV	light-duty vehicle
LPG	liquefied petroleum gas
MEPS	minimum energy performance standards
MER	market exchange rate
NDC	nationally determined contribution
PAHAL	Pratyaksh Hanstantrit Labh
PMUY	Pradhan Mantri Ujjwala Yojana
PUE	power usage effectiveness
UNFCCC	United Nations Framework Convention on Climate Change
VAT	value-added tax
WLTP	Worldwide Harmonized Light Vehicles Test Procedure

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