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Integrating electricity markets

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Commission moves to protect Europe from energy crisis

Ursula von der Leyen: AccelerateEU will bring both immediate and more structural relief measures

The European Commission has issued a number of proposals aimed at protecting businesses and households from energy prices that have once again skyrocketed as a result of geopolitical upheavals. **Junior Isles**

The European Commission has proposed actions to protect Europeans from the fossil energy crisis, stressing that the current geopolitical situation is a stark reminder that accelerating the transition to clean, secure and affordable energy is an economic and security imperative.

Last month, the Commission issued its 'AccelerateEU' Communication in a move to address the impact of recent spikes in the price of imported fossil fuels arising from the war on Iran.

AccelerateEU presents both short-term and structural measures with longer-term effect to further reduce dependency on volatile fossil fuel markets and build Europe's resilience against future shocks based on homegrown clean energy and electrification.

Ursula von der Leyen, President of the European Commission, said: "The choices we make today will shape our ability to face the challenges of today and the crises of tomorrow. Our AccelerateEU strategy will bring both immediate and more structural relief measures to European citizens and businesses. We must accelerate the shift to homegrown, clean energies. This will give us energy independence and security, and mean we are better able to weather geopolitical storms."

A number of actions have been proposed under the strategy.

Importantly for the electricity sector, the measures will accelerate the shift to homegrown clean energy to replace oil, gas and fossil transport fuels. By the summer, the Commission will present an Electrification Action Plan. It will include an ambitious electrification target and measures to remove barriers to the electrification of the industrial, transport and building sectors.

Electrification must be accompanied by a grid network which is fit for purpose, said the Commission. First steps are ensuring that current legislation is fully implemented and the negotiations on the European Grids Package are concluded swiftly. Maximising existing renewable energy infrastructure is another action, where rapid repowering of big wind farms and renewable plants, including offshore wind parks and hydropower plants can quickly deliver much needed additional relief. The Commission will also present a legislative proposal on network charges and taxation,

Continued on Page 2

Europe's clean energy transition at risk of slowing down

Europe's clean energy transition is at risk of slowing down as investment gaps widen, according to Eurelectric.

In a new position paper, the organisation representing Europe's electricity sector warns that up to €500 billion in annual investment is missing and calls for urgent action to restore investor confidence and unlock private capital.

Europe's pathway to climate neutrality depends on unprecedented levels of clean energy investment. Estimates suggest that between €800 billion and €1200 billion per year will be required, depending on the scope and timeline of EU targets, said Eurelectric. Yet current investment levels fall significantly short of this: as much as €500 billion annually is missing, putting at risk both electrification and decarbonisation objectives.

According to Eurelectric, this shortfall is not due to a lack of technologies or willingness from industry. Instead, it reflects a deteriorating investment environment that is weakening the business case for clean energy projects.

Eurelectric highlights that companies base their decisions on what can be described as "strain-to-gain leverage": weighing financial risks, costs and debt exposure against expected returns.

Today, this balance is increasingly unfavourable. The position paper notes that several factors are contributing to this trend: policy uncertainty, which reduces long-term visibility; volatile power prices, affecting revenue predictability; grid bottlenecks, delaying project connections; counterparty risks, particularly in long-term contracts.

The result, says Eurelectric, is a growing paradox: companies are ready to electrify, the technologies are available, but key enablers such as Power Purchase Agreements (PPAs) are stalling due to credit risk concerns and an unstable investment environment.

While the next EU budget (2028–2034) will play an important role, Eurelectric stresses that action must start immediately to restore investor confidence.

The position paper sets out a 10-point derisking agenda aimed at addressing both regulatory instability and financing barriers. At its core is the need to create a stable, predictable investment framework. Key priorities include:

- Strengthening public financial support
- Fully leveraging the European Investment Bank (EIB) toolbox to support companies investing in clean energy
- Expanding the EIB guarantee programme, building on the existing €500 million pilot
- Reducing financial and counterparty risks
- Improving access to guarantees and risk-sharing instruments
- Addressing credit risks that limit long-term contracting
- Scaling up power purchase agreements
- Removing regulatory and accounting barriers
- Improving market frameworks to support long-term contracts
- Enabling PPAs to function at scale across Europe
- Restoring confidence to accelerate the transition.

Eurelectric emphasises that a stable regulatory and policy environment is a precondition for investment. "Without clear, predictable rules, even well-designed financial instruments will struggle to attract sufficient private capital," it stated.

By combining regulatory stability with targeted derisking measures, Eurelectric says Europe can unlock the investment needed to accelerate electrification, strengthen competitiveness and deliver on its climate goals.

"Europe has the technologies and the ambition to lead the clean energy transition. What is missing is a sufficiently stable and attractive investment environment.

"Closing the investment gap will require coordinated action to reduce risks, strengthen financial tools and build investor confidence. Without this, Europe risks falling behind on its energy and climate objectives."

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ensuring among others, electricity is taxed less than fossil fuels.

It said temporary measures would be timely and targeted. Protecting consumers, including industry, from price peaks can include targeted income support schemes, energy vouchers and social leasing schemes, lowering excise duties on electricity for vulnerable households. The Commission will also adopt a State Aid Temporary Framework, which will provide additional flexibility for national governments, including emergency measures to support the most exposed economic sectors.

Boosting investments will also be a priority. Significant resources are available at EU level, such as those under the Recovery and Resilience Facility ('RRF': €219 billion) and cohesion policy funds. In the current crisis, "speed and impact are paramount", said the Commission, which will assist member states to make maximum use of available EU funding. However, public money alone will not cover the significant investment needs (€660 billion a year until 2030) for the energy transition. To mobilise private investments, the Commission therefore adopted a Clean Energy Investment Strategy in March 2026. The Commission will organise a Clean Energy Investment Summit bringing together the financial services industry, including major institutional investors, industrial leaders, project developers and public financiers to accelerate private financing.

The EU's climate commissioner Wopke Hoekstra warned, however, that there is no financial "workaround" for "mind-boggling" energy price rises in Europe. Hoekstra said: "The only way forward is more electrification, more nuclear, more solar, more wind, more battery capacity, more interconnectors in the European Union, and all of it with much more speed."

Following the publication of the AccelerateEU strategy, the Boards of Directors of the European Investment Bank (EIB) Group approved a total of €10 billion in financing, including almost €2 billion for initiatives to expand Europe's clean energy investments, ensure affordability and bolster competitiveness.

The new financing supports EU policy priorities and the European Commission's "Clean Energy Investment Strategy" from March 2026 as well as the AccelerateEU plan. Under both initiatives, the EIB Group will work with the Commission to fast-track Europe's switch from fossil fuels to clean energy.

The Board of the EIB endorsed loans to support the production of offshore wind power in Germany and solar energy in Italy as well as the accelerated use of renewables by businesses in Austria. The financing also backs improvements in energy savings in heating systems in Latvia and Dutch grid upgrades that increase capacity for renewables and expand charging possibilities for electric vehicles.

Commenting on Europe's dependency on imported fossil fuels, which has now been highlighted for the second time in less than five years, EIB Group President Nadia Calviño, said: "There is one clear lesson from Russia's invasion of Ukraine and the conflict in the Middle East: Europe needs to break free from its fossil fuel dependence." "The investments approved today confirm the commitment of the EIB Group to deliver on the energy transition and strengthen Europe's strategic autonomy."



Photo by www.pexels.com

Solar and gas lead on meeting energy demand growth, says IEA

All major fuels and technologies expanded in 2025 to meet rising demand, but at very different rates. Global energy demand growth was met by a diverse range of sources in 2025, led by solar and then gas, according to a new International Energy Agency report. **Junior Isles**

The latest edition of the International Energy Agency's (IEA) 'Global Energy Review' revealed energy demand grew at a slower pace in 2025 than the year before, but electricity consumption continued to rise much faster than overall demand – with solar PV becoming the largest contributor to growth in global energy supply for the first time.

The report shows that overall global energy demand growth slowed to 1.3 per cent in 2025, slightly below the previous decade's average of 1.4 per cent and significantly lower than in 2024. The main reasons for this slowdown were lower global economic growth, less extreme temperatures in some regions, and rapid uptake of more efficient technologies.

At the same time, global electricity demand increased by around 3 per cent – well over twice the rate of overall energy demand growth. Although electricity demand growth was slower than in 2024, reflecting factors such as lower cooling demand in India and Southeast Asia amid less severe heatwaves, it remained above the average of the past decade. Electricity demand growth was driven by multiple sectors across buildings and industry – and boosted by fast-growing demand coming from electric vehicles and data centres.

All major fuels and technologies expanded to meet rising demand, but at very different rates. Solar PV was the single largest contributor to growth in global energy supply in 2025, accounting for more than 25 per cent of the increase – the first time on record that a modern renewable source has led global primary energy supply growth. Natural gas took the next largest share, at 17 per cent, reflecting its role in power generation in many countries. Overall, renewable sources and nuclear met nearly 60 per cent of all growth in energy demand – and power generation from these sources exceeded total growth in electricity demand.

"Global energy demand continued to increase in 2025 against a complex economic and geopolitical backdrop, with one trend unmistakeable: the expanding electrification of economies," said IEA Executive Director Fatih Birol. "Electricity consumption is growing much faster than overall energy demand – and one energy source is growing much faster than any other. Solar PV accounted for over a quarter of all of the world's energy demand growth – more than any other source, for the first time – followed right after by natural gas. In today's rapidly shifting landscape, countries that prioritise resilience and diversification will be best placed to manage volatility and deliver secure and affordable energy in the years ahead."

In the electricity sector, the additional 600 TWh of solar PV generation worldwide in 2025 marked the largest structural increase ever recorded in a single year for any electricity generation technology, contributing to a decline in coal fired electricity generation globally. Battery storage was the fastest growing power sector technology in 2025. The roughly 110 GW of new battery storage capacity added during the year exceeded the largest ever annual capacity additions for natural gas. Meanwhile over 12 GW of nuclear power reactors began construction in 2025, amid renewed momentum for nuclear projects in several regions.

New figures by independent think-tank Ember revealed global clean power output grew faster than electricity demand last year. Ember also noted that the rapid growth of solar power in particular contributed to a small annual decrease in output from fossil fuel power stations.

It marked the first time fossil fuel output had fallen since the 2020 pandemic year, Ember said. Renewable energy sources also generated more electricity than coal fired power stations in 2025, Ember said, "for the first time in the modern power system", extending a trend first seen in the first half of last year.

Solar and wind on track for 2°C target but not for 1.5°C

Wind and solar power have grown faster than almost anyone predicted but projecting their future expansion remains surprisingly difficult, find researchers at Chalmers University of Technology, Sweden.

Researchers at the University have developed what they call a computational "time machine" – a model that outperforms existing projection methods by using AI techniques to analyse historical growth patterns across countries.

Their central projection shows that onshore wind is likely to supply around 25 per cent of global electricity by 2050, with solar reaching about 20 per cent. This is consistent with the 2°C target, but falls short of what is required for 1.5°C.

Predicting the future is particularly challenging for technologies like wind and solar, where rapid cost declines are offset by growing barriers such as public opposition, infrastructure constraints and policy shifts.

"Existing models are very good at identifying what needs to happen to reach climate targets, but they can't tell us which developments are most likely. That's the gap we wanted to fill," said Jessica Jewell, Professor at Chalmers University of Technology.

Across more than 200 countries, the researchers identified a recurring pattern in how wind and solar power grow: long periods of relatively steady expansion punctuated by sudden growth spurts often triggered by policy shifts.

"Most models assume a smooth S-shaped growth curve, but that's not how it actually looks in the real world. Growth often comes in bursts, and if you ignore that, you can misjudge how fast technologies will expand," said Avi Jakhmola, a PhD Student at Chalmers University of Technology and first author of the paper published in *Nature Energy*.

With the goal of improving on current predictions, Jakhmola created a model built on 13 000 virtual worlds. In each of these worlds, solar and wind power develop in different ways – from the fastest possible expansion to the slowest – and everything in between.

A machine learning algorithm was then trained on all these worlds to learn to predict global outcomes from early national trends.

"When we apply the model to real-world data, it can tell us what is the most probable outcome for the future – given what we have seen so far and given all the virtual worlds it has seen", said Jakhmola.

By 2050, the model projects onshore wind reaching around 26 per cent of global electricity (central range: 20-34 per cent), and solar around 21 per cent (15-29 per cent). This broadly aligns with 2°C-compatible pathways but falls short of what's needed for 1.5°C.

Professor Jewell said: "It's long been a joke how bad technology forecasts are. But if you're a decision maker, trying to figure out how hard to push for change, you need a realistic baseline. Our study is the first step towards developing such a realistic view of the future."

Shift towards energy independence comes at a price

As countries prioritise energy security, energy demand will be increasingly met through electrification, renewables, coal and nuclear, while reliance on globally traded fuels declines, according to Wood Mackenzie. However, this shift comes with trade-offs.

Under its new conflict scenario – part of its 'Lens Energy Transition Scenarios', which explores how sustained geopolitical instability could reshape global energy demand, supply and investment through 2050 – Wood Mackenzie predicts energy systems will become more domestic and diversified, but also more costly, while near-term emissions rise due to increased coal use before converging with the base case over the longer term.

The scenario assumes a major geopolitical escalation beginning in early 2026, disrupting 15-20 per cent of global oil and LNG supply. In the near term, oil demand falls by around 9 per cent due to supply outages before recovering to pre-crisis levels by 2030, Wood Mackenzie noted.

Beyond 2030, structural shifts take hold as countries accelerate efforts to reduce reliance on imported fuels. Oil and gas demand declines more rapidly than in the base case, as governments prioritise domestic and diversified energy systems.

The shift towards energy independence comes with higher system costs, as countries move away from globally optimised supply chains towards domestic production and diversified sourcing, says Wood Mackenzie.

"Energy independence reduces exposure to external shocks, but it comes at a structural cost premium," said Lindsey Entwistle, Principal Analyst, Scenarios & Technologies. "This creates new competitiveness challenges for energy-intensive industries, while advantaging more self-sufficient regions."

Jom Madan, Principal Analyst, Scenarios & Technologies, noted: "Energy systems become more local, more diversified and less reliant on complex international trade.

"Electrification and nuclear take priority, while hydrogen and carbon capture are de-prioritised due to cost, efficiency and security considerations," he added.

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US lawmakers challenge Trump buyback of offshore wind leases



- Buybacks discussed with other leaseholders
- TotalEnergies promises oil and gas investment

Janet Wood

US lawmakers Alexandria Ocasio-Cortez and Ed Markey have written to Secretary of the Interior Doug Burgum calling for him to halt a Trump administration plan to pay $928 million to TotalEnergies to relinquish leases for offshore wind projects off the US East Coast.

The agreement stipulates that TotalEnergies should invest the money in US oil and gas projects.

Ocasio-Cortez and Markey wrote: "With the TotalEnergies pay-off, the Trump administration promises an extraordinary transfer of taxpayer dollars to a foreign company to halt private offshore wind development and prop up fossil fuel company exports and profits. It has done so with no explanation of its authority – or the source of the funding – to transmit $1 billion to a private company."

Patrick Pouyanné, TotalEnergies CEO, told *Axios*: "This type of project – offshore wind – requires many years to develop." He added: "If you have a change in the administration every four years and they change their minds, you invest every four years, you stop, it doesn't work. I cannot do that." When asked if he thought the agreement was legal, he replied: "The legality of the agreement is a matter for the government."

TotalEnergies said that it would invest in a liquefied natural gas export facility in Texas and other oil and gas activities in the US. The company is still investing in US onshore wind, solar and battery storage, which Pouyanné said can compete with natural gas.

US President Donald Trump previously described offshore wind as the "worst… most expensive form of energy". But a series of "stop work" orders issued by the Trump administration against offshore wind projects led by Ørsted, Dominion Energy and Equinor have been blocked by court rulings following cases brought by the companies.

There are reports that the US government is considering similar arrangements with other offshore wind developers holding federal leases. The UK's *Financial Times* reported that the Department of the Interior had held talks with several companies with offshore wind leases to persuade them to enact similar deals. There are 43 active offshore wind leases off the coast of the US. Five of the projects are in late-stage construction or producing power.

Markus Krebber, Chief Executive of RWE, told the *FT* that fighting any government on the fundamentals of energy policy was not a wise decision, saying in an interview: "We were forced to exit nuclear and we went to courts and got a lot of money for that. We got compensation to get out of coal. And here they now get compensation to get out of offshore."

Argentina expects very competitive battery storage auction

Argentina's government and industry anticipate record participation in an upcoming auction for 700 MW of battery storage. Reports suggest offers will potentially be four times the capacity on offer – much more than the previous auction, dubbed AlmaGBA, which awarded 713 MW of battery projects in the Buenos Aires Metropolitan Area.

"My expectation is that we will see at least four times the volume of bids relative to the 700 MW target in the AlmaSADI battery tender," said Marcelo Álvarez, President of the Argentine Chamber of Renewable Energy (CADER). "That will probably drive prices lower than in the AlmaGBA process, although equipment costs are increasing at source."

The Argentine government has reportedly experienced strong early market engagement, with a large number of enquiries. In response the tender schedule has been extended. Technical and administrative offers bid details will be opened on May 27 and financial offers on June 24. Awards will now be announced on July 8.

"Why is it attractive? It is a regulated scheme with a good off-taker and you receive revenue in a stable manner for 15 years," Marco Zazzini, Deputy CEO of Chile-headquartered regional energy consulting firm Anabatica Renovables, told *BN Americas*.

The target date for commercial operation is January 2027. Projects must be between 10 MW and 150 MW, with a four-hour discharge duration.

Site investigation to start for wind pilot offshore of Brazil

Petrobras has awarded a contract to Fugro for a geotechnical site investigation for the Brazilian oil major's pilot offshore wind project. Under the contract, the company will work within a nearshore study area to acquire the data needed. Fugro's final report is scheduled for 2027.

The project will have one 18 MW wind turbine and will be located off of São João da Barra. It entered the environmental licensing process with the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) at the beginning of 2024. It is the first offshore wind development in South America to advance under a formal environmental licensing process.

"As South America moves forward with its offshore wind ambitions, early Geo-data is one of the most important tools for reducing uncertainty and setting projects up for long-term success," said Céline Gerson, President and Group Director for Fugro in the Americas. "By partnering with Petrobras at this early stage, we're helping establish the technical foundation needed to progress offshore wind responsibly and expand future energy options in Brazil and across the wider region."

The offshore wind pilot is part of the company's broader push into offshore renewables and is planned as a testbed for technologies and project development ahead of potential commercial-scale projects. Petrobras unveiled plans in 2023 to develop up to 23 GW of offshore wind farms, including a floating wind project in Rio de Janeiro.

Meta to hike Louisiana data centre power capacity to 7.5 GW

- Adds 30 per cent to state capacity
- Data centres represent half of US demand growth

Janet Wood

Meta Platforms Inc, the parent company of Facebook and Instagram, has tripled its plans to install gas fired power plants to power Hyperion, its AI data centre complex in rural Louisiana. The company will now fund 10 power plants totalling 7.5 GW, according to *Fortune*.

The contract runs for 15 years, and some critics are worried ratepayers could be stuck with the bill if Meta no longer requires the plants after then. Critics are also concerned that using natural gas increases Meta's reliance on fossil fuels.

Entergy had already received approval to build three natural gas plants in 2025 to provide electricity to Meta. The new expansion will add 5.2 GW to the plan for Hyperion.

The total came in a new agreement with Entergy Corporation to build the plants, but the seven new plants still have to be approved by state regulators before construction can begin. The now-7.5 GW project "would represent a more than 30 per cent increase to Louisiana's entire grid capacity," according to *Fortune*.

The agreement between the companies also includes a commitment from Meta to help fund 240 miles of new transmission lines, and battery energy storage systems, as well as a memorandum of understanding to explore the potential future usage of nuclear power.

The decision comes as new analysis from the International Energy Agency (IEA) found that in the US, electricity consumption from data centres is set to double by 2030, and power use from those focused on AI is poised to triple. It found that data centres accounted for around 50 per cent of all electricity demand growth in the US last year and they are expected to account for half of US electricity demand growth to 2030. The IEA also said the tech sector accounted for around 40 per cent of all corporate power purchase agreements for renewables signed in 2025, and is also now a major source of momentum for the nuclear and advanced geothermal industries.

IEA Executive Director Fatih Birol said: "Now, we see that while AI is still an energy-taker, it is also becoming an energy maker – driving forward innovative solutions like next-generation nuclear reactors, flexible data centres and long-duration energy storage."

However, the IEA also said AI deployment is encountering physical bottlenecks.

Supply chains for technologies such as gas turbines and transformers, as well as for advanced chips and IT components, have tightened over the past year and data centre projects are "straining planning and regulatory systems, holding up grid connections and other necessary approvals".

Mexican data centres complain of electricity expansion bottleneck

The Mexican Data Centre Association (MEXDC) has warned that power development bottlenecks could lead to delays or cost overruns for new centres, or even see them relocate to other countries

"The main constraint on new projects is no longer demand or capital, but the infrastructure required to make them viable," said the association.

Installed capacity in Mexico rose from 115.5 MW in 2024 to nearly 280 MW in 2025 but MEXDC said the Mexican Energy Ministry had not responded to efforts to jointly plan for the sector's electricity needs. MEXDC Executive Director Adriana Rivera said: "Without sufficient, reliable and well-planned energy, digital infrastructure cannot develop."

The group complained of a lack of co-ordination between the National Centre for Energy Control and the Federal Electricity Commission, which have no formal framework to coordinate their expansion with private sector demand. It said, as well as capacity issues, there are regulatory bottlenecks, permitting delays and uncertain timelines for grid connections.

Turner & Townsend told IndexBox that energy constraints are not uniformly felt, saying none of its clients face issues except those investing near the northern borders.

Brazil leads the way in the Latin American data centre market with more than 900 MW of installed capacity, serving a population of 213 million.

Asia turns to coal, as Middle East crisis splits global power markets

- Coal fired generation to help offset rising gas prices and supply risk
- Taipower plans to resume operations at two coal plants

Syed Ali

Several Asian countries are turning to coal fired power generation to help offset rising gas prices and supply risk caused by the blockade of the Strait of Hormuz.

The benchmark for thermal coal has risen more than 17 per cent since the Iran war began – compared with a more than 60 per cent rise for Asian gas prices – making coal a relatively attractive option for electricity generation.

"Coal is already the dominant fuel in Asia's power mix, making up well over 40-50 per cent across the region," said Sam Chua, Principal at Rystad Energy. "It has long been more cost-competitive than gas, but what is accelerating now is gas demand destruction."

Last month Taiwan Power Co (Taipower) said it plans to resume operations at two coal fired power plants for three months to boost security of electricity supply as liquefied natural gas (LNG) supply risks are running high due to the Middle East conflict.

The two coal fired power generators are at Mailiao Power Plant in Yunlin County's Mailiao Township. The plant, operated by Formosa Plastics Group, supplied electricity to Taipower's power grid until the end of last year. The state-run utility plans to add the No. 1 and No. 3 coal fired generators from this month (May) through July, a Taipower spokesperson.

At the end of March South Korea said it will delay the shutdown of coal powered plants, as the government scrambles to secure electricity supplies. A senior official at the Ministry of Climate, Energy and Environment said the ministry will extend the operations of three coal fired power stations that had been scheduled to close this year.

"The timetable for closing them is being rescheduled," the official said.

The move marks a setback to South Korea's policy to rid itself of all coal fired power plants by 2040 and came as the climate ministry announced the country is targeting at least 20 per cent of power generation from renewables by 2030 in a bid to lower its heavy dependence on energy imports.

Meanwhile, in late March Indonesia accelerated approvals for increased coal production, as the government signalled a strategic shift to increase coal output this year. The move potentially allows the country to capitalise on rising coal prices amid the Iran war.

Commenting on the developments, Anthony Knutson, Global Head of Coal at Wood Mackenzie said Asian countries "are opening the tap on coal generation to help offset rising gas prices and supply risk".

In a recent report, Wood Mackenzie revealed that LNG prices have surged 94 per cent and coal prices have jumped 17-31 per cent since the Middle East conflict began – but the impact on global electricity markets is splitting dramatically between winners and losers. A new insight from Wood Mackenzie shows that while countries like Japan, South Korea, and Italy face potential cost increases of up to 80 per cent, markets including the US and Brazil remain largely insulated from the turmoil.

Wood Mackenzie's report, 'The Great Power Divide: The Middle East crisis is splitting global power markets into winners and losers', analyses how 13 representative power markets are being impacted by the ongoing energy crisis, with exposure determined primarily by generation mix and fuel import dependency.

In the study, Wood Mackenzie finds that Japan represents the most exposed major power market globally, with 64 per cent of electricity generation dependent on imported coal and gas, followed by South Korea at 56 per cent, while Italy leads European markets at 47 per cent.

At the other end of the spectrum, the US and Brazil demonstrate minimal vulnerability at zero or 1 per cent. Brazil's generation mix – approaching 80 per cent renewable penetration dominated by hydro – substantially reduces fossil fuel dependency, while US domestic natural gas and coal production insulates the power sector from international price volatility.



Taiwan Power Co. is seeking to expand access to green energy while shifting its development strategy.

The state-owned utility no longer plans to develop offshore wind farms through sole ownership and turnkey contracting, in which a single contractor delivers a fully operational project, according to industry sources. Instead, Taipower is evaluating a model based on equity participation alongside private-sector partners.

Taipower has been expanding its renewable energy footprint, including offshore wind. However, such projects are highly complex, particularly because they rely on project financing structures. As a state-owned enterprise, Taipower must comply with the Government Procurement Act, limiting its flexibility in responding to changing market conditions.

The news followed an announcement that Taiwan's Ministry of Economic Affairs (MOEA) will launch an auction round for the third phase of its offshore wind zonal development programme, offering up to 3.6 GW of capacity.

According to a March 27, press release from MOEA, the tender opened for applications on April 1, and will run until the end of September, with results expected to be announced by the end of 2026. The projects awarded capacity in this round are planned to achieve grid connection between 2030 and 2031.

Taiwan is targeting 13 GW of offshore wind by 2030 and up to 55 GW by 2050. As of March 26, 2026, Taiwan's installed offshore wind capacity has reached 4.5 GW, according to MOEA.



In an effort to address mounting electricity shortages while improving energy security from low-carbon sources, Vietnam is looking to accelerate plans for a new nuclear plant.

Last month South Korea and Vietnam agreed to deepen their strategic cooperation in energy and infrastructure amid supply chain instability compounded by the war on Iran.

The agreement saw the countries sign two agreements to deepen cooperation in nuclear energy. The deals will explore options for new nuclear power plant construction in Vietnam and review the feasibility of South Korean financial support, as Seoul seeks to win the project to construct Ninh Thuan No. 2 nuclear power plant.

The Vietnamese government is pushing forward a nuclear power programme with a total capacity of up to 6.4 GW between 2030 and 2035. The Ninh Thuan Unit 1 project has been granted preferred bidder status to Russia, while the Unit 2 project has recently been reopened for bidding after Japan withdrew from the competition.

Earlier in April, Korea Electric Power Corp. (KEPCO) accelerated efforts to win the Ninh Thuan 2 project, issuing a notice seeking a financial advisory firm to support its bid for the Vietnam nuclear project for around 10 months, starting in July until the final intergovernmental contract is completed. This is seen as a strategy to gain an edge in the bidding process by concretely exploring financial methods.

The news came as authorities in the central province of Gia Lai approved investors for four solar and wind power projects worth nearly VND5 trillion ($190 million), the provincial People's Committee said.

The investor consortium consists of the EMI Investment JSC, Nhơn Hòa Wind Power JSC No 1 and Nhơn Hòa Energy JSC No 2. The group will develop three solar power plants – Nhơn Hòa 1, Nhơn Hòa 1A and Nhơn Hòa 2 – and the Nhơn Hòa 3 wind power project.

- An investment agreement for the Ca Na LNG-fired 1500 MW combined cycle power plant in the province of Khanh Hoa, was signed on April 10. This is the first LNG power project selected through an international bidding process under the National Power Development Plan VIII. The agreement is aimed at developing energy supply and infrastructure and ensuring national energy security in line with the spirit of the Politburo's Resolution 70, dated August 20, 2025, on guaranteeing the national energy security by 2030.

ADB launches trust fund to accelerate ASEAN power grid

The Asian Development Bank (ADB) has launched a multi-partner fund to finance critical project preparation work for cross-border energy and transmission infrastructure within the Association of Southeast Asian Nations (ASEAN) – the first such fund in the region.

The Regional Connectivity Fund for Energy in Southeast Asia (RCF) will advance the development of the ASEAN Power Grid, the regional flagship initiative to achieve fully integrated electricity grid operations by 2045.

"The ASEAN Power Grid is one of Southeast Asia's greatest opportunities, with the potential to deliver energy security for nearly 700 million people and power the region's growth," said ADB President Masato Kanda.

The RCF is a key initiative delivered under the ASEAN Infrastructure Fund (AIF – Southeast Asia's largest regionally owned infrastructure financing platform – and will help the AIF expand its scale and impact. Initial funding equivalent to about $25 million consists of contributions from Australia, Canada, the EU, Germany, and the UK.

Managed by ADB in close collaboration with the AIF Board and ASEAN member states, the RCF will accelerate project preparation by providing technical assistance and project readiness financing grants to support energy infrastructure projects. This includes feasibility studies, engineering design, financial structuring, and safeguards assessments.

It will also fund activities related to policy advice, regulatory improvements, capacity building, and knowledge sharing to improve the enabling environment for the ASEAN Power Grid. The RCF will ensure projects are well-designed, bankable, and aligned with ASEAN members' priorities.

Southeast Asia's energy demand is expected to triple by 2050. The ASEAN Power Grid will help to unlock access to reliable and affordable power supply, including renewable energy sources like solar, wind, and hydropower.


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Great Britain pushes forward on low-carbon system

- Wind and solar break records but management issues remain
- Government grapples with gas price rises

Janet Wood

Great Britain's National Energy System Operator (NESO) has made history by running the country's electricity grid at 98.8 per cent zero-carbon for a half-hour period, surpassing the previous zero-carbon record of 97.7 per cent, set in April 2025. On the same day gas reached an historic low of 1.2 per cent of the energy mix at both the transmission and distribution levels.

Meanwhile, the country set new solar and wind generation records in March and April. Kayte O'Neill, Chief Operating Officer at NESO, said: "This world-leading zero-carbon record underlines the resilience of Britain's national electricity system, which is again showing it can be run safely and securely on large quantities of homegrown renewables."

The new record came as Energy Secretary Ed Miliband and Chancellor Rachel Reeves set out plans to partially decouple electricity prices from gas prices, by offering fixed-price Contracts for Difference to renewable energy generators to replace variable Renewables Obligation support.

Jess Ralston, Head of Energy at the Energy & Climate Intelligence Unit (ECIU) said: "For years, the idea of de-linking gas and electricity prices to make the most of homegrown British renewables has been on the table, and the government is taking another step towards that which is useful for stabilising our bills."

The announcements came as part of a suite of measures from the government and NESO that are intended to help business and commercial consumers benefit from the drive to renewables and electrification in advance of expansion to the electricity grid. Currently some renewables output, especially from wind generators in the North Sea, is discarded, and new cables that could transport the power across constrained network boundaries will not be laid for several years. Other measures include plans by NESO to ask consumers and businesses to 'turn up' demand during congested periods to make the most of oversupply and improve operability.

Meanwhile the government has acted to reduce fears over rising energy prices following the closure of the Strait of Hormuz by scrapping an extra charge that fossil fuel power stations must pay for their carbon dioxide emissions.

The end of the charge was broadly welcomed by large electricity users as well as the wider industry, although some industry groups said that the government still needed to do more to bring down energy costs.

Adam Berman, Policy Director at industry trade group Energy UK, said that while the fee had been crucial in "driving coal off the grid… the government is right to recognise that it's no longer needed".

The measure risks widening the gap in carbon costs between the UK and the EU, potentially exposing British electricity exporters to carbon border taxes. UK ministers are in talks with Brussels about relinking carbon pricing schemes, meaning the price gap should disappear, and hope to achieve parity before the top-up is removed.

Gas routes investigated to meet data centre power needs

Centrica has announced a collaboration with Ceres Power Holdings to accelerate the deployment of solid oxide on-site power solutions to meet growing demand from industrial sites including new data centres.

The collaboration combines Centrica's energy supply, trading and services platform with Ceres' advanced Solid Oxide Fuel Cell (SOFC) and Solid Oxide Electrolysis Cell (SOEC) technologies. The companies say the partnership will enable "fast, scalable deployment of high-efficiency, fuel-flexible on-site generation for data centres, AI compute hubs, advanced manufacturing, logistics and distribution centres". The technology can operate on natural gas today with a pathway to other fuels such as biogas and hydrogen in the future.

Chris O'Shea, Chief Executive of Centrica plc, said: "By combining Ceres' technology with our energy expertise, we see a real opportunity to support data centres, AI and industry with cleaner power at scale, while helping to ease pressure on the grid and boost economic growth."

Meanwhile Future Energy Networks, which represents the UK's gas networks, says its members have seen a sharp rise in connection enquiries from data centre developers. The last two years saw 113 enquiries regarding data centre gas connections, three quarters of them in 2025.

James Earl, CEO of Future Energy Networks (FEN), said: "The dramatic increase in the number of data centre enquiries to gas networks reflects the long delays developers are encountering in accessing the electricity grid. If we are to get ahead in the global AI race, bolster economic growth and secure future investment, we must harness the immense potential of both gas and electricity systems."

French and Dutch authorities each announce combined offshore wind tenders

Tenders will be awarded for 10 GW of offshore wind capacity in France by early 2027, after the French government announced plans to combine two tender rounds.

One tender comprised three 400-500 MW floating wind farms in South Brittany and the Mediterranean, and a fixed wind farm of up to 1250 MW in the South Atlantic. The second had two 2 GW projects in the eastern English Channel and three floating wind projects. With the two tenders combined, the capacity will be split between fixed-bottom and floating technologies, with 5 GW allocated to each, and projects across all French maritime areas.

"With a combined capacity of approximately 10 GW, including 5 GW of fixed-bottom and 5 GW of floating wind power, distributed across all its maritime coastlines, France aims to become a world leader in the development of floating wind power, with a target of nearly 6 GW by 2040," the Ministry said. France has a target of 45 GW offshore wind capacity by 2050 and 15 GW by 2035.

Meanwhile, the Dutch Ministry of Economic Affairs and Climate Policy recently said developers will be able to apply for the 1 GW IJmuiden Ver Gamma-B site in an auction this year, as well as the previously already announced 1 GW IJmuiden Ver Gamma-A site. The Netherlands Enterprise Agency (RVO) expects to grant the subsidy decisions and associated permits in early 2027.



Germany considers nuclear instead of gas to complement renewables

- New award of 3.5 GW of onshore wind and solar capacity
- Green light for next phase of Nordseecluster offshore wind farm

Janet Wood

Germany's Economy Minister Katherina Reiche has called for a rethink of her country's opposition to nuclear power, a change that would reverse a phase-out decided under former chancellor Angela Merkel in 2011 and completed under Olaf Scholz. But Reiche told the UK's *Financial Times*: "We need gas to secure our supply – that is the only baseload supply I have left."

Germany's dependence on gas increased after nuclear power stations closed but it relied on gas supplies from Russia. After Russia's invasion of Ukraine in 2022 forced Berlin to abandon pipeline imports from Moscow. Germany had to turn to liquefied natural gas, mostly from the US, which now makes up about 10 per cent of its gas supply. Now high gas costs weigh heavily on German industry, while domestic gas prices this year are 79 per cent higher than in the same period in 2021, and electricity prices are 23 per cent higher.

Reiche said: "We can decide that we are not interested. Then we stick to gas and become more dependent on one energy source. Or we can say that we are interested in technology again."

German electricity prices for May based on futures contracts are four times as high as those of France, Europe's largest nuclear power producer, according to energy marketplace EEX.

Meanwhile Germany's Federal Network Agency of Germany has announced the results of a recent onshore renewable energy tender. Nearly 3.5 GW of onshore wind turbines was awarded, from 924 bids with a combined capacity of 7858 MW. For solar 155 MW was awarded from 98 bids totalling 177 MW. It followed a recent auction that awarded 813 MW of biomass plants and 310 MW for solar installations on rooftops and wind barriers. Further auctions are due in May.

Offshore, RWE has been given the green light for the second phase of its 1.6 GW Nordseecluster wind farm. Tobias Keitel, Chief Technology Officer, RWE Offshore Wind, said: "Now that the BSH has granted approval for Nordseecluster B, we can begin construction at sea next year. Our portfolio already includes six offshore wind farms located off the German coasts. With the Nordseecluster, we are continuing to drive forward the expansion of offshore wind energy."

Phase 1 of the Nordseecluster is already under construction and will have a capacity of 660 MW. It is due to be connected to the grid by early 2027. The 900 MW Nordseecluster B is scheduled to commence commercial operations in early 2029.

Customers for the energy produced include technology companies such as Amazon, with whom RWE recently signed a Power Purchase Agreement for 110 MW from Nordseecluster B. Nordseecluster is a joint offshore wind project between RWE and Norges Bank Investment Management.

Near-700 GW surge boosts renewable energy profile



In another record year for newly installed capacity, renewable energy resources were the go-to for countries eager to strengthen their energy security, writes **Nadia Weekes**.

Renewable power capacity reached 5149 GW in 2025, after a record-breaking 692 GW was added, representing a 15.5 per cent increase on the previous year, according to a new report by the International Renewable Energy Agency (IRENA).

The 'Renewable Capacity Statistics 2026' finds that renewable energy dominated capacity additions, with an 85.6 per cent share of the total newly installed capacity in 2025.

With geopolitical tensions raising fresh concerns over energy supply security and fossil fuel price volatility, countries are looking to build more resilient systems that are less vulnerable to international shocks. As renewables are homegrown, low-cost and fast to deploy, increasing their share in national energy systems can reduce exposure to international fuel markets.

Commenting on the findings, IRENA Director-General, Francesco La Camera said renewable energy remained "consistent and steadfast in its expansion" amid uncertain times. "This… makes [the] case for renewable energy resilience with brutal clarity," he said, adding that a more decentralised energy system is structurally more resilient.

"Countries that invested in the energy transition are weathering this crisis with less economic damage, as they boost energy security, resilience and competitiveness," La Camera added.

In line with the previous year, solar energy led the increase, accounting for 511 GW or approximately a 75 per cent share in the renewable energy capacity added. Wind energy followed with 159 GW. Together, solar and wind accounted for 96.8 per cent of all net renewable additions last year, with bioenergy in third place adding 3.4 GW.

Significant disparities persist among countries and regions. Asia continued to lead, contributing 74.2 per cent of all new renewable capacity with 513.3 GW added and a growth rate of 21.6 per cent. Africa recorded its highest capacity increase (11.3 GW), rising by 15.9 per cent; Ethiopia, South Africa and Egypt led the charge. The Middle East grew by 28.9 per cent, led by Saudi Arabia.

With 2891 GW of total renewable energy capacity, Asia remains in top position, followed by Europe with 934 GW. Central America and the Caribbean recorded the lowest volume of installed renewables capacity, at 21 GW. This disparity exposes the vulnerability of economies with a low share of renewables and underscores the urgent need to ramp up progress to increase their energy security, IRENA said.

Saudi Arabia set to miss 130 GW by 2030 renewables target

Saudi Arabia is not on track to achieve its latest Vision 2030 target of 130 GW of renewable power capacity, according to intelligence firm GlobalData, which estimates that only 74.2 GW will be achieved by 2030, up from the current 13 GW.

In its latest report analysing the Saudi Arabia power market to 2035, GlobalData finds that, despite its financial capability, the country's overreliance on thermal power has stunted renewable growth.

Thanks to one of the largest oil reserves in the world and the use of natural gas for power generation, Saudi Arabia is self-sufficient in meeting current electricity demand. However, a burgeoning economy and a growing population have led to rising demand, especially to power the water desalination plants needed due to the low availability of groundwater.

Using more oil for power generation has left less available for export.

"This is a development that Saudi Arabia cannot afford, and the government has therefore been focusing on increasing the share of non-oil fuels in its power mix," said Attaurrahman Ojindaram Saibasan, Power Analyst at GlobalData.

In October 2025, Saudi Arabia awarded 4.5 GW of new solar and wind capacity in the sixth auction round of the National Renewable Energy Program (NREP). A month earlier, bidders qualified for the seventh round of the NREP, encompassing 5.3 GW of combined solar and wind projects.

"Despite having support mechanisms such as net metering and renewable auctions, the country has not done enough to bolster its renewable capacity in line with its targets," Saibasan said. "Although the auctions have been fairly successful, the government needs to focus on establishing more power purchase agreements (PPAs) for large-scale renewable power plants."

The plan to convert the cancelled NEOM project into an AI and data centre hub will create massive electricity demand. But the Middle East crisis may deter investors. Saudi Arabia would need to add over 23 GW a year to achieve its 130 GW by 2030 target.

Geopolitics trumps economics as key driver of energy policies

- Threats and uncertainty dominate energy discourse
- World leaders seek stability over speed

Nadia Weekes

Geopolitics has replaced economics as the primary driver of the energy transition, raising fundamental questions for leaders as they look for greater stability, according to the World Energy Council's annual report.

Based on a survey between November 2025 and January 2026 of nearly 3000 energy leaders from over 100 countries, the 2026 'World Energy Issues Monitor' shows that – even before the outbreak of the conflict in the Middle East – the global energy community saw geopolitical threats and uncertainty as the defining features shaping the energy landscape.

In this year's survey, perceptions around peace and geopolitical risks, trade and supply chain security increased 7.6 percentage points to 62.5 per cent, outpacing the 4.1 percentage point rise in economic risk and uncertainty (to 60.7 per cent).

The Monitor also details sharp increases from 2025 in uncertainty around public trust in transitions (plus 11 percentage points) and system risk preparedness (plus 10 percentage points).

As a result, progress is now seen to depend less on new pledges or commitments by official entities and more on how energy transitions can practically be delivered in an environment of reduced cooperation and significant constraints.

Dr Angela Wilkinson, Secretary General & CEO of the World Energy Council, described energy as "the operating system of civilisation". She said that, in a world where energy is under strain, "collective navigation" is required.

"As the world moves beyond adding supply to managing whole systems in real-time, it exposes harder, shifting trade-offs between security, affordability and sustainability," she said, as she urged a rebalancing of dialogue to "steer the world's most critical system together".

According to the survey findings, global peace and geopolitical risks dominate across Europe, Asia and North America, while finance and investment risks are most critical across regions such as Africa, Latin America and the Caribbean.

Kazakhstan to slash emissions at coal fired power plants

A national project to adopt cleaner coal technologies and modernise thermal power plants is expected to reduce pollutant emissions at coal fired power plants by 34 per cent, according to the Ministry of Energy.

In an effort to slash emissions while improving efficiency and reliability, the new power plants will operate at supercritical steam and temperature parameters, which will increase power generation efficiency by up to 6 per cent, reduce coal consumption and lower pollutant emissions.

According to the ministry, a full range of modern gas cleaning equipment will be implemented, including electrostatic precipitators and bag filters for dust and ash collection, systems to reduce nitrogen oxide emissions, and units to remove sulphur compounds from flue gases.

A phased modernisation of existing coal fired thermal power plants is also planned, using best available technologies.

In a separate development, Kazakhstan has approved a 2026-2030 national project for coal-based power generation aimed at meeting rising electricity demand, modernising energy infrastructure and ensuring the stability of the country's power system.

The Ministry emphasised that the project will provide a reliable energy foundation for industrial growth, digital economy development and AI technology adoption.

The Energy Ministry plans to introduce 7.8 GW of new and upgraded capacity by 2030, build eight new power plants totalling 5.3 GW, and modernise 11 existing power stations. Modernisation efforts are expected to reduce equipment wear by 13 per cent.

The new power plant construction programme embraces key facilities, including Kurchatov (700 MW), Ekibastuz GRES-3 (2640 MW), Karaganda (350 MW), Ekibastuz (180 MW), and new thermal power plants in Zhezkazgan (500 MW), Kokshetau (240 MW), Semey (360 MW) and Oskemen (360 MW).

Kazakhstan also plans to build small hydropower plants in three regions.

EBRD extends $65 million loan for solar and battery project in Egypt



The European Bank for Reconstruction and Development (EBRD) has agreed a $65 million construction bridging loan with Hassan Allam Utilities (HAU Energy) to develop a new renewable energy project in Benban Solar Park, near Aswan.

The financing will support the construction of a 200 MW solar photovoltaic (PV) utility-scale power plant alongside a 120 MWh battery energy storage system (BESS). Once operational, the facility is expected to cut carbon dioxide emissions by up to 280 000 tonnes annually.

HAU Energy, established in 2024, focuses on renewable energy investments in Egypt and is jointly owned by Meridiam, Hassan Allam Utilities and the EBRD.

TotalEnergies and Masdar to form $2.2 billion joint venture



- Agreement merges onshore renewable activities in nine countries
- JV will have a portfolio capacity of 3 GW

Junior Isles

TotalEnergies and Abu Dhabi Future Energy Company PJSC (Masdar) have signed a binding agreement to establish a $2.2 billion 50/50 joint venture (JV) that will merge their onshore renewable activities in nine countries across Asia.

As electricity demand accelerates across Asia, the partnership brings together capital and expertise to deliver renewable energy at the scale and speed required. Once the transaction is closed, the JV will act as both companies' sole vehicle for developing, building, owning and operating onshore solar, wind and battery storage projects in Azerbaijan, Indonesia, Japan, Kazakhstan, Malaysia, the Philippines, Singapore, South Korea and Uzbekistan.

The JV will have a portfolio capacity of 3 GW of operational assets and 6 GW of assets in advanced development that are expected to be operational by 2030. Each partner will contribute assets of comparable value.

The JV will be headquartered at Abu Dhabi Global Market and will be staffed by approximately 200 employees drawn from both parent companies. A management team for the new entity will be announced at a later date.

"The UAE has established itself as a global energy leader by delivering at scale, investing with conviction, and building partnerships that endure… We are proud to have pioneered renewable energy deployment in Central Asia and the Caucuses, and we have an expanding portfolio in some of the most attractive growth markets in Asia-Pacific," said His Excellency Dr, Sultan Al Jaber, UAE Minister of Industry and Advanced Technology and Chairman of Masdar

"Asia will be the main driver of global electricity demand growth this decade, and this collaboration with TotalEnergies will accelerate our progress across the continent, unlocking new opportunities to deliver the competitive, reliable energy solutions that our partners and customers need."

Hitachi Energy and Samsung C&T expand grid collaboration

Hitachi Energy and Samsung C&T Engineering & Construction Group have signed a Memorandum of Understanding (MoU) to deepen their collaboration on high-voltage alternating current (HVAC) grid infrastructure worldwide.

As part of this collaboration, Hitachi Energy and Samsung C&T will combine their strengths to identify, assess, and pursue AC opportunities. Hitachi Energy brings expertise in grid technologies, advanced engineering and design, electrical systems, and integrated digital solutions, while Samsung C&T contributes its engineering, procurement, and construction (EPC) delivery capability.

The MoU establishes a strategic framework for the two companies to align on AC prospects, developing a shared go-to-market roadmap and an opportunity pipeline. The agreement builds on the companies' established track record of successful collaboration across multiple global projects – particularly in the fast-growing HVDC market – as they work together to deliver "innovative, efficient power infrastructure solutions".

Power grids are rapidly evolving as countries modernise infrastructure and integrate more clean energy to meet rising electrification demand from mobility, industry, and data centres. With variability increasing across the system, flexibility is now critical – placing AC solutions at the core of efficient transmission, distribution, and cross-border electricity flow.

"The global energy landscape is entering a defining decade for its energy future, and resilient AC grid infrastructure is foundational to making the transition work," said Niklas Persson, CEO of Grid Integration Business Unit, Hitachi Energy. "This expanded collaboration with Samsung C&T brings together leading technology and execution capabilities to accelerate grid modernisation, strengthen resilience, and enable the large-scale integration of renewables – supporting a more connected and energy-secure system."

Byung-soo Lee, Executive Vice President, Samsung C&T, said: "Our proven collaboration model in the UAE and Australia will become a powerful competitive advantage in global power infrastructure markets. We will continue to lead complex cross-border transmission projects with integrated solutions that span both direct and alternating current technologies."

Nordex Group announces 1.9 GW of order intake in Q1

In the first quarter of 2026, the Nordex Group recorded 1869 MW of orders in the Projects segment, excluding Service business (Q1/2025: 2182 MW). The average sales price in euros per megawatt of capacity increased to €0.91 million/MW in the first quarter 2026 (Q1/2025: €0.87 million/MW). The increase is primarily driven by project scope and regional mix effects.

Between January and March 2026, its customers ordered a total of 292 wind turbines for projects in 13 countries. The strongest individual markets were Germany, Türkiye and Sweden.

"We had a robust start to the year with an order intake of around 1.9 GW, in line with our expectations. We continue to see a healthy order pipeline in Europe and North America and remain confident in the expected order momentum for the full year," said José Luis Blanco, CEO of the Nordex Group.

Sunotec partners with Blackstone to accelerate renewable infrastructure expansion

Renewables project developer Sunotec has announced a partnership structured equity investment from funds managed by Blackstone Tactical Opportunities.

Blackstone's investment will support Sunotec's continued growth across its core European markets – notably Germany, the UK, Scandinavia and Southeast Europe – while enabling further expansion of its existing services and the development of adjacent capabilities, including grid infrastructure.

The partnership will also aim to scale up Sunotec's hybrid renewable energy asset platform and reinforce its investments in sustainable infrastructure.

Sunotec has established itself as one of Europe's leading integrators of utility-scale solar and battery energy storage projects. The company has installed approximately 15 GW of solar capacity across multiple markets, including 5 GW of utility-scale solar and 5 GWh of battery energy storage systems (BESS) in the last two years alone, as it capitalises on the long-term tailwinds shaping the energy transition and electrification.

The partnership brings Blackstone's thematic focus on areas such as digital and renewable energy infrastructure and electricity grid services together with Sunotec's leading capabilities in the engineering, deployment, maintenance and operation of utility-scale solar and battery storage systems, as well as the company's expertise in integrating medium- and high-voltage grid infrastructure.

"Blackstone's investment marks an important milestone in Sunotec's journey. Over the past 13 years, our team has built one of Europe's leading large-scale solar and storage businesses through execution, speed and a relentless focus on delivery," said Kaloyan Velichkov, Founder and CEO of Sunotec. "With Blackstone as a partner, we will accelerate our expansion across Europe and enter selective new markets. At a time when the world's energy transition needs faster deployment of renewable energy, battery storage and the grid infrastructure around it, this partnership gives us even greater capacity to deliver at scale."

J.P. Morgan SE acted as Exclusive Financial Adviser and Sole Placement Agent to Sunotec, with Linklaters and DGKV acting as Legal Advisors.

Nomura Greentech acted as M&A Adviser to Blackstone, with Kirkland & Ellis LLP acting as the firm's Legal Adviser.

The transaction is subject to regulatory approvals and is expected to close in H1 2026.

JFE Holdings and Mitsubishi Corp. sign MOU to advance integrated power and data centre

JFE Holdings, Inc. (JFE) and Mitsubishi Corporation (MC) have signed a Second Memorandum of Understanding (Second MOU) toward the joint development of a power business and data centre project in the Ohgishima, Keihin District of Japan. Under the Second MOU, the companies will advance the business plan with the goal of entering into a joint venture agreement.

In March 2025, JFE and MC signed an initial MOU to explore the feasibility of a joint venture. Over the following year, the two companies conducted foundational technical and commercial assessments of an integrated power and data centre project together with MC Digital Realty, Inc. (MCDR), leveraging the distinctive advantages of the Ohgishima Area, which include a large-scale site strategically located about 20 km from central Tokyo and a stable power supply from JFE's captive power plant.

Following confirmation of the feasibility of the concept to construct and operate a data centre on 5 ha of land, utilising JFE's adjacent captive power plant in the Ohgishima Area, which has a generating capacity of 190 MW, the companies have decided to proceed to the concretisation phase of a joint venture encompassing both the data centre and power businesses.

For JFE, commercialisation of the data centre under consideration is a key initiative under its Eighth Medium-Term Business Plan toward realising the land use concept outlined in 'Ohgishima 2050' and the goals of 'JFE Vision 2035'. JFE will commence land development at the candidate data centre site and proceed with planning for the construction of the necessary infrastructure.

MC positions data centres and power as "AI infrastructure" and views the plan to develop these facilities to be a strong example of meeting the need to repurpose former industrial land and construct next-generation industries. Leveraging its industrial portfolio and accumulated expertise across diverse businesses, MC will work jointly with JFE to further develop the plan.

The Ohgishima site can support at least two data centres, and the companies are targeting the commencement of operations for an initial 60 MW data centre in fiscal year 2031. Looking ahead, the companies envision a phased expansion in line with demand trends, with additional nearby sites identified for future growth. Ultimately, this development could form a data centre campus with several hundred megawatts of IT capacity.

Americas

Wärtsilä wins 412 MW data centre contract

Wärtsilä has won a contract to supply 40 Wärtsilä 34SG engines to power a new data centre project in Ohio, USA. The engines will provide 412 MW of capacity for the project. This will be the first time the 34SG engine has been used in a data centre application.

The units will enable the data centre to operate off-grid and avoid the long interconnection delays common in the US market. The units are scheduled to enter commercial operation in early 2028.

Risto Paldanius, Vice President, Americas at Wärtsilä Energy, said: "This project underscores the confidence data centre developers place in Wärtsilä's engine technology to deliver fast, flexible power at scale. As AI and cloud demand accelerate, operators need energy solutions that are efficient, resilient, and available on their timeline – not the grid's."

Aperion Energy signs data centre equipment deal

US energy infrastructure developer Aperion Energy has awarded a contract to HD Hyundai Heavy Industries for the supply of 684 MW of 20 MW power systems based on HD Hyundai's HiMSEN engines. The contract is valued at €362 million.

Han Ju-seok, head of the Engine and Machinery Business Division at HD Hyundai Heavy Industries, said that the deal would serve as an important foothold for entering the US data centre market, adding that the company will continue to strengthen its presence in North America and pursue additional power generation opportunities.

Turboden and Fervo Energy sign turbine deal

Turboden America and Fervo Energy have announced a three-year framework agreement to supply Organic Rankine cycle (ORC) 50 MW units for up to 35 GeoBlocks with a combined output of 1750 MW.

This agreement is expected to enable conversion of geothermal heat into baseload carbon-free electricity and expands the US-based supply chain for Turboden's proprietary ORC turbine design.

Fugro wins Brazilian offshore wind contract

Petrobras has awarded a contract to Fugro for a geotechnical site investigation for the Brazilian oil major's first offshore wind project, an 18 MW pilot proposed to be built off the coast of the state of Rio de Janeiro.

Under the terms of the contract, the company will work to acquire the data needed to inform the project's design. The scope covers soil sampling, *in situ* testing, and laboratory analysis at four coastal and shallow-water locations, as well as onshore investigations to support cable landfall and routing.

Fugro will begin operations and analysis in April and continue through the third quarter of 2026, with final reporting scheduled for 2027.

Asia-Pacific

Andritz wins 3 GW pumped storage project

Andritz has won an equipment order for the 3000 MW Saidongar-1 Karjat pumped storage project in Maharashtra, India, being developed by Torrent Energy Storage Solutions, a subsidiary of Torrent Power. The scope of work includes the design, manufacture, installation, testing, and commissioning of ten reversible pump turbines, motor generators, and associated electromechanical equipment.

Once operational, the plant is expected to generate 6.2 TWh of energy annually.

The project will be executed with a focus on local manufacturing, using Andritz's manufacturing facilities in India along with support from its global network.

MHI wins Singapore boiler retrofit contract

Mitsubishi Heavy Industries Asia Pacific, a regional subsidiary of Mitsubishi Heavy Industries (MHI), has been awarded a contract from Singapore's National Environment Agency (NEA) for boiler retrofit work at the Tuas South Incineration Plant (TSIP) located in the Tuas district in western Singapore.

The retrofit will stabilise the waste handling capacity of the stoker-type incinerator and extend the facility's operational lifespan. Expected completion is scheduled for Q4 2027.

The retrofit will be undertaken by Mitsubishi Heavy Industries Environmental & Chemical Engineering (MHIEC). MHIEC will be responsible for the design, construction, and operational support under this retrofit contract. MHIEC will incorporate design modifications for certain sections of the boiler tubes that are to be replaced.

O&M contracts awarded for Changhua wind farms

O&M contracts for the offshore substation (OSS) of the Greater Changhua 4 offshore wind farm in Taiwan and the onshore substations (ONS) of the Greater Changhua 2b and 4 offshore wind farms have been awarded to Deutsche Windtechnik (DWT).

Under the terms of these contracts, DWT will collaborate with Ørsted's local O&M team in Taiwan to support substation services, including scheduled and corrective maintenance.

The Greater Changhua 2b and 4 offshore wind farms are part of Ørsted's large-scale offshore wind portfolio in the Taiwan Strait, located approximately 35-60 km off the coast of Changhua County.

Europe

Nordex Group to supply European wind farms

The Nordex Group has won a number of wind turbine supply contracts across Europe. These include an order for 12 N175/6.X turbines for a wind farm in Spain for an initial 80 MW. The order includes the option to expand the wind farm by an additional 40 MW.

The turbines will be supplied on tubular steel towers with hub heights of 112 m. Installation of the wind turbines is set to begin in spring 2027, with commissioning expected end of 2027. The names of the customer and wind farm have not been disclosed.

Nordex also won a 39.9 MW order from NeXtWind Management in Germany as part of the Lütau 2 repowering project in Schleswig-Holstein. Nordex will supply seven N149/5.X wind turbines. Installation is scheduled for spring 2027, with commissioning due to be completed in summer 2027.

Nordex has won an order from STAWAG Energie for a 35 MW wind farm in the Sauerland region. The order consists of five N163/6.X wind turbines, and also includes a 20-year service agreement. Installation of the N163/6.X turbines is scheduled to begin in summer 2027, with commissioning planned for early 2028.

Nordex has won a 42 MW order from Max Bögl for the supply and installation of six N163/6.X wind turbines for the Peckelsheim community wind farm in North Rhine-Westphalia, Germany. Installation is scheduled to start in spring 2027, with commissioning planned for 2027.

Nordex has received a 28 MW order from Windpark Nuscheler for the Beesenstedt 3 site in the Saale District of Saxony-Anhalt, Germany. Nordex will deliver three N163/6.X turbines with a hub height of 164 m, and one N163/6.X on a 118 m steel tower. Installation is scheduled for spring 2027; commissioning is expected to be completed in summer 2027.

500 MW BESS for Eccles, Scotland

An agreement between EDF and Matrix Renewables has been reached for a 500 MW/1 GWh battery energy storage system (BESS) at Eccles, Scotland. Under the terms of the agreement, EDF will provide route-to-market services and optimise the battery across all energy markets once operational.

The project is currently under construction and scheduled to start commercial operation in summer 2027. This will be Matrix Renewables' first standalone BESS in the UK and one of the largest connected to the British electricity system.

The site is located along key transmission corridors between Scotland and England.

When operational, EDF will manage the commercial optimisation and dispatch of the battery using Powershift, its digital trading and optimisation platform.

Siemens Energy to supply EGL4 HVDC converters

Siemens Energy has been awarded a contract to provide the HVDC converter stations for the UK's Eastern Green Link 4 (EGL4), following the confirmation of a £2 billion contract awarded to Prysmian to supply the subsea and underground electricity cables.

The link, a joint venture between SP Energy Networks and National Grid Electricity Transmission is one of five subsea links being developed along the east coast of Britain. These links will strengthen the resilience of the electricity network, reduce grid constraints and enable greater volumes of renewable energy to flow efficiently.

The Siemens Energy contract includes two converter stations – one in Fife in Scotland and one in Norfolk in England.

By increasing capacity and reducing congestion on the grid, the 2 GW EGL4 subsea link, will help minimise constraint costs by accelerating the integration of cleaner sources of energy into the system.

Subject to planning consent, EGL4 is expected to enter main construction in 2028 and is scheduled to be complete in 2033.

Greenvolt Next to install two UK solar projects

Greenvolt Next has signed an engineering, procurement and construction (EPC) contract with UK renewable power producer Infinis to deliver two solar parks.

Infinis is developing California Solar Park in Stockton-on-Tees in the northeast of England and Gowerton Solar Park in Swansea, Wales. Greenvolt Next will be responsible for design, technology procurement, and construction.

Construction at the California site began in March 2026, with Gowerton following shortly afterwards. Once completed in summer 2027, the two solar parks will deliver a combined installed capacity of more than 110 MW.

Ukraine announces tenders for 1.3 GW

Denys Shmyhal, Ukraine's Energy Minister, has announced a tender for the construction of new power generation facilities that will add around 1.3 GW to the country's energy system.

Shmyhal said that Ukraine needs to build a "more protected, more flexible, more market-based, and more EU-integrated" energy system architecture.

Volodymyr Zelenskyy, President of Ukraine, said that the country has already begun preparations for next winter, with facilities destroyed by Russian strikes being gradually restored. He said that regions and major cities have clear tasks regarding alternative generation and the restoration of facilities.

Andritz to modernise Serbian hydropower plant

Andritz has won a significant contract in Serbia to upgrade a series of historic hydropower plants. The contract was awarded by Energotechnika Južna Bačka and involves the modernisation of the Vlasinske hydropower plants, which have been operational since 1955.

Andritz will supply four Pelton and six Francis turbines to increase the total capacity by 8 MW, from 130 MW to 138 MW. The upgrade will also increase the efficiency of the facilities.

International

Nordex wins 120 MW wind order in Türkiye

Nordex has won an order in Türkiye from Balıkesir Elektrik Yenilenebilir Enerji Üretim ve Satış, a subsidiary of Efor Holding, for the supply and installation of 18 N175/6.X wind turbines with a total installed capacity of 120 MW for the R25-Balıkesir-2 WPP wind farm. The turbines will be delivered in the cold climate version.

In addition, Nordex will provide service cover for a 10-year period.

The site is located 35 km northwest of the city of Balıkesir. The wind turbines will be installed at elevations ranging from 425 to 680 m above sea level. Installation of the first turbine is scheduled for March 2027, with commissioning planned for August 2027.

Egypt and Russia to fast-track El Dabaa

Egypt and Russia plan to accelerate work on the El Dabaa nuclear power plant in Egypt as part of their efforts to increase energy cooperation between the two countries.

The plant is being developed under a 2015 agreement, with the final contract for the $25 billion project being signed in 2017. Once completed, the facility will consist of four 1200 MW reactors for a combined plant capacity of 4800 MW. The first reactor is currently scheduled to start operations in 2028, with the remaining units to come online sequentially; the last starting operations by 2030.



Hydrogen

EU looks to begin new energy era with launch of European Resilience Alliance

A group of CEOs from a number of Europe's major energy companies gathered in Brussels in April to form the European Resilience Alliance (ERA) with the intention of creating a positive environment for the development of hydrogen industries and maybe a new energy era for Europe and beyond.

Gary Lakes

The ongoing war in Iran and blockage of the Strait of Hormuz has destabilised global energy markets. The situation brings up a number of questions, like: What if the world didn't depend so heavily on the Middle East for energy?

Last month, the chief executives of several major European energy companies joined forces to create the European Resilience Alliance for Clean Hydrogen & Derivatives (ERA) for the purpose of expanding a clean-hydrogen value chain that will work to accelerate and scale clean hydrogen deployment across Europe.

Such a development could end scenarios such as the one the global energy market finds itself in today. As MEP Andrea Wechsler said during a launch ceremony for ERA in Brussels on April 14: "Europe's energy transition is not just about decarbonisation – it is about building a resilient sovereign energy system that delivers for both citizens and industry."

The creation of a sovereign energy system "must become one of the guiding principles of our energy policy, grounded in diversification, system integration, and credible market frameworks that turn ambition into investment," Wechsler added.

Indeed. Think of the billions of dollars of investment and research that has gone into creating the energy system that stands on the southern coast of the Persian Gulf and which is now threatened by a further round of hostilities. If those facilities are seriously damaged resulting in a global recession or worse, will the world wait out the years that it will take to rebuild that industry? Why invest billions more in an industry that the world, its scientists, its institutions and its populations know must be transitioned away from? The years and billions in investments would be better spent in the energy transition to non-carbon sources.

It appears that this rationale is what has prompted the formation of ERA, although these ideas were formulated long before the February 28 attacks by US and Israeli war planes on Iran. But the current circumstances were alluded to in a statement released in Brussels by ERA on the day of its launch.

"ERA is a pan-European, CEO-led initiative uniting leading industrial companies across the clean-hydrogen value chain to address Europe's energy challenges, enhance industrial competitiveness, and secure strategic autonomy in the face of rapidly changing geopolitical and industrial pressures," the group said.

In the statement, several of the member CEOs expressed their views regarding Europe's need for energy sovereignty:

Miguel Ángel López Borrego, CEO of thyssenkrupp AG & thyssenkrupp Decarbon Technologies, said: "Europe's vulnerability is structural. Its dependence on external energy, technologies, supply chains, and critical materials threatens its long-term prosperity and industrial leadership."

The CEO of Moeve, Maarten Wetselaar, said: "A European energy system supported by clean hydrogen offers long-term price certainty, energy independence, and an industrial future that is no longer tied to volatile oil and gas cycles."

And Olli Sipilä, CEO of Gasgrid Finland, summed it up succinctly: "Strengthening Europe's industrial and societal resilience must begin immediately. Volatile imported fossil fuels cannot form the backbone of our industrial competitiveness in the decades ahead. Green, clean European energy represents a major opportunity. We have the resources – now we must make them available. New energy infrastructure is essential to enable this transformation. A hydrogen backbone infrastructure is the true game changer, lowering costs and unlocking investment opportunities at scale."

ERA's founding members include Enagas, Fluxys, Fortum, Gasgrid Finland, Moeve, Nordion Energi, OGE, RWE Generation, SEFE, Stegra, and thyssenkrupp, in cooperation with Hydrogen Europe. Together, these companies represent the full clean hydrogen value chair across the European Union.

The group has released a white paper that takes a hard view of the situation in which the hydrogen industry now operates in the EU. The white paper diagnoses regulatory bottlenecks, stress-tests existing policy frameworks against industrial realities, and details the financial and infrastructure barriers holding back Europe's clean hydrogen market. It also offers concrete policy recommendations to bridge the gap between ambition and deployment.

The white paper calls for the creation of stable, bankable demand for clean hydrogen through immediate transposition of Renewable Energy Directive (RED III), harmonised implementation of regulations including ReFuelEU Aviation and FuelEU Maritime, and the creation of lead markets in hard-to-abate sectors including industry, transport, and defense.

It wants clarity and simplification of clean hydrogen support frameworks. A shift from regulatory rigidity to industrial pragmatism is key, it states, by reducing electricity costs, which currently make up 70 per cent of hydrogen production costs, as well as redesigning EU subsidies to prioritise large-scale, industrially anchored projects, and directing scarce resources where they matter the most.

ERA calls for de-risking investment by safeguarding robust Emissions Trading System (ETS) and Carbon Border Adjustment Mechanism (CBAM) pricing, using the resulting revenues to make clean hydrogen competitive, extending Renewable Fuel of Non-Biological Origin (RFNBO) transitional provisions to beyond 2030 to lower ramp-up costs, and introducing state-backed portfolio guarantees.

And, it argues that infrastructure is the lifeline of an integrated European energy market. The group wants a scale up in funding for the European hydrogen backbone, coordinate cross-border planning to connect production and demand hubs with clear timelines, and create EU-wide risk-sharing instruments for early infrastructure investment.

Gas

Iran war impacts gas prices in Europe/Far East, yet US/Qatar-led "LNG wave" looms

Gas prices stabilised by the end of April after the surprising start of the war in Iran and closure of the Strait of Hormuz. While the US has contained gas prices, Europe and the Far East saw big leaps. But the anticipated arrival of a wave of LNG supplies that starts this year will create an abundance in supply by the end of the decade.

Gary Lakes

Market analysts report that the global gas market is going through a 'seasonal lull' for the moment with prices being shaped by high storage levels in the West and 'geopolitical volatility' in the East. That 'geopolitical volatility' is the war in Iran and the blockade of the Strait of Hormuz by both the US and Iran.

In late April, it appeared that a ceasefire between the two countries will continue indefinitely, which means that ships will be unable to enter or leave the Persian Gulf, putting fossil fuel industries in the lurch, and prices for oil and gas at the mercy of what happens next. For now, only a few vessels manage to sail through.

Natural gas prices in Europe and the Far East have moved into a 'shock and settle' pattern since the war erupted on February 28. Prices spiked, hit a peak in mid-March, and have since fallen.

Prices for Europe on the Dutch Title Trade Facility (TTF) went from around $9.50/million Btu at end-February to $23.62/million Btu on March 9, up by 140 per cent in a week. Spot prices in the Far East reacted aggressively because of the reliance on Qatar's LNG. Using the Japan Korea Market mechanism, prices rose from around $10.00/million Btu to more than $24.00/million Btu in early March.

The price surge caused LNG importers in Japan, Korea and China to rush to secure cargoes from the US and Nigeria. For LNG importing countries like India and Pakistan, they have been forced to cut gas-fired power to industries because they cannot afford current spot market prices.

The real price surge came in mid-March to early-April when prices peaked following Iran's strike on Qatar's Ras Laffan LNG facility, which physically removed 17 per cent of Qatar's LNG production capacity. Officials have since said it could take several years and several billion dollars to restore what is lost. Meanwhile, European prices remained at $18.00-$20.00/million Btu as European importers competed with the Far East for Atlantic Basin LNG.

In mid-April, Dutch TTF prices for Europe were around $16.90/million Btu, up by around 78 per cent from pre-war levels, and Far East JKM prices were around $17.80/million Btu, also up by 78 per cent. While European storage is at healthy levels for the season, around 28-30 per cent, the geopolitical risk premium remains high for those customers too.

As the world's largest gas producer, US gas prices were not seriously impacted. Prices at the Henry Hub terminal in late April were reported in the range of $2.60-$2.80/million Btu. In fact, prices in North America recently hit five-month lows. Mild spring temperatures have dampened demand, and output remains high. Storage inventories are currently about 3-5 per cent above the five-year average.

Prices at Henry Hub are expected to move higher as summer cooling demand for the US market kicks in. According to the US Energy Information Administration (EIA) an average spot price of approximately $3.10/million Btu is anticipated through the third quarter of this year. And as summer arrives in Europe and the Far East an increase in electricity demand will be seen there too.

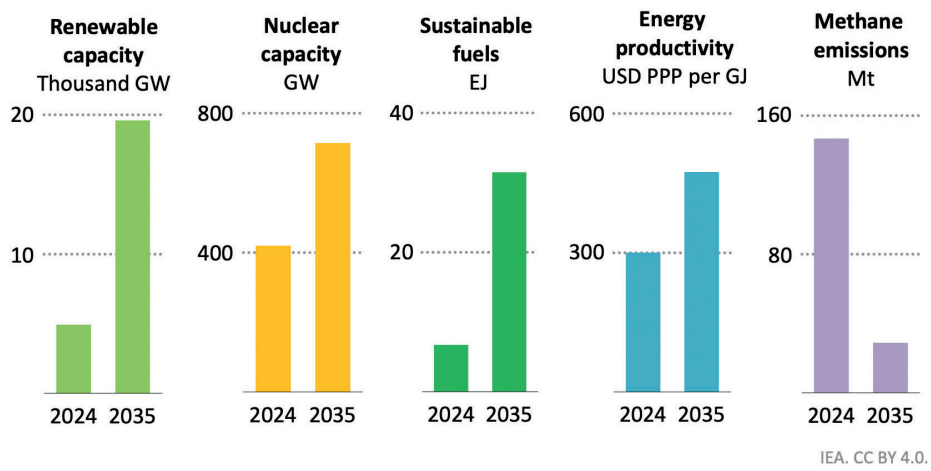
Demand is not expected to be such an issue when the LNG wave begins to break. New large LNG facilities – in the US and also in Qatar – are due to come on-stream in the next couple years. It is expected to meet the new demand that will also be taking shape as more countries adopt natural gas as a prime source of fuel. It must also be noted that AI data centres will also be demanding more electricity, impacting power generation.

The coming years are expected to see the fastest growth in LNG export capacity since 2019. New terminals in the US, such as Plaquemines in Lousiana and Golden Pass in Texas, will begin operating in 2026. By 2027, natural gas production in North America is expected to reach 121 billion cubic feet per day (Bcf/d) and enable the US to meet growing global demand through new facilities, while prices at the Henry Hub are expected to average around $3.70-$3.85/million Btu in 2027.

Between 2025 and 2028, the LNG industry will see the fastest capacity growth in its history, largely driven by projects in the US and Qatar. By the end of 2028, global LNG capacity will likely increase to 193 million tonnes per year (MTPA) – a 40 per cent increase over current levels.

Yet while uncertainty remains over the course of the war, gas prices will remain tight, and cargoes hard to come by for some buyers until the projects in the US and Qatar come on-stream.

Key indicators of energy transitions in the NZE Scenario

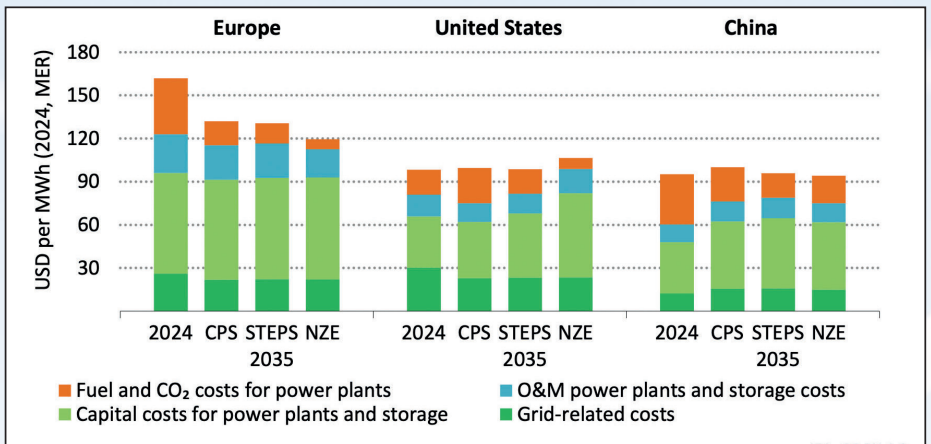


Scaling up low-emissions electricity generation, improving energy efficiency and reducing emissions of methane are critical actions to get back on track

Notes: GW = gigawatt; EJ = exajoule; PPP = purchasing power parity; GJ = gigajoule; Mt = million tonnes. Sustainable fuels include liquid biofuels, biogases, low-emissions hydrogen and hydrogen-based fuels, including hydrogen produced and consumed onsite.

WEO 2025, page 41, Figure 1.7

Average electricity system cost by component

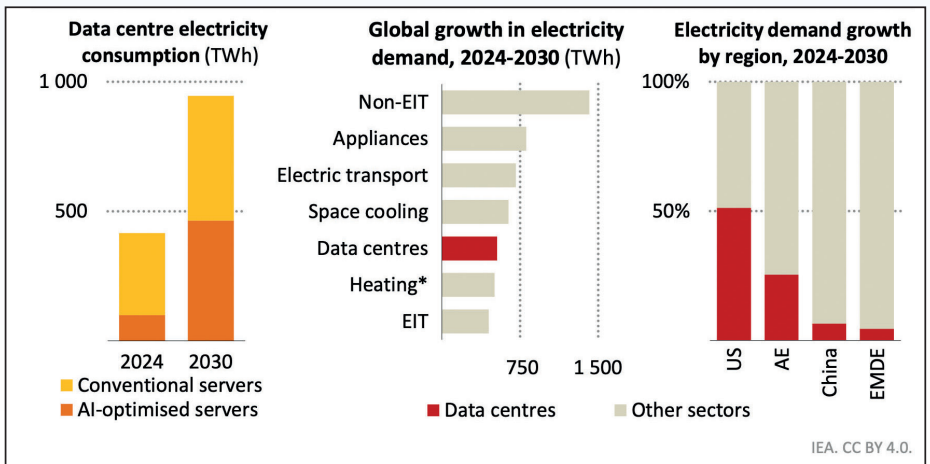


The transformation of electricity systems entails a shift in cost structure, from fuel and operational expenses towards upfront investments in clean technologies and infrastructure

Notes: MWh = megawatt-hour; MER = market exchange rate; O&M = operation and maintenance. CPS = Current Policies Scenario; STEPS = Stated Policies Scenario; NZE = Net Zero Emissions by 2050 Scenario. Grid-related costs include capital recovery costs for electricity transmission and distribution systems and grid operation and maintenance costs.

WEO 2025, page 49, Figure 1.14

Electricity consumption in data centres by server type, and global and regional electricity demand in the STEPS, 2024-2030



Even as electricity consumption from AI-optimised servers surges, data centres remain just one of the many sources of electricity demand growth in most economies

*Space and water heating in buildings.

Note: TWh = terawatt-hour; AI = artificial intelligence; EIT = energy-intensive industry; US = United States; AE = advanced economies; EMDE = emerging market and developing economies.

WEO 2025, page 52, Figure 1.16

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More information about the World Energy Outlook is available at www.iea.org/reports/world-energy-outlook-2025

Source: International Energy Agency, World Energy Outlook 2025. IEA CC BY 4.0



Integrating electricity markets relies on widening market participation

Joining up grids across Europe would allow surplus clean power to flow to areas with scarce supply, boosting collective energy security and sustainability. But building more cables and grid interconnections alone will not be enough to ensure market integration, argues **Thomas Kieffer** at Joint Allocation Office.

The EU's Grids Package revealed at the end of last year, marks a new approach to energy infrastructure by bringing a truly European perspective on infrastructure planning, while accelerating permitting procedures and ensuring a fairer division of costs regarding cross-border projects. The new approach will allow the best use of existing energy infrastructure and, in parallel, accelerate the development of grids and other physical energy infrastructure across the EU.

Yet building more cables alone will not be enough to achieve this without measures to enable Europe-wide market integration and participation. For example, renewable energy intermittency is creating more volatile, variable costs and there is a lack of long-term financial instruments to hedge against these risks. Silos between IT systems are impeding cross-border power trading while complex settlement processes, high collateral requirements and opaque rules can deter smaller companies from entering the market. Overcoming these barriers is an important factor in bringing energy generators, traders and utilities of all sizes into the cross-border electricity market and enabling greater energy system integration.

Kieffer: Silos between IT systems are impeding cross-border power trading



Europe recently reached a major milestone in the energy transition as renewables produced more electricity than fossil fuels for the first time in the EU and the UK. Wind and solar power generated 30 per cent of EU electricity while fossil fuels generated 29 per cent, according to global energy think-tank Ember's new 'European Electricity Review'. Meanwhile, data from RenewableUK showed renewables generated a record 50.8 per cent of the UK's electricity in 2024 – the first year in which renewables exceeded 50 per cent, and a substantial increase on the previous high of 46.4 per cent in 2023.

Yet the accelerating transition to intermittent renewable power sources is also producing more volatile, regionally variable costs for cross-border transmission capacity.

Extreme fluctuations in renewable output drive price signals to diverge sharply between 'bidding zones' – regions with uniform internal prices – causing a build-up of congestion costs where demand exceeds interconnector capacity. Research also shows that renewable price volatility can spread across borders as markets become more integrated. These growing price variations and fluctuations are creating a riskier market landscape for cross-border power trading.

As renewable generation expands, variability is increasing and price distributions are widening across the continent. As energy price volatility increases, market participants increasingly need the ability to buy long-term transition capacity to help plan energy portfolios and hedge their risks.

Complex, slow settlement processes, high transaction costs and large collateral requirements for cross-border capacity auctions also raise barriers to entry for smaller market participants. A lack of interoperable, transparent guarantees, credit limits and margin calls across different platforms create further confusion around collateral arrangements. Meanwhile, the fragmented patchwork of IT systems across markets further increases the cost and complexity of market integration.

Encouraging market participation among companies of all sizes supports greater integration of Europe's energy resources to provide secure, sustainable power for all. This could be supported by lowering barriers to market entry and reducing risks through long-term price certainty, interoperable IT systems, fairer collateral requirements, underpinned by a level playing field of fair, transparent and consistent market rules.

For example, Joint Allocation Office (JAO) provides mechanisms that allow market participants to buy cross-border transmission capacity at a set price up to a year ahead, bringing greater predictability and stability to increasingly volatile costs. To further hedge against long-term risks, market initiatives could introduce more forward auctions anchored in long-term transmission rights. This could include Financial Transmission Rights (FTR) obligations requiring transmission system operators (TSOs) to pay the price difference when congestion costs are higher at their end, while requiring market participants to pay when congestion costs are higher on their side. FTR obligations could balance risks between buyers and sellers and offer long-term hedging against congestion costs, helping to de-risk cross-border capacity auctions for all utilities and market participants.

Lowering cost and complexity is also vital to broaden access to Europe's cross-border electricity markets. Collateral risks need to be reduced by recalibrating collateral requirements to real-world risk exposure. Collateral arrangements should also be interoperable across borders, further simplifying and streamlining markets for all. More standardised cross-border collateral requirements would allow market participants in all countries to plan cash and credit efficiently.

Simplifying and speeding up settlements could lower barriers to entry too. For example, centralised service models now consolidate market activities from invoicing and clearing to settlements through a single platform. Settlement processes could be further streamlined to curb transaction costs while keeping key safeguards in place.

An open, equal marketplace is a prerequisite for mass participation and thus market liquidity. For example, harmonised allocation rules have now been implemented across 45 borders within a Single Allocation Platform that shows the calculations behind all capacity allocations, creating a trustworthy, transparent and fair marketplace. Ongoing regulatory engagement on long term methodologies could ensure continued clarity around everything from allocation processes to handling of revenues and risks across timeframes.

Allocation rules and capacity calculation methodologies could also be adapted to evolving market needs in collaboration with transmission system operators, market operators, regulators, and market participants. As methodologies evolve, the aim should be to ensure clarity for participants, while maintaining proportionate and prudential safeguards. This creates an agile, transparent and democratic marketplace responsive to evolving needs and drawing on collective input.

Europe is rapidly building the infrastructure for interconnected electricity grids. Yet integrating Europe's energy resources ultimately depends on allowing all participants and companies to participate in cross-border electricity markets.

The EU is already making substantial progress with initiatives such as the Electricity Market Design Reform (EMDR) that aim to widen market participation and boost liquidity. Work is also underway on a new user-friendly, flexible cross-border transmission capacity marketplace for Europe designed for seamless scalability and third-party interoperability, further enabling mass market participation.

Yet achieving a truly integrated European energy market depends on broadening access to the market, ensuring everything from credit models and financial instruments to capacity-allocation methodologies are designed to enable mass participation.

Thomas Kieffer is Chief Operating Officer at Joint Allocation Office, a service company that hosts Europe's single leading trading platform (e-CAT) for cross-border transmission capacity.

The primary engine of decarbonisation is markets, not ministers

A new book has added a voice to a growing consensus: the energy transition is today driven by economics, not ideology. **Joseph Jacobelli**

The commentary "Iran: accelerating the energy transition" (*The Energy Industry Times*, April 2026) argued that the Iran conflict has become an unlikely catalyst for the transition to net zero, the green shift, despite all its disruption to global energy markets. 'Powering the Unstoppable Green Shift: How Policy and Finance Transform Business to Lead Climate Action' (Routledge, 2026) builds directly on that idea. Net zero is no longer a political aspiration. It is an economic inevitability.

The book traces the relationship between policy, finance, and business, with corporations at the heart of execution. Real-world cases anchor every claim, illustrating that decarbonisation is not a cost to be absorbed but a competitive strategy for long-term value creation. The green shift is the defining investment opportunity of the century, and it is already under way, with or without political consensus behind it.

For too long, the energy transition was framed as a virtuous but costly state project, built on subsidies and political will. That framing is obsolete. Decarbonisation has crossed a turning point. It is no longer a policy ambition that markets are being asked to finance. It is an economic reality that markets are acting on. The distinction matters enormously. Policy can be reversed. Prices cannot be "uninvented".

	Levelised Cost of Electricity (2024 USD/MWh)		
	2010	2024	Change
Solar PV	417	43	-89.7%
CSP	402	92	-77.1%
Onshore wind	113	34	-69.9%
Offshore wind	208	79	-62.0%

Source: IRENA (2025), Renewable Power Generation Costs in 2024, International Renewable Energy Agency, Abu Dhabi.

Renewable power generation costs in 2024 (extract)

Public policy still plays a role. It provides the initial spark that opens a market, sets a standard, or de-risks a first mover. But once the economics take hold, the engine runs on its own. The transition is self-sustaining not because governments have held firm, but because the cost curves have moved beyond the point of return.

The most powerful evidence lies in the Levelised Cost of Electricity (LCOE), the cost per unit of output over a project's lifetime. Between 2010 and 2023, the LCOE of mainstream clean energy technologies declined 63 to 90 per cent. Renewables are no longer merely cleaner than fossil fuels. In most of the world, they are cheaper. Across Asia Pacific, solar has already displaced thermal coal as the least expensive source of electricity, with production costs expected to run 32 per cent below coal by 2030.

Cost competitiveness does not need political support to sustain itself. The notion that clean energy is a luxury for wealthy nations is being dismantled on the ground. In Pakistan, farms and factories are installing rooftop solar not out of climate conviction but as a hedge against rising fossil fuel prices. Pure economic self-interest drove that decision. Once clean energy is the cheaper option, the transition moves forward on its own, regardless of political conditions.

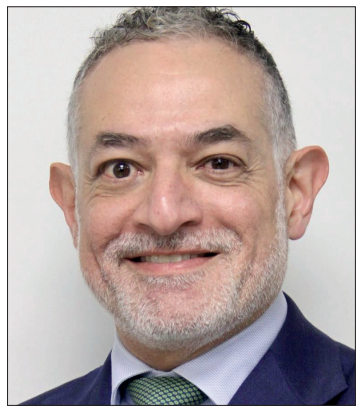
The energy transition is effectively a capital exodus triggered by the collapse in value of fossil fuel assets. While the 90 per cent fall in clean-technology LCOE acts as a potent market "pull", the "push" of stranded assets – the physical holdings whose investment value can no longer be recouped and must be written-off – has become the primary driver of capital flight. As the global fossil fuel market, currently valued at over $7 trillion, faces a slow unwinding, the financial sector is pricing in a hard reality: unmitigated climate change is not merely an environmental threat but a direct erosion of "potential output," permanently degrading the foundations of global capital stock and Total Factor Productivity.

The arithmetic of this transition is brutal: the Climate Policy Initiative estimates that while $266 trillion in climate finance is required by 2050, it represents the only viable hedge against $2328 trillion in total losses projected under a business-as-usual trajectory. With Swiss Re warning of a $23 trillion annual hit to global GDP, decarbonisation has shifted from a policy ambition to a fiduciary duty. Financial institutions are not retreating from fossil fuels as a result of political persuasion; they are executing a retreat from assets that are becoming worthless, whether or not a specific government has strong net zero legislation in place.

The old objection that renewables are too intermittent to be reliable is losing ground fast. Battery storage is transforming electricity into a tradable commodity, and in 2024, average lithium-ion pack prices dropped below $100/kWh, making electric vehicles cost-competitive with combustion engines. Markets competed that threshold into existence. Shenzhen has fully electrified its fleet of 16 500 buses and 22 000 taxis across a city of 18 million people, proving the commercial case at scale. When Google or Amazon invest in Small Modular Reactors (SMRs) to power their AI infrastructure, they are following a logic of energy security and price stability. These are chiefly commercial decisions.

One critical insight from the book, however, is that even a weak signal from the state is now sufficient for business and capital to act. A decade ago, clean energy needed sustained policy support to be viable. Falling technology costs, the growing risk of stranded assets, and the competitive pressure of market-driven deployment have together created a momentum that political volatility can slow but cannot stop. A government can withdraw a subsidy, repeal a target, or abandon a multilateral commitment. It would find it difficult to raise the cost of solar back above coal. It cannot restore the investment case for assets the market has already decided to strand.

The debate about whether to pursue the transition is largely over, not because the politics have been resolved but because the economics have moved on without them. For policymakers, the task is no longer convincing the market to act, as it is already acting. The task now is removing the bottlenecks slowing it down. The 80 million km of grid upgrades required globally represent a serious obstacle, and without them, clean energy assets risk becoming stranded for want of connection rather than want of demand. Governments that focus on infrastructure, planning reform, and grid investment are working with the market.

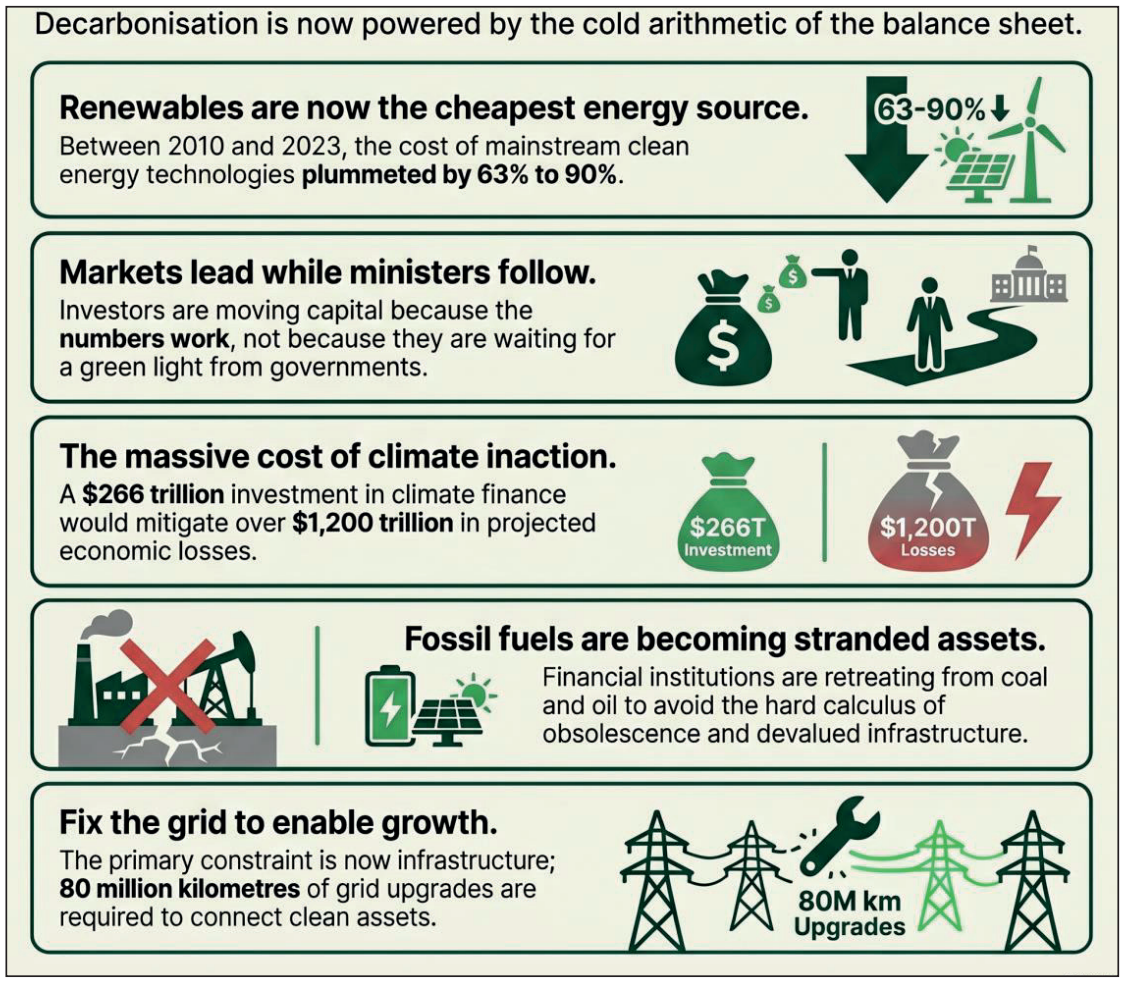


Jacobelli: Cost competitiveness does not need political support to sustain itself

For investors, vague commitment must give way to specific contractual terms that make projects genuinely bankable. Capital follows certainty, and the economic case is now strong enough to provide it.

The green shift is unstoppable because it has become the most competitive economic choice available. The $7 trillion global fossil fuel economy is being dismantled and rebuilt not by ministers issuing declarations but by the unsentimental pursuit of long-term value. Those who read the decarbonisation landscape as a map of business opportunity rather than a regulatory burden will define the century. The economics have spoken. Policy may influence the pace. It no longer sets the direction.

Joseph Jacobelli, head of single-family office Bourne Impact Capital, brings 35+ years in energy markets. He champions sustainable finance through his Asia Climate Finance Podcast and writings like his second book, 'Powering the Unstoppable Green Shift'.



The economic inevitability of the green shift. The energy transition is effectively a capital exodus triggered by the collapse in value of fossil fuel assets
Source: Joseph Jacobelli



Power grid protection eyes virtual scaling

How to scale the number of protection relays needed to cover more feeders can be a challenge. A concept that uses virtualisation could be the solution, bringing cost, space, and environmental benefits. **Junior Isles** reports.

As global electrification progresses and energy demand rises, existing grid infrastructure faces unprecedented pressure. Energy providers expect to double their grid capacity in the next decade while modernising aging infrastructure. To meet these challenges, technological innovations, automation, and standardisation are essential.

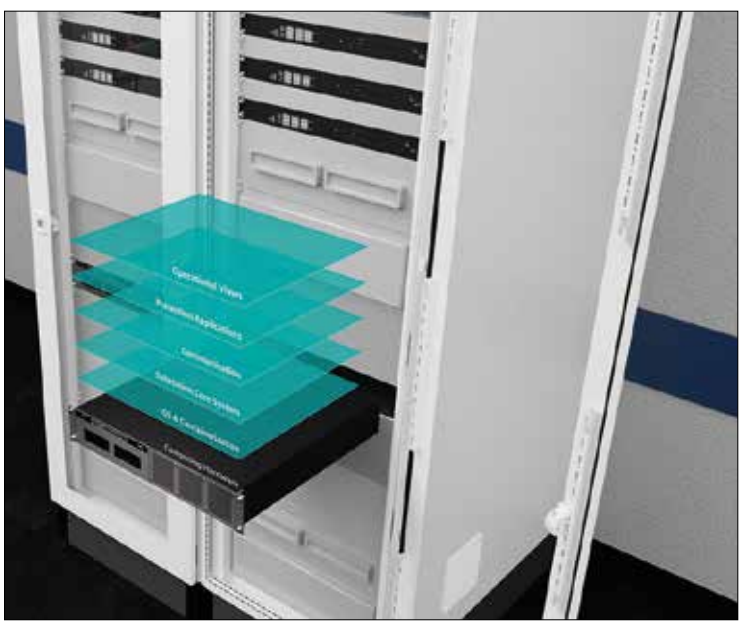
One key area where there has been, and continues to be, technological innovation, is protection and control in power grids – this is crucial for safeguarding critical assets like transformers and circuit-breakers, spanning both high-voltage (transmission level, 230 kV and above) and low-voltage (distribution level, below 35 kV) infrastructure.

Earlier this year, Siemens Smart Infrastructure (Siemens) announced a significant development for the sector with the introduction of Siprotec V, the virtualised version of its Siprotec 5 protection and control device. This innovative solution is designed for digital substations and enables simple, scalable, and secure power grids with up to six months faster project execution.

Siprotec V is the latest phase in the evolution of protection technology, which began with electromechanical relays in roughly 1910. These were advanced with the introduction of static solid-state relays in the 1960s. The next important step saw the first use of digital numerical relays in the 1980s.

Commenting on the next steps leading to this latest innovation, Saurabh Talwar, Global Product Manager for Virtualization and AI, Siemens Smart Infrastructure Siemens, said: "Siemens introduced its Siprotec 5 modular relays around 2012. This is an embedded processor – a physical device that sits in the customer environment. And then around 2018 we had the concept of centralised protection, where one digital numerical relay would be dedicated to 2-3 feeders as opposed to one feeder. But with centralisation, you cannot cover the whole substation. With 20 feeders, you will still need a number of boxes even with the centralised approach."

Siprotec V is the virtualised version of Siemens' Siprotec 5 protection and control device, designed for digital substations



As protection has evolved over time, so have utilities' challenges in terms of power infrastructure. Siemens worked closely with industry in developing the solution to these challenges.

"I had the privilege of working with roughly 20-25 customers early on in this whole product development to try to capture all the challenges our industry is facing. We summarised these into three buckets: increasing grid capacity; pressure to modernise and the people factor," said Talwar.

He explained that the need for more grid capacity is being driven by growing electrification – where, for example, electric vehicles are being introduced on the network – and growing power demand from the data centres needed to handle the surge in artificial intelligence. "Utilities always say: 'we need to double our grid capacity in the next 10 years.' And this is a massive undertaking, especially at the pace at which we are going," he noted.

The industry is also under pressure to modernise an ageing infrastructure, and there is a big expectation that this has to be done rapidly. Talwar said: "Project times must be reduced from say, two years, to perhaps one year or less. And there is a big expectation to do more automation and standardise solutions in our power infrastructure."

All of this, however, requires skilled people, which, says Talwar is "lacking in our industry". He said: "There's a lack of skilled resources and a lot of experts are close to retirement… We cannot ignore the people factor anymore; we need people to do this modernisation so we can catch up with the [needed] grid capacity. If we do nothing, the gap will only widen."

According to Talwar, virtualisation can address these challenges. Virtualisation is a technological term encompassing approaches like containerisation and virtual machine (VM) technology.

For Siemens, virtualisation enables centralisation of the entire electrical substation. "Essentially, with centralisation, we are talking about scalability," said Talwar. "In no way does Siprotec V compete with Siprotec 5. If customers don't want to centralise or scale, they are OK with Siprotec 5 but if they want to scale beyond 10-20 feeders, that's where Siprotec V really shines."

Essentially, the solution supports a transition phase where embedded systems can act as the main system, and virtualised solutions as backup for testing and familiarity.

Talwar also stresses that Siprotec V is not a digital twin. "A digital twin emulates something physical, whereas Siprotec V is a software-defined product. However, a digital twin can connect to Siprotec V to simulate sensors and inject data for testing and validation."

By introducing Siprotec V, Siemens is decoupling the protection application (containing their proprietary algorithms and IP) from the embedded Siprotec 5 physical boxes. These applications are then hosted on an industrial PC or server.

"Crucially, Siemens is not redesigning protection algorithms from scratch. We are reusing proven algorithms from the embedded boxes, ensuring consistent performance and customer experience." said Talwar. "The physical relay is still there but what we are doing, is taking the application out of the physical relay and hosting it in a virtualised environment."

Siemens' solution can host up to 60 virtual protection applications (virtual relays or virtual IEDs – Intelligent Electronic Devices) in one main system. There can also be a backup system of the main to ensure reliability and prevent loss of visibility if one server fails.

In terms of hardware, Siprotec V requires an industrial PC or server certified for substation environments, i.e. complying with 61850-3 or IEEE 1613 standards. Although these servers are commercially available off-the-shelf, Siemens whitelists and validates them for performance.

"It is very important that Siemens whitelists these servers because we have to validate performance – protection is time critical. We have to ensure that it meets certain time parameters and tolerance levels," Talwar explained.

The server uses the Debian Linux operating system (OS), chosen for its robustness in industrial applications. Protection and control applications are deployed on top of the OS, reusing existing Siprotec 5 applications.

According to Siemens, the use of a "bay-wise" (feeder-wise) concept is crucial. This allows individual virtual IEDs per feeder to be taken out of service for maintenance without disrupting other feeders.

The underlying technology is based on "containerisation", where each app is an independent, containerised application.

Talwar explained: "It's just like your iPhone, where the phone itself is the hardware server and the apps that you see on your phone are pretty much the applications for protection and control. You can delete or install an application and one application does not interfere with another – each is containerised in its own environment."

It has a web UI (user interface), which is an inbuilt HMI (Human-Machine Interface) system that allows technicians to interact with the system, view substation layouts, operate equipment (e.g., open/close breakers), and see measurement details and logs. This provides consolidated visibility of the entire substation, unlike embedded boxes which only gave visibility at the individual bay level.

"Since all the applications are consolidated into one server, the UI experience is also consolidated into one large machine, essentially centralising the UI," said Talwar. "It's important to note that this UI is not a SCADA [supervisory control and data acquisition] system. It connects to the SCADA system, which supervises events and alarms, but does not replace it."

Notably, he says Siprotec V is not cloud-based; it is a software solution that sits inside the customer's existing infrastructure.

Virtualisation has several key tangible benefits. Firstly, it enables faster project execution. According to Siemens, turnkey projects (design, fabrication, building, testing, engineering, commissioning) can be accelerated by up to six months when focusing on pre-fabricated pre-engineered protection & control substation building. This is achieved by reducing the number of physical panels needed resulting in a smaller building footprint, leading to an overall compressed timeline.

Describing a typical project, Talwar said: "When we look at the design phase, the engineering phase, fabrication, engineering, testing – all the typical phases in every project that we do – a project of roughly 20-25 protection panels is reduced down to two panels. So, the amount we have to fabricate is less... this means testing can start sooner, which shrinks the overall timeline. On top of this, the reduction in panels means substation space requirements can be drastically reduced by up to 45 per cent."

The second major benefit is cost reduction. According to Siemens, panel costs can be reduced by up to 25 per cent. At the same time, copper cable costs can be reduced by up to 80 per cent due to digitalisation and less physical wiring.

This all adds up to better sustainability. "Less panels, means smaller building footprint, which means less steel, less concrete. And on top of that, less copper cable. If you combine all of this with the other KPIs, it's a better sustainability story," said Talwar. According to Siemens' calculations, the reduction in copper cables also leads to a 50 per cent reduction in carbon emissions per substation.

The virtualisation concept, by providing computing power and resources on an industrial PC/server, enables the hosting of complex AI applications directly in the substation. This aims to make substations "smarter" and help utilities make better decisions.

Talwar noted: "Siemens is actively exploring and working on specific AI applications and will bring them to the market in the near future."

Having announced the virtualisation concept a few months ago, Siemens will make it commercially available some time this year.

Talwar concluded: "We cannot judge uptake in terms of mass deployment in the next 5 or 10 years but will be monitoring the market. We are already in discussions with customers. In the early stages we will definitely be doing a lot of pilot project around the world, and these will continue for the next 3-5 years."



Junior Isles

Fragile: handle with care

As the Strait of Hormuz remains closed, and the war against Ukraine rumbles on, European households and businesses continue to creak under the pressure of astronomical energy prices. In response to the ongoing energy crisis, the European Commission recently issued its AccelerateEU Communication – one part of "a toolbox of targeted temporary measures" to address the recent spikes in the prices of imported fossil fuels arising from the war on Iran. Yet striking the right balance between bringing short-term relief to its consumers, while maintaining long term objectives for the bloc, is a tricky one.

According to the Commission, the Middle East situation has already cost the EU more than €24 billion, about €500 million per day, due to continued dependence on imported fossil fuels. It is no wonder AccelerateEU stresses the need to replace fossil fuel imports with homegrown energy.

But its approach must be careful not to undermine Europe's long-term green transition goals. Pointing to investments in electrification, energy efficiency and interconnections as key priorities, EU competition and climate chief Teresa Ribera, who previously served as Spain's Ecological Transition Minister, said: "There are things that we know we need to do. The earlier we do them, the more opportunities we build and the lower costs we may be facing."

To protect consumers from fossil fuelled price peaks, AccelerateEU allows member states to introduce support schemes, energy vouchers and social leasing schemes and lower excise duties on electricity for vulnerable households. For industrial consumers, the Commission will separately adopt updated State aid rules, allowing member states to support the most exposed economic sectors.

Crucially, the Commission will present legislative proposals on network charges and taxation this month (May), so electricity is taxed less than gas. In addition, the Commission will present an Electrification Action Plan by the summer which will include an electrification target.

AccelerateEU also urges EU member states to implement the European Grids Package, including addressing grid connection queues – there are 400 GW of wind energy capacity currently waiting for grid connections. Solving this is possible: the UK has halved its queues, from 144.5 GW in 2024 to 73.6 GW now.

Finally, AccelerateEU will help member states make the most of their EU funding to decarbonise and electrify. This includes the €219 billion Recovery and Resilience Facility, EU cohesion funds as well as a new €100 billion Industrial Decarbonisation Bank auction.

Ribera stressed that support should focus on structurally lowering energy bills, for example by expanding solar panels, heat pumps and better insulation, rather than relying on emergency measures that risk distorting market signals needed for the green transition.

She also warned against market fragmentation. "We can build on a common menu of solutions that help the long-term transformation that we need so that member states can choose."

Eurelectric, the organisation representing Europe's electricity sector, also warned that striking a balance between short-term fixes and long-term goals will be crucial. In a statement, it said Europe needs to provide immediate relief to consumers and industry but at the same time, it needs to attract investment in clean energy, grids and flexibility if it wants to avoid future crises.

It said "pushing electrification is the only way out of the fossil fuel dependency" but stressed that not all of the Commission's proposed measures achieve the objectives of reducing energy costs and short-term price volatility, while preserving long-term investment signals.

It noted that past interventions such as gas price caps or broad subsidies, including those implemented in Iberia in 2022, have shown they can be distortive to the internal market and deliver limited benefits to consumers.

Looking across the different components of electricity bills, Eurelectric identifies several targeted measures that can lower costs quickly without undermining market functioning.

Taxes and levies is the first area. It says member states can lower VAT in electricity, shift fiscal burdens onto fossil fuels to incentivise electrification or exempt vulnerable consumers.

Removing non-energy-related levies and cross-subsidies would also have a direct impact.

Network tariffs, it says, should also be targeted. Here, regulators can incentivise consumers to optimise capacity use and shift demand away from peak periods.

Carbon costs could also offer immediate support. The European Commission's proposed €30 billion ETS (Emissions Trading Scheme) Investment Booster (funded by 400 million EU allowances) could support industrial consumers. A targeted adjustment of the Market Stability Reserve and related parameters would help industry while preserving the ETS as a credible investment signal. More efficient use of ETS revenues (over €43 billion raised last year alone) is also critical to accelerate decarbonisation and industrial transformation.

Directly targeting energy costs also offers short-term ease. State aid tools, such as the industrial price support proposed in the Clean Industrial State Aid Framework (CISAF), alongside unlocking demand-side flexibility, can bring targeted relief, says Eurelectric.

Beyond these immediate fixes, the organisation says structural solutions include: scaling up electrification, including institutionalising the Industrial Decarbonisation Bank pilot auction with a stronger, dedicated budget; expanding long-term contracts such as Power Purchase Agreements (PPAs) and Contracts for Difference (CfDs) to stabilise retail prices; and accelerating the deployment of clean, homegrown electricity generation, flexibility and storage to reduce Europe's exposure to fossil fuel price volatility.

The "homegrown" energy" element is one that continues to chime strong under current geopolitical tensions. Renewables and energy storage proponents voiced strong support for this element of the AccelerateEU plan, especially as war again demonstrates the fragility of a fossil-dependent system.

WindEurope said that "with AccelerateEU, the Commission is crystal clear": any energy price relief measures must be underpinned by a faster transition to homegrown renewables and a more electrified economy.

"It's wake-up call for member states to finally implement EU permitting rules. And it specifically highlights the role repowering old wind farms can play in boosting renewable power supply," said the organisation.

"Electrification is a strategic imperative for Europe's independence, security, and prosperity. It needs to happen immediately and at scale. We must make homegrown electricity the cheapest option," said Tinne van der Straeten, WindEurope CEO. "This means cutting VAT and taxes on heat pumps, electric vehicles and other electrification technologies. It means addressing the low hanging fruit in low- and medium temperature heat processes. AccelerateEU is bold political leadership in a time of crisis."

Philippe Dumas, Secretary General of EGEC, stated: "The Commission's focus on homegrown energy correctly shines a spotlight on geothermal. It provides the right attention to massively deploy geothermal in Europe. Now it must quickly publish the Geothermal Action Plan to fast-track investments and reduce uncertainty, and save families, businesses, industries and farmers from the energy crisis."

Meanwhile, Energy Storage Europe, said it is key that energy storage is being recognised not only as a decarbonisation enabler but as a strategic competitiveness asset in the EU policy framework.

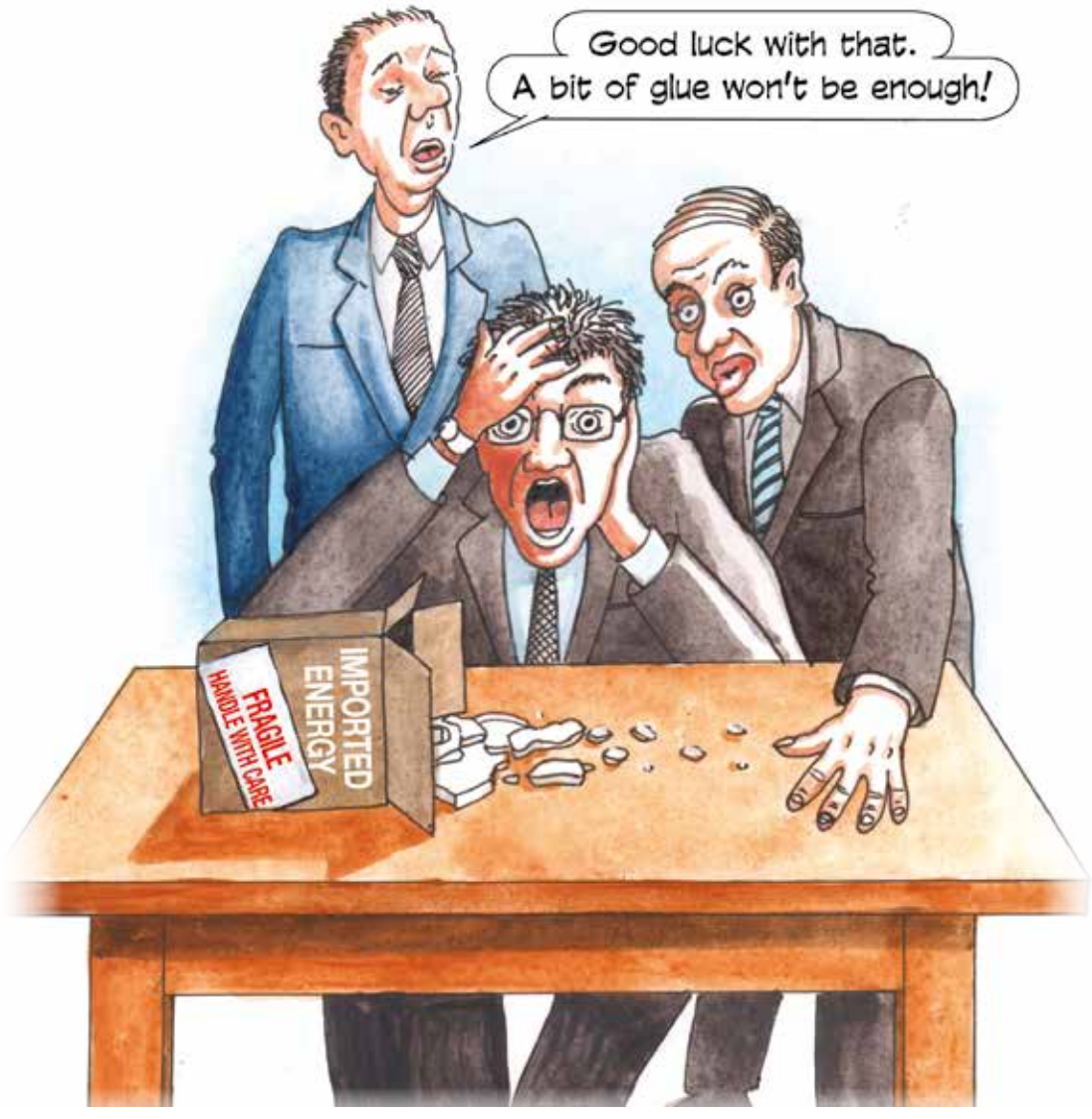
"The recognition that energy storage is no longer a side topic to renewables, but a strategic infrastructure is a far more powerful investment signal than a narrow renewables policy," it said in a statement.

While the EU has a careful path to tread in the coming months, that pathway is clear – and there is no going back. The drive for homegrown energy is likely here to stay and it must be clean.

Fatih Birol, Executive Director of the International Energy Agency (IEA), best summed it up in an interview with the *Guardian* newspaper. He said a key effect of the US-Israel war on Iran was that countries would lose trust in fossil fuels and demand for them would reduce.

"Their perception of risk and reliability will change. Governments will review their energy strategies. There will be a significant boost to renewables and nuclear power and a further shift towards a more electrified future," he said. "And this will cut into the main markets for oil."

Birol said there was no going back from the crisis: "The vase is broken; the damage is done – it will be very difficult to put the pieces back together. This will have permanent consequences for the global energy markets for years to come."



Cartoon by Jem Soar