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US could fall short of 2030 target for generating capacity

The US needs around 90 GW of new generating capacity to meet the growth in peak-hour demand to 2030, and it is not clear how that need will be met. **Page 4**

China's new pricing mechanism drives record renewable growth

China added a record 264 GW of wind and solar capacity in the first half of 2025, as developers rushed to meet the deadline for inclusion in the new auction-free renewable pricing mechanism, according to Wood Mackenzie. **Page 6**

Germany looks to stable power for industry

Germany has agreed to open a tender for 10 GW of new dispatchable generating capacity, which will include batteries and demand-side response as well as 8 GW of gas fired capacity. **Page 7**

Clean electrification driving the energy transition

The global energy system is on the cusp of a new era championed by clean electricity and the increased adoption of electrification across the board, according to Rystad Energy's Global Energy Scenarios 2025. **Page 8**

Siemens Energy profits surge off data centre and GT demand

Siemens Energy has raised mid-term profit targets as its order backlog reached record levels, driven by demand for gas turbines and electricity demand for AI (artificial intelligence) data centres. **Page 9**

Technology Review

Can AI tame the chaos of the distributed grid? **Page 15**

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Although there were some positive outcomes at last month's COP30 climate summit, the world's waning appetite for climate action was reflected in the failure to create a roadmap to transition away from fossil fuels. **Junior Isles**

The 30th Conference of Parties (COP30) summit on climate change, held in Belém, Brazil last month, saw progress in areas such as climate finance and a just transition but failed to reach any agreement on dialling down the use of fossil fuels.

At COP28 in Dubai, UAE, parties had agreed on the need to transition away from fossil fuels (TAFF) and it was hoped that one major outcome of COP30 would be the formulation of a 'transition away from fossil fuels (TAFF)' roadmap.

The question of how to build on commitments to move away from fossil fuels, phase out fossil fuel subsidies, and triple renewables and how to close the ambition gap in nationally determined contributions (NDCs), was key at the summit.

By the end of the first week 88 countries had thrown their support

behind developing a roadmap to transition away from fossil fuels, so work could advance over the coming year. Brazil had pushed the idea ahead of the summit, garnering support from among Latin American states, Europe, and many vulnerable nations. Some major fossil fuel exporters such as Norway also expressed openness to the discussion.

As discussions continued Richard Folland, Head of Policy, Carbon Tracker said: "This COP will be judged by what's achieved on finance for the South, and on fossil fuel phase-out. It's ironic (if not surprising in this looking-glass world) that the single largest climate problem – emissions from oil, gas and coal – can't even get on the formal agenda. If the COP process is unable to deliver a roadmap to phase out fossil fuels, perhaps it's time that coalitions

of the willing took over."

The final 'Global Mutirão' text agreed at the summit's conclusion, however, contained no language on a roadmap for the transition.

The Kingdom of Saudi Arabia was accused of leading the Arab group – made up of 20 states, including Qatar and the United Arab Emirates – in the pushback against a TAFF roadmap. The kingdom has long resisted attempts to discuss the shift away from fossil fuels at global climate talks despite signing up two years ago to an agreement in Dubai at COP28 for a transition from oil, gas and coal by 2050, along with almost 200 other countries.

Since then, however, and now emboldened by US President Donald Trump's pro-fossil fuel stance, oil and gas producers and some other large consumer countries have insisted the

continued use of fossil fuels will be required to meet global energy needs.

The final text launched the 'Belém Mission to 1.5', with COP 30 and 31 presidencies tasked with delivering a report by COP 31 on enabling ambition and the implementation of NDCs and national action plans. Australia's Climate Minister Chris Bowen – who will likely be the COP31 President – has already said that Australia will "continue to argue" for a transition away from fossil fuels.

COP30 came as the latest UN report revealed the world was headed for a "climate breakdown" at a global average temperature rise of 2.8°C under existing government policies.

The apparent diminishing interest in climate change among some politicians appears to be trickling down to

Continued on Page 2

Record investment in renewables, but growth pace slows

Global investments in the energy transition reached a new record of \$2.4 trillion in 2024 – a 20 per cent increase from the average annual levels of 2022/23. About one-third was directed towards renewable energy technologies, pushing renewable energy investment to \$807 billion, according to a new report.

The study by the International Renewable Energy Agency (Irena) and the Climate Policy Initiative (CPI) finds that despite this milestone, year-on-year growth of renewables slowed significantly, with annual investments increasing by 7.3 per cent in 2024, compared to 32 per cent the year before.

The 'Global Landscape of Energy Transition Finance 2025', released

ahead of the UN Climate Conference COP30 in Belém, Brazil, was timed to inform the global finance dialogue by tracking investments in renewable energy technologies and their supply chains. The report looks at regional trends as well as finance sources and instruments.

Key findings show 96 per cent of renewable energy investments went to the power sector, continuing a long-term trend, with global investment in solar PV reaching a record \$554 billion in 2024, up by 49 per cent. Investment in energy transition technologies grew globally, but 90 per cent remained concentrated in advanced economies and China, leaving emerging and developing countries behind. The report also finds that investment

in renewable power, grids, and battery storage exceeded fossil fuels investment in 2024, though fossil spending is on the rise.

Francesco La Camera, Director-General of Irena said: "Investments in the energy transition continue to grow but not at the pace needed to achieve the global goal of tripling renewable capacity by 2030. Funding for renewables is soaring but remains highly concentrated in the most advanced economies."

Irena's report shows advanced and major economies can draw on domestic financial resources to fund energy transitions. In contrast, lower-income countries depend on external support due to underdeveloped financial markets, limited fiscal capacity, high

capital costs, and debt vulnerabilities amongst others.

Globally, nearly half of total investment in 2023 was provided as debt, most of it at market rates. The rest was invested through equity. Grants accounted for less than 1 per cent. The urgent need to mobilise investments, combined with a scarcity of impact-driven capital such as low-cost debt and grants, risks exacerbating debt burdens, according to Irena.

The report also highlights that investment in energy transition supply chains and manufacturing remains critical, but highly concentrated. China accounts for 80 per cent of global investment in manufacturing facilities for solar, wind, battery and hydrogen technologies between 2018 and 2024.

Continued from Page 1

the corporate level. As world leaders prepared to gather in Brazil, a new study from Siemens Infrastructure revealed resilience and energy security was now taking precedence, with confidence in achieving global climate goals starting to fall. More than half (57 per cent) of the 1400 global executives surveyed expect increased investment in fossil fuels over the next two years.

But despite COP30's failure to deliver a TAFF roadmap, there remains a clear desire to make progress in the months and years ahead, including through collaboration outside of the UN Framework Convention on Climate Change (UNFCCC) process.

"While deep divisions were on display in Belém, we also saw strong ambition from countries to continue working together on the transition away from fossil fuels," said Patricia Fuller, President and CEO of the International Institute for Sustainable Development (IISD). "This work will go beyond COP 30."

There were also other positive outcomes at the summit. Although not on the official agenda, climate finance was in the spotlight, with discussions focused on how countries would deliver the promise of the New Collective Quantified Goal on Climate Finance that was adopted in Baku (COP29) last year, including through scaling up the provision of public finance under Article 9.1 of the Paris Agreement.

Countries reaffirmed the pathway set in Baku to mobilise at least \$300 billion in annual funding for developing nations by 2035. They also recommitted to the broader goal of \$1.3 trillion a year from public and private sources over the same period. The text proposed by the COP Presidency and adopted by parties, recognises the urgency of this issue by establishing a two-year work programme on climate finance to ensure that countries continue to discuss the implementation of the Baku commitment.

In addition, agreement was reached on the final decision to develop a just transition mechanism, aiming to enhance international cooperation, technical assistance, capacity building, and knowledge sharing. The establishment of this mechanism represents a key step forward in making the Just Transition Work Programme more actionable.

On the sidelines of the main conference, the WRI Polsky Center for the Global Energy Transition – in partnership with Global Renewables Alliance (GRA), Global Wind Energy Council (GWEC) and Climate Group's RE100 initiative – launched the Latin America Clean Energy Coalition (LACEC), a major initiative to rapidly scale corporate clean energy adoption and accelerate Latin America's transition to a low-carbon, climate-resilient economy.

Global utilities also announced upgraded annual investment plans that will see their energy transition spend rise to \$148 billion per year, up from previously stated ambitions of \$117 billion. The plans revealed by members of the Utilities for Net Zero Alliance (UNEZA), will see a group of the world's leading utilities mobilise more than \$1 trillion in energy transition investments to 2030 since establishment at COP28.

Diversification and cooperation more urgent than ever, says IEA

Photo by Wolfram K

- Emerging economies "take up the baton" from China in terms of energy demand
- Traditional energy risks affecting oil and gas supply now accompanied by vulnerabilities in other areas

Junior Isles

Governments need to pursue greater diversification of supplies and increase cooperation, as a group of emerging economies increasingly shape energy market dynamics in the years ahead, says the International Energy Agency's latest 'World Energy Outlook (WEO)'.

The IEA's flagship annual report notes that emerging economies – led by India and Southeast Asia and joined by countries in the Middle East, Africa and Latin America – collectively, take up the baton from China, which accounted for half of global oil and gas demand growth and 60 per cent of electricity demand growth since 2010. Amid these shifts, the IEA stresses that traditional energy risks affecting the security of oil and gas supply are now accompanied by vulnerabilities in other areas, most visibly in supply chains for critical minerals due to high levels of market concentration.

"When we look at the history of the energy world in recent decades, there is no other time when energy security

tensions have applied to so many fuels and technologies at once..." said IEA Executive Director Fatih Birol. "With energy security front and centre for many governments, their responses need to consider the synergies and trade-offs that can arise with other policy goals – on affordability, access, competitiveness and climate change."

Electricity is at the heart of modern economies, and electricity demand grows much faster than overall energy use in all scenarios in WEO 2025. Investors are reacting to this trend, it said – spending on electricity supply, and end-use electrification already accounts for half of today's global energy investment. For the moment, electricity accounts for only about 20 per cent of final energy consumption globally, but it is the key source of energy for sectors accounting for over 40 per cent of the global economy and the main source of energy for most households.

"Analysis in the World Energy Outlook has been highlighting for many years the growing role of electricity in economies around the world. Last year, we said the world was moving

quickly into the Age of Electricity – and it's clear today that it has already arrived," Dr Birol said. "In a break from the trend of the past decade, the increase in electricity consumption is no longer limited to emerging and developing economies."

A pivotal issue for energy security in the Age of Electricity is the speed at which new grids, storage and other sources of power system flexibility are put in place. For the moment, some of these elements are lagging. Investments in electricity generation have charged ahead by almost 70 per cent since 2015, but annual grid spending has risen at less than half that pace.

Although the pace varies across the different WEO scenarios, renewables grow faster than any other major energy source in all the scenarios, led by solar PV. Notably, fresh analysis for the WEO 2025 maps the new geography of demand onto the distribution of global energy resources, showing that, by 2035, 80 per cent of global energy consumption growth occurs in regions with high quality solar irradiance. Another common element across

scenarios is the revival of fortunes for nuclear energy, with investment rising in both traditional large-scale plants and new designs, including small modular reactors. After more than two decades of stagnation, global nuclear power capacity is set to increase by at least a third by 2035.

WEO 2025 forecasts electricity demand to rise by 40-50 per cent by 2035, driven by sectors including appliances and air conditioners, manufacturing, electric mobility, data centres and electrified heating.

Commenting on the outlook, Maria Mendiluce, CEO, We Mean Business Coalition, said: "Clean electrification and renewables are cutting costs, creating stability and reducing dependence on volatile fuel imports – proof that the 'Age of Electricity' has truly begun. Accelerating electrification strengthens not just energy security, but national and economic security and it's also how we ensure affordability and inclusion. The IEA shows that in the net zero pathway, households ultimately can spend less on energy bills and raise living standards."

EU progresses towards 2030 climate goals but weakens 2040 plan

The EU has made "significant strides" in transitioning to a robust and integrated Energy Union according to the Commission's recently published 'State of the Energy Union Report 2025' and the accompanying Climate Action Progress Report 2025.

The reports show the bloc is progressing on the clean energy transition with more renewables, addressing high and volatile energy prices and affordability, and further reducing greenhouse gas (GHG) emissions. This, it says, is increasing competitiveness, decarbonisation and

strengthening energy security and independence by reducing EU reliance on imported fossil fuels.

The reports confirm again that the EU is on track to meet its 2030 climate target, with a 2.5 per cent decrease of GHG emissions in 2024 compared to 2023. As confirmed in the Commission's assessment of national energy and climate plans based on the National Energy and Climate Plans and latest greenhouse gas projections submitted by Member States, the EU continues to progress towards the 2030 targets of reducing net GHG

emissions by at least 55 per cent compared to 1990 levels and achieving at least 42.5 per cent renewable energy in the EU energy mix.

The reports, however, came as the bloc significantly weakened its 2040 climate plan to reduce emissions by 90 per cent by 2040 compared with 1990 levels. In early November, several member states refused to agree to the legally binding 2040 goal unless significant concessions were made. They pushed to delay a landmark carbon pricing system and also insisted that member states be allowed to claim

5 per cent of their emissions reductions by selling international carbon credits.

The EU's scientific advisory board has previously said that the bloc should cut emissions by at least 90 per cent without the use of international credits.

The 2040 reduction target was eventually agreed after 18 hours of negotiation. Member states also agreed to cut emissions by between 66.3 per cent and 72.5 per cent by 2035 as part of the submission that had to be made to the UN ahead of the COP30 summit.

Energy efficiency picks up in 2025 but work still needed

Global energy efficiency has picked up in 2025, but work is still needed by governments to meet the target set at COP28 two years ago.

'Energy Efficiency 2025', the International Energy Agency's (IEA's) annual report on efficiency trends around the world, finds that global primary energy intensity – the main metric for tracking efficiency progress – is on course to improve by 1.8 per cent this year, up from just 1 per cent in 2024.

The rate of global improvement in energy efficiency has been largely lacklustre since 2019, averaging around 1.3 per cent per year. That's down significantly from the average of around 2 per cent per year between

2010 and 2019.

"The acceleration in global progress on energy efficiency that we're seeing in 2025 is encouraging, including positive signs in some major emerging economies. But our analysis shows that governments need to work even harder to ensure efficiency's full range of benefits are enjoyed by as many people as possible," said IEA Executive Director Fatih Birol.

The global rate of improvement currently falls well short of the goal of 4 per cent by 2030 that was set at COP28 in Dubai in 2023, where nearly 200 governments agreed to work together to double the global average annual rate of energy efficiency improvements

by 2030.

The new IEA report identifies where governments are strengthening action and also analyses the key trends that are holding back faster progress. For example, around two-thirds of global final energy demand growth since 2019 has been concentrated in industry, a sector where energy intensity progress has slowed sharply in recent years.

Brandon Spencer, President at ABB Motion, said: "Reading the IEA's latest 'Energy Efficiency' report, one thing stands out the most – despite recent progress, the world is set to miss the COP28 goal to double energy efficiency progress by 2030. That's a stark realisation but it's one which has a clear

solution. With nearly one-third of global greenhouse gas emissions coming from industry, and 45 per cent of global electricity converted into motion by industrial electric motors, the industrial sector faces a pivotal challenge: how to meet rising energy demand while reducing emissions and operating a resilient business.

"We co-founded the Energy Efficiency Movement which estimated that industry could be saving roughly \$437 billion annually by 2030 if ten energy efficiencies measures that rely on mature technologies are employed. A more ambitious scenario could see savings go up to \$590 billion annually by 2030. This is huge."

A large industrial factory interior with a high ceiling and bright lights. In the center, a large, spherical object made of many small white components is suspended. To the left, a tall, blue and white transformer component is visible. In the foreground, several large, white and blue transformer components are on the floor. The overall scene is a busy manufacturing environment for high-voltage electrical equipment.

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Latin America looks to add storage to solar projects

■ Chile inaugurates largest co-located site ■ Colombia plans new battery installation

Janet Wood

Solar projects in Latin America are increasingly being combined with storage.

In Chile, Generadora Metropolitana recently announced it has begun construction of Dune Plus, after it secured investment of \$629 million from international banks. Generadora Metropolitana, which is owned by AME and EDF power solutions Chile, said the project was one of the country's largest. It combines the Dune battery system (333 MW, 4-hour duration) and La Pampina, a 186 MW photovoltaic plant with a 175 MW, 4-hour, battery.

Together they will cover 186 ha.

Close behind, Atlas Renewable Energy recently secured \$475 million in financing for the Copiapó hybrid solar and battery storage project. The financing was arranged with a consortium including BBVA, BCI, Crédit Agricole CIB (CACIB), Natixis CIB, SMBC, and Société Générale.

Located in Chile's Atacama Region, Copiapó combines 357 MWp of solar capacity with a 320 MW/1.28 GWh 4-hour battery. The project will supply 750 GWh per year to CMP and Aguas CAP (part of Chile's steel and mining conglomerate) – under 15-year power purchase agreements.

"The Copiapó project reflects Chile's growing capability to pair renewable generation with storage and supply clean energy to key industrial sectors," said Esteban Uauy, Global Head of Project Finance at Atlas Renewable Energy.

This transaction brought Atlas Renewable Energy's Chile project financings closed in the last 13 months to over \$1.2 billion. The company currently operates three large-scale solar plants as well as the country's first large-scale stand-alone storage project. Chile has an 80 per cent renewable energy target for 2030.

In Colombia, Climate Fund Managers

(CFM) recently announced the inauguration of the 26.4 MW Pétalo del Norte I solar power plant – its first project to reach commercial operations in Latin America. CFM invested \$20 million in development capital and construction funding through its EU-supported renewable energy infrastructure fund, Climate Investor One (CIO).

CFM plans to combine its next solar plant with a battery and has invested \$1.5 million in development funding from Climate Investor One to support development. Pradera will add 40 MW of solar capacity and 18 MWh of battery storage, making it the largest installation of its kind in Colombia.

Alberto Menghini, Head of Cooperation at the European Union Delegation in Colombia, said: "Under the Global Gateway, CFM's blended finance model strategically leverages funding from public institutions like the EU and other European partners to de-risk projects and mobilise private capital. This approach enables transformative initiatives such as Pétalo del Norte I and Pradera, which strengthen and diversify Colombia's energy mix while creating local jobs and opportunities."

Currently, around 70 per cent of Colombia's electricity comes from hydro-power, leaving the grid vulnerable to drought and weather variability.



NextEra has agreed to reopen the Duane Arnold Energy Center, a nuclear power station in Iowa, to provide power to Google for its data centres.

After being shut down for five years, it is expected to cost more than \$1.6 billion to restart the plant, which NextEra says will be delivering power again by 2029. Google recently signed a 25-year agreement to buy electricity from the 615 MW power station.

"This partnership serves as a model for the investments needed across the country to build energy capacity and deliver reliable, clean power, while protecting affordability and creating jobs that will drive the AI-driven

economy," said Ruth Porat, President and Chief Investment officer of Alphabet and Google.

It is the third US nuclear plant to begin the process of restarting operations. The Palisades plant in Michigan is scheduled to reopen later this year. Microsoft and Constellation Energy agreed a deal in 2024 that is expected to see the Three Mile Island plant reopen in 2028.

Adam Stein, Director of the nuclear energy innovation programme at the Breakthrough Institute, said: "Thanks to the Palisades restart, there is a regulatory process and a clear understanding of what inspections need to be completed."

Iberdrola promises new Canada-US link will cut costs

Spanish-headquartered network company Iberdrola has obtained final authorisation for the New England Clean Energy Connect (NECEC) transmission line project, which will connect the USA (Maine) and Canada (Quebec).

The approval, granted by the Maine Department of Environmental Protection, is the final regulatory requirement to complete the large energy project in New England, in the Northeastern United States.

NECEC will allow hydroelectric power from Quebec to be shared with New England. It will supply 100 per cent renewable hydroelectric energy at a fixed rate to distribution companies in Massachusetts, through a 233 km high-voltage line with 1200 MW of capacity. The agreement with Massachusetts electricity distributors is for

a 20-year supply of baseload energy (approximately 9.45 TWh per annum). The electricity will be produced by Hydro-Québec's fleet of hydroelectric power plants and will reduce dependence on fossil fuels in the New England region.

After full commissioning, scheduled for the end of the year, Iberdrola said the new interconnector will strengthen the reliability and security of New England's electric system, enable more competitive electricity prices, and boost socio-economic development.

It said NECEC will reduce customer spending on electricity by \$3.9 billion over the next 20 years. Customers in Massachusetts will save around \$150 million each year, while those in Maine will save about \$40 million per year, Iberdrola said.



■ Thermal plant will not meet peak load requirement
■ Renewables build has slowed

Janet Wood

The US needs around 90 GW of new generating capacity to meet the growth in peak-hour demand to 2030, and it is not clear how that need will be met.

A new report from Wood Mackenzie said gas and coal generation will only be able to meet about 37 GW of the growth needed. Patrick Huang, Senior Research Analyst at Wood Mackenzie, said that could be boosted to 47 GW if coal and gas plants ramp up utilisation. But this is less than 30 per cent of the large load commitments made by US utilities and will be offset by 98 GW of planned coal and gas retirements in the period.

The report, 'Power Hungry: Why Gas and Coal Alone Won't Keep Up with US Power Demand Growth', said that "if more plant retirements are delayed, the value could rise to 67 GW,

but significant uncertainty surrounds how many more retirements will be deferred".

The report notes that manufacturing bottlenecks are a constraint on new thermal capacity. The cost of gas turbines is rising and so are renewables costs, with tariffs on key components and on steel, aluminium and copper, and country-specific tariffs.

Huang said: "While gas and coal generation will play a large role in enabling strong load growth, it's clear that the existing thermal fleet cannot meet this new demand alone."

"Robust investment in renewables and storage will be required to meet US demand growth in this timeframe."

Luca Pedretti, Chief Operating Officer of Pexapark said: "There's a huge rush to secure the tax credits and I wouldn't be surprised to see a huge wave of deal announcements." But the

boom is expected to be short-lived.

Data from BloombergNEF shows investments in US renewables fell by 36 per cent in the first half of 2025 and the International Energy Agency (IEA) recently cut its US wind growth forecast for 2025-30 by nearly 60 per cent and its solar forecast by almost 40 per cent.

However, investors are still buying US renewable energy assets. Ares Management Corporation recently bought a 49 per cent stake in an EDPR portfolio comprising 1030 MW solar, 402 MW wind and 200 MW battery, all with power purchase agreements.

"Despite recent policy shifts, there is robust demand for renewable energy in the US, driven by the growth in AI and digital infrastructure," Luba Nikulina, Chief Strategy Officer for global investment group IFM Investors, said recently.

Brazil's Bahia expands network as state grids remain under pressure

The European Investment Bank (EIB) has announced a €300 million loan to modernise the electricity grid in Brazil's Bahia state.

EIB Global – the development arm of the EIB – will make the loan to Neoenergia Coelba, a distributor serving more than 6 million customers across 415 municipalities in Bahia.

The financing will be used to expand and modernise the distribution network so more of the state's 15 million people – especially in low-income

communities – to access clean energy.

"This investment marks a pivotal step in strengthening Brazil's energy infrastructure while advancing our shared global commitment to climate action," said EIB Vice-President Ambroise Fayolle. "This initiative will be key to ensuring that renewable energy reaches Bahia's communities safely and efficiently and strengthens our purpose of promoting fair access to clean energy," said Eduardo Capelastegui, CEO of Neoenergia.

The announcement comes as industry and renewable energy developers have been pressing Brazil to increase investment in its congested grid. Recently Energisa Paraíba told Aneel that the planned Itaporanga and Pianco solar plants could not be connected to the grid.

"The admission of these generations has the potential to further increase the curtailment that is already being imposed on projects that already exist," said Energisa.



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Indonesia to accelerate clean energy shift

Photo by Stijn Dijkstra

- ADB loan marks first phase of accelerating clean energy transition programme
- PLN reaffirms clean energy commitments at COP30

Syed Ali

Indonesia's shift to clean energy continues to gain momentum, as state-owned electricity provider PLN received approval for a \$470 million loan from the Asian Development Bank (ADB) to help expedite the transition to renewable energy.

The results-based loan marks the first phase of the Accelerating Indonesia Clean Energy Transition Program, which will support the development of solar photovoltaic and wind power projects, improve critical electricity grids in the Java-Madura-Bali, Sumatra and Sulawesi systems and enhance PLN's capacity to manage Indonesia's energy transition efforts.

The programme, scheduled for implementation from 2026 to 2031, is projected to cut carbon dioxide emissions by as much as 2.5 million tons annually.

News of the funding came as PLN reaffirmed its commitment to accelerating a just and equitable energy transition through concrete measures and strengthened global partnerships during the 30th Conference of the Parties (COP30) in Belém, Brazil.

Evy Haryadi, PLN's Director of Technology, Engineering & Sustainability, emphasized that the 2025-2034 Electricity Supply Plan (RUPTL) marks a major shift toward a greener energy pathway compared to the previous plan.

"While the previous RUPTL outlined

the development of around 21 GW of renewable energy, the current plan increases this capacity to approximately 52.9 GW (including storage) for the 2025-2034 period," Haryadi said.

Indonesia's energy transition strategy goes beyond simply increasing renewable capacity – it also prioritises preparing the power system to absorb, distribute, and balance a rising share of clean electricity. This approach, which it calls Complementing Renewable Expansion, ensures that renewable growth is supported by the necessary infrastructure.

Through this strategy, PLN will scale up investments in energy storage, flexible power generation, and robust inter-regional transmission networks. The aim is to integrate renewable energy

efficiently while maintaining system reliability and affordability. This approach also paves the way for Indonesia's renewable capacity to exceed 75 per cent within the next decade.

According to a report by GlobalData, the country's cumulative renewable power capacity is projected to reach 38.1 GW by 2035, up from 8.4 GW in 2024, registering a compound annual growth rate (CAGR) of 14.7 per cent during 2024-35.

Mohammed Ziauddin, Power Analyst at GlobalData, commented: "Indonesia's power system is entering a dual-track phase of expansion, scaling renewables while retaining thermal stability. With solar PV and wind onshore leading growth, supported by geothermal development and grid

modernisation, the country is progressively building a more diversified and secure energy mix through 2035 and beyond."

The country's renewable drive received a boost last month as construction of a 200 MW Wind Power Plant (PLTB) in Banyuwangi secured backing from German energy company WPD.

Meanwhile, in late October the country inaugurated several strategic electricity projects aimed at achieving the country's target of a 100 per cent electrification rate. Among the key initiatives is the Anggi Micro-Hydro Power Plant Phase II project, with a capacity of 2 x 250 kW in Arfak Mountains region, West Papua, which broke ground on October 29, 2025.

Free daytime solar power to drive Australia's shift away from coal and gas



Photo by Kindel Media

In a move to use excess solar capacity and rebalance the grid away from coal and gas, Australia plans to force energy companies to offer free electricity to households during the daytime.

The 'Solar Sharer' plan is an attempt by the government to take advantage of the country's extensive network of rooftop solar panels. More than 4 million of Australia's 10.9 million households have such panels, and capacity has overtaken the combined output of the country's residual coal fired power stations, according to official data.

This has led to negative power pricing for solar during the daytime when solar generation is at its peak, as households with solar panels produce more energy than they consume.

Australia's Energy Minister Chris Bowen, said forcing power companies

to provide three hours of free electricity during the day would give households an incentive to shift their energy use, such as by running large appliances or charging electric vehicles earlier in the day. This would reduce the burden on the grid during evening hours and lessen the need for costly network upgrades and interventions, he said.

The scheme is due to come into effect in some states in July before potentially being extended by 2027, the energy department said. The government has also moved to subsidise household battery installation to store solar electricity generated during the day.

The plan has received a mixed reaction. Tim Buckley, Director of think-tank Climate Energy Finance, called it a "no brainer", saying it would create

a "demand pool" during the day when people can run air conditioners, washing machines and pool cleaners to balance the grid. "The plan guts coal even faster and makes gas less relevant," he said.

However, Saul Kavonic, Senior Energy Analyst at MST Marquee, said the scheme is "another poorly thought through market intervention".

"Providing a free time during the day is dangerous in the event of unplanned outages," he warned.

Australia is undergoing a rapid energy transition, driven by strong government policies, abundant solar and wind resources, and ambitious net-zero targets. Renewables are forecast to account for 73.3 per cent of the country's total power generation by 2035, according to GlobalData.

Vietnam eyes large-scale energy storage to stabilise renewables power grid

Vietnam plans to develop large-scale energy storage systems as part of its strategy to stabilise its fast-growing renewable power grid and meet its net zero emissions target by 2050, officials said at a forum in Ho Chi Minh City last month.

Nguyễn Thế Hữu, Deputy Director of the Electricity and Renewable Energy Authority under the Ministry of Industry and Trade (MoIT), said storage technology has become a "critical enabler" of Vietnam's clean energy transition as renewables increasingly dominate new power capacity.

Under its Power Development Plan (PDP) VIII, Vietnam plans to make a major shift towards renewable energy, aiming for 47 per cent of total power generation capacity from renewables by 2030 as well as a balance between greenhouse gas emissions and absorption by 2050.

PDP VIII will see the country install 2400-6000 MW of pumped storage hydropower and 10 000-16 300 MW of battery storage capacity by 2030 to support intermittent renewable sources such as solar and wind.

Vietnam currently has more than 20 GW of solar and wind capacity, accounting for over a quarter of its total generation mix. However, grid overloads and weather dependency have led to frequent curtailments, underscoring the urgent need for energy storage to stabilise and optimise renewable output.

Foreign investors from Japan, South Korea, and Europe expressed interest in exploring pilot storage projects under the sandbox mechanisms being drafted by MoIT, which aim to encourage early adoption of battery storage and smart grid solutions.

■ In November energy conglomerate Banpu Plc and industrial estate developer Amata Corporation formed the Amata Esco Next Llc joint venture to drive a massive rooftop solar power initiative that is being developed at two industrial estates. The project is expected to develop rooftop solar installations with a combined capacity of 227 MW across two of Amata's major industrial parks in Vietnam: the 686 ha Amata City Ha Long, and the 410 ha Amata City Long Thanh.

China's new pricing mechanism drives record renewable growth

China added a record 264 GW of wind and solar capacity in the first half of 2025, doubling additions from the same period in 2024, as developers rushed to meet the deadline for inclusion in the country's new auction-free renewable pricing mechanism, according to Wood Mackenzie.

First auction results under the new competitive framework indicate pricing pressure ahead, as noted in the report 'Game Changer or Growing Pains for China's Renewables? Analysis of

China's Renewables Sustainable Development Pricing Mechanism'. Shandong Province's inaugural auction showed wind and solar prices falling 9 per cent and 32 per cent below average settlement prices, respectively, highlighting the challenges developers will face under China's shift toward full marketisation of renewable power.

Wood Mackenzie's analysis shows onshore wind and utility solar levelised cost of energy (LCOE) fell 7 per cent in 2025, further improving project

economics for developers who secured auction-free mechanism access before the deadline.

China launched the renewable sustainable development pricing mechanism in 2025, with projects built before June 1, 2025 enjoying auction-free mechanism pricing. The auction-free mechanism proved highly attractive to investors as it maintains incumbent off-taking terms and conditions, including pricing at coal fired power base price (CBP) in most provinces and annual

provincial generation coverage averaging 54 per cent for 18 years.

According to Wood Mackenzie, however, the new mechanism introduces price risk and shorter coverage periods.

It projects utility solar Internal Rate of Return (IRR) will fall to 6.3 per cent in Shandong, for example, under the new mechanism, down from the national average of 8 per cent under the auction-free structure, while onshore wind IRR could reach 13.6 per

cent. The Shandong auction results provide the first real-world validation of these economic pressures.

"The Shandong results provide an early indication of pricing dynamics under the new competitive framework," said Sharon Feng, Senior Analyst, China power market at Wood Mackenzie. "Investors will be exposed to price fluctuation risk and curtailment losses due to incomplete lifecycle coverage under the shorter execution periods."

Germany looks to stable power for industry

■ 10 GW of dispatchable power to be tendered ■ Biblis the focus for long-term fusion plans

Janet Wood

Germany has agreed to open a tender for 10 GW of new dispatchable generating capacity, which will include batteries and demand-side response as well as 8 GW of gas fired capacity. Tenders for 8 GW will be issued next year, with the new capacity to come online by 2031.

The gas capacity is about half the level planned at the start of the year. The deal between conservative Chancellor Friedrich Merz and his Social Democrat coalition partners was said

to be a compromise between supporters of a swifter energy transition and those who believe gas will provide cheaper reliable energy.

The tender will require the new power stations to be carbon-neutral by 2045 and in agreeing the deal Merz said: "The tenders will specify that the new power stations are technically capable of being fired by hydrogen", although neutrality could also be achieved by carbon capture and storage.

Merz said the European Commission had signalled it would accept the new plans. The new plant will attract

subsidies because it is only expected to be used intermittently to balance new renewables. Another technology-neutral tender is planned for 2029.

Meanwhile a feasibility study by Arthur D. Little and Focused Energy has concluded that the Biblis site in southern Hesse, where a nuclear power plant awaits decommissioning, could become a centre for a Germany fusion industry.

In cooperation with RWE and other partners, Biblis would be a hub for laser fusion research, innovation and the industrial ecosystem, and eventually

house the first laser fusion power plant. The feasibility study clearly shows that the Biblis site is ideally suited for this purpose.

"This is a great opportunity for Germany, as fusion energy is rapidly gaining strategic importance," said Thomas Forner, CEO and co-founder of Focused Energy. Hesse has designated laser fusion as a politically prioritised field of action and, together with Focused Energy, RWE, Schott, Trumpf, and other partners, has already signed a declaration of intent for the long-term development of the Biblis site.

A new plant could adapt existing infrastructure, such as turbine halls, storage buildings and reactor domes. That would significantly reduce investment costs and speed up construction, the report concluded. The required infrastructure expansion is also clearly definable and technically manageable.

According to the federal government's 'Fusion Action Plan', published in October 2025, fusion research will no longer fall under nuclear law but under radiation protection law – a crucial step for legal and industrial implementation.

German offshore wind tenders 'need redesign'

The European Investment Bank (EIB) has agreed a €500 million green loan to Iberdrola for the 315 MW Windanker offshore wind farm, currently under construction in the German Baltic Sea.

The financing, guaranteed by the Spanish export credit agency, Cesce, is the first use of a guarantee developed by the EIB and Cesce to support green projects led by Spanish companies outside Spain.

The project is part of TechEU the EIB Group's programme to accelerate EU innovation which aims to mobilise €250 billion in investments by 2027 for startups, scale-ups and innovative companies across Europe.

"EIB's €500 million financing for Windanker helps bring cutting-edge wind power technology to the Baltic Sea for the benefit of German consumers and local economies," said Jean-

Christophe Laloux, EIB Director General of Financing and Advisory Operations within the European Union. "The green electricity generated by the project will also take us closer towards securing Europe's independence from fossil fuel imports."

The agreement comes as German offshore wind industry groups and transmission system operators call on the federal government to reform the country's offshore wind auction system, warning that the current framework is deterring investment.

The groups propose postponing the next auction to Q4 2026 to allow time for a redesign of the tender process. They have called for the introduction of contracts for difference (CfDs) and long-term power purchase agreements (PPAs) to provide price stability and lower financing costs.

UK names Wylfa as small modular nuclear site

The UK has named Wylfa on the Welsh island of Anglesey as the site for three Rolls-Royce small modular reactors (SMRs) totalling almost 1.5 GW. In a bid to build up the UK's SMR industry, the government has pledged £2.5 billion of funding for SMRs during this three-year spending period.

A nuclear reactor was closed at Wylfa in 2015 but previous plans to use the site for a new reactor have been scrapped. In 2019, Japanese industrial group Hitachi wrote off £2.1 billion when it cancelled plans for a reactor there.

Llinos Medi, Plaid Cymru MP for the local Ynys Môn constituency, said: "We await further details to see how

this announcement will secure high-quality, long-term jobs, and ensure local supply chains benefit from any development".

Meanwhile EDF's new Chief Executive, Bernard Fontana, told the *Financial Times* that he would use the company's Sizewell C UK project to show that reactors can be built on time.

Fontana said: "There's a deep well [of efficiency] to be had and which we need to exploit... We can surprise positively on the timeline of our programmes." Sizewell C has a 10-12 year construction schedule, whereas EDF's Flamanville 3 reactor in Normandy exceeded its initial five-year timeframe by 18 years



■ Batteries are fastest growing sector
■ Finland gets first grid forming battery in Nordics

Janet Wood

The EU, UK, Norway and Switzerland have together reached 100 GW of installed storage – enough to meet the peak electricity demand of Germany and the Netherlands – according to new analysis by LCP Delta and Energy Storage Europe.

Pumped hydro storage was the largest storage type, with 50.6 GW, including 500 MW added this year in Belgium and Austria. Battery storage is expanding rapidly, with over 4 GW of new utility-scale capacity in 2025. That includes commercial and industrial users, which increasingly see batteries as a way to cut costs and use renewable energy. LCP Delta and Energy Storage Europe said they expect energy storage will surpass 215 GW by 2030, with battery storage passing 160 GW.

Silvestros Vlachopoulos, Energy Storage Research Lead at LCP Delta, said: "Reaching 100 GW of installed energy storage across Europe is a key moment for the market. It not only

unlocks more space for renewables on the grid today but sets the stage for even faster growth in the coming years. Keeping investors and developers engaged will be essential to scaling projects and providing the flexibility needed for Europe's 2030 targets."

The report came as Merus Power announced that it has commissioned the first grid forming battery in the Nordic countries for its Swiss customer Alpiq. The 30 MW/36 MWh system in Valkeakoski, Finland, meets the requirements set by Fingrid, Finland's transmission system operator, for large-scale grid forming energy storage.

Grid forming batteries can support the power grid during disturbances and fault situations, unlike traditional grid following plant. The new battery can independently maintain voltage and frequency, improve grid inertia and support the power system during disturbances.

Fingrid first published its requirements for grid forming functionality in

type D and C energy storage in the summer of 2023. Merus Power said it had developed the technology and brought it into commercial use in just two years.

Asta Sihvonen-Punkka, CEO of Fingrid Oy, said: "This first grid forming energy storage system developed in the Nordics is an important step towards an even cleaner and more flexible electricity system."

"It is great to see new technological solutions like this being introduced to the power system to ensure its reliable operation and enable the growth of renewable energy in the grid."

Meanwhile Envision has signed an agreement with Global Energy Services (GES) to deploy its batteries in the Spanish and European markets. GES will oversee commissioning, operation and maintenance of batteries along with Envision's wind turbines. Spain's National Integrated Energy and Climate Plan aims to install storage totalling 22.5 GW by 2030.

UK generators may get partial relief from EU carbon charge

UK electricity companies may not have to pay the full costs of the EU's carbon border adjustment mechanism (CBAM), after industry warned the EU that the tax could undermine the business case for interconnectors and lead to higher emissions.

The CBAM, which is due to take

effect in 2026, will place a carbon price on third countries who send carbon-intensive products such as electricity, cement and steel to the EU.

The aim is to discourage so-called 'carbon leakage', which means that instead of paying for carbon emissions in the EU, companies import products

from outside the bloc or even move their processes abroad.

The UK has 12 cables connecting it to EU countries. It will not be able to avoid the CBAM charge despite efforts to link the EU and UK emissions trading systems. But UK generators say CBAM does not account for the

accelerated domestic rollout of renewables and will charge as if the electricity is more carbon-intensive than is the case.

The CBAM changes would allow importers of UK electricity to apply values that factor in the UK's emissions trading system and carbon price

support mechanism, as well as the amount of renewable electricity it produces.

Bruegel, Brussels-based think-tank, warned that the current policy "risks undermining... security of energy supply, while the climate benefits are unclear".

8 | International News

Clean electrification driving the energy transition, says Rystad report

Photo by Pixabay

- Global electrification key factor in lowering emissions
- Renewables to attract lion's share of energy investment

Nadia Weekes

The global energy system is on the cusp of a new era championed by clean electricity and the increased adoption of electrification across the board, according to Rystad Energy's Global Energy Scenarios (GES) 2025.

The consultancy's annual flagship

report says achieving climate and energy security goals depends on cleaning up and expanding the power sector through 2050 and electrifying almost everything, alongside improving energy efficiency across buildings, industry and transport.

Today's energy system, where half of global power generation capacity is

renewable, is transforming rapidly. Clear signs of change across investments, new capacity additions and technological adoption curves point to a genuine transition taking place over the next two to four decades.

According to Jarand Rystad, founder and CEO of Rystad Energy, oil demand is projected to peak by the early 2030s,

with gas growth slowing down towards the end of this decade; however, neither fuel experiences a sharp contraction.

While oil and gas remain the backbone of the system, tied to transport, petrochemicals and energy services, fossil fuels are being outpaced by renewables, ultimately leading to lower costs for consumers.

Low-carbon technologies currently attract over \$900 billion annually, compared to \$735 billion for oil and gas. This \$181 billion gap widens to estimated \$391 billion by 2030. By 2030, low-carbon sources are set to capture 46 per cent of all energy investment, with 30 per cent going to fossil fuels, and grids accounting for 24 per cent.

Oman's utility closes wind and waste-to-energy deals

Nama Power and Water Procurement (Nama PWP) has signed a 20-year power purchase agreement (PPA) with Sembcorp and OQ Alternative Energy (OQAE) to develop the 125 MW Dhofar II wind power project, in the Wilayat of Shaleem and Al Hal-laniyat Islands.

Upon completion in late 2027, all of the wind farm's power output will be supplied to Nama PWP. According to Ahmed bin Salim al Abri, CEO of Nama PWP, the project will generate

approximately 396 754 MWh of electricity annually, enough to power more than 18 000 Omani households, saving approximately 76 million m³ of natural gas every year.

In a separate development, Nama PWP said it had received 18 high-calibre international submissions for its pioneering waste-to-energy (WtE) project, which is planned for the Wilayat of Barka, Al Batinah South Governorate.

The up to 100 MW facility will treat

3000 tonnes per day of municipal solid waste, generating an estimated 757 GWh per year while cutting more than 300 000 tonnes of CO₂ emissions annually. It is expected to become operational in late 2030.

Following a rigorous evaluation process, the short-listed applicants will be invited to participate in the final Request for Proposals (RFP) stage, culminating in a Build, Own and Operate (BOO) framework contract for the project.

Envision-ACWA agreement to boost clean energy ecosystem

Envision Energy and ACWA Power have signed a seven-year agreement to partner on upcoming projects with the goal of accelerating renewable energy development across Saudi Arabia, Uzbekistan, China and other strategic markets through wind turbine supply, technological cooperation and operational maintenance.

This collaboration will drive innovation in wind turbine performance while advancing local manufacturing initiatives. Envision and its joint venture partner will establish production capabilities for key wind turbine generator

components in the Kingdom of Saudi Arabia. Similarly, in Uzbekistan, Envision will develop manufacturing capacity for concrete towers and blades. The two parties will also jointly pursue business development opportunities in China.

"At this pivotal moment in the global energy transition, our partnership with ACWA Power represents a significant step toward a sustainable energy future," said Kane Xu, Senior Vice President and President of International Product Lines at Envision Energy,

Xu noted that Envision's technological leadership and ACWA Power's project development capabilities would establish "a viable cooperation model for emerging markets worldwide".

Marco Arcelli, CEO of ACWA Power, said the energy transition requires "solutions that deliver environmental and economic value simultaneously", adding that his company's partnership with Envision embodies this approach, "moving beyond clean power generation to co-create sustainable energy ecosystems".

Syria signs concession agreements for 5 GW of new generation

Photo by iam hogi

The Ministry of Energy in the Syrian Arab Republic has signed the final concession agreements to build and operate eight new power generation stations with a total capacity of 5 GW with an international consortium led by Urbacon Holding, in partnership with Kalyon G.I.S. Energy, Cengiz Energy, and Power International (USA).

The final contracts include the construction and operation of four natural gas fired combined cycle power plants, namely North Aleppo (1.2 GW), Deir

Ezzor (1 GW), Zayzoun (1 GW) and Mhardeh (800 MW), and four solar energy projects: Widian Al-Rabee (200 MW), Deir Ezzor (300 MW), Aleppo (300 MW) and Homs (200 MW).

This represents the first integrated public-private partnership model in the Syrian energy sector, reflecting the attractiveness of the national investment environment and its ability to draw international partners, potentially paving the way for future investments in other key sectors.

Saudi Arabia advances nuclear plans while eyeing gas boom

- Plans shape up for first nuclear power plant
- Saudi oil major joins region's 'dash for gas'

Nadia Weekes

"Tangible progress" is being made on the project to establish Saudi Arabia's first large-scale nuclear power plant, a member of the Kingdom's atomic energy body, Sharaf Al-Sharif, told delegates at the second Saudi International Conference on Nuclear Power Engineering (SCOPE) in November.

Achieving this milestone will strengthen national energy security and stimulate local industry, he said. The energy body, Kacare, is said to be preparing for the next phase by assessing technologies related to small modular reactors, which have the potential to provide low-emission solutions for electricity generation, water desalination and hydrogen production.

Al-Sharif said that human capital was at the core of Saudi Arabia's nuclear programme, noting that Kacare is investing in providing domestic

scholarships, training initiatives and undertaking research programmes.

Meanwhile, oil major Saudi Aramco prepares to begin production at the giant Jafurah shale gas field, which – when it reaches full capacity by 2030 – could surpass ExxonMobil's current combined oil and gas production.

Saudi Aramco is shifting its focus to natural gas as it attempts to build the energy backbone required to power fleets of artificial intelligence data centres, new industrial hubs and fast-growing cities. The company has lifted its growth target for gas production from 60 per cent to 80 per cent by the end of the decade, compared with 2021 levels.

Amin Nasser, Aramco's Chief Executive, described the field's growth potential as "huge", noting it held about 230 trillion cubic feet of gas and 75 billion barrels of oil, as well as being rich in ethane, a key feedstock for

making plastics.

The focus on gas reflects a broader belief that the fuel will remain essential to meet surging global demand for electricity, especially as countries move away from coal in order to hit climate targets.

In the Middle East, the dash for gas is being led by Saudi Arabia, Qatar and the United Arab Emirates.

"We will replace a million barrels of oil" with gas, Nasser said. "We will have more cities – everybody wants an air conditioner. So, we will want more power."

Saudi Arabia believes its abundant supplies of low-cost gas can help it lure heavy industry and manufacturing to its new economic zones. The ethane produced at Jafurah will feed into the country's petrochemicals sector, while surplus gas could be used to make low-carbon hydrogen or exported as liquefied natural gas.

GE Vernova has announced the start of commercial operations at Jafurah Cogeneration Independent Steam and Power Plant, where it provided the core power plant equipment – its 7HA.01 gas turbine – alongside a 20-year service agreement including maintenance and supply of parts.

The cogeneration process maximises energy output by capturing and reusing excess heat or steam. The plant is expected to deliver up to 314 tonnes/hour of steam, as well as up to 320 MW of electricity to support Jafurah gas field operations.

On the renewable energy front, a consortium of France's TotalEnergies and Saudi developer Aljomaih Energy & Water (AEW) has been awarded by the Saudi Power Procurement Company (SPPC) the license to develop, build and operate a 400 MW solar power plant in As Sufun.

The electricity produced will be sold

to SPPC through a 25-year power purchase agreement (PPA). Once it connects to the grid in 2027, the solar plant will power more than 68 400 homes.

The As Sufun project is part of Round 6 of the National Renewable Energy Programme (NREP) overseen by the Ministry of Energy, aiming to reduce reliance on liquid fuels in electricity generation, in line with Saudi Vision 2030.

"The 400 MW As Sufun solar PV project in Hail region demonstrates our ongoing efforts to expand our renewable energy investments in the Kingdom," said Adnan Buhuligah, Acting CEO of Aljomaih Energy and Water Company.

This renewable project is a new milestone for TotalEnergies in the Kingdom of Saudi Arabia where the company is currently operating the 119 MW Wadi Al Dawasir and building the 300 MW Rabigh 2 solar power plants.

Companies News



Data centre and gas turbine demand drives profit at Siemens Energy

Photo by Pok Rie:
<https://www.pexels.com>

■ Revenues rise 15 per cent ■ Orders total €58.9 billion

Junior Isles

Siemens Energy raised its mid-term profit targets as its order backlog reached record levels, driven by demand for gas turbines and electricity demand for AI (artificial intelligence) data centres.

For the business year to September, the company saw revenues rise 15 per cent to €39.1 billion, with all units contributing to growth. Incoming orders totalled €58.9 billion, 19.4 per cent higher than in the prior year, taking the outstanding total to a record €138 billion. It reported operating margins of 6 per cent on operating profit of €2.4 billion. The company said it also expected operating margins in the range of 14-16 per cent in 2028, up from the previous target of 10-12 per cent.

The results mark a big turnaround for the company which has bounced back from a difficult period in 2023 triggered by huge losses at its Siemens Gamesa wind unit.

Chief Executive Christian Bruch said 2025 was “really a gas year” for the company, as the demand for flexible electricity generation capacity grew.

Commenting on the demand for energy to power artificial intelligence and how it impacted the company’s results, he stressed that it was only a part of Siemens Energy’s business.

“The majority of our customers aren’t data centres,” he said but noted that the data centre business “was an extremely interesting market” in 2025, and “will remain so going forward”. “What is so successful at the moment is particularly if you can react fast, [it] allows you a super pricing

element,” he said.

The results came as Siemens Smart Infrastructure announced a strategic partnership with industrial AI software provider IFS to deliver integrated, AI-driven solutions for energy utilities.

The collaboration combines Siemens’ expertise in grid planning, electrification, and smart infrastructure with IFS’s capabilities in enterprise asset management, field service management, and AI-powered scheduling optimisation.

Together, the companies are addressing the most pressing challenges facing critical infrastructure operators: aging assets, supply chain disruption, labour shortages, and the need to accelerate the energy transition through digital transformation and autonomous grid operations.

Dr. Sabine Erlinghagen, CEO of Siemens Grid Software, said: “The complexity of modern grid operations demands more than incremental improvements; it requires a fundamental transformation in how we plan, operate and maintain grids.”

The tie-up was one of several partnerships announced by Siemens last month. Most recently, it signed a partnership with Delta Electronics aimed at cutting data centre deployment time, costs, and carbon emissions by delivering prefabricated, modular power solutions.

The news coincided with the announcement of a strategic and long-term partnership with Samsung C&T Corporation, Engineering & Construction Group. As part of the initial collaboration, Samsung C&T and Siemens identified next-generation

infrastructure projects across Saudi Arabia, Canada and Thailand as first focus areas. These projects span key infrastructure sectors, including airports, hospitals and data centres.

Through a ‘ONE Tech Company’ approach, Siemens will bring together its full Smart Infrastructure and Digital Industries portfolio, encompassing Building X, Electrification X, Gridscale X, prefabricated e-houses, Industrial Metaverse applications, and blue GIS technologies.

Siemens’ recent biennial study, exploring the state of the infrastructure transition across energy, industry and buildings, found that 74 per cent of 1400 global executives believe smart grids and grid software are crucial enablers of the clean energy transition, accelerating progress on renewables, energy efficiency and electrification.

TotalEnergies accelerates gas-to-power integration strategy

TotalEnergies is aiming to accelerate its gas-to-power integration strategy in Europe with the signing of an agreement to acquire 50 per cent of Energetický a průmyslový holding, a.s. (EPH) flexible power generation platform (gas fired and biomass power plants, batteries).

The agreement between the companies, which covers assets located in western Europe (Italy, United Kingdom and Ireland, Netherlands, France), is valued at €10.6 billion.

A TotalEnergies press statement said: “This transaction is fully consistent with TotalEnergies’ Integrated Power strategy and will strengthen its position in European electricity markets by enhancing the complementary relationship between intermittent renewable power generation and flexible power generation (gas fired plants, batteries).

“It will allow TotalEnergies to expand its power trading activities across Europe and develop its Clean Firm Power offering to its customers. This will position the company as a key player to meet Europe’s growing data centre demand,” said the statement.

TotalEnergies said that by leveraging its “strong position” in supplying LNG to Europe, the transaction enhances the company’s ability to diversify value creation along the gas value chain, particularly between Europe and the US. “The additional net electricity production from the transaction, estimated at 15 TWh/y, will enable the company to capture added value to approximately 2 Mtpa of LNG,” said the press release.

The transaction covers a portfolio of more than 14 GW gross capacity of flexible generation assets in operation or under construction. This primarily

includes gas fired power plants, biomass power plants and battery systems, which benefit from secured capacity revenues representing 40 per cent of the gross margin, allowing TotalEnergies to strengthen its presence in the most profitable European electricity markets.

The acquisition scope includes about 5 GW of projects under development. The agreement provides that the joint venture will become the preferred vehicle for TotalEnergies and EPH to drive flexible power generation growth in the targeted countries.

Patrick Pouyanné, Chairman and CEO of TotalEnergies, commented: “Given our position as the #1 gas supplier in Europe, this transaction enables us to fully capitalise on gas-to-power integration and create added value for our LNG chain, independently of oil cycles.”

Ørsted takes significant steps in delivering on strategic priorities

Ørsted has taken significant steps in delivering on its strategic priorities during the third quarter.

The Danish renewables project developer said it has strengthened its capital structure through the completion of the rights issue and the divestment of a 50 per cent equity stake in the 2.9 GW Hornsea 3 Offshore Wind Farm in the UK. According to its interim report, operational performance has remained solid, and Ørsted reiterates its full-year EBITDA guidance.

Commenting on report covering the first nine months of 2025, Rasmus Erboe, Group President and CEO of Ørsted, said: “I’m satisfied with the good progress across our entire construction portfolio and our solid operational performance.

“Despite lower wind speeds in the quarter, we have increased the generation by 8 per cent compared to Q3 2024 through a combination of higher availability rates for our offshore

portfolio and ramping up generation from Gode Wind 3 in Germany.”

The sale of half of Hornsea 3, the world’s largest offshore wind farm, to US private capital group Apollo in a \$6.5 billion deal, marks a big step forward for the renewable energy developer as it battles rising costs and political challenges.

Ørsted’s business model is to sell stakes in projects to fund the next ones, but selling a share in Hornsea 3 is particularly important to the company given its recent funding challenges.

Last month Ørsted also marked another significant milestone with the announcement that it will be the first energy company in the world to reach its science-based 2025 decarbonisation target. Renewable energy now accounts for 99 per cent of the company’s energy production, while its scope 1 and 2 emissions intensity has been reduced by more than 98 per cent compared to 2006.

Petrofac insolvency highlights “blind spot” in project risk

UK group Petrofac, which designs, builds and operates energy facilities, has applied to enter into administration, putting thousands of jobs at risk and exposing a potential risk oversight in energy projects.

As well as the UK’s North Sea, Petrofac has significant operations in the Middle East and north Africa.

Commenting on the news, Sapna Amlani, Supply Chain Lead at Moody’s, said: “The collapse of Petrofac – a key player in North Sea energy services – has exposed deep structural vulnerabilities in its business and the energy supply chain.

With more than 2000 Scottish jobs, critical offshore operations and duty holder contracts at risk, the ripple effects extend far beyond employment. This is a true test for supply chain resilience.

“Petrofac’s probable insolvency, triggered by the termination of a major offshore wind contract with TenneT, underscores the fragility of contractor ecosystems that underpin the UK’s energy infrastructure,” she added. “Tier 2 and Tier 3 suppliers, often invisible in boardroom discussions, now represent a potential blind spot in risk oversight.”

In March 2023, TenneT signed a framework agreement with a consortium comprising Hitachi Energy and Petrofac for six offshore wind grid connection projects across Germany and the Netherlands.

TenneT recently announced that it exercised its right to partially terminate the contract covering Petrofac’s scope after the company failed to meet its contractual obligations. India-based Larsen & Toubro was subsequently named as Petrofac’s replacement contractor to deliver high voltage direct current (HVDC) converter stations.

Rolls-Royce and Forsee Power partner to accelerate electrification

Rolls-Royce and Forsee Power, a supplier of battery systems for commercial and industrial vehicles, have signed a Memorandum of Understanding to establish a strategic partnership to jointly develop advanced battery solutions for industrial and transport applications. The collaboration aims to significantly advance electrification and the energy transition in industrial applications.

As part of this agreement, signed for an initial period of five years, Forsee Power will be the main supplier of battery systems to electrification projects from Rolls-Royce’s Power Systems division.

In addition, the partners will work together to develop and deliver advanced monitoring and analytics solutions that can be integrated into automation solutions.

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Americas

Wärtsilä wins 507 MW US data centre order

Wärtsilä has won an order to supply 27 50SG gas engines to provide continuous primary power for a new data centre under construction in the United States. The plant will have a capacity of 507 MW.

The engines will run on natural gas and can be converted to run on sustainable fuels in the future. The equipment will be delivered in 2027.

Acciona Energia signs Chile BESS retrofit deal

Acciona Energia has announced it will add a 1 GWh battery energy storage system (BESS) to the 238 MW Malgarida solar power plant in the Atacama Desert in Chile.

The BESS to be deployed will be a 200 MW/1000 MWh (5 hour duration) complex, to be deployed at the Malgarida solar power plant.

The Malgarida plant was commissioned in 2021, comprising two phases. Acciona Energia said the batteries will allow the plant's output to be stored, managed, and dispatched as required.

Siemens Energy to modernise port power

Siemens Energy has won five contracts totalling \$65 million to modernise the port in Nassau, Bahamas.

The scope includes power generation, interconnection to the national grid, and ship-to-shore electrification. At the core of the solution is a combined cycle gas fired power plant, featuring an SGT-800 gas turbine and an SST-300 steam turbine. This will replace diesel powered generation on docked cruise ships with cleaner energy sources, cutting CO₂ emissions by up to 140 000 tons annually.

The equipment will be manufactured and assembled at Siemens Energy facilities in Sweden, China, Spain, and Brazil.

TotalEnergies signs PPA for Google data centres

TotalEnergies and Google have signed a 15-year power Purchase Agreement (PPA) to supply Google with a total of 1.5 TWh of certified renewable electricity from TotalEnergies' Montpelier solar farm in Ohio. The solar facility is nearing completion and is connected to the PJM grid system.

Will Conkling, Director of Clean Energy and Power at Google said: "Strengthening the grid by deploying more reliable and clean energy is crucial for supporting the digital infrastructure that businesses and individuals depend on."

Arabelle Solutions unit for Natrium NPP

Arabelle Solutions will deliver a steam turbine, a GIGATOP 2-pole generator and associated auxiliaries and controls, for the Natrium nuclear power plant currently under development in Kemmerer, Wyoming, USA, replacing a retiring coal fired plant.

The 500 MW steam turbine and generator will form key components of the Natrium plant energy island. The power plant will feature a 345 MW sodium-cooled fast reactor and a molten salt energy storage system that allows the plant to temporarily boost output to 500 MW.

The plant is currently scheduled to enter operations in 2030.

Once operational, the first Natrium plant will deliver enough electricity to power approximately 400 000 homes.

Asia-Pacific

Iberdrola to build Victoria-NSW link

Iberdrola, in collaboration with Vic-Grid, will develop the VNI West 240 km, 500 kV double-circuit transmission line project between Victoria and New South Wales in Australia. Iberdrola will design and develop the project and subsequently submit a proposal to build, own and operate the transmission line.

The target construction completion date is 2030. The line is expected to increase bi-directional transfer capacity by up to 3.5 GW.

Valmet WtE boiler to decarbonise Houli mill

Valmet will deliver a circulating fluidised bed (CFB) boiler, flue gas treatment and automation system for Cheng Loong Corporation's (CLC) Houli paper mill in Taiwan.

The boiler will use various waste and biomass streams as fuel to produce electricity and heat for the mill.

The CFB is a significant investment in decarbonisation as it will enable the reduction of coal usage and replaces an older less efficient waste boiler. CLC has estimated that this new boiler will reduce mill's annual CO₂ emissions by 48 000 tonnes.

AGL invests A\$185 million for Siemens Energy GTs

AGL Energy has committed A\$185 million to buy four gas turbines from Siemens Energy for its first power station in Western Australia.

The turbines will be for the 176 MW Kwinana Swift Gas 2 project, which is scheduled to supply peaking power capacity from October 2027. The Kwinana power plant is aligned with the objective of the Western Australian government to decommission all state-owned coal-fired power plants by 2030.

AGL said that the Kwinana Swift Gas 2 plant will provide backup power during periods of high demand and contribute to the overall security of the Western Australian electricity network.

GE Vernova to repower Taiwan wind turbines

GE Vernova has won its first onshore wind repower upgrade agreement outside the USA, signing a deal with Taiwan Power Company (TPC) to supply 25 repower upgrade kits in Taiwan.

Under the terms of the agreement, GE Vernova will provide repower upgrade kits for 25 1.5 MW-70.5 m turbines and deliver a five-year O&M service package.

Initial components are scheduled for delivery in Q4 2025, with retrofit installation taking place throughout 2026 and 2027.

Wind repowering enables turbines approaching the end of their designed operational life to be modernised and returned to service with improved reliability and performance.

Taiwan orders second Mitsubishi H-25 GT

Chang Chun Petrochemical of Taiwan has ordered an H-25 gas turbine from Mitsubishi Power. Chang Chun Petrochemical plans to convert the cogeneration facility at its Miaoli Factory, located in Miaoli City in north-central Taiwan, from existing heavy oil and coal fired boilers to a high efficiency natural gas fired system.

The H-25 gas turbine will be the core of the new gas fired cogeneration facility, with an output of approximately 30 MW. Operation is

scheduled to begin by the end of 2028. Mitsubishi Power will deliver the main gas turbine and auxiliary equipment, as well as dispatch engineers to support equipment installation and commissioning.

Mitsubishi Power previously received an order for an H-25 gas turbine for the Miaoli Factory in 2023, with operation planned to start around summer 2026.

Europe

Nordex wins 34 MW repowering order in Spain

Nordex has won an order from Grupo Enhol for the supply and installation of six N163/5.X wind turbines in Navarra, Spain. The repowering project Caparroso will have a total installed capacity of 34.2 MW. Nordex will also provide a 20-year service agreement.

The wind farm is located close to the village of Caparroso. Installation work is scheduled to start in July 2026, with commissioning due by February 2027.

Towers, blades, and nacelles for the Caparroso project will be manufactured in Spain, while hubs and drive train components will be produced in Germany.

Separately, Nordex won an order from SSE to supply and install 12 N133/4.8 wind turbines at the Drumnahough Wind Farm in Donegal, Ireland. This project is jointly owned by joint partners SSE and FuturEnergy Ireland. Delivery and installation is scheduled to start in 2027.

Valmet's DCS to boost energy market flexibility

Valmet will supply an automation system to Helen Ltd's Hanasaari electric boiler plant and a thermal accumulator being built in Helsinki, Finland. Once completed, it will be Europe's largest electric boiler plant.

The mission-critical Valmet Distributed Control System (DCS) will ensure high availability, enhance performance, and allow Helen to capitalise on energy market price volatility with greater flexibility and profitability.

As the plant's main automation system, the Valmet DCS will control and monitor the four electric boilers and two thermal accumulators, which will be operating as a single complex.

Urenco and EDF sign nuclear fuel deal

Urenco has signed an agreement with EDF to supply uranium enrichment services for nuclear power stations across France and the UK.

The multi-billion euro contract will enable Urenco to support EDF's nuclear fleet into the 2040s, contributing to the reliable and sustainable generation of electricity.

GE Vernova H-Class units for Kozenice

GE Vernova has received an order from Enea Group (Enea) for two of its 9HA.01 gas turbine combined cycle blocks with a combined output of about 1.2 GW to support Enea's gradual replacement of coal fired power generation produced at the Kozenice station.

This project is in line with the Enea Group's Development Strategy 2035 and forms part of the company's responsible energy transition plan. Implementation of the strategy is expected to reduce the Group's emissions by 64 per cent by 2035. Enea aims to become a fully climate-neutral company by 2050.

ABB to modernise CSP automation system

ABB has been selected by independent power producer ContourGlobal to replace the solar field control system at four concentrated solar power (CSP) facilities in southwest Spain.

The existing systems, which have been in operation for over 10 years, will be migrated to ABB SCADA, based on ABB's AC500 and AC 800M platforms. These will provide each CSP plant with a scalable, high-performance control solution that ensures long-term system availability and enhanced cyber security.

International

JA Solar wins 1.2 GW contract in Uzbekistan

JA Solar has signed a module supply agreement with Larsen & Toubro (L&T), the EPC contractor for the Samarkand 1 and 2 solar power plants in Uzbekistan.

Under the contract, JA Solar will supply all of the PV modules for the two projects.

The Samarkand 1 & 2 projects being developed by ACWA Power will have a combined capacity of 1.2 GW, located near the city of Samarkand in central Uzbekistan. The projects support Uzbekistan's national target of having 25 per cent of its electricity being supplied by renewables by 2030.

EBRD grants €22.3 million to Power One

The European Bank for Reconstruction and Development (EBRD) is providing €22.3 million in financing to Power One, a private Ukrainian energy company, to help strengthen Ukraine's energy security.

The EBRD's financing is supported by an additional €3 million investment grant from Norway. The funding will support development of new gas fired peaking capacity and battery energy storage systems (BESS). Power One will use the loan to build and operate gas engine plants with a total capacity of 36.8 MW, and BESS with a combined capacity of 31.5 MW across several locations in western Ukraine. The new assets will support the integration of more renewables into Ukraine's electricity mix.

Wärtsilä balancing plant for Mauritania

Wärtsilä has signed a three-year Guaranteed Asset Performance (GAP) agreement with Société Mauritanienne d'Electricité (SOMELEC) for a power plant in Nouadhibou, Mauritania.

The 34 MW balancing power plant is equipped with two Wärtsilä 32 and two Wärtsilä 46 engines.

The new agreement significantly expands the scope of the previous agreement from technical advisory to asset performance. Wärtsilä will provide comprehensive lifecycle services in the GAP agreement; ; unplanned maintenance; major overhauls at 12 000 hour intervals; spare parts for engines, auxiliaries, and critical safety components.

Kaishan plans Kenyan geothermal project

Kaishan Group's subsidiary Kaishan Terra Green Ammonia Limited has signed a deal with Kenya's electricity producer KenGen to build a 165.4 MW geothermal power plant in Kenya.

The \$800 million project will provide power for the production of 100 000 t/y of green ammonia, along with derivatives such as urea and calcium ammonium nitrate for fertilizer production.



Hydrogen

China pushes hydrogen development, as US interest in new industry slips

China is accelerating hydrogen development with ambitious national strategies, while the US faces stalled progress due to policy shifts and regulatory hurdles. This divergence highlights China's growing leadership in clean energy innovation and the US's declining share in the global hydrogen market.

Gary Lakes

Hydrogen has emerged as a cornerstone of China's energy transition strategy. In recent years, Beijing has rolled out comprehensive national and provincial policies to integrate hydrogen into its industrial, transportation, and energy systems. As of this year, it can be said that China has established a relatively complete hydrogen energy industry development system, with innovation capabilities significantly improved and core technologies largely mastered.

A number of key developments have taken place in China in recent years that are designed to put the country at the forefront of the global hydrogen industry.

These programmes include the National Hydrogen Plan covering 2021-2035. This is China's roadmap designed to make hydrogen a top enabler of carbon neutrality.

It targets renewable hydrogen production at 100 000-200 000 metric tonnes annually by the end of 2025. Production on this scale will reduce carbon dioxide emissions by as much as 2 million tonnes annually.

Since the start of the plan, China has created one of the world's most extensive hydrogen fuelling networks by

building some 559 hydrogen refuelling stations.

Furthermore, in 2025 China launched a number of nationwide pilot programmes to boost the implementation of hydrogen schemes. These programmes were put in motion by the National Energy Administration with a view to deploy these initiatives by 2028. These pilot projects span 11 areas of the hydrogen value chain, focusing on green hydrogen production, innovative business models, and replicable frameworks.

The Chinese government is pushing major industries to employ hydrogen as a fuel. The Ministry of Industry and Information Technology has mandated refiners and chemical companies to increase low-carbon hydrogen use, particularly in steelmaking, shipping, and aviation, sectors traditionally hard to decarbonise due to their high emission rates, technical barriers, market dependence and innovation and infrastructure challenges.

Undoubtedly, China is making advances in developing and implementing hydrogen as an alternative to fossil fuels, but there remain basic challenges. Much of the country's hydrogen continues to be produced by burning coal, a prime concern when it comes to carbon emissions. Also,

technological gaps persist in electrolyser efficiency and storage solutions. Yet, the sheer scale of investment and policy coordination suggests China is determined to dominate the hydrogen economy.

Meanwhile in the US, what appeared to be the promising start of a new industry that would reduce carbon emissions through a series of projects backed by the administration of former President Joe Biden, has notably taken a turn under the presidency of Donald Trump, who has pulled the plug on a number of renewables projects and thrown his weight behind the fossil fuel sector.

During 2025, the US has seen its hydrogen ambitions falter. While the US National Hydrogen Strategy and Roadmap outlines long-term goals for hydrogen integration across sectors, recent developments reveal a slowdown in momentum. The country is experiencing a decline in its share of the global market.

North America's share of the global low-carbon hydrogen market is projected to fall from 46 per cent in 2025 to just 28 per cent by 2030. This sharp decline is attributed to policy reversals and funding cuts. And policy uncertainty is serving to undermine the timely development of a US hydrogen

industry. Policy shifts under the Trump administration have led to reduced federal support for green hydrogen, with tariffs and regulatory hurdles discouraging investment.

Furthermore, the focus in the US is on blue hydrogen, which is produced through the burning of natural gas, an aspect of the hydrogen industry that suits the desires of the oil and gas industry.

This has resulted in US projects increasingly emphasizing blue hydrogen rather than green hydrogen from renewables. The US energy companies argue against the cost of implementing new green technology that would very likely undercut their current energy production and supply paradigm in the long run.

Despite the attitude in Washington, some states like California continue to push green hydrogen infrastructure, although national-level coordination lags. The US Energy Information Administration (EIA) notes persistent challenges in cost reduction for hydrogen and offtake agreements are difficult to secure.

Reports from the Rocky Mountain Institute (RMI) stress that without a robust hydrogen market, the US risks losing its energy leadership position. The country's hydrogen ecosystem

remains fragmented, with limited large-scale deployment compared to China's coordinated national strategy.

China and the US appear to be on two different tracks with regard to establishing hydrogen industries.

China's approach is characterised by top-down coordination, large-scale pilots, and aggressive infrastructure rollout, while the US suffers from policy inconsistency, regulatory barriers, and fragmented state-level initiatives. The result is a widening gap in hydrogen leadership.

One thing that sources emphasize is that hydrogen is not just an energy source – it is a strategic technology that could define industrial competitiveness in the coming decades. For China, hydrogen development aligns with its broader goals of energy security, industrial modernisation, and global leadership in clean technologies. For the US, the decline in hydrogen advancement raises concerns about losing ground in the global energy race.

If current trends continue, China could emerge as the world's hydrogen superpower by 2030, setting standards and dominating supply chains. Meanwhile, the US risks ceding influence, unless it recommit to green hydrogen investment and resolves regulatory bottlenecks.

Gas

Onset of winter brings unsteady forecasts to American gas market

In November, US natural gas traders barely had time to catch their breath. One week, a cold snap across the American Midwest sent futures soaring as households cranked up the heat. The next, forecasts softened and prices tumbled back down. Meanwhile, traders questioned the impact of a looming supply surplus on an as yet unknown future demand.

Gary Lakes

Winter is coming, or so they say, but unseasonal temperatures have thrown US traders into something of a quandary over how the market will move in the weeks ahead. The US Energy Information Administration (EIA) confirmed the season's first withdrawal from storage – 14 billion cubic feet (bcf) – a modest draw, but symbolically important: winter had arrived. Yet with shale fields still pumping near record highs, the sense was that supply could easily keep pace with demand, at least for now.

While domestic traders obsessed over forecasts, the bigger story was unfolding along the Gulf Coast. Tankers lined up at export terminals to load cargoes of LNG that they would carry to Europe and Asia.

The US has already become the world's largest LNG exporter, but November's chatter focused on what comes next. Multiple LNG projects are

under construction in the US with the promise to expand capacity dramatically by the end of the decade.

"This is America's energy diplomacy in action," a former Department of Energy official was quoted as saying by international media. "Every cargo that sails out of Sabine Pass or Corpus Christi is a signal to allies that they can count on US gas."

With domestic consumption hovering around 90 bcf per day – more than 20 per cent of global demand – the US is both a voracious consumer and a critical supplier. That dual role gives it outsized influence in shaping the future of gas markets.

Yet the International Energy Agency (IEA) delivered a profound warning last month, announcing that it foresees a major supply wave on the horizon. In its 'Gas 2025' report, the Paris-based International Energy Agency projected a 50 per cent increase in global LNG capacity by 2030.

"This is the largest build-out in the

industry's history," the report declared.

For Europe, which is still adjusting to life without Russian pipeline gas, the news was reassuring. Declining Norwegian output makes LNG even more vital, and the promise of abundant supply offers a measure of security.

But the IEA also raised a sobering question: who will buy all this LNG once it comes on-stream? Asian demand, traditionally the growth engine, has been sluggish in 2025. Economic slowdowns and efficiency gains have dampened consumption. A rebound is expected by 2026, but the timing is uncertain.

If demand lags, the market could face a glut. Prices would fall, projects could struggle to stay profitable, and producers might be forced to rethink strategies.

In Brussels, European Union policymakers greeted the IEA's forecast with cautious optimism. "We welcome the prospect of abundant LNG," said one EU energy commissioner. "But

infrastructure remains a challenge. Not every member state has the regasification capacity to absorb these volumes."

Competition with Asia looms large. Once demand rebounds in China, Japan, and South Korea, Europe will find itself bidding against the world's most energy-hungry economies.

For traders, November was a reminder of how fragile sentiment can be. One analyst described the market as "a coiled spring," ready to snap higher if a deep freeze arrives, but equally vulnerable to collapse if mild weather persists.

The volatility is not just about prices. It reflects deeper anxieties: the balance between supply and demand, the pace of LNG expansion, and the geopolitical stakes of energy security.

At the end of November, the natural gas market stood at a crossroads. In the short-term, all eyes were on December forecasts. Would winter deliver the kind of sustained cold that drives demand higher? Or would another mild

spell keep storage levels comfortable?

In the long term, the LNG expansion loomed like a tidal wave. Billions of dollars are already committed to new liquefaction plants. Whether this supply surge stabilises markets or destabilises them will depend on how quickly demand rebounds in Asia and how effectively Europe builds out infrastructure.

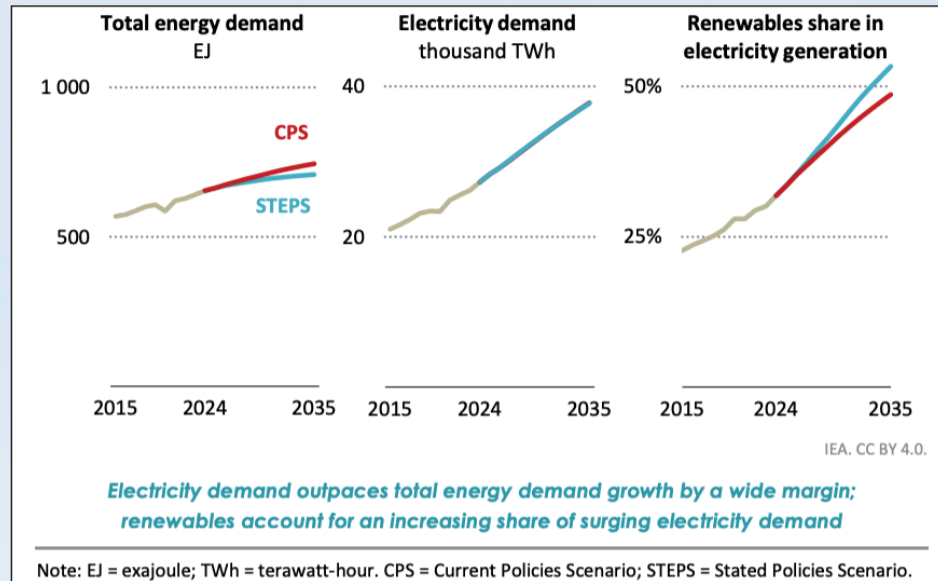
Last month's market intrigues captured the essence of the current gas market: a sector caught between the unpredictability of the next cold front and the inevitability of the next LNG cargo.

For consumers, the promise is lower prices if supply outpaces demand. For producers, the challenge is survival in a world where abundance can be as dangerous as scarcity.

And for policymakers, the stakes are geopolitical. Energy security is no longer just about pipelines – it's about tankers, terminals, and the delicate choreography of global trade.

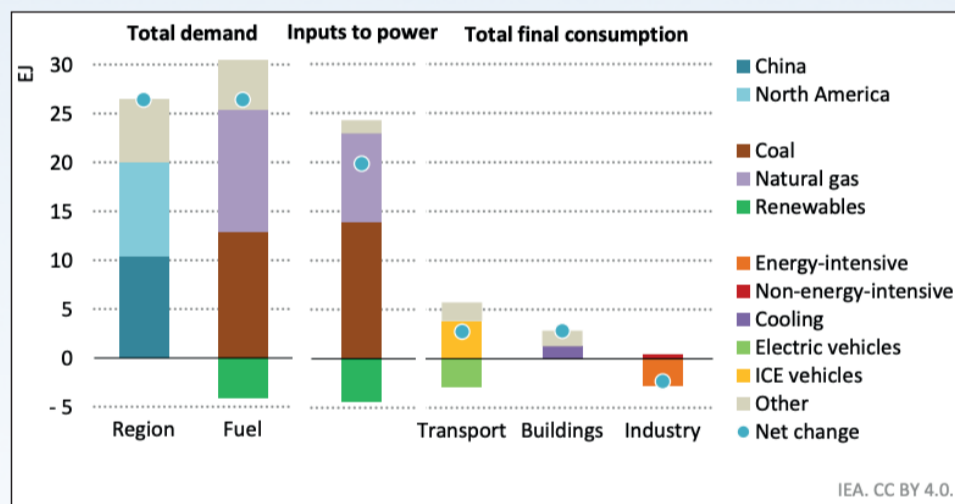
Which way is the energy world heading?

Total energy demand, electricity demand, and renewables in electricity generation by scenario, 2015-2035



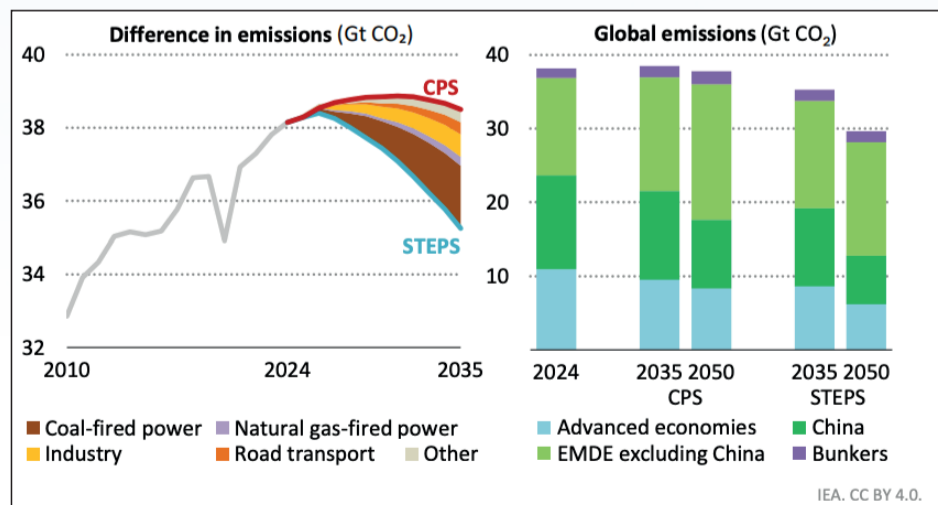
WEO 2025, page 30, Figure 1.1

Differences in global energy demand in 2035 in the STEPS 2025 relative to the STEPS in the World Energy Outlook 2024



WEO 2025, page 35, Figure 1.3

Energy-related CO₂ emissions by region and scenario



WEO 2025, page 36, Figure 1.4

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Energy Outlook is available at
www.iea.org/reports/world-energy-outlook-2025



Photo by Tope J. Asokere

African banks must lead on climate finance

Development finance and foreign investment are important lifelines, but African banks are deeply ingrained in the fabric of local societies and must play a much bigger role in supporting energy projects for local communities like rural electrification. **Junior Isles** caught up with pan-African banker and economist, Sepo Haihambo, who explains why African banks must lead on climate finance – or risk being sidelined by foreign investors.

For African countries attending the recently concluded COP30 climate summit in Belém, Brazil, a key concern was that the move to a low carbon energy system must be a just transition. In a continent which represents only about 3 per cent of global carbon emissions, and where some 600 million still have no access to electricity, their stance on the global approach to tackling climate change in a fair and just manner is understandable.

With no access to the grid, distributed power systems are at the heart of bringing electricity to many. But while accessing capital for such projects is not necessarily a challenge, concerns remain around risk. It is an issue that was widely discussed at African Energy Week, which took place at the beginning of October.

With regards to climate finance there is wide acceptance that Africa's energy transition will be a just transition. Recent oil and gas discoveries across the continent and a need to give 600 million people access to power, means the energy transition will be based on more than purely renewables.

Sepo Haihambo, a speaker at the conference, later told *TEI Times*: "Renewable energy will be a building block in resourcing and powering the continent but it's just not going to be a fully renewable energy transition because there are a lot of

people that have been left behind that need to be included, and the continent has to industrialise. Africa has good sun exposure, so solar energy becomes a key player; wind becomes a key player; gas to power remains very much part of the conversation; and there's also exploration into green hydrogen."

On climate finance, she said the amounts needed for funding are relatively large. Although there is no official figure for connecting 600 million people, the World Bank's 'Mission 300 Project' has pledged funding to connect 300 million people and ensure the long-term infrastructure is in place to maintain that connectivity. So far, the World Bank has committed \$30 billion, the African Development Bank has committed \$18 billion, and other development partners have committed over \$6 billion. And while there is no official estimate, the total sum raised by the Mission 300 Project is \$54 billion.

Although foreign investment from international institutions is crucial, Haihambo notes that African lenders have a key role to play in providing local intel in bringing large projects to fruition, as well as in financing smaller rural electrification projects.

"A lot of the time, the international financiers look at larger projects. What African banks do is they bring local nuances and understanding of what is required to make these projects successful," she said. "There's a lot of stakeholder engagement that needs to happen across different parties – African governments, African banks, African institutional investors, and international banks."

According to Haihambo, the biggest challenge to projects where international funding is the dominant source, is that the projects may be designed in ways that do not naturally support the way that a community operates. This is evident in other infrastructure projects, she said.

"If you look at toll bridges and toll roads in Africa, there has been mixed success. Some countries have had full success, while in others it's been not so great. If you know how societies operate, culturally, you [as a local bank] will know that toll bridges are not widely utilised. So, it's the adaptation to the fact that there's now going to be these fees – the socialisation and change management around what that entails – that makes a project viable. If you have local

participation, that's the kind of insight that they can bring into the conversation, to say: 'you know, actually, I think this transaction needs to be structured a little bit differently and this is why...'"

An example in the energy sector, might be in projects developed for 'pay-as-you-go power'. Such projects are common across the continent. For project owners this arrangement often means unpredictable cash flows. Haihambo explained how local intel could help push these projects through.

"If you are working on a purely metered basis, cashflows are predictable. With 'pay-as-you-go' the cash-flow profile may not be as smooth, which could impact the repayment profile of the facility, said Haihambo. "As an African banker bringing that viewpoint, you would consider how to structure this transaction to cater for this. It's not to say the project is unviable; the solution might be something small, such as moving from monthly repayments to quarterly or bi-annual repayments. That small insight makes the difference between having arrears on facilities, and having facilities that perform throughout the duration of the loan."

The local knowledge of African banks and consequently better understanding of risks involved, was central to kickstarting rural renewable projects in Namibia just over 10 years ago.

"Renewable energy was very slow to get off the ground in Namibia because there were Implementation Agreements that commercial banks and international financiers wanted the government to undertake but the point of view was that the government would not play that role," explained Haihambo. "The Development Bank of Namibia, however, took the bold step of financing the project without these Implementation Agreements being in place."

"It was the first renewable project to be financed in the country. It showed the viability of the project and became a case study for other financiers to start financing other renewable projects. Until then, Implementation Agreements had been show-stoppers. But with Development Bank of Namibia stepping in, it showed that Implementation Agreements were not a show-stopper after all."

Haihambo added: "This led to local Namibian commercial banks

participating in subsequent projects; structuring them a little bit differently, allocating risks to different stakeholders. It has all been relatively good."

Haihambo notes that big projects using fossil fuel sources are still needed for countries to hit their energy targets and stressed that African banks must be mindful of not being sidelined.

She said that local banks must have greater dialogue with their respective country governments to understand capital expenditure plans and what the areas of priority are. And then "work as a bridge" between the countries and international institutional investors.

Essentially, it is a case of getting all the stakeholders around the table so that each can bring their strengths to the project.

"At this time there are different conversations but there should be one conversation," said Haihambo. "This allows better risk allocation because then you will better understand the problem that each stakeholder can solve, and what part of the project they are best suited to capture value from."

Haihambo is confident that working this way will ultimately benefit the financing of African projects and drive rural electrification, despite the US' pull back in providing climate finance.

She concluded: "The Green Climate Fund is seen as a lever that can be used to support climate finance. The President of Namibia has announced Namibia's bid to host the [African Regional Hub of the] Green Climate Fund, so this is largely positive."

"In terms of what is available, the Fund has not been exhausted yet and what we are seeing is more African local commercial banks issuing Sustainability Bonds. It's not a large number but it does create alternative funding sources from domestic institutional investors to participate in climate finance on the continent. But the key thing is we don't have a capital problem, we have a risk allocation problem, and African banks are best placed to navigate this complex environment."

Sepo Haihambo is a seasoned pan-African banker and former CEO of Commercial Banking at FNB Namibia. She is also an investment banker and economist with a career spanning over two decades.

Haihambo: African banks are best placed to navigate the complex environment



From coal to solar: investment trends in Indonesia

This month *TEI Times* analyses Indonesia's net zero pledges, its still fossil-heavy power mix, the shifting macro and policy landscape shaping risk and return for investors, and highlights examples of where capital is already flowing.

Indonesia's energy transition story is one of big ambition, stubborn coal dependence, and fast-evolving investment opportunities.

Decarbonisation commitments

The country has found its net zero emissions commitments challenging, given the important role of the fossil fuel industry in its economy. It first set a carbon-neutrality target for 2060 or sooner in 2021 and has reiterated this goal several times since. One demonstration of a nation's commitment is through a Nationally Determined Contribution (NDC) submitted to the United Nations. Indonesia submitted its second NDC in 2025. The country expects emissions to peak in 2030, at lower levels than previously anticipated, and projects that they will then gradually decline.

The "2060 or sooner" objective reflects a delicate balance between the government's climate ambitions and national realities, including poverty reduction, economic growth, and the role of fossil fuels, which account for a small share of GDP but remain an important source of export earnings and employment.

In the shorter term, the world's ninth-largest emitter is focused on setting sectoral pathways for energy, efficiency, and electrification. Energy efficiency, clean energy technologies in the electricity sector, and the electrification of transport are expected to provide around 80 per cent of emissions reductions from the energy sector to 2030, according to a 2022 International Energy Agency (IEA) report.

The country has found these pathways challenging, given its continued heavy dependence on coal, slow progress in the deployment of renewables, and the complexity of phasing down coal fired generation. These obstacles are well recognised at the highest level, and a variety of strategies are being considered to address them.

Energy mix

Indonesia's energy is heavily skewed to fossil fuels. It accounts for most of the country's energy supply. In its primary energy mix in 2024, coal

accounted for 42.6 per cent, oil 28.6 per cent, natural gas 15.4 per cent, and clean energy including hydroelectricity and renewables was responsible for 13.4 per cent, according to data from the Energy Institute's 'Statistical Review of World Energy' (see chart).

The electric power generation mix had a similar fossil fuel reliance. Coal fired generation took up a 60.9 per cent share, natural gas generation had a share of 17.6 per cent, while hydro, renewables and other clean energies were responsible for 19.6 per cent. Some oil generation was still being used in 2024, but it amounted to less than 1.9 per cent of the total.

An earlier study by Ember, a think-tank, highlighted that the country's renewable energy capacity has been growing. Between 2018 and 2023, Indonesia commissioned about 3.3 GW of renewables, with the total reaching roughly 13 GW by 2023. The additions included mainly bioenergy (1.3 GW), hydro (1 GW), geothermal (0.5 GW), and solar power (0.5 GW). Based on planned capacity additions under PLN, the national utility company's 2025–2034 Electricity Supply Business Plan, about 69.5 GW of capacity will be constructed for an estimated \$188 billion (including grid investments). Almost 53 GW or 76 per cent, will be renewable energy additions, highlighted PT Geni Buana Nusantara, an Indonesian engineering consultancy. Part of the plan is also to build 0.5 GW in nuclear power generation, a first for the country.

Investment environment

Three leading credit rating agencies rate Indonesia's credit as "lower medium grade", two notches above the non-investment grade level. For the foreign currency long-term rating, Moody's has maintained a Baa2-stable rating since 2018, S&P a BBB-stable rating since 2022, and Fitch a BBB-stable rating, reaffirmed in March 2025. Fitch has commented that its rating is based on expectations of solid medium-term growth and relatively low government debt compared to GDP. It adds that its rating is constrained by weak government revenue collection, low per-capita

income, and governance standards below peers with the same rating.

Domestic interest rates have fallen as Bank Indonesia has eased policy, with the benchmark now at 4.75 per cent after cuts totalling 150 basis points since late 2024. The rupiah has stayed volatile, weakening from about IDR15 400 per US dollar at end-2023 to an average of IDR16 162 in 2024, and trading between IDR14 211 and IDR17 323 in 2025. Policy now focuses on keeping the exchange rate stable while holding inflation near the 2.5 per cent \pm 1 target.

Some energy transition investment risks highlighted by an OECD report in 2020 remain true today. Broader risks include foreign investors facing overlapping mandates among ministries, evolving carbon-pricing rules, as well as currency and macroeconomic risks typical for long-tenor infrastructure assets. There is also regulatory uncertainty, such as the pending renewable bill which has been in preparation for several years, a lack of tariff clarity, mandatory partner schemes, local content rules, deliver-or-pay obligations, and procurement complexity. All these factors raise project risk, according to an analysis by the Institute for Energy Economics and Financial Analysis (IEEFA).

Policies and incentives

Indonesia has established a comprehensive policy framework to accelerate renewable energy deployment and coal phase-out. Presidential Regulation 112/2022 forms the cornerstone. It sets technology-specific tariff ceilings and mandates PLN to prioritise renewables in its planning. The regulation also creates pathways for early coal retirement whilst establishing clear procurement mechanisms for renewable projects.

The tariff framework uses feed-in rates, benchmarks and auctions tailored to technologies and regions. Developers must navigate local content requirements and a mandatory partner scheme, though recent reforms will hopefully streamline these barriers. The Ministry of Energy and Mineral Resources and PLN jointly administer procurement processes, which now extend to small- and medium-scale projects alongside large grid-connected facilities.

Carbon pricing provides an additional driver. Law 7/2021 and Presidential Regulation 98/2021 created the Nilai Ekonomi Karbon framework. It enables emissions trading, carbon taxation and results-based payments. The power sector entered the national Emissions Trading System in 2023, with trading now operational. New rules are step-by-step setting up a national system to register and approve carbon units, which will allow projects to generate income by selling carbon credits.

Fiscal incentives sweeten the investment case. Renewable projects can access 30 per cent income tax reductions spread over six years, accelerated depreciation, VAT exemptions and import duty waivers on equipment. Large-scale projects may qualify for tax holidays. The Ministry of Finance and BKPM (the Investment Coordinating Board) oversee these schemes, which stack with tariff support to improve project returns.

Recent policy moves include the B40 biodiesel mandate launched in July 2025, requiring 40 per cent palm-oil blending nationwide. JETP-linked analyses continue mapping additional incentive mechanisms to mobilise private capital for renewables and accelerate coal retirement. Together, these measures create a multi-layered framework to drive Indonesia's energy transition.

Recent policy changes include the B40 biodiesel rule, fully in place from July 2025, which requires all diesel fuel to contain 40 per cent palm oil. Short analyses done under Indonesia's Just Energy Transition Partnership (JETP) are still identifying new incentives to attract private investment into renewables and to speed up the closure of coal plants. Together, these actions build several layers of support driving the country's energy transition.

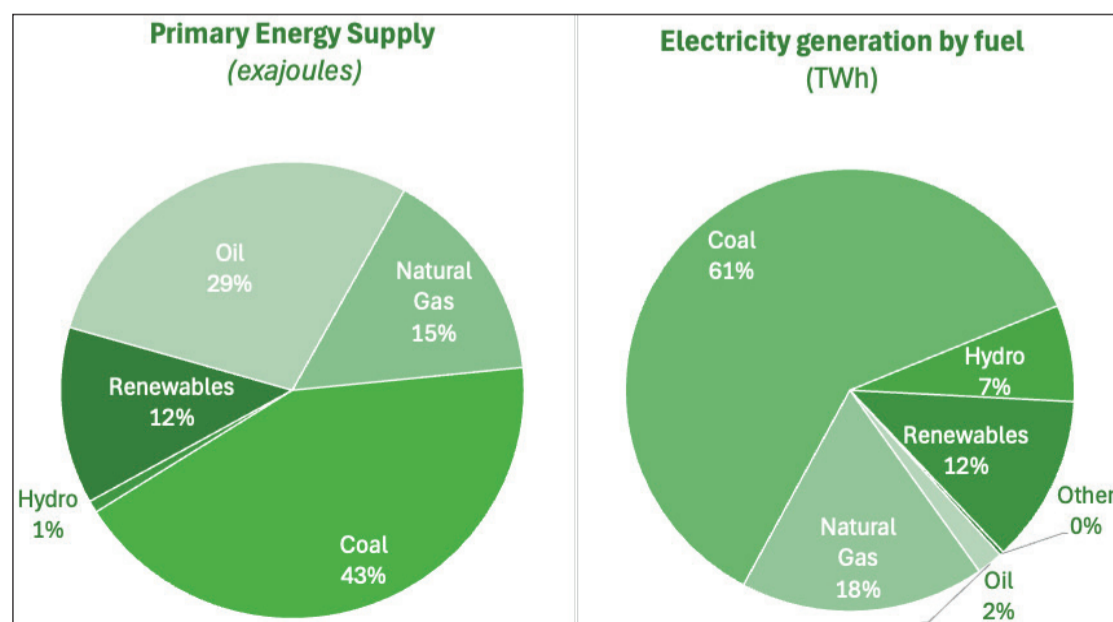
Investors backdrop

Foreign investors are now deeply involved in Indonesia's energy transition, often alongside the state utility PLN. Masdar, the UAE clean-energy developer, co-owns the Cirata floating solar plant in West Java with PLN Nusantara Renewables; the 192 MWp project started operating in November 2023 and is Southeast Asia's largest floating PV plant, backed by a long-term power purchase agreement and international project finance lenders. Masdar and PLN have since signed agreements to expand Cirata by up to 500 MW and to develop another floating solar project, signalling a replicable joint-venture model for large-scale renewables.

Cross-border projects add another layer of activity. Indonesia and Singapore have signed a series of Memorandum of Understanding to enable utility-scale solar and battery projects in locations designed to export power to Singapore through undersea cables; these schemes typically use consortia of foreign utilities and developers, with joint-venture and project-finance structures. At the same time, PLN is partnering with a range of independent power producers across solar and wind, opening more space for equity co-investment rather than relying only on EPC-type contracts.

Multi-lateral development banks (MDBs) are shaping the pipeline. The Climate Investment Funds' Accelerating Coal Transition programme allocates about \$500 million of concessional finance to Indonesia, aiming to leverage more than \$3 billion of MDB and commercial co-financing for coal retirement, grid upgrades, and new renewables. The Asian Development Bank's \$150 million loan to PT SMI under the SDG Indonesia One – Green Finance Facility is intended to be passed on as loans to at least ten green infrastructure projects, de-risking private capital in sectors such as solar and mini-hydro. Together, these direct investments, cross-border projects, and blended-finance platforms give a strong flavour of how international capital is starting to scale Indonesia's clean-energy transition.

Prepared for *The Energy Industry Times* by Joseph Jacobelli of actE, a climate business and finance insights platform (asiacleantechnology.com).



Fossil fuels occupy the lion's share of Indonesia's energy and electricity mix



Can AI tame the chaos of the distributed grid?

Photo by Pixabay

The use of artificial intelligence is growing in the energy sector. **Ellie Gabel** explores some of the more interesting applications as the power industry accelerates the transition to more distributed systems based on renewables.

The energy sector must contend with numerous unexpected phenomena that impact its operations. From artificial intelligence (AI) to decentralisation, this work has shifted in focus to independence, analytics and resilience. The advantages are numerous, but so are the number of end-points global entities must handle. Will AI streamline power flow and maintenance to aid the industry in the age of the distributed grid?

Forecasting is the first way it could prove invaluable to the landscape. Intermittency is one of the most chaotic aspects of the distributed grid and renewable energy, but AI integrations make their performance easier to predict. The data is more precise than other readings because algorithms can learn over time via historical and incoming data to make determinations.

Conventional weather models are outdated, and an AI model can process immense, complex datasets with seemingly infinite points within seconds. It could pull from assets like satellites to understand sun exposure or cloud cover. An algorithm could also foretell how much generators would produce based on weather cameras or maps. Eventually, it will identify patterns it can make predictions from.

Awareness is a notable advantage in boosting climate resilience and encouraging mitigation. It can enable communities to anticipate periods of low generation or visualise how much electricity they have in battery reserves if a blackout occurs. Distributed energy resources (DERs) have an accurate, live perspective over their assets to prepare for volatile load distribution or a natural disaster and reduce fossil fuel reliance.

Most only consider how much renewable power generators can create in a distributed grid. However, AI also weighs how much demand is shifting as clean power adoption continues. The modernising grid must balance shifts in consumer consumption with transformations in generating technologies.

Algorithms and machine learning can observe households and businesses and discover when usage peaks and valleys happen to control distribution. If most homes are unoccupied during the day, then it can reserve resources for later to make it less expensive and more stable.

This is invaluable in an age where grid oversight is minimal

and sending workers to do manual, visual inspections is a time-consuming process, especially after a crisis. AI enables remote inspections and remote diagnostics to prevent failures more frequently. Its algorithms can have eyes on the distributed grid at all hours of the day. If a transformer or cable is faulting or near failure, the software notices it without needing a technician on-site.

Trees can fall on power lines, or a wildfire could burn grid infrastructure. A powerful flood could even threaten the stability of underground cables if it moves the soil enough. AI gives global energy workers extra eyes to observe and manage even the most remote vegetation and weather conditions.

These circumstances can occur in urban and rural areas, and AI makes it easier to distribute oversight equally. Algorithms work alongside complementary technologies like videos from drones or lidar to see how fast trees are growing or how much water levels rise. The details let experts create better emergency management plans by mapping areas with the highest risk.

The grid collects this information via sensors and notices key parameters like equipment temperature and acoustic trends. It could also sense changes in transmission. Operators can use these signatures to determine the best course of action for repairs before they signify replacement. Because the data is so accurate, even the smallest anomalies become apparent if they are leading to a larger problem. For example, it could sense corrosion buildup or strange vibrations in a transformer months before it would shut down.

Maintenance schedules become more informed and well-timed. Instead of relying on outdated ones, they can perform as-necessary fixes to reduce waste, save time and mend resources before they fail. Doing so can extend peak performance, which is crucial during environmental stressors like heat waves.

The need for resilience highlights the importance of distribution and transmission infrastructure, knowing how and where to send energy if its common route is disrupted. One of the benefits of a distributed grid is being able to redirect resources if an endpoint goes offline or fails. AI can automatically do so in the distribution management system to the locations that need them most via the most optimised path.

Services can continue without pause while notifying technicians where the problem is.

This adaptability will lower worries about microgrid loops while reducing the number of outages and expensive recovery processes. Engineers can programme the reclosers, switches and other machinery throughout the area to respond to specific performance triggers so the grid self-heals within minutes.

Self-sufficiency is another way AI can help microgrids in smaller communities. If the primary grid – regardless of how distributed it is – goes offline, then households and businesses can keep their lights on. Additionally, microgrids help organisations and communities sustain energy supplies during natural disasters, which saves money and recovery time. Doing so is crucial so that critical infrastructure like hospitals has data-driven insights on on-site power equipment, allowing them to tend to patients.

AI makes this viable via automation. Engineers can programme it to make real-time decisions based on internal capabilities like critical loads and the health of connected assets like batteries. Then, it can optimise output and control distribution to maximise power usage, prolonging its duration as much as possible, while minimising non-essential tasks to conserve resources.

Smart functionality is also vital in improving the health and lifespan of other technologies throughout the grid. Electric vehicles (EVs) and chargers are often forgotten yet crucial pieces. They could create significant power, and AI could balance their utility to help them charge as fast as possible while preparing for potential outages. This enables vehicle-to-grid (V2G) operations, creating virtual power plants everywhere the technology resides.

Over time, the algorithms learn the local population, their driving habits and the capacity of their EV equipment. They also learn driving schedules and charging needs, cutting instances of overcharging so chargers can send some power back to the grid during peak hours when congestion issues may arise. In a disaster, a fleet of parked EVs is like a moving battery storage solution, waiting to help communities during a blackout.

AI software already provides many advantages to the average consumer, but it could also pad their budgets by enabling peer-to-peer trading. These

platforms work with innovations like blockchain to heighten security and increase traceability when selling electricity resources. Some even work with V2G setups. With an AI model overseeing exchanges, the power market becomes smarter and better automated. It can also adjust pricing if necessary, without disputes from community members.

This means a lot more citizen data is travelling through the system. Even the distributed grid is vulnerable to cyberattacks, and the number of threats hitting grid infrastructure is increasing. While decentralisation is ideal for preventing lateral movement, a distributed grid has numerous connection opportunities. The attack surface is larger, which gives threat actors more vulnerabilities to exploit.

An algorithm can serve as a security system, detecting and isolating potential threats. Just as it learns energy behaviours, it can also observe traffic and communication patterns in its network. The model discovers how equipment like inverters and control panels are supposed to function so it can notice when they are acting suspiciously. Then, it can notify technicians when malicious actors are present to prevent grid destabilisation and data extrication.

This is possible because power flow in a distributed grid is a two-way setup, while in the traditional grid, energy travelled only in one direction. AI ensures these exchanges are controlled in real-time to prevent overloads and thermal losses. Using training models like reinforcement learning, it can discover where overloads are common or where voltage dips occur. These imbalances could cause grids to collapse, especially with newly established green generators.

Resilience increases when AI can make these decisions for communities. Grid frequencies stay regulated, and load balancing requires no manual intervention. Connecting distributed hardware requires a central solution, and AI could optimise communications between seemingly disparate generators.

This would allow DERs to maintain agency and earn the other benefits of individual assets while considering the big picture of electricity infrastructure. Stakeholders must embed AI into their work, as the insights will solve the pain points caused by the grid becoming increasingly distributed.



Junior Isles

Stand and deliver!

One of the most pressing questions in many countries is how to deliver both clean and affordable power. With domestic electricity costs being among the highest in the developed world, the UK is an ideal place to debate the issue.

The price of energy was top of the agenda at the Aurora Energy Transition Summit in London last month – well timed, just a week ahead of the government's budget. In his keynote address Jonathan Brearley, CEO at Ofgem, the UK's energy regulator outlined where the country is today by first asking: "Why are prices where they are today; why are they so high?"

He noted that gas has been a major factor, with gas wholesale prices having increased four-fold. "Because gas often sets the price of electricity, those costs have flowed through both gas and electricity bills," said Brearley. But that is not the whole story. He also said network and system costs have also grown as the country invests in renewables, new infrastructure and resilience.

"These are needed for a cleaner, more stable and secure system but clearly that has also added to bills. So when we talk about affordability, we need a whole system view. It's not just about generation costs; it's about how we design and how we operate the system."

While he did not go as far as to say what the government should do, he did say: "If government does act, the Climate Change Committee has said it would be preferable that actions be taken on the electricity price because that would support electrification and the transition that consumers need."

Brearley warned, however, that although unit costs may fall, others, like keeping the system running and

investing in clean energy may rise over time. He said Ofgem was therefore, through its cost allocation review, looking at how costs are passed through the bill, including standing charges, to make sure it is "fair and transparent".

The challenge, as is the case globally, is how to deliver the transition at least cost. According to Aurora Energy's research, as of 2024, UK households pay around 35p/kWh – higher than most EU countries, and well above the US average.

"This is not just a statistical quirk. It is a real pressure on household finances and on the competitiveness of UK industry," said Marc Hedin, Head of Research for Western Europe & India at Aurora Energy Research.

Aurora's analysis shows that all components of the electricity bill have risen since 2020 – wholesale, networks, policy costs, and more.

"There's no single culprit. It's not just high gas prices, or just increasing policy costs, it's all of the above," Hedin explained.

In his keynote address, Hedin explored three scenarios for the future of UK energy bills.

Its 'Central (Business as Usual)' scenario sees steady renewables growth, rising carbon prices, and continued electrification. Most of the easy wins are already being targeted here. The pace of renewable deployment is slower than current government ambitions, but more realistic in terms of cost and delivery.

In the 'Back to Gas' scenario, there is a rapid policy shift away from decarbonisation. Moving back to gas is not a "silver bullet", according to Hedin. Any savings versus Aurora's central case would only materialise after about a decade – and even then,

they would be small. A renewables-led system, it says, is broadly competitive with a gas-led system.

Aurora's 'Cutting Costs' scenario assumes ambitious market reforms, including rethinking carbon pricing and lowering Contracts for Difference (CfD) strike prices, while continuing to support the deployment of renewables. Aurora's analysis shows that bold market design reforms can deliver greater and quicker cost savings than a move back to gas. Compared to 2025, enabling these policy moves would lower electricity tariffs by 23 per cent, with the effect felt almost immediately after implementation.

Aurora's analysis shows that a typical household today spends around £3100 per year on energy (electricity, gas and car fuel), with less than £1000 of that on electricity. "The real savings come when we electrify heating and transport. Switching to heat pumps and EVs removes gas and petrol bills and takes advantage of their far higher efficiency compared to fossil fuel alternatives," Hedin explained.

Across scenarios, the total domestic spend on energy tells a broader story. In 'Back to Gas', slower electrification keeps households reliant on gas and petrol, resulting in higher overall energy costs. In 'Cutting Costs', lower electricity tariffs and faster electrification lead to the lowest household energy spend by 2035.

The UK government has promised a £300 reduction in energy bills by investing in clean energy sources by 2030.

In her recent budget, Chancellor of the Exchequer Rachel Reeves attempted to address the urgent issue of energy affordability. She announced a £150 cut to household energy bills by removing some levies on electricity bills into the Exchequer. But will it

deliver the much needed relief that consumers need?

RenewableUK welcomed the Chancellor's Budget commitments to cut energy bills, speed up the planning system and remove hydrogen tax.

Commenting on the Chancellor's Budget announcements, RenewableUK's Deputy Chief Executive Jane Cooper said: "We're pleased to see the Chancellor has supported our call to drive domestic electricity bills down by moving some energy policy costs into general taxation. It's fairer, as it's based on people's ability to pay, so families on low incomes will benefit most. We also welcome her moves to make electricity cheaper for industry, as this will reduce costs for the energy sector's supply chain and accelerate electrification, both of which will, in turn, reduce electricity costs, benefiting billpayers."

"The Chancellor's commitment to invest in measures to speed up the planning system, including recruiting 350 extra planning officers in England, is a timely intervention which will enable us to roll out vital new clean energy capacity significantly faster, strengthening the UK's energy security."

Some, however, accused Reeves of tinkering around the edges. While shifting the burden of some energy costs away from domestic customers, the Chancellor at the same time axed the Energy Company Obligation (ECO) scheme, the UK's biggest insulation programme for households. New taxes on EVs will also do little to aid the shift to clean energy.

Ed Matthew, Campaigns Director at the independent climate change think-tank E3G said: "Cutting taxes from electricity bills is a crucial step towards helping people to switch to clean energy. But this is overshadowed by the morally indefensible decision to scrap the national home insulation scheme, ECO. This is exactly the kind of sticking plaster politics this government promised to end and fatally undermines the best long-term solution to fuel poverty."

Energy poverty and its impact on domestic customers was the first point to be addressed by Brearley at the Aurora summit. He said: "... I've talked to customers who are just generally frustrated but I've talked to some of the most vulnerable customers who have massively struggled... The story that sticks in my mind is a story that was given to me by a consumer group, of a man who preferred to stay in hospital, simply because he was warmer there than he was at home..."

"This sector has a massive duty to do its best for all consumers, and we must continue to do better. That's why I support the energy transition we're on. Whatever political choices are made, strategically it is very clear we need to move to a different system that manages risks in the best interest of consumers. We need now to invest to build out a system that is secure, affordable and fit for the future."

The need to act to reduce the price of energy is urgent, and politicians are increasingly realising that their political future depends on it – after all, it is the cash-strapped consumer that determines that future. In the UK and many developed countries, it may not yet quite be "Stand and deliver! Your money or your life" but for consumers, both domestic and industrial, the cost of energy is sure beginning to feel like daylight robbery.



Cartoon by Jem Soar