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Special interview

TEI Times hears how Siemens Energy is supporting the shift from conventional on-site operation and maintenance towards remotely managed, and ultimately autonomous plant operations. *Page 11*



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Governments urged to accelerate renewables in response to global energy price shocks

Douglas: energy systems are "stuck in the past"

As the war in Iran escalates, renewable energy advocates are urging an acceleration of the shift away from fossil fuels to reduce energy price volatility and stop energy from being weaponised. **Junior Isles**

There is a growing call for world leaders to accelerate the transition to renewables as the war on Iran exposes the global economy's dependence on fossil fuels.

Following the US and Israel's attack on Iran, the Global Renewables Alliance (GRA) issued a statement launching a five-step Renewables Action Plan, calling on governments to urgently accelerate renewable energy deployment in response to renewed global energy price shocks.

The statement – endorsed by GRA's six member associations representing the global renewable energy industry: Global Wind Energy Council, Global Solar Council, Green Hydrogen Organisation, Long Duration Energy Storage Council, International Hydro-power Association and International Geothermal Association – warns that

the latest crisis in the Middle East "once again exposes the fragility of a fossil fuel dependent global energy system". It urged governments to "treat the oil and gas price shocks reverberating through the world economy as a pivotal turning point and urgently accelerate the transition to renewable energy".

The GRA noted renewable energy is the fastest and "most cost competitive solution to long-term energy security, resilience and prosperity", and that fast-tracking the deployment of wind, solar, hydro, geothermal and storage projects will protect countries from price volatility and energy market failure.

"Energy crises keep recurring because the global energy system remains stuck in the past," said Bruce Douglas, CEO of GRA.

"The fastest and cheapest way to protect economies and households from price shocks is to accelerate the deployment of renewables, energy efficiency and storage, strengthen grids and electrify end use sectors."

The Renewables Action Plan identifies five priority actions for governments to break the cycle of energy crises: fast track permitting, remove grid and storage bottlenecks, mobilise financing, accelerate electrification, and scale renewable supply chains.

■ **Fast-track emergency permitting:** Accelerate regulatory approvals by urgently streamlining permitting and consenting procedures for renewables and short- and long-duration storage projects to deliver a major expansion of capacity within the next 36 months.

■ **Address grid and storage blockers:** Expand, modernise and optimise

electricity grids and storage systems to integrate new renewable capacity, provide reliability and maximise consumer access to low-cost renewables. Significantly shorten lengthy grid connection queues and accelerate grid access by guaranteeing priority dispatch for renewables.

■ **Mobilise financing now:** Unlock and de-risk public and private investment for renewable energy and storage projects and associated infrastructure, by introducing preferential interest rates and financing, decreasing financial institution lending limits, creating renewable lending windows, and redirecting capital away from carbon intensive industries.

■ **Move swiftly to electrification:** Introduce and implement national

Continued on Page 3

Middle East conflict reignites electricity market design debate

Electricity market design and the price of electricity have again come to the forefront, as energy prices skyrocketed following the joint US-Israeli attack on Iran.

The debate is particularly intense in the UK, where electricity prices are set by the price of gas most of the time. As the UK's wholesale gas price hit a three-year high, Greenpeace UK urged the government to implement plans to decouple the cost of electricity from gas.

Greenpeace has been calling for energy system reforms that would remove gas plants from the wholesale electricity market and place them into a strategic reserve. This would stop expensive gas from setting electricity prices, protect UK bill payers from gas price volatility

and significantly lower bills.

Greenpeace UK Head of Climate Mel Evans said: "We're back on the global gas price rollercoaster, and everyone's feeling sick already. The latest conflict in the Middle East has exposed once again how much of a liability our dependence on gas is. In the UK, gas sets the price of electricity 85 per cent of the time, and the price of gas, including North Sea gas, is set by the market. When we could be looking forward to rapidly increasing solar and wind power on the grid saving us money, instead we face the prospect of energy bills going up again thanks to our rigged pricing system."

"Ministers should take control of our energy bills by removing gas fired power stations from the pricing mechanism and bringing them into a

strategic reserve. This would stop gas from dominating our bills and protect households and businesses from more gas price shocks."

The call came as the debate over the electricity wholesale market reignited, with Commission President Ursula von der Leyen stating that she would bring "different options and findings on whether it is time to move forward with the market design" during a European Council on 19-20 March.

That Council meeting, however, only saw EU leaders call for measures including:

■ a toolbox of targeted temporary measures to address recent price spikes;

■ concrete actions to lower electricity prices and to address excessive volatility in the short-term and also for the

Commission and member states to work together on national temporary and targeted measures to mitigate the impact of fuels on electricity generation costs;

■ a review of the Emissions Trading Scheme (ETS).

Eurelectric warned that temporary interventions should be time-limited, targeted, and designed to avoid market disruptions and hampering investors' confidence. The organisation also stressed that in the long-term, affordability will not come from quick fixes. "It hinges on stronger grids, better interconnections, a stable, well-functioning electricity market that drives investment in clean, homegrown generation and infrastructure, and faster electrification," Eurelectric said in a statement.

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Headline News

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strategies to accelerate end-use electrification and system integration across transport, heating and industry, supported by flexibility markets, demand response and short- and long-duration energy storage. For sectors which cannot be electrified directly with renewables, green hydrogen is the solution.

■ **Scale up supply chains:** Develop robust industrial strategies for supply chain development with clear milestones to expand renewable, grid and storage deployment and stockpiling. Create clear demand signals and offtake frameworks, increase pipeline visibility, and generate long-term revenue certainty, to promote necessary investments in critical manufacturing and labour force capacity.

Meanwhile a new report by Public First, produced in collaboration with the Royal United Services Institute (RUSI) and commissioned by RenewableUK, highlights the importance of investing in, and safeguarding the UK's domestic energy supply as a national security priority, recognising that there are unique benefits to renewables playing the leading role in maintaining a resilient low-cost power system.

The findings draw on a detailed wargame exercise involving experts from COBRA-level emergency planning, the National Energy System Operator (NESO), National Grid, National Gas, the Department for Energy Security and Net Zero, oil and gas companies and renewable energy developers. The authors also conducted interviews with specialists from the Ministry of Defence, NATO and the Alan Turing Institute. Across a wide range of scenarios in the wargame – including geopolitical conflict, extreme weather and infrastructure disruption – the UK continued to supply electricity to households and businesses. However, exposure to global gas markets quickly pushed up bills, leading to increased public spending and political and fiscal uncertainty that could be weaponised by hostile states.

Following Russia's invasion of Ukraine, the UK spent £50 billion supporting consumers, while renewable power supported by fixed-price Contracts for Difference returned money to consumers over the same period. Analysis by University College London estimates that renewables deployment has already saved UK consumers over £100 billion since 2010 by lowering electricity prices and reducing exposure to volatile gas markets.

Separate analysis from Aurora Energy Research showed that as gas markets have become more international, prices have become more volatile month-to-month. When gas prices were more regionally determined, between 2012 and 2019, the typical monthly price spread averaged around 28p/therm. By 2024 and 2025, that figure had risen to over 50p/therm – almost double – underlining how exposure to global gas markets increasingly feeds straight through to volatile household bills.



The Alan Turing Institute supported a study on how energy could be weaponised

Sentiment shifts on net zero timeline

Photo by Quang Nguyen Vinh

- China to cut carbon intensity by 17 per cent by 2030 in latest Five-Year Plan
- Executives see 2070 as more likely net zero timeline

Junior Isles

Global energy and natural resources companies are moderating their expectations on when the world will achieve net zero, as governments dilute their clean energy ambitions.

According to a new report, executives expect the world to reach net zero carbon emissions by 2070 or later – well after the 2050 date proposed by a number of countries.

A survey that polled more than 800 executives globally across oil, gas, utilities, chemicals, mining and agribusiness, shared with the *FT Energy Source* by consultancy Bain, reported that 44 per cent of executives now expect the world will reach net zero emissions by 2070 or later. This marks a significant shift from three years ago

when 45 per cent of respondents forecast the world would meet a net zero target in 2050 or earlier.

Former US President Joe Biden's flagship climate policy, the Inflation Reduction Act (IRA), drove much of the optimism and capital inflows into the country's energy transition industries. Now that the Trump administration has rolled back many of the IRA's clean energy incentives, fewer executives expect the US to be an attractive place for international investments this year.

Executives still expect the global economy to rely on hydrocarbons for at least the next decade, with half of European executives forecasting oil could peak before 2035. But 41 per cent of North American executives don't believe this will happen until

after 2050.

The survey came as China and India, two of the world's top three carbon polluters issued new target for carbon emissions.

In its latest 5-Year Plan, China, which accounts for roughly 30 per cent of global greenhouse gas emissions, set a goal to cut carbon intensity – emissions per unit of GDP – by 17 per cent by the end of the decade. This compares with an 18 per cent reduction for the five years to 2025, a goal that was missed.

Premier Li Qiang said the country would continue to work towards peaking carbon emissions and achieving carbon neutrality, goals respectively set down for 2030 and 2060.

According to E3G, the plan ultimately reflects a delicate balancing act

– sustaining economic growth and industrial competitiveness, while advancing the energy transition.

"Although climate targets remain aligned with long-term goals, they fall short of fully capturing China's capabilities and the pace required globally," said the independent climate-change think-tank.

Meanwhile, in a much delayed plan, which was originally due to be submitted to the UN just over a year ago, India pledged to reduce its CO₂ emissions relative to GDP by 47 per cent by 2035, compared with 2005. It also said renewables would make up 60 per cent of its cumulative installed electricity capacity by 2035 – short of the 70 per cent by 2036 estimate suggested by the country's Central Electricity Authority.

EU Innovation Fund deployment too slow for clean-tech sector, says ECA

The EU Innovation Fund's potential for competitiveness and fighting climate change is being undermined by slow deployment, a new report by the European Court of Auditors (ECA) has concluded.

With a €40 billion estimated budget up to 2030, the fund aims to bring clean technologies to market and support the transition to a climate-neutral economy. However, the fund's deployment has been limited, and its contribution to reducing greenhouse gas emissions has remained modest.

The Innovation Fund, which was launched in 2020, is one of the world's largest programmes for supporting competitiveness in the clean-tech sector through the scaling-up of innovative net zero technologies. It supports the transition to a climate-neutral economy by funding projects in energy-intensive industries, renewable energy, energy storage, and hydrogen, as well as carbon capture, use and storage.

When looking ahead, assessing the performance of the Innovation Fund is

critical. Lessons learned, said the ECA, could help not only to improve the Innovation Fund, but also to inform the design of the proposed €451 billion for the new European Competitiveness Fund under the next long-term EU budget for 2028-2034, which also aims to scale up innovations in strategic technologies.

"The Innovation Fund has strong potential to strengthen the EU's clean-tech innovation and competitiveness while reducing greenhouse gas emissions," said João Leão, the ECA Member in charge of the audit. "However, slow deployment and significant project delays and terminations have limited results so far. To maximise its impact, clear strategic priorities, faster deployment of funds, and more realistic project assessments are needed".

To date, around €13 billion in revenues have been collected. But as of the end of June 2025, almost five years after it was launched, actual payments to projects were only €332 million – less than 1 per cent of the Innovation

Fund's overall budget. The slow deployment is partly due to how the fund is financed: through the EU Emissions Trading System (ETS).

As such revenue depends on carbon market prices, the level of available funding is inherently uncertain, and no mechanism guarantees a minimum level of resources. This uncertainty affects the deployment of funds and, ultimately, the reduction in greenhouse gas emissions. Combined with the long development timelines for projects, this has resulted in substantial funds being accumulated without being spent. To mitigate this, the auditors call for additional measures to be considered with a view to improving budgetary planning and enabling faster deployment of funds.

Many of the projects selected experience delays, and roughly one in five fails before becoming operational, even though the European Commission applies the requisite selection criteria, and processes are generally timely and well documented. Expected

emissions reductions – a key factor in project selection – are calculated using theoretical assumptions. According to the auditors, this approach can lead to optimistic projections and influence which projects receive funding.

By the end of 2024, €12 billion worth of projects had been selected but only five (out of the 208 that had been allocated funding) reported reductions in greenhouse gas emissions. Overall, the fund's project portfolio achieved less than 5 per cent of the emissions reductions that were anticipated.

Against this backdrop, the auditors identified weaknesses in the way project maturity was assessed. Several projects initially evaluated as sufficiently mature were later cancelled or delayed. This suggests that maturity checks did not always reflect the actual readiness of the projects, resulting in deadline extensions and implementation setbacks. The Commission needs to improve project evaluation methods and assess whether greater flexibility is needed.

EU ETS under spotlight as global energy crisis deepens

Several countries are calling for the EU's emissions trading system (ETS) to be suspended to soften its impact on energy markets hit by the closure of the Strait of Hormuz.

The ETS, which accounts for about 11 per cent of energy costs, requires companies to hold allowances to cover their carbon emissions and incentivises them to decarbonise.

Countries more dependent on fossil fuels have targeted carbon costs as gas prices have risen, with Italy's Prime Minister Giorgia Meloni calling for a

suspension of the scheme pending a review this summer. German Chancellor Friedrich Merz also called the ETS system into question in March, prompting a drop in carbon prices by roughly 7 per cent to €71.40/t of CO₂ emitted, although he later softened his stance.

Spain, however, has defended the EU carbon trading system, warning that it would be a "big error" to take it apart to alleviate the energy price shock triggered by the Iran war.

Spain's Energy Minister Sara Aagesen Muñoz told the *FT* that using "this

crisis to change a system that works is irresponsible and a big error", adding: "The ETS needs to last and we can't ignore the lessons learned about the war in Ukraine."

The scheme had also come under pressure in an energy crisis that was exacerbated by the full-scale invasion of Ukraine in 2022, when Russia cut gas supplies to Europe. But the bloc refrained from suspending the carbon market during that period.

Aagesen said the ETS was once again "under threat" but should be preserved

because it had been a "huge success" in promoting green innovation and investment in Europe.

She said she could support measures to make sure ETS proceeds are invested in decarbonisation and to reduce volatility of carbon prices using a stability reserve of carbon credits.

EU members had expressed their concerns ahead of a Council meeting in late March, where EU leaders kept the ETS intact and said the already scheduled review remains on track for July 2026.

Data centre operators go off-grid

- Hyperscalers promise to meet their own power needs
- Gas generation and behind-the-meter arrangements favoured

Photo by Torsten Dettlaff

Janet Wood

US President Donald Trump has announced plans to protect energy customers from the costs of data centre growth.

Saying Americans were concerned that energy demand from AI data centres could unfairly drive up their electric utility bills, he announced: "We're telling the major tech companies that they have the obligation to provide for their own power needs".

The Trump administration said Amazon, Google, Meta, Microsoft, xAI, Oracle and OpenAI would sign such an agreement.

BloombergNEF recently forecast that US data centre demand will more than double by 2035 and a backlash has led to the cancellation of projects across the country.

Rows of natural gas engines have recently been employed to power AI infrastructure and avoid long waits for electricity connections. However, the

result has been a lengthening queue for gas generators, with lead times recently reaching seven years.

A new report from law firm Troutman Pepper Locke noted that developers, hyperscalers, and energy companies are turning to such behind-the-meter and 'island-moded' generation options.

The report cited a recent Electric Reliability Council of Texas (ERCOT) forecast that data centre electricity demand could rise by 22 GW

between 2025 and 2031 – reaching 78 GW, or roughly 36 per cent of total statewide demand.

The report said that wind and solar alone cannot yet provide consistent, 24/7 baseload power at the scale AI requires without substantial overbuild and storage and battery capacity remains limited. Small modular nuclear reactors hold promise but are not yet commercially deployable at scale.

Brandon Lobb, partner in Troutman Pepper Locke's Energy Transactional

Practice Group, said: "AI has shifted the centre of gravity in the energy market. Power availability – not just price – is now the defining variable in digital infrastructure strategy. Off-grid solutions are emerging as a pragmatic response to interconnection delays, reliability demands, and community pressures. Companies that align regulatory strategy, supply chain discipline, and creditworthy partnerships will be best positioned to lead in this next phase of AI growth."

Geothermal support bill crosses US political divide

US Senators John Hickenlooper (Democrat) and Steve Daines (Republican) are launching a bipartisan push to unlock federal funding for next-generation geothermal energy by introducing the "Geothermal Power Opportunity With Expanded Regions Act (Geo POWER) Act". The legislation would establish a new programme at the Department of Energy to provide innovative financing for geothermal projects in regions that have historically lacked viable resources.

"We're on the verge of harnessing a new wave of geothermal energy to meet surging electricity demand, lower prices, and address the climate crisis," Hickenlooper said. "The key

will be in scaling up new, next-generation geothermal projects across the country."

Meanwhile, geothermal company Fervo Energy has closed on \$421 million in non-recourse debt financing for a new plant in Utah.

The project will begin delivering power to the grid this year and plans to reach 100 MW of operating capacity by early 2027. It is fully contracted to sell its power to Southern California Edison and Shell Energy. "Non-recourse financing has historically been considered out of reach for first-of-a-kind projects," said David Ulrey, Chief Financial Officer at Fervo Energy. "Cape Station disrupts that narrative."

Watershed moment for offshore wind in the USA

- TotalEnergies signs deal to switch investment to gas
- Ørsted celebrates first power from Revolution Wind

Janet Wood

TotalEnergies has signed settlement agreements with the US Department of the Interior (DOI) to relinquish two offshore wind area leases awarded in 2022 and will no longer develop offshore wind projects in the USA.

Under the terms of settlement, TotalEnergies will recover the lease fees paid for Carolina Long Bay and New York Bight and will invest an equal amount in the development of US gas and power production and exports.

"TotalEnergies is pleased to sign these settlement agreements with the DOI and to support the Administration's Energy Policy. Considering that the development of offshore wind projects is not in the country's interest, we have decided to renounce offshore

wind development in the United States, in exchange for the reimbursement of the lease fees," said Patrick Pouyanné, Chief Executive Officer of TotalEnergies.

"Furthermore, these agreements, under which we will reinvest the refunded lease fees to finance the construction of the 29 Mt Rio Grande LNG plant and the development of our oil and gas activities, allows us to support the development of US gas production and export. These investments will contribute to supplying Europe with much-needed LNG from the US and provide gas for US data centre development. We believe this is a more efficient use of capital in the United States."

The TotalEnergies settlement comes as Ørsted announced that its Revolution

Wind offshore wind farm has begun delivering electricity to the New England electricity grid, where it will eventually power Rhode Island and Connecticut. Ørsted owns Revolution, which comprises 65 Siemens Gamesa SG 11.0-200 DD wind turbines for a total capacity of 704 MW, with Skyborn Renewables. Full commissioning is expected in the second half of 2026.

The project faced federal stop-work orders during construction, in August and December 2025, which the joint venture between Ørsted and Skyborn Renewables challenged in court.

"Revolution Wind is adding affordable, reliable American-made energy to New England's grid, helping to meet growing energy demand and lower consumer costs," said Amanda Dasch, Chief Development Officer at Ørsted.

Brazil data centres to be wind and solar powered

Latin American data centre provider Ascenty has made a 'strategic move' into a renewable energy partnership with Brazilian developer Casa dos Ventos. The deal, valued at over \$500 million, includes a long-term Power Purchase Agreement (PPA) and an equity stake in wind and solar projects.

DNV, which supported Ascenty during the deal, said that as demand for

data centre capacity is accelerating in Brazil, operators like Ascenty are securing reliable, long-term renewable power to meet their sustainability goals and ensure operational resilience.

Projections in DNV's 2025 'Energy Transition Outlook' that AI could raise global data centre electricity demand from 1.3 per cent to 9 per cent of global consumption by 2060. In Brazil grid

requests are expected to exceed 20 GW within a decade, according to the country's Energy Research Office (EPE).

"Conducting a technical review across both wind and solar assets is essential to support well-grounded decisions for data centres and other off-takers," said Tchiarles Coutinho, Market Area Manager for Latin America, Energy Systems at DNV.

Cuban power grid suffers repeated collapses

Cuba has suffered repeated nationwide power outages as a US oil blockade has put growing pressure on the energy-starved communist regime.

The island's energy ministry confirmed that the national grid had collapsed after a ship carrying Russian fuel, which had been set to deliver it to Cuba in defiance of the US energy embargo, changed course.

Cuba, which relies on imported oil and fuel, has not received any energy shipments since January 9th and has been in talks with the US in an effort to end the blockade. US President Donald Trump has threatened to impose tariffs on any countries that supply the regime.

Cubans have long suffered lengthy partial power outages but conditions

have significantly worsened in recent weeks. Airlines, deprived of fuel, have suspended flights. The Cuban government has invited exiles to invest in and own businesses on the island as part of a larger attempt to boost the fledgling private sector. But a wide-ranging US embargo, which has long been supported by much of the diaspora, would prevent broader trade and investment.



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Nuclear re-emerging in southeast Asian countries

- Indonesia plans to commission first nuclear plant between 2032 and 2034
- Meralco signs MoU to cooperate on advancing nuclear

Syed Ali

A growing number of southeast Asian countries are showing renewed interest in nuclear power to meet future demand, as climate goals and geopolitical unrest weigh down on the electricity sector.

Early last month, Indonesia announced plans to commission its first nuclear power plant between 2032 and 2034, marking a milestone in its long-term energy transition strategy. Secretary-General of the National Energy Council (DEN) Dadan Kusdiana, said the project is part of a broader plan to reach 44 GW of nuclear capacity by 2060, aligned with the country's net zero emissions commitment.

"Of that 44 GW, 35 will generate electricity, while nine will support hydrogen production starting in 2045," Kusdiana explained. The government intends to prioritise small modular reactor (SMR) technology.

Under the National Electricity Planning (RUPTL) 2025–2034, Indonesia's initial target is 500 MW of nuclear generating capacity, strategically deployed from 2032 in Sumatra and Kalimantan.

Kusdiana noted that nuclear energy is re-emerging in Southeast Asia, with ASEAN's five largest energy consumers – Indonesia, Malaysia, the Philippines, Thailand, and Vietnam – exploring nuclear options through the Nuclear Energy Cooperation Sub-sector Network (NEC-SSN).

Following the news, Philippines generator Manila Electric Co. (Meralco) announced that it signed a memorandum of understanding (MoU) with Korea Hydro & Nuclear Power and the Export-Import Bank of Korea to cooperate on advancing nuclear energy development in the Philippines.

Under the MoU, the three entities will explore training programmes,

employee exchanges and knowledge-sharing initiatives to develop technical competency and long-term operational readiness.

"Nuclear energy is a way to diversify our portfolio and reinforce energy security, while offering a degree of insulation from fuel market fluctuations. Complementary to the Philippine government's efforts to lay the groundwork for its nuclear power programme, Meralco is assessing how nuclear can best contribute to our long-term strategy," Meralco Chairman and Chief Executive Manuel Pangilinan said.

In March, Vietnam took another step towards reviving its nuclear energy plans as the government assigned the Ministry of Finance to lead the appraisal of adjustments to the investment policy for the Ninh Thuận 1 Nuclear Power Project.

After completing the appraisal, the council will submit its assessment to

the government for consideration and decision while finalising the necessary documents for submission to the National Assembly. The proposal is expected to be reviewed at the first session of the 16th National Assembly of Việt Nam scheduled for this month (April 2026).

Also in March, the Singaporean government said it is seriously studying the possibilities of having advanced nuclear energy technologies in the country, including small modular reactors (SMRs). It clearly stated, however, that no decision has been made yet and that their focus is solely on researching and assessing the technical feasibility.

Currently, approximately 95 per cent of Singapore's electricity comes from natural gas generation, and natural gas is almost entirely imported.

Furthermore, Singapore has set a goal of achieving net zero emissions by 2050, but the problem is that the

country's renewable energy potential is limited – it lacks hydropower, has limited wind resources, and insufficient land area for large-scale solar energy development.

Elsewhere, Taiwan Power Co (Taipower) last month said it would submit a plan to restart the decommissioned Ma-an-shan Nuclear Power Plant in Pingtung County's Hengchun Township, setting the stage for it to begin generating electricity as early as 2028.

Taiwan People's Party Legislator Liu Shu-pin asked Kung whether the government is considering using nuclear energy as a stable energy source in the event of a wartime blockade.

If China blockaded the Taiwan Strait, Taiwan would exhaust its natural gas reserves in 10 days, its coal reserves in seven weeks and its oil reserves in 20 weeks, leaving only 20 per cent of its power generation capacity, Liu said, citing the results of a war game by a US-based think-tank.

Philippines gears up for offshore wind auction in drive to meet renewables target

The Department of Energy (DOE) is gearing up for the competitive auction of large-scale offshore wind projects in August, with certificates of award targeted for 2027.

Under the timeline for the fifth green energy auction (GEA-5) round, registration for qualified suppliers officially opened on March 2, 2026, and closed on March 16, 2026. This latest auction will see the DOE offer 3300 MW of fixed-bottom offshore wind capacity, with delivery scheduled between 2028 and 2030.

GEA-5's pre-bid activities kicked off following the Energy Regulatory Commission's (ERC) issuance of the final ceiling price, or the maximum allowable bid offers. The ERC set a ceiling price of Peso11/kWh (\$0.18/kWh) for the offshore wind auction, higher than its initially proposed Peso10.3859/kWh.

According to the DOE, the list of potential winning bidders for GEA-5 is expected to be finalised and submitted to Energy Secretary Sharon Garin by September 14, 2026. The potential

winners are slated to be announced by September 23, 2026, with the issuance of certificates of award scheduled for February 2027.

The auction aligns with the government's goal of generating the first kilowatt-hours of offshore wind power before the end of President Marcos' term in 2028.

It also supports the national target of increasing the share of renewables in the power mix to 35 per cent by 2030 and 50 per cent by 2040 from the current 25 per cent.

The DOE's 10-year Green Energy Auction (GEA) Plan will offer 25 GW of renewable generating capacity planned for delivery between 2027 and 2035.

The country's 518 MW of installed wind capacity is entirely onshore. Yet the World Bank estimates the Philippines has up to 178 GW of offshore wind potential (160 GW from floating turbines and 18 GW from fixed-bottom turbines).

In an earlier development, in late February the DOE said it will require

developers with proposed renewable energy (RE) power plants with an installed capacity of at least 10 MW to pair them with energy storage systems (ESS), citing the need to support electricity grid stability and deepen clean energy penetration.

In a department circular dated February 16, 2026, the DOE said it will require all upcoming variable RE plants of this size to include energy storage systems capable of handling at least 20 per cent of the plant's generating capacity.



China's latest Five-Year plan (FYP) has set what are seen as cautious climate goals, against a background that sees the need to maintain economic growth and industrial competitiveness.

Beijing set a goal to cut carbon intensity – emissions per unit of GDP – by 17 per cent by the end of the decade. That compares with an 18 per cent reduction for the five years to 2025, a goal that was missed.

Premier Li Qiang said the country would continue to work towards peaking carbon emissions and achieving carbon neutrality, goals respectively set down for 2030 and 2060. China would balance "economic and social development, the green and low-carbon transition and national energy security" Li told the National People's

Congress last month.

China reported a slight decrease in overall emissions from energy and industry by 0.3 per cent in 2025, according to recent official figures.

Lauri Myllyvirta, co-founder of the Centre for Research on Energy and Clean Air called the FYP targets "underwhelming", noting that they left some room for an increase in overall emissions over the next five years to 2030.

There was "some walking back" of an earlier pledge to reduce coal consumption and instead the plan indicated a plateau. "So, this reflects China's approach of focusing on increasing the supply and reducing the costs to drive emissions down, rather than focusing on strong, measurable emission targets," he said.

Energy think-tank E3G said the plan ultimately reflects a delicate balancing act: sustaining economic growth and industrial competitiveness while advancing the energy transition. Although climate targets remain aligned with long-term goals, they fall short of fully capturing China's capabilities and the pace required globally, it said.

"The challenge ahead will be whether China can maintain momentum in its clean economy while delivering emissions reductions at the scale needed – an outcome that will be critical not only for China, but for the trajectory of global climate action," Lei Xie, China Senior Specialist, Climate Diplomacy & Geopolitics and Linxiao Zhu, Policy Advisor, Global Clean Power Diplomacy, E3G, said in statement.

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Offshore wind expansion boosted by fossil disruption fears

■ UK brings forward CfD allocation round ■ Transmission network expands further offshore

Janet Wood

The UK government has announced that its eighth Contracts for Difference (CfD) allocation round (AR8) will open in July 2026. Up to 18 offshore wind farms could potentially compete in AR8.

RenewableUK Chief Executive Tara Singh said: "Recent global events have shown, yet again, how exposed we remain to shocks in international fossil-fuel markets, and the

best way to reduce that vulnerability is to generate more of our own electricity here in the UK, at the stable prices wind and solar offer."

RenewableUK says the global offshore wind industry is set to reach 100 GW of operational capacity in 2026. There are 374 offshore wind farms operating, up from 347 twelve months ago, and capacity has increased from 82.5 GW to 89.2 GW (fully operational). But 18.8 GW could be delivered in 2026, with projects completing in

China, UK, Germany, USA, Taiwan and Poland. Looking ahead, the report forecasts that 236 GW could be operational worldwide by 2030.

The expansion also requires fast growth in grid infrastructure. Lithuania, Latvia, and Germany are planning a joint offshore interconnector that would enable electricity trading between the Baltic countries and Germany and allow for the integration of up to 2 GW of offshore wind capacity in Lithuania and Latvia.

The energy ministers of the three countries recently signed a joint declaration of intent, paving the way for the development of the Baltic-German PowerLink interconnector.

European grid operator TenneT, meanwhile, plans to more than double its North Sea offshore grid capacity by 2032 to meet the plans of the Netherlands and Germany.

More broadly, offshore grid expansion is being advanced with 10 other North Sea Transmission System

Operators (TSOs) through the Offshore TSO Collaboration (OTC), which presented the first results of a joint study on an integrated offshore grid in April.

Chair Manon van Beek, TenneT's Chief Executive Officer and OTC Chair, commented: "Offshore wind and the North Sea, as our clean energy powerhouse, is not just a climate solution, but a strategic instrument for energy independence and economic competitiveness."

Nuclear fusion start-up wins Bavarian state backing

Proxima Fusion has secured €400 million from its home state of Bavaria to help build a €2 billion fusion test facility. Proxima and Bavaria will each provide 20 per cent of the €2 billion cost, if the German federal government provides the remaining €1.2 billion.

The company hopes the test facility will lead to plans to construct Europe's first commercial fusion plant, at RWE's Gundremmingen site, where a nuclear power station was decommissioned in 2021.

"The potential of fusion technology for the energy supply of the future is enormous. Thanks to an excellent research landscape and the start-ups that

have emerged from it, such as Proxima Fusion, Germany can take on a key role," said Dr. Markus Krebber, Chief Executive of RWE. Proxima Chief Executive Francesco Sciortino told the FT it aimed to complete the commercial plant "within the 2030s".

Chancellor Friedrich Merz previously said that he wanted Germany to build the world's first commercial fusion reactor. Berlin has outlined support for the sector in a federal "Fusion Action Plan" with a pledge of more than €2 billion in investment by 2029, including €755 million for a German fusion industry and pilot plant.

Clean tech groups lobby as EU legislates on 'Made in Europe'

Photo by Karol Cziniega

■ Industrial Accelerator Act welcomed by wind sector
■ Solar thermal and hydrogen groups raise concerns

Janet Wood

Proposals for new EU Industrial Accelerator Act (IAA), aimed at strengthening Europe's economic competitiveness and boosting its clean tech manufacturing capacity, are being scrutinised by the bloc's technology groups. The act aims to ensure the EU has the clean tech needed to maintain Europe's energy security and competitiveness.

Proposals by the European Commission were welcomed by WindEurope Chief Executive Tinne van der Straeten, who said: "Industrial leadership in wind is in Europe's strategic interest. We welcome this important political

signal." He called on legislators to adopt clear and simple text and on national governments to ensure a harmonised implementation of new rules.

The solar thermal industry, however, was disappointed by the IAA. It said it "rightly targets net zero technologies where Europe has lost manufacturing capacity and competitiveness, with the aim of bringing production back to the continent" but warned that by failing to explicitly include solar thermal in 'Made in Europe', public procurement and public support provisions, it "weakens Europe's own clean heat supply chain". Guglielmo Cioni, President of Solar Heat Europe, said: "This is not a sectoral special plea. It is a

consistency check."

Jorgo Chatzimarkakis, CEO of Hydrogen Europe, called on legislators to "strengthen the Act and close the gaps on ambition, scope, and clarity".

He said: "Europe must ensure that its industry can grow, compete, and lead globally in strategic clean technologies like hydrogen."

Chatzimarkakis also noted that key provisions do not sufficiently support lead markets for 'Made in Europe' low-carbon products, although they are said to be "indispensable". He had concerns over implementation, saying the "sheer volume of secondary legislation... foreseen in the Act raises concerns on complexity and uncertainty".

Go-ahead for Spain's green hydrogen project

A green hydrogen project in Spain has secured final investment approval. Moeve, a \$12 billion energy group owned by Mubadala of UAE and US private equity firm Carlyle, has authorised the first phase of what it says will become Europe's largest renewable hydrogen plant, after it secured a connection to the Spanish power grid.

The initial stage of the Andalusian Green Hydrogen Valley development

will mobilise more than €1 billion of investment, including €300 million in EU subsidies, to construct a 300 MW electrolyser alongside new solar and wind generation. Production is due to begin in 2029. Eventually it will have a capacity of 2 GW.

More than 50 green hydrogen projects have been delayed or abandoned in the past two years due to cost and lack of infrastructure. But Moeve

Chief Executive Maarten Wetselaar said: "What we have gone through is a very natural cycle of everybody starting to understand the fundamental economics."

He told the *Financial Times*: "We have not changed plan," adding, "This world is coming, unless we accept that we stop caring about climate change, and I'm happy to put our strategy behind that not happening."

Distribution flexibility helps manage GB system constraints

Great Britain's National Energy System Operator (NESO) and UK Power Networks have combined to dispatch energy from distribution-level generators and batteries specifically to manage transmission network constraints.

The new management option, 'MW Dispatch' means cleaner energy projects can connect to the grid much sooner. MW Dispatch has created a replicable template, and the service is now

open to any new generator or storage asset ready to connect in the region.

Craig Dyke, Director of System Operations, NESO said: "Strong coordination between transmission and distribution is fundamental to delivering a smarter, more flexible energy system that works for all users."

Separately, UKPN has celebrated delivery of 11 GWh of flexibility services through its day-ahead flexibility

market since it launched in 2024. It said the service is aligned with NESO to support coordinated system operation and revenue stacking for flexibility providers.

Michael Kenefick, Grid Services Manager at Ev.energy, said the day-ahead market "has made it quicker and easier to engage EV drivers in local flexibility, enabling them to help the grid and be rewarded".



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International News

Embedded carbon rules could shape hydrogen's future growth

- EU's rules on cross-border carbon affect project viability
- Infrastructure and de-risking could boost green hydrogen

Nadia Weekes

The EU's Carbon Border Adjustment Mechanism (CBAM) has introduced a new layer of scrutiny to the energy transition, affecting how the still-nascent market for cross-border hydrogen develops, according to analysis by energy solutions provider CFP Energy.

As infrastructure gaps, storage limits and weak demand persist, CBAM adds a regulatory overlay, imposing explicit carbon pricing on flows of hydrogen into Europe and shaping which projects and hubs are commercially viable.

"Grey hydrogen is produced using

fossil fuels, so companies importing it will have to pay a carbon tax. CBAM closes that loophole, ensuring clean energy claims are genuine," explains industry analyst George Brown.

Global hydrogen demand in 2024 reached nearly 100 million tonnes (Mt), up 2 per cent from 2023. Low-emissions hydrogen – from renewable electricity or fossil fuels with carbon capture and storage – still accounts for less than 1 per cent of energy supply.

Hydrogen is predominantly used in traditional sectors such as refining, ammonia, methanol and other industrial processes, while emerging uses in transport, shipping and steelmaking

remain marginal.

Southeast Asia illustrates both the promise and fragility of the hydrogen transition. Currently, almost 80 per cent of the hydrogen produced comes from unabated natural gas. By 2030, low-emissions hydrogen capacity could reach 480 kt per year, largely in Indonesia and Malaysia. However, only 6 per cent of announced projects have reached a financial investment decision (FID), while 60 per cent remain at very early planning stages.

By imposing carbon taxation on hydrogen imported into the EU if fossil-based, the CBAM acts as a market-shaping force: it provides price signals that influence investments,

supply chains and which low-emissions hydrogen projects reach FID.

Under the IEA's latest projections, hydrogen production could reach 37 million tonnes per annum (Mtpa) by 2030 – down from earlier projections of 49 Mtpa. Offtake agreements are also sluggish: new long-term contracts totalled 1.7 Mtpa in 2024, down from 2.4 Mtpa in 2023.

According to CFP Energy, the sector needs:

- Consistent, long-term regulation with clear frameworks for quotas, mandates and CBAM integration.
- Contracts for Difference, guarantees and carbon pricing mechanisms to de-risk investment.

■ Infrastructure acceleration around strategic ports, industrial clusters and transport networks.

■ Market credibility through transparent auditing, certification and carbon accounting.

■ International collaboration, including technical and financial support for emerging markets.

"The hydrogen sector continues to make incremental progress, but it is far from its ambitions," says George Brown. "If governments and industry act decisively on demand creation, infrastructure investment and financial de-risking, hydrogen could move from promise to backbone of a decarbonised energy system."

Russia's renewable energy capacity to reach 18.4 GW by 2035

While remaining heavily reliant on conventional and nuclear generation, Russia is gradually building renewable energy installations, according to intelligence firm GlobalData, with cumulative capacity forecast to reach 18.4 GW by 2035, up from 9.8 GW in 2025. This represents a compound annual growth rate (CAGR) of approximately 6.5 per cent.

Wind and solar PV are the principal drivers of renewable expansion in the country.

Onshore wind capacity is projected to increase from 4.3 GW in 2025 to 10.2 GW by 2035, supported by structured capacity supply agreements and domestic equipment localisation policies. Solar PV capacity is expected to rise from 3.1 GW in 2025 to 5.3 GW by 2035, driven primarily by

utility-scale installations across southern and eastern regions.

Renewable capacity additions are being implemented under a capacity supply agreement framework for renewable energy that provides selected wind and solar projects with fixed capacity payments for up to 15 years within the wholesale electricity and capacity market – reducing wholesale price exposure and enhancing long-term revenue predictability.

Domestic content requirements embedded within auction rounds have supported the development of local turbine assembly and solar module production, aligning renewable deployment with broader industrial policy objectives.

Wind and solar expansion are being facilitated in the Volga region of

southern Russia, where grid infrastructure and irradiation levels are favourable.

Thermal generation continues to dominate Russia's power mix. Gas fired capacity is forecast to expand from 143.5 GW in 2025 to approximately 151.2 GW by 2035. Coal capacity is projected to gradually decline over the forecast period, while oil fired capacity should remain largely unchanged. Nuclear power capacity is projected to increase from 26.8 GW in 2025 to 28.6 GW by 2035.

Mohammed Ziauddin, Power Analyst at GlobalData, noted that Russia's renewable energy focus will be on auctions and localisation requirements, with priority given to domestic manufacturing development and selected regional deployment.

Kyrgyzstan to build \$200 million solar power plant

Photo courtesy of pexels

The National Investment Agency has signed a 'stabilisation regime' for the construction of a 325 MW solar power plant in the village of Ak-Kuduk, Naryn region, with preliminary investment estimated at \$200 million.

Deputy Head of the Agency Meerimbek Koichumanov attended the

signing, alongside representatives from Solar Systems and AST Imperial.

The stabilisation regime guarantees that the legal and economic conditions for investors will remain unchanged during the project implementation period, reducing risks and safeguarding investment.

Long duration energy storage faces funding crunch

- LDES struggles to compete with lithium-ion batteries
- Higher cost and limited demand damage prospects

Nadia Weekes

Long-duration energy storage (LDES) grew 49 per cent in 2025, achieving more than 15 GWh installed globally, but still makes up only 6 per cent of energy storage installations, as it faces declining investment and increasing competition from lithium-ion batteries, according to Wood Mackenzie's latest sector report.

A fall in government funding and a collapse in venture capital investment are placing financial pressure on both start-ups and more established players. Between 2021 and 2025, only three companies – Hydrostor, EOS Energy and Form Energy – raised over \$1 billion in funding each.

"LDES technologies are caught in a strategic squeeze," said Jiayue Zheng, managing consultant, energy storage at Wood Mackenzie. With lithium-ion batteries dominating the four- to eight-hour storage market, LDES "lacks sufficient demand and pricing mechanisms to achieve commercial viability."

Revenue certainty is strongest in the UK, Italy, the US and Australia, with technology-specific procurement starting to emerge in Spain, Ireland and Germany. However, most markets lack capacity mechanisms, and multi-day arbitrage alone cannot justify LDES investment.

The report attributes the difficult investment environment to several factors, including high interest rates that make long-payback LDES projects less attractive, and capital competition from AI data centres and grid infrastructure investments. But the biggest threat is the falling cost of lithium-ion batteries.

In China, where 93 per cent of LDES is installed, four-hour lithium-ion battery projects cost \$107/kWh, against \$190/kWh for thermal energy storage and \$201/kWh for compressed air energy storage (CAES).

Vanadium redox flow batteries (VRFB) project costs, while projected to fall by around one-third by 2034, are 240 per cent higher than lithium iron phosphate battery projects for four-

hour duration, explains Priya Shrivastava, research manager, energy storage supply chain at Wood Mackenzie. "The dramatic cost reductions lithium-ion achieved over the past decade will be difficult for emerging LDES technologies to replicate," she said.

Wood Mackenzie expects lithium-ion batteries to hold an 85 per cent share through 2034. Demand for the multi-day storage segment will remain limited, as the two- to eight-hour systems already cover the vast majority of storage needs – multi-day discharge events occur on fewer than 10 days per year in most regions.

A handful of large-scale LDES projects are under development globally, including Highview's 50 MW/300 MWh liquid air energy storage project in the UK, EnergyDome's 20MW/200 MWh CO₂ battery in Italy, and multiple GWh-scale CAES and thermal projects across China. But moving from demonstration to commercial scale deployment will remain challenging without key market design reforms, the report concludes.



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Siemens expands data centre partner ecosystem

- Investment in Emerald AI bridges gap between AI computing demand and grid constraints
- Expanded ecosystem brings computing and power flexibility together to accelerate grid interconnection

Junior Isles

Siemens Smart Infrastructure is expanding its data centre ecosystem through a strategic investment in, and partnership with, Emerald AI, alongside the integration of Fluence battery energy storage solutions, and the addition of collaborative physics-based AI modelling with PhysicsX.

According to Siemens, together these capabilities create flexibility across computing, energy, and infrastructure systems, thereby helping data centre operators connect to the grid faster, scale efficiently, and operate reliably in a power-constrained world.

As AI drives unprecedented demand

for data centre capacity, the industry faces a growing challenge in aligning rapidly expanding computing infrastructure with available power.

“Scaling AI infrastructure isn’t just a computing challenge, it is equally an energy and infrastructure challenge,” said Ruth Gratzke, President of Siemens Smart Infrastructure U.S. “As demand for AI processing accelerates, data centre growth is increasingly constrained by grid capacity and interconnection timelines.

He added: “Addressing this requires complex coordination across both the digital and energy domains. Siemens is actively investing in key technologies and partnerships to expand the ecosystem required to

scale AI responsibly and support the next generation of data centre infrastructure.”

Emerald AI enables AI workloads to shift in time and location to align with grid conditions, allowing data centre demand to respond dynamically to available power. By coordinating when and where AI workloads run alongside dispatching onsite energy resources, this approach helps smooth peak demand, achieves faster and larger grid connections for data centres, and reduces pressure on constrained power infrastructure.

The strategic investment in Emerald AI strengthens Siemens’ ability to introduce flexibility at the computing layer. When combined with Siemens’

expertise in power infrastructure and operational technology, this creates true IT/OT convergence between AI workloads and power systems.

A key element of this expanded ecosystem is the addition of Fluence’s grid-scale energy storage solutions, designed to support the next generation of high-performance AI data centres. As computing clusters grow in size and density, Fluence energy storage solutions enable data centres to accelerate grid connection by shaping load and coordinating ramp rates, making large AI-scale demand more predictable and easier for utilities to approve. This can turn power-constrained locations into viable data centre sites and accelerate time to

power, which can enable deployment of energy storage in months rather than years of grid upgrades.

Fluence’s energy storage solutions can also provide dispatchable, on-site power that aims to enable data centres to operate during grid build-outs, capacity shortfalls, or outages. By supporting consistent power quality and flexible scaling, Fluence can help data centre operators bring capacity online faster while maintaining the reliability required for mission-critical AI workloads.

Strengthening this ecosystem further, Siemens is collaborating with PhysicsX to apply physics AI to the design and operation of data centre power distribution systems.

Engie to buy UK Power Networks

French utility Engie is set to expand its role in supplying power to households and businesses after agreeing to buy UK Power Networks, Britain’s biggest electricity distribution company, for £10.5 billion (\$14 billion).

UK Power Networks is one of five major power distribution networks in Britain, deriving its revenues from a portion of customer bills. It is the largest electricity distribution company in the UK by number of customers, serving 8.5 million households and businesses across London and the south-east of England.

Engie said it would finance the acquisition through €4 billion of asset

sales, new debt and a €3 billion capital raising.

Engie Chief Executive Catherine MacGregor said Britain would become the group’s second-largest contributor of operating profit after France. She pointed to the UK’s “clear decarbonisation and electrification strategy, which goes hand in hand with considerable investment needs in networks and energy infrastructure”.

The utility also raised its 2026 profit targets, saying it expected net income of between €4.6 billion and €5.2 billion this year, up from a previous range of €4.2 billion to €4.8 billion, due to the acquisition.

First Solar predicts dip in revenues under US renewable energy policy

US solar panel manufacturer First Solar says it expects revenues of \$4.9-5.2 billion this year, below analysts’ expectations of \$6.2 billion, as a result of shifting US tariff policy and a slowdown in demand for clean energy.

First Solar’s Chief Financial Officer Alexander R Bradley said he was seeing “a strategic shift by certain players, especially oil and gas and the European utility players, to reallocate capital away from renewable development in the US into some of the more core businesses”.

Following the announcement, the company’s share price slid 13.6 per

cent in late February. Investors were also unnerved by the cancellation of an order for 6.6 GW with Lightsource BP, the largest solar developer in Europe.

The company’s guidance was also hit by the shifting US tariff regime, with its Asian manufacturing operations in India, Malaysia and Vietnam subject to levies on exports to the US of 20-50 per cent since late 2025.

Analysts say appetite for solar energy faces long-term challenges due to rising demand for baseload power for energy-intensive sectors such as data centres and manufacturing.

First Solar’s business, however, will

likely receive a boost with the recent signing of a patent licensing agreement that gives it access to existing issued patents and currently pending patent applications of Oxford Photovoltaics Limited’s (“Oxford PV”) perovskite-based solar technology.

The non-exclusive license paves the way for First Solar to continue advancing its development of photovoltaic (PV) solar devices employing a perovskite semiconductor – the next generation of solar technology – for potential applications in the US utility-scale, commercial and industrial and residential markets.

Rolls-Royce Power Systems continues on growth path

Rolls-Royce Power Systems has increased its adjusted revenue to €5.72 billion (£4.89 billion) in 2025. Driven primarily by strong demand for energy supply solutions for large data centres and the dynamic defence business, the company recorded an increase of 19 per cent over the previous year.

At the same time, the return on sales improved significantly from 13.1 per cent to 17.4 per cent. Adjusted operating profit rose to €995 million (2024: €662 million). Order intake also developed positively, increasing by 21 per cent to €7.14 billion (£6.11 billion).

The company said the figures demonstrate the effectiveness of “the clear strategy, targeted investments and consistent expansion” of industrial capacities – both globally and in Germany.

“Our strategy is working – and our results prove it. Over the past three years, we have increased revenue by 50 per cent, more than doubled our return on sales and tripled our profit,” said Dr Jörg Stratmann, CEO of Rolls-Royce Power Systems AG. “We are

continuing this momentum: we are growing in a targeted manner in markets that are crucial for energy supply, security and technological sovereignty, and are investing a high three-digit million euro amount worldwide in new capacities, technologies and innovations – more than ever before.”

Five initiatives are at the heart of the strategic orientation: energy generation, defence, marine, battery storage and service. They determine where Rolls-Royce Power Systems invests and specifically expands its industrial and technological strengths.

In a separate announcement, in late March Rolls-Royce SMR and Swedish nuclear technology company Studsvik AB signed a Memorandum of Understanding (MoU) to explore further collaboration and broaden their relationship across Studsvik’s full range of services to support the Small Modular Reactor (SMR) programme.

The agreement enables the two companies to evaluate Studsvik’s capabilities and facilities and further explore

ways they can support the future deployment of Rolls-Royce SMR’s ‘factory-built’ nuclear power plant.

Rolls-Royce SMR Chief Executive, Chris Cholerton, said: “This agreement expands our relationship with Studsvik and strengthens our European supply chain, bringing together worldclass expertise to support the rollout of Rolls-Royce SMR technology. Studsvik’s long-standing capabilities in nuclear services make them an ideal partner as we accelerate towards deploying our SMRs across global markets.”

Rolls-Royce SMR continues to build momentum internationally. The company has been selected as the preferred bidder by Great British Energy – Nuclear to deliver the UK’s first SMRs, by European utility ČEZ to deploy up to 3 GW of new nuclear power in the Czech Republic and is one of only two SMR companies to progress to the final stage of Vattenfall’s technology selection process in Sweden.

Tenders, Bids & Contracts

Americas

Turboden to supply WHP plants in USA

Turboden America, a subsidiary of Turboden, a Mitsubishi Heavy Industries company, has been awarded contracts by Tallgrass for three Waste Heat-to-Power (WHP) plants at gas compressor stations in Columbus, Ohio; Chandlersville, Ohio; and St Paul, Indiana.

These projects follow the initial Turboden WHP system procured in 2024 for a facility in Fayette County, Ohio. The combined output of the four installations will be 46.1 MW.

Doosan GTs for US data centres

Doosan Enerbility has signed a contract with an unnamed US company to supply seven 380 MW gas turbines. The turbines will be installed at a data centre currently under construction by the client. Doosan Enerbility plans to deliver the gas turbines and generators sequentially starting in May 2029, supplying one unit each month.

Son Seung-woo, Head of the Power Service Business Group at Doosan Enerbility, said that this contract further strengthens the company's position in the US and global market.

GE Vernova Hitachi to invest in US SMRs

GE Vernova Hitachi, the 50:50 joint venture of GE Vernova and Hitachi Group, will invest \$40 billion to build SMRs in the US states of Tennessee and Alabama. It will also invest \$33 billion in gas fired power plants in the states of Pennsylvania and Texas.

Around \$17 billion will be invested in the 4.3 GW South Mon project being developed by NextEra Energy Resources in southwest Pennsylvania, and \$16 billion will be invested in a 5.2 GW gas fired project in Anderson County, Texas.

Asia-Pacific

Order for first SF₆-free GIS

Hitachi has announced that it has received an order from Chubu Electric Power Grid for Hitachi Energy's EconIQ 550 kV SF₆-free gas-insulated switchgear (GIS). This is set to be the world's first project with 550 kV GIS in which the entire equipment is SF₆-free.

The EconIQ 550-kV GIS reduces CO₂-equivalent emissions from the insulating gas by 99 per cent compared with conventional SF₆-insulated equipment.

In 2024, Chubu Electric Power Grid announced its policy on adopting SF₆-free equipment for each voltage class and decided to introduce SF₆-free GIS for voltages up to 77 kV, as well as SF₆-free circuit breakers rated 275 kV and above. Chubu Electric Power Grid has now chosen to deploy SF₆-free equipment for 550 kV GIS. This equipment will be used in its backbone transmission network.

Malakoff orders GTs for new Malaysian plant

Malakoff has signed a second reservation agreement with Mitsubishi Power for two additional M701JAC gas turbines and generators. It said that the turbines will be deployed at a new 1400 MW combined cycle gas turbine (CCGT) in northern Malaysia.

The new reservation follows the October 2025 reservation of two similar units for Malakoff's recent new 1400 MW gas fired power plant in southern

Malaysia.

Syahrunizam Tan Sri Samsudin, CEO of Malakoff, said: "The signing of the agreement forms part of our commitment to ensuring sufficient capacity as electricity consumption continues to grow.

As Malaysia progresses through its energy transition, energy security remains critical and we remain focused on maintaining dependable supply across our operations."

Vestas to build nacelle assembly plant in Japan

Vestas has signed a memorandum of cooperation with Japan's Ministry of Energy, Trade, and Industry (METI) to build a plant in Japan by fiscal 2029 to assemble wind turbine nacelles.

Vestas has also formulated a road map toward the establishment of a fully integrated nacelle manufacturing base in Japan by fiscal 2039.

METI expects the new base to significantly contribute to ensuring stable supply of zero-carbon electricity. Japan aims to achieve a domestic procurement ratio of 65 per cent or higher by 2040 toward the steady rollout of offshore wind power.

The location of the manufacturing base is not yet known.

GE Vernova expands manufacturing facility

GE Vernova has announced an investment of \$200 million to establish a new transformer manufacturing facility in Hai Phong, Vietnam.

The new facility will manufacture large power transformers for HVDC projects. The Hai Phong facility will be developed in phases, with full operation scheduled for 2028, subject to regulatory approvals.

Philippe Piron, CEO of GE Vernova's Electrification segment, said: "Electrification is accelerating globally, and reliable power infrastructure is increasingly essential to support economic growth and energy security. This investment expands our manufacturing capacity in a region experiencing strong demand growth while reinforcing a diversified supply chain that supports customers across Asia and other regions as needed."

Incinerator boiler retrofit contract in Singapore

Singapore's National Environment Agency (NEA) has awarded a contract to Mitsubishi Heavy Industries (MHI) for boiler retrofit work at the Tuas South Incineration Plant (TSIP) located in the Tuas district in western Singapore. The retrofit aims to stabilise the waste handling capacity of the stoker-type incinerator and extend the facility's operational lifespan.

Expected completion is scheduled for the fourth quarter of 2027. MHI will be responsible for the design, construction, and operational support under this retrofit contract.

Europe

Bilfinger to supervise wind developments in Poland

Bilfinger has won a contract to provide supervision services during the development of the Bałtyk 2 and Bałtyk 3 offshore wind farms in the Polish Baltic Sea, which are a joint effort by Equinor and Polenergia.

Bałtyk 2 and Bałtyk 3 will consist of 100 wind turbines and a total combined capacity of 1440 MW.

Bilfinger will oversee the assembly and installation of the offshore substations, the installation of the wind turbines, the laying of the export cables with a total length of more than 120 km, as well as the landfalls to connect

the turbines to the onshore section. Responsibilities include ensuring compliance with design requirements and permits, and supervision of quality and safety.

Siemens Energy wins PGE gas plant contracts

Polish energy company PGE Polska Grupa Energetyczna has signed agreements for the construction of two gas fired power plants in Poland with Polimex Mostostal, Siemens Energy, and Siemens Energy Global.

The first contract is for a 600 MW open cycle gas turbine plant in Rybnik. The plant is due to be commissioned in January 2030. The EPC contract is valued at €269 million and is coupled with a 12-year, long-term service agreement (LTSA) for the gas turbine valued at €132 million.

The second contract is for a 600 MW gas fired plant in Gryfino due to be commissioned in March 2030. The contract is valued at €260 million. There is also a 12-year LTSA valued at €132 million.

Nordex wins German wind turbine orders

German wind turbine manufacturer Nordex has won a number of orders for wind turbines in Europe.

Prowind has placed two orders for a total of eight N175/6.X wind turbines with a total capacity of 54.4 MW in Germany. These turbines also have a long term service agreement for 20 years. Nordex will supply six wind turbines for the Hogenset wind farm in Lower Saxony and two additional wind turbines for the Fuchtorf project which extends across Lower Saxony and North Rhine-Westphalia. All these turbines will be installed by the end of 2027.

Fehmarn-Mitte has placed two orders for repowering projects on the Baltic Sea island of Fehmarn in Germany. For the two wind farms Fehmarn-Mitte I and Fehmarn-Mitte II, Nordex will supply and install 24 N163/5.X wind turbines with a total capacity of 136.8 MW. The contracts include a 20-year service agreement. Installation is scheduled for summer 2027, with commissioning due in autumn 2027.

Bürgerwind Heek-Strönnfeld has ordered seven N175/6.X wind turbines for the new 49 MW Heek-Strönnfeld community wind farm in North Rhine-Westphalia, Germany. The contract includes a 25-year service contract. Installation is planned for Q2 2027, with commissioning in Q3 2027.

wpd has ordered 40 turbines with a total capacity of 272.9 MW for nine projects in Germany. The order includes a 15-year service agreement. Nordex is supplying a 36 N163/6.X wind turbines and four N175/6.X turbines. The turbines are intended for various wind farms in Mecklenburg-Western Pomerania, North Rhine-Westphalia, Hesse, and Lower Saxony.

Qualitas Energy has ordered eight N163/6.X turbines for a 56 MW wind farm near Bad Hersfeld in Hesse. The order includes a 20-year service agreement. Installation of the first turbine is scheduled for summer 2027, with commissioning planned for end of 2027.

Everllence PrimeServ LTSA for Finnish NPP

Everllence PrimeServ has signed a long-term service agreement (LTSA) with TVO, operator of the Olkiluoto 3 nuclear power plant.

The four-year contract comprises: intermediate maintenance of the emergency units; monthly performance tests of the engines; dismantling,

cleaning, reconditioning and replacement of parts; and reassembly with a maximum completion time of 30 days per unit.

Olkiluoto 3 recently entered operation and is equipped with four Pielstick 18 PA6 B engines as a back-up power source.

Fuel supply contract for Forsmark and Ringhals

ScottishPower has won £600 million of financing from the UK's National Wealth Fund to support development of the Eastern Green Link 4 (EGL4), a 2 GW HVDC cable between Fife in Scotland and Norfolk in England.

EGL4 will be approximately 530 km long. It will enable renewable energy generated in Scotland to be efficiently transported to demand centres in England, and will reduce both grid congestion and constraint costs, where excess energy is unused.

The project forms part of a broader expansion of electricity networks required to meet the UK's clean energy ambitions. According to the National Energy System Operator, around £58 billion of investment will be needed across the UK by 2035 to support a fully decarbonised power

ScottishPower financing for UK power link

Framatome has signed two long-term agreements with Vattenfall Nuclear Fuel (VNF) to supply BWR and PWR fuel assemblies to the Forsmark and Ringhals nuclear power plants. The first fuel delivery is due in 2028.

Framatome will supply its ATRIUM 11 and GAIA fuel assembly designs to VNF, along with shielding fuel assemblies and rod cluster control assemblies.

Vattenfall is the largest electricity producer in Sweden, operating two PWRs at Ringhals nuclear power plant which generates around 17 TWh per year, and three BWRs at Forsmark nuclear power plant, generating about 25 TWh per year.

Akuo to build 220 MWh BESS in Portugal

Akuo will construct a battery energy storage system (BESS) with an 80 MW power capacity and 220 MWh of storage in Borba, Portugal. The system will integrate with the existing Santas solar power plant and is expected to become operational by Q2 2027.

This initiative supports Portugal's goal of reaching 85 per cent renewable energy in total electricity generation by 2030, advancing energy independence and decarbonisation efforts.

International

Egyptian companies to build CCGT plant

Cairo-based Madkour Holding Group and the Egyptian-UAE company GoGas Holding have signed a joint development agreement (JDA) to build a combined cycle gas turbine (CCGT) power generation plant in Nouakchott, Mauritania.

GoGas will develop the CCGT plant, which will use gas from the offshore Banda-Tevet Gas Field, 55 km offshore Nouakchott in southwestern Mauritania.

The first simple cycle phase of the plant is scheduled to begin generating electricity by the end of 2028, with an initial capacity of 200 MW. The second combined cycle phase will increase total capacity to 365 MW and is scheduled for completion by the end of 2029.

The project is the first of its kind in Mauritania. No details have been given on the cost of the project.



Hydrogen

As Hormuz closure drives home fossil fuel volatility, hydrogen promises energy security

The world is facing serious economic ramifications as the US-Israel war on Iran escalates. With 20 per cent of the global supply of oil and LNG trapped inside the Persian Gulf, the importance of alternative fuels is becoming increasingly apparent. And the longer the Strait of Hormuz remains closed, the clearer that realisation will become.

Gary Lakes

History shows that war is a great catalyst for change, and the war in the Persian Gulf is showing that the world's overwhelming reliance on fossil fuels may be a situation that needs to change – and the quicker the better. The shortage of oil and LNG on the international market provoked by the US-Israel war on Iran, has since its start on February 28 moved the world into a period of economic dread. The global economy was strained before the start of the war, but in the weeks since, not a country in the world has failed to experience the worry about the future of energy supply.

Since his return to the US presidency in January 2025, Donald Trump has moved purposefully to dismantle efforts to build and develop alternative energy sources by denying funds and scrapping programmes. Meanwhile, the oil and gas companies that support him have seen their way clear to

conduct their business without heeding the warnings of global warming and climate change – even though it has been shown that in numerous cases, renewable energy is cheaper and more efficient. But the big energy companies have a mode of production that they are reluctant to change – doing so would dig into profit margins.

One of the most promising renewable energies is hydrogen. The energy crisis created by the war has fundamentally altered the trajectory of the hydrogen market, shifting it from a long-term transitional option to one that has become more immediate for the sake of energy security. Ultimately, hydrogen is not an energy source that would need to be shipped halfway around the world by a large, globe-spanning industry.

According to recent comments made by analysts at the international affairs think-tank Chatham House, the war in the Gulf is “exacerbating and sharpening already significant global energy

trends.” Because the burgeoning data centres and AI infrastructure has such a demonstrated need for stable power, hydrogen and dedicated renewable grids are viewed as a means of avoiding the ups and down of the fossil fuel market. But such infrastructure could also work just as well for communities and industrial centres.

Prior to the current crisis, the hydrogen market was entering a consolidation phase. The hype that hydrogen energy experienced earlier this decade was being replaced with a focus on industrial feasibility. Now it appears that feasibility is shifting into practical applications, particularly in China.

China has recently launched a pilot programme designed to expand the industrial use of hydrogen energy. Last month, its Ministry of Industry and Information Technology, plus several other agencies, established a target to reduce the average price of hydrogen to end user to Yuan25 (\$4.00) per kilogram by 2030. And to “advantaged

regions’ the authorities have targeted a price of Yuan15/kg.

The programme will be applied across urban clusters in sectors such as transport and heavy industry, with the aim to double fuel cell vehicle ownership from 2025 levels to 100 000 units in five years – a sizeable increase for the still nascent sector, a report in the *South China Morning Post* said.

A notice by the ministry said the programme will “construct renewable hydrogen production projects to gradually replace existing hydrogen production using coal, natural gas and other fossil energy,” the report said.

China, and most other Asian nations import much of their oil and gas from the Middle East, and the war is demonstrating just how volatile – like a habitually volatile energy source like oil and gas – can be.

Global hydrogen demand exceeds 95 million tons annually. But this is ‘grey’ hydrogen which is produced using fossil fuels to generate the process. Green

hydrogen, produced by a renewable source of energy such as solar or wind, accounts for about 1 per cent of total output.

With all factors of production taken into consideration, the cost for green hydrogen remains expensive: at about \$3.00-\$6.00/kg, compared to \$1.00-\$2.00/kg for grey hydrogen. But in places like China and India costs are falling to near \$2.00/kg due to massive electrolyser deployments, according to online research.

With the Strait of Hormuz now closed and the prospect of its reopening unknown, it can only be expected that there will be structural shifts to accelerate the development of hydrogen. For governments, it is a way towards achieving energy sovereignty. By using domestic renewable power to create green hydrogen, countries can supply their industries, urban centres and rural communities from nearby facilities, enabling regional independence and wider cooperation.

Gas

Global energy disruption stands at brink of global energy crisis

The US-Israel war on Iran has brought a world of pain to the global gas markets and it is likely to bring even more serious consequences to Gulf producers and international consumers as an end to the war remains beyond the horizon.

Gary Lakes

The joint US-Israel military campaign against Iran, which began on February 28, 2026, has triggered the most significant global energy disruption since the 1970s. The conflict has moved beyond a localised military strike into a systemic crisis for global oil and gas markets, primarily due to the functional closure of the Strait of Hormuz.

With the Strait closed, about 20 per cent of global oil supply and 20 per cent of LNG supply have been taken off the international markets prompting increases in their prices.

Crude oil is currently around \$110/b, compared to about \$65/b before the start of the war. Numerous analysts have speculated that if the Strait continues to be closed, oil prices could reach \$150/b and higher.

The European gas price (TTF) is about €60/MWh compared to €30/MWh in late February. There is strong upward pressure on LNG because a

significant part of global supply comes from Qatar.

Europe and Asia face seeing a serious drop in LNG supply because they rely on Qatar for a big portion of supply. The US and Australia are other big suppliers, and consuming countries have moved to line up alternative supply from them. After a harsh winter, European gas storage is as low as 30 per cent of capacity. With LNG scarce, there is the risk of being unable to refill stocks, industrial slowdowns and soaring electricity costs.

QatarEnergy declared *force majeure* on all exports in early March when Iran began to fire missiles across the Persian Gulf at US targets in retaliation for US and Israel airstrikes on Iranian leaders and military assets. Following an Israeli airstrike on Iran's South Pars gas facilities, Iran struck Qatar's LNG facilities.

Saad al-Kaabi, the CEO of QatarEnergy, said the attacks have knocked out 17 per cent of the state-owned

company's LNG production capacity. This will result in an estimated \$20 billion in lost annual revenue and it threatens supplies to Europe and Asia, according to Kaabi.

Kaabi said two of its 14 LNG trains at the massive Ras Laffan gas processing location were damaged along with one of its GTL (gas-to-liquids) plants. The attacks have removed production of some 12.8 million tons per year (million t/y) from the market and will take between three and five years to rebuild, Kaabi said.

Qatar produces 88 million t/y of LNG and is in the process of expanding annual output to 122 million t/y. The expansion project has been put on indefinite hold.

“I never in my wildest dreams would have thought that Qatar would be – Qatar and the region – in such an attack, especially from a brotherly Muslim country in the month of Ramadan, attacking us in this way,” Kaabi told *Reuters*.

Kaabi said long-term contracts that run for up to five years may see declarations of *force majeure* and delay deliveries to Italy, Belgium, South Korea, and China, because of the damaged trains.

“I mean, these are long-term contracts that we have to declare *force majeure*. We already declared, but that was a shorter term. Now it's whatever the period is,” he said.

Iran had warned that it would not attack energy infrastructure in the Persian Gulf as long as its own energy infrastructure was not targeted.

The Israeli attack on South Pars pushed Iran outside that parameter, resulting with attacks not only on Qatar's Ras Laffan, the world's largest LNG hub, but also on Saudi Arabia's 402 000 bpd refinery at Yanbu on the Red Sea, Kuwait's Mina Abdullah and Mina al-Ahmadi refineries, and the UAE's Habsan gas facilities.

Bahrain's Sitra refinery was hit earlier in the war by Iranian missiles or

drones targeting US naval facilities there.

US President Donald Trump, seeing the economic damage that the closure of the Strait of Hormuz is doing to the global economy, has tried numerous approaches with the intent of seeing Iran lift its blockade of the strait, but with little avail.

He has called for NATO allies and allies in the Far East and Australia to assist with its reopening, but until now they have declined.

Trump's latest attempt is a threat as of March 22 that would have Iran open the Strait or suffer attacks on its power generation system, an act that would likely do more harm to the Iranian public than the regime. And as an attack on Iran's energy infrastructure, Iran, which despite three weeks of bombing appears to continue to possess the means to launch drone and missile attacks, would likely retaliate by striking the energy infrastructure in the Arab Gulf states.

II | Special Interview



Achieving reliable and efficient power plant operation is becoming increasingly difficult as the energy landscape transforms. Plant operators need solutions that reduce staffing pressure, stabilise costs, and maintain plant readiness under all operating models. Dr. Waheed Abbasi, Senior Vice President of Gas Services Europe & Africa at Siemens Energy, explains how the company is supporting the shift from conventional on-site operation and maintenance towards remotely managed, and ultimately autonomous plant operations. **Junior Isles**

The drive towards decarbonisation has changed the power generation landscape over the last decade or so and, with the falling cost of renewables, will continue to do so for years to come. Many countries have set net zero targets and European countries are among the frontrunners in the drive to achieve net zero carbon emissions by 2050.

The shift to clean renewables – mostly intermittent wind and solar – has resulted in conventional plant, originally designed to operate at baseload, changing their operating regimes to run for fewer hours. This in itself has brought significant

challenges to power plant operators.

Waheed Abbasi, SVP Gas Services EU & Africa at Siemens Energy, commented: “The traditional generation business – whether it’s coal or gas – still has a role to play in supporting the transition to renewables. And with gas being cleaner than coal, there has been a demand for faster [starting and ramping] power plants. Not necessarily for baseload, but for maintaining grid stability and providing peaking capacity when there is no solar or wind.”

This new type of operating regime can shorten equipment lifespan and therefore increase operation and maintenance (O&M) costs. But in the changing energy system, there is greater competitive pressure, which in turn creates a need to optimise.

“You have to optimise your operations and how you do things,” said Abbasi. “This puts pressure on costs as well as how you respond to market requirements.” Using a peaking plant as an example, he said: “You may not need to run the plant for one or two weeks. But that doesn’t mean the plant does not need to be maintained. The dispatcher will call for power, and you may have around 30 minutes to have the plant up and running. So, it has to be always ready.”

“But the question is: if you have a fully staffed plant, how do you pay for all the people and things you need to do for a normal [baseload] plant when you are rarely running the plant? This is the dilemma a plant owner or operator has to think about. It is about how to maximise your asset utilisation while ensuring reliable, safe compliance and immediate availability.”

Although the resulting increased O&M costs of running a gas fired

plant in this way are one element, the demand for people with the right skills to work in these plants is “causing all sorts of challenges”.

Abbasi explained: “For example, our capacity is limited and we are increasing that capacity. So, we will look for people and resources to work in our factories. But we are competing with the power plants, since they need similar skilled people. So, there’s a skills gap in terms of capability.”

At plant manager level the challenge is even greater, where specialist knowledge and experience are needed.

“The plant manager is like the captain of the ship – they need to know all the regulatory requirements, how to operate the plant, not only for the year but over the next few years. So, they need to have integral knowledge of the plant but also need to know what is happening in the energy landscape so the plant can be readied for the type of operation that is required in the future.”

Balancing the need for skilled staff, and whether those staff are even needed, against the cost pressures that come with operating a plant initially designed to run 24/7 but now operates only when required, is a tricky task.

Although striking the right balance depends on the plant owner’s operating model, Abbasi notes that Siemens Energy is “in the game to help customers find solutions that meet their needs”.

“In the past the requirement was for baseload, efficient plant, so we tailored our solution to that. Now we see a change in many markets, due to the energy transition, so our customers’ models are changing. So instead of being a product provider we are in a co-creation mode where we discuss

their needs and tailor a solution to them,” he said.

Such tailored solutions essentially mean developing plant control systems capable of handling the tasks needed to run an asset that must be reliable and available. These tasks can be divided into two areas – the operational tasks and maintenance tasks. To run the plant, the operator has to ensure that all the maintenance tasks have been carried out – this covers both preventative maintenance and monitoring.

“There are a lot of things involved in the operations aspect,” said Abbasi. “They include maintaining all the EHS [environment, health and safety] requirements, and all the ISO standards that need to be met in the various locations – and each location has its own regulatory requirements. Emissions have to be monitored and reported proactively.”

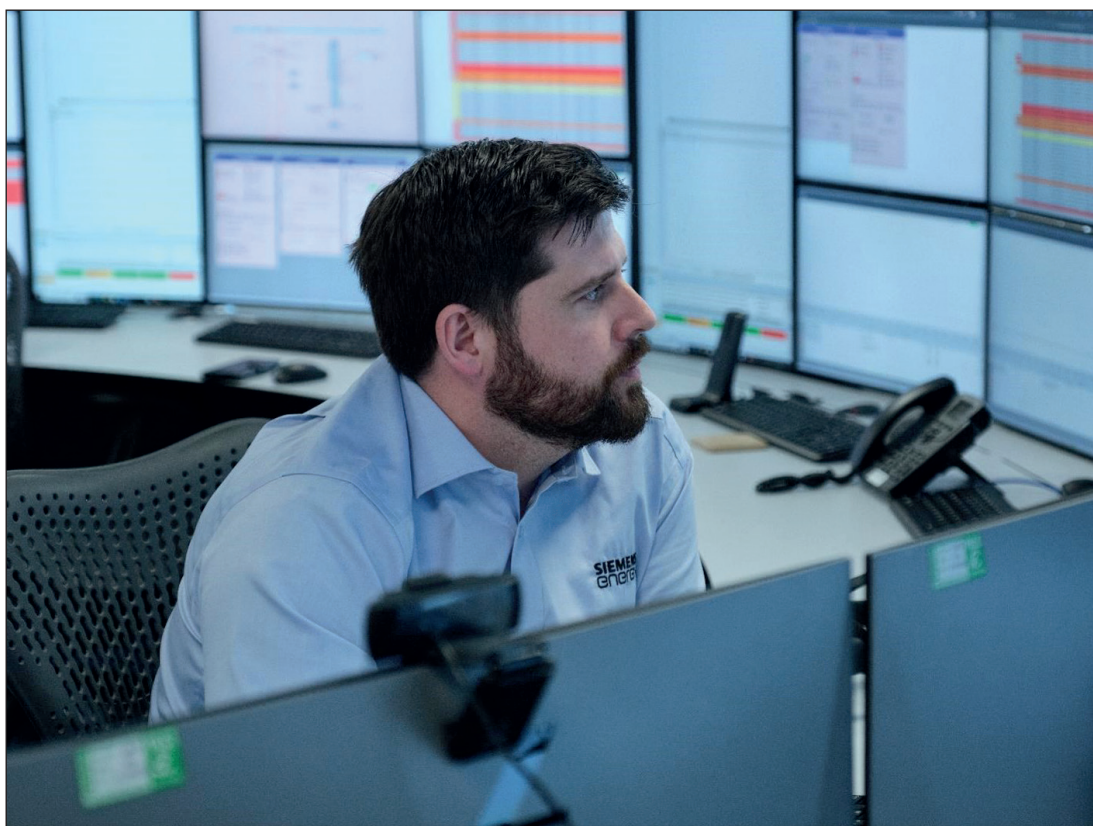
On top of this, he noted that as personnel change, staff need continuous development. “The plant operation is really the backbone of the plant. Without this central role, things will not run. It’s a very unique role and it’s not easy to find qualified people. Often, they work beyond retirement because there is such a demand for them. And we often seek advice from them because of the need for their experience.”

These are the challenges that Siemens Energy is trying to help its customers with by developing systems that are automated and ultimately autonomous.

Typically, in the past a gas fired combined cycle gas turbine (CCGT) would be run by around 35-40 people, varying slightly according to whether it is owned by an independent power producer or government utility. But

Abbasi: It is about how to maximise asset utilisation while ensuring reliable, safe compliance and immediate availability





The Remote Operational and Control Centre in Newcastle, UK, will control three of Drax Group's power plants

generally, the move is towards greater optimisation of resources.

Giving an example, Abbasi said: "A traditional control system of the past was not like it is today. Now you have artificial intelligence (AI) tools and all the incoming information that allows you to react faster and plan a lot of things in advance. Today you have more knowhow and knowledge of your machine. So, less people are required to monitor it, and this is what we are driving towards – where the system can autonomously take care of things for you."

Such systems are evolving but full autonomy is not yet a reality. Abbasi compared it to self-driving cars: "We need the technology and we see it in the future but we're not there yet. We are developing it phase-by-phase. You start small – at equipment level you have automation, then you bring it to plant level automation."

A plant, however, is only one of the pieces connected to the grid, which is an ecosystem. "It's like an autonomous car on a street that connects all the cars around it in an ecosystem," said Abbasi. "So, it's about how we integrate into an ecosystem. That's why it's a journey of automation and digitalisation. We have solutions at the equipment level and plant level, which brings opportunities to optimise, automate and do unmanned tasks. But the final result depends on how the whole system integrates."

Control system capabilities have advanced tremendously over the last years, as processing power has increased, to allow real-time data analysis and automation. "Today there is tremendous computing power with processors that work in nanoseconds," said Abbasi. "So, the evolution of computing technology has given us much greater ability to automate."

Certainly, real-time automation has changed how systems can be controlled. Combining real-time data analysis with machine learning and AI allows control systems to make adjustments in real-time.

"The technology has given us the tools to develop AI systems that can monitor all the data coming from the sensors – not only from the turbine but from the plant. For example, you can look at emissions such as NOx, vibration data and decide to either keep a unit running or shut it down in a controlled manner," said Abbasi.

He added: "Because an AI system can handle as many inputs as you can give it, it can make decisions that are

far more informed and comprehensive than a human can make."

Siemens Energy's cooperation with Drax Group over the years is a good example of how far control systems

have come. Siemens Energy had long term service agreements (LTSA) with Drax, covering turbines at three UK open-cycle power plants – Hirwaun, Progress and Millbrook. When Drax decided the units would be used for peaking operation, it issued an open tender for each plant's operation and maintenance.

Building on the existing service agreement and drawing on its broad power plant equipment and plant control expertise, Siemens Energy came up with the concept of remotely operating the three plants from its Remote Operational and Control Center in Newcastle.

"I believe it was this concept that helped us win the tender," said Abbasi. "We then developed the solution with them, with the goal of making the plants reliable and available so they can dispatch when needed."

The remote operating centre will control three SGT4000F gas turbines and grid technology equipment, managing large amounts of data from disparate systems to enable complicated decision-making in both operations and market participation.

This type of remote operation is especially welcomed by independent power producers (IPPs) looking for new models that allow them to optimise their operations.

Abbasi explained: "The historical baseload models no longer work, so they come to us to help create a solution that meets their requirements for the grid. The tender could be for a

peaker that has to make a specified number of starts at short notice for a certain period of time, and they get paid for doing this. But those payments are not the same for being baseloaded, so they have to optimise."

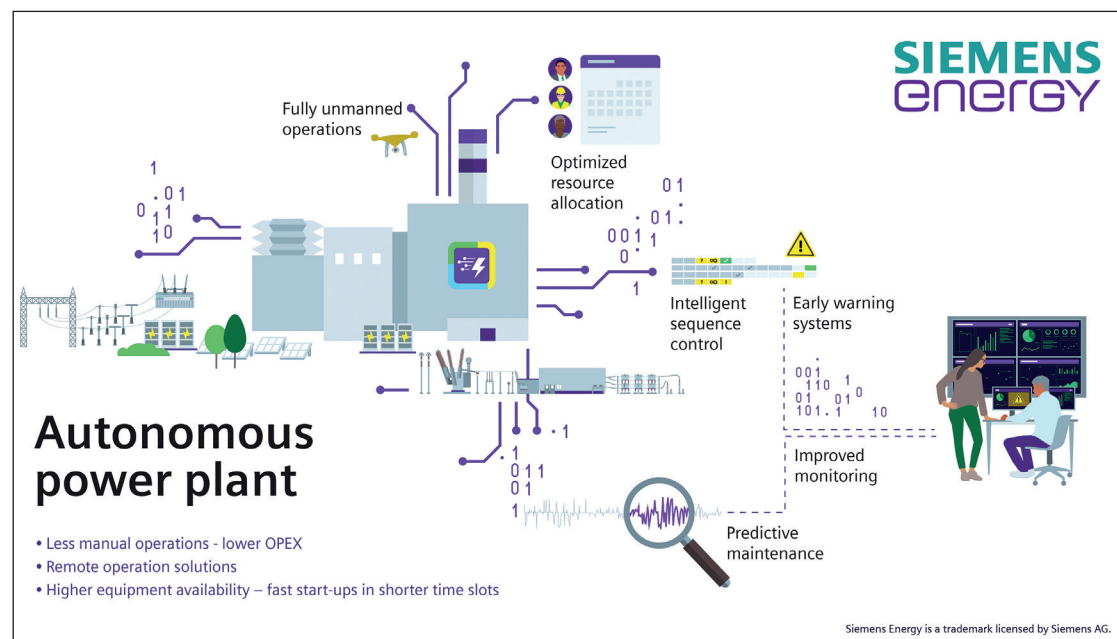
With the need to be commercially successful, one clear goal is to reduce the number of operating staff – with the 'holy grail' being a plant that can operate autonomously. According to Abbasi, there are a few critical challenges on the road to this goal.

"Safety is super-critical," he said. "Everything starts with securing the safety of people, and secondly the safety of equipment. This is fundamental. You can also argue that safety includes cybersecurity because people will try to hack the system to destroy it. Then it's about what you deliver, i.e. availability and reliability."

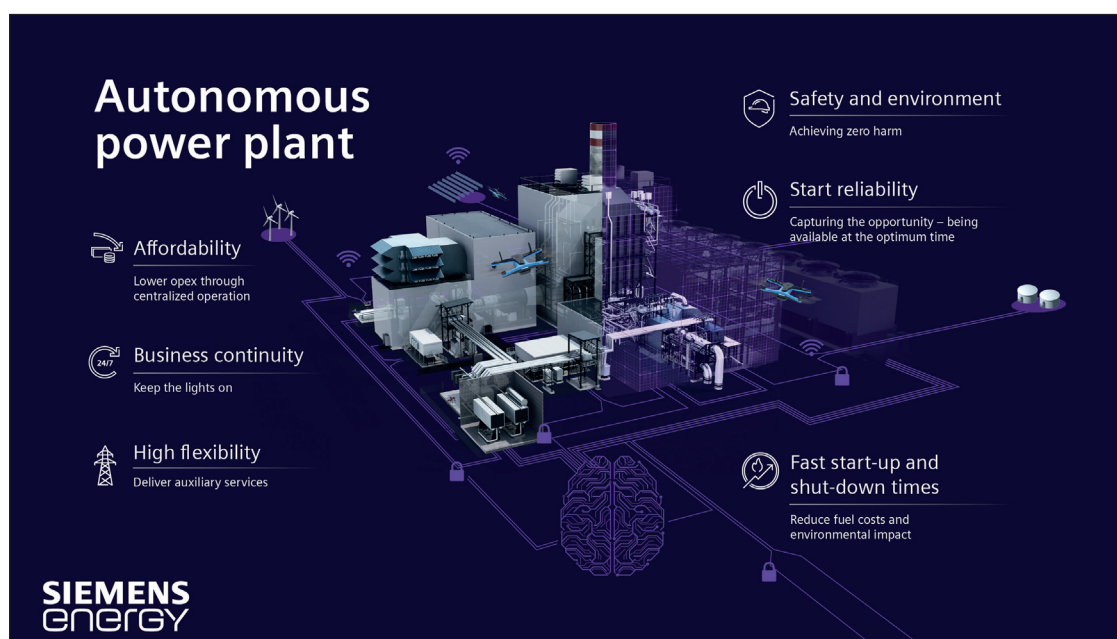
"Another aspect might be operational excellence – how you run it. You don't want to exceed emissions or operate the machine in a way that results in extraordinary maintenance, because that adds to the cost. And you want to look into the future to see the preventative things you can do to fend off potential problems. The control system of the future has to do all of this."

Such a system is the first level of autonomy, whereby it can look at all the data coming from sensors to make the decisions that would normally be made by maintenance staff and operators.

"The system would tell you that you



Siemens Energy is developing systems that are automated and ultimately autonomous



Autonomy requires more than software; it requires a control system engineered for safe, independent decision-making

The Wolfsburg power plant control system enables the plant to be run unmanned for 72 hours



need to maintain or inspect a piece of equipment in, say, 1000 hours, to prevent an event. So when you are offline, you can do it anytime when you have time," said Abbasi.

He noted that the operational part of system autonomy is much more achievable in the near term. Achieving autonomous maintenance is, however, further in the future. Much depends on what the plant owner is trying to achieve.

"At the end of the day, what is the vision? It could be that you design systems that self-maintain. But some systems cannot be self-maintained, which means intervention from a human or a robot. We are already doing exterior visual inspections using drones, with a system detecting if something's wrong based on visual feedback. The next decade will be about how you integrate automation, which can be robotic."

As the industry evolves, remote O&M naturally transitions into unmanned operations, where digital intelligence handles routine decisions and safeguards the plant. However, autonomy requires more than software, it requires a control system engineered for safe, independent decision-making.

Siemens Energy's approach to autonomy has so far seen the development of:

- Intelligent control systems capable

of managing complex load changes in real-time

- Built-in safety functions that trigger controlled, protective shutdowns, not abrupt trips

- Flexible driving modes and reliability-enhancing upgrades

- Integrated digital tools, training, and consulting to help plant teams master new operating models

According to the company, this is where its Omnivise T3000 sets the benchmark. The system was first introduced decades ago but has evolved significantly.

Commenting on the T3000's capabilities and its development over the years, Abbasi said: "From my perspective, the evolution has been quite drastic because the backbone is very reliable. It has multiple layers of cybersecurity built into it; all of the features in the control system have been tested, and they work."

"Now we are looking at how it's evolving in terms of its capability to operate and automate. We are doing this through test cases with customers."

He cited one case where Siemens Energy was asked to explore how its control system could improve a plant's efficiency, i.e. burn less gas to deliver the same power output. The company developed a tailored plant control system that allowed Dubai Electricity and Water Authority

(DEWA) to significantly improve efficiency at the Jebel Ali Power and Desalination Complex.

Together, Siemens Energy and DEWA implemented what is claimed to be the world's first AI Plant Intelligent Controller. The system delivered significant results, including a 2.2 per cent improvement in efficiency and fuel savings, in addition to a reduction of 35 000 tonnes of carbon emissions per year for each power block.

Following these exceptional results, in October last year the two companies signed a new agreement to implement the second phase of the project in M-Station Power Blocks 20 & 30 at the complex.

In another project that moves the industry even further forward in terms of what control systems can ultimately enable, Siemens Energy undertook a pioneering project in Germany.

The transformation of Volkswagen's historic Wolfsburg cogeneration plant, modernised from a coal fired landmark into an advanced gas fired facility, represented another important milestone in the journey to autonomous operation. In modernising the plant, which provides electricity to VW's manufacturing facilities as well as to the city of Wolfsburg, VW wanted to have a plant that could run unattended for three days.

The challenge saw Siemens Energy and VW agree on a groundbreaking initiative known as the 72 hour operation without constant supervision (BosB72), with the goal of designing a control system that could run unattended for 72 hours, responding to remote commands and managing safe, controlled power plant shutdowns autonomously.

The modernisation saw Siemens Energy implement a comprehensive and innovative solution based on two SGT-800 gas turbines and the state-of-the-art control system Omnivise T3000. This digital control system was the key to enabling BosB72 functionality.

"Here, we had to deliver a solution based on certain customer requirements defined as BosB72. This was all audited by a third party to ensure that we complied with the requirements," said Abbasi. "Our objective was to work with the customer to develop a control mechanism and system that could run with no human intervention. It had to have the capability to see any issues, react to them and adjust the operation; or shut it down safely if necessary."

"What made this project exceptional is not simply that the plant can run unattended for three days, rather that it operates on a system able to think, adapt and respond autonomously."

To achieve this, the journey began with an assessment between Volkswagen, Siemens Energy and an independent inspection authority. Together, they conducted in-depth analyses and evaluated logistical site constraints to ensure compliance with every safety regulation.

This validation phase demonstrated Siemens Energy's "partner-educator" approach. "We don't just deliver a solution, we help shape it, test it, and tailor it to real world conditions," said the company.

The Omnivise T3000 enabled the plant to:

- Autonomously respond to remote load commands for electricity and heat
- Execute controlled shutdowns in emergencies to prevent damage and maintain availability

- Free-up staff to focus on critical maintenance or manage personnel shortages more effectively.

While the control system has the Omnivise T3000 at its core, it has custom-built modules designed for the plant. These modules, says Siemens Energy, are developed and "trained" using a mix of data from the turbines at Wolfsburg, as well as experience from Siemens Energy's wider fleet.

"AI is not only leveraging data from this particular plant; we also have the know-how from hundreds of operational units," said Abbasi.

With the concept proved at Wolfsburg, Siemens Energy plans to continue to develop systems that will enable its customers to meet the changing operational demands of the new energy landscape.

"The integration of renewables into the grid will require a lot of adjustment in the control systems and how you operate and manage them. Our systems will help customers integrate all their assets, and manage and dispatch them. We will be leveraging AI to help integrate wind, solar and their other assets and optimise their dispatch. This is where the future is going," said Abbasi.

He concluded: "I'm super-excited about the energy transition. Just two years ago we were projecting energy demand growth of 65-70 GW per annum for our gas business but today we easily see it hitting triple digits. As a major OEM, we have a role to play in this transition, and we want to ensure we have the solutions our customers are looking for."

The transformation of Volkswagen's Wolfsburg cogeneration plant, from a coal fired landmark into a gas fired facility, is an important milestone in the journey to autonomous operation



Iran: accelerating the energy transition

The Iran conflict has disrupted global energy markets, suddenly sparking many questions about the energy transition. The price shock and supply risks have pushed clean energy to the centre of global strategy. What looked like a setback has clearly instead become a catalyst. **Joseph Jacobelli.**

The Iran war's disruption of fossil fuel supplies, including the threat to oil and gas shipments through the Strait of Hormuz, has exposed the fragility of a system still dependent on geopolitically vulnerable resources. Brent crude prices surged above \$110 per barrel in early 2026, versus an average of just under \$70 in 2025. LNG exports from Qatar faced curtailment after attacks on critical infrastructure, according to S&P Global. The disruptions are not merely a short-term shock. There are diverging views among experts on the magnitude of the conflict's impact on global energy markets, yet most agree the impact is significant. They are a reminder of the strategic risks tied to fossil fuel dependence.

Global decarbonisation and the energy transition were already advancing rapidly prior to the conflict. Clean energy investment hit a record \$3.3 trillion in 2025, with two-thirds directed toward renewables, grids, and storage, according to the International Energy Agency (IEA). The conflict's most immediate economic impact is the sharp rise in fossil fuel prices, which strengthens the case for clean energy. Solar, wind, and battery storage are now cheaper than fossil fuel alternatives in over 90 per cent of new projects globally, reports the IEA's 2026 'World Energy Outlook'.

The cost of lithium-ion battery storage fell by about 30 per cent in 2025, year-on-year, to around \$78/MWh, according to BloombergNEF, making renewable energy systems with storage increasingly viable for grid stability. For example, Europe's utility-scale battery storage deployments increased by about 45 per cent year-on-year in 2025, according to several reports published in early 2026, as governments and utilities sought to balance intermittent renewable generation.

Higher fossil fuel prices further improve the economics of renewables, which offer predictable, long-term costs once deployed. Corporations are responding by accelerating sustainability commitments: by early 2026, about 15 per cent of Fortune Global 500 companies had joined the RE100 initiative, pledging to source 100 per cent renewable electricity. This is part of a broader trend where nearly half (45 per cent) of the Fortune Global 500 have now set formal net zero targets, according to data from Climate Impact Partners. This represents an increase, despite significant political negativity in some jurisdictions, such as the United States.

Financing tools are now better equipped to support the green shift. Climate finance has evolved into a roughly \$2 trillion annual market, driven by green bonds, sustainability-linked loans and public-private partnerships. The Green Climate Fund and multilateral development banks have mobilised private capital for large-scale renewable projects, particularly in emerging markets, though, admittedly, significant deployment gaps remain.

In 2026, global issuance of sustainable debt is projected to reach \$900 billion, according to Moody's, reflecting steady investor demand for assets aligned with net zero goals. These financial innovations are critical to overcoming one of the transition's biggest challenges: securing affordable, long-term capital. The conflict's disruption of fossil fuel markets is likely to further incentivise investors to prioritise clean energy, which offers stable returns insulated from volatile commodity prices.

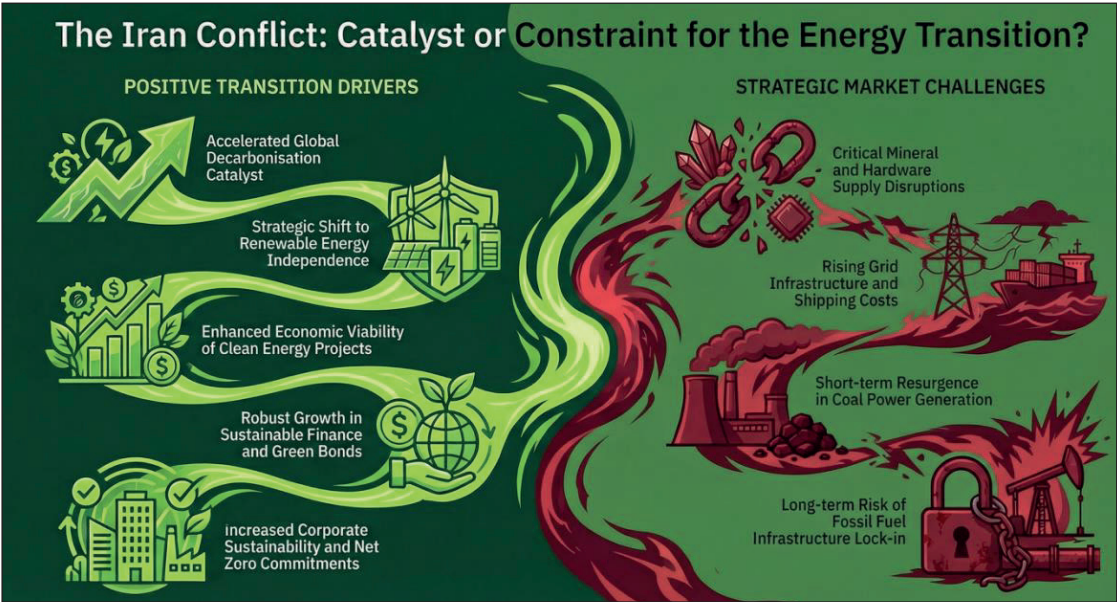
The conflict is pushing, and is likely to continue to push in the near-term, governments to accelerate renewable energy projects, cut fossil fuel subsidies and introduce carbon pricing. While some governments have slowed their climate action, public support for the shift is strong. A recent survey found that about 88 per cent of EU citizens want the bloc to do more on wind and solar, for example.

Looking at the EU's efforts, one can clearly find a positive trend. The EU's energy plan sets a binding target of 42.5 per cent renewables by 2030, with an ambition to reach 45 per cent. Solar capacity is on track to reach around 650 GW, slightly ahead of plan. Wind is more of a concern. Member states are currently tracking at around 450 GW against a 500 GW target, leaving a meaningful gap to close.

The positive trajectory is not without some bumps. There is a risk, for example, that some governments use the crisis as a pretext to build more fossil fuel infrastructure, locking in emissions for decades. Yet, faster planning approvals for renewables and tougher efficiency rules would help guard against this. So would a firmer commitment to ending fossil fuel subsidies. Nearly half of current EU subsidies have no scheduled end date, sitting in direct tension with the bloc's own climate targets.

Other challenges include supply chain disruptions, particularly for critical minerals such as lithium, cobalt and copper, which could delay clean energy projects, as demand for these materials outpaces supply and refining capacity remains concentrated in a few countries, according to BloombergNEF. While the conflict has increased shipping costs and insurance premiums, the price of solar panels and wind turbines has continued to fall (down 50 to 60 per cent since 2022) due to oversupply and efficiency gains. However, grid materials like cables and transformers have nearly doubled in price, says the IEA, straining projects and budgets.

Inflationary pressures and financing constraints are particularly acute in emerging markets. In the short term, Asia's response to disrupted LNG supplies has led to a surge in coal use, with countries like South Korea, Bangladesh, and India increasing coal fired power generation to stabilise energy security. For example, Bangladesh has rationed fuel and closed universities, while India has boosted domestic coal production to offset imports, reported NPR.



'The Iran conflict: Catalyst or constraint for the energy transition?'. Source: Joseph Jacobelli, (Infographic, Google NotebookLM, March 28, 2026)

ASPECT	IMPACT DESCRIPTION	IMPLICATIONS FOR ENERGY TRANSITION
Fossil Fuel Prices	Brent crude surged to \$110+ per barrel in early 2026; European gas prices 2x to €70/MWh (S&P Global).	Higher costs make renewables + storage more competitive; accelerates corporate sustainability pledges.
Renewable Costs	Solar, wind, and battery storage cheaper than fossil fuels in 90%+ of new projects (IEA, 2026).	Faster deployment of utility-scale renewables and distributed energy systems.
Climate Finance	Sustainable debt issuance to hit \$1 trillion in 2026 (Moody's); GCF mobilises \$20 billion for emerging markets.	Unlocks capital for large-scale projects; de-risks investments in developing economies.
Policy Support	EU's 2026 Accelerated Energy Security Plan targets 100% renewable electricity by 2035 (Eurobarometer).	Fast-tracks permitting, subsidies, and carbon pricing; reduces fossil fuel dependence.
Public Opinion	78% of Europeans support accelerated renewable deployment (Eurobarometer, 2026).	Strengthens political mandate for decarbonisation policies.
Supply Chain Disruptions	Shipping costs for renewable components rise by 15% (Wood Mackenzie); critical mineral shortages persist.	Potential delays in project timelines; highlights need for diversified supply chains.
Short-Term Fossil Use	Asia's LNG imports rise 20% in Q1 2026 to offset Qatar curtailments (S&P Global).	Risk of carbon lock-in if new gas infrastructure is built; undermines long-term climate goals.
Battery Storage	Lithium-ion battery costs fall 30% since 2024 (BloombergNEF); utility-scale storage deployments up 50% YoY.	Enhances grid stability; enables higher renewable penetration.
Corporate Commitments	60% of Fortune 500 companies commit to 100% renewable electricity (RE100, 2026).	Drives demand for clean energy PPAs and onsite generation.

'Key Impacts of the Iran conflict on the energy transition'. Source: Joseph Jacobelli, (March 28, 2026)

Joseph Jacobelli, head of single-family office Bourne Impact Capital, brings 30+ 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'



During a recent press visit to County Dublin, Ireland, journalists had the opportunity to look at a project that offers a solution to the delays data centre developers are facing in bringing power to their facilities. **Junior Isles**

Demand for data centres is experiencing exponential growth. Even in the worst case scenario, McKinsey & Company predicts a 20 per cent growth through 2030. In its report, 'Beyond compute: Infrastructure that powers and cools AI data centers', Global data centre demand is expected to grow at a CAGR of 22 per cent and reach 220 GW by 2030 – nearly six times larger than demand in 2020.

One potential bottleneck to this growth, however, is the power needed to run them. According to the International Energy Agency (IEA), electricity consumption from data centres is estimated to amount to around 415 TWh, or about 1.5 per cent of global electricity consumption in 2024. It has grown at 12 per cent per year over the last five years, and is predicted to double to reach around 945 TWh by 2030 in the IEA's 'Base Case', representing just under 3 per cent of total global electricity consumption in 2030.

In an effort to meet this power demand, data centre developers and operators have been scrambling to find ways of meeting the electricity needs of their power-hungry installations. While some are eyeing future technologies such as small modular reactors, most are turning to renewables, primarily, or building gas turbine-based power plants to address their immediate needs. Yet the main constraint is grid connection – a problem that is particularly acute in Europe.

During a recent press visit to County Dublin, Ireland, journalists had the opportunity to look at a project that offers a solution to the challenge.

Last month Pure Data Centres Group (Pure DC), the hyperscale cloud and AI data centre developer and operator, together with AVK, a

provider of prime, standby and dispatchable power solutions for data centres and AI infrastructure, announced the launch of Europe's first, large-scale, on-site microgrid for a data centre.

Located at the new Pure DC campus in Fingal, near Dublin city, the microgrid will operate in island mode as a fully independent electricity supply system, capable of generating, storing and managing its own power.

Essentially, it provides the opportunity for dispatchable capacity to support data centre operations during initial development phases, prior to full integration with the national electricity system as grid connection capacity becomes available. Over time, the campus is intended to operate as part of a hybrid energy configuration, combining grid-supplied electricity with on-site infrastructure designed to enhance flexibility, resilience and system stability.

Commenting on the installation, Pure Data Centre's newly appointed CEO, Gary Wojtaszek, said: "What's unique about this facility is that it's self-powered... They had a challenge – they couldn't get connected to the grid, [so] they built up a self-generation facility. We've solved a challenge the company has been suffering with for years... we've also provided a solution that doesn't consume a lot of water like the older data centres did. And there are also environmental solutions that help you get to zero carbon."

The microgrid system, which will represent about a \$1.5 billion investment when complete, has a total capacity of 110 MW across three interconnected Energy Centres (EC1, EC2, EC3 at 30 MW each) plus a 20 MW Battery Energy Storage (BESS) system. It serves a campus with an

operational load that currently stands at 54 MW but is designed to scale to 90 MW. This means it also has the potential to help stabilise the grid when excess power is available.

The idea for the project was first hatched about seven years ago – even before grid constraints became an issue.

Ben Pritchard, AVK, recalled: "In 2019 data centres were built using a very well-trodden path... but different thinking had to be applied when Pure Data Centre came to us and said, we have this site in Dublin that may never get a grid connection. And it was the first time we saw that waiting wasn't an option; so we had to think outside the box."

The need for 99.999 per cent, or "five nines", availability called for AVK to add "another layer" of technology to conventional solutions. Pritchard added: "You know you need a system of, say, 100 MW but the ramp rate for the load is also completely undefined. So, you have to design the system with a flexibility that allows for seeing maybe only 1 MW for the first six months, which is very different to having an engine that needs to run at full capacity."

Drawing on its own expertise in powering data centres with Pure Data Centres' expertise of the process, the companies came up with an integrated architecture that uses a "tapestry of technologies". A pilot 10 MW (max. output capacity) microgrid system was subsequently designed and installed, and has been running since 2024.

Pritchard noted: "Some see microgrids as a bridging solution but it's so much more than that. When we first started the conversation with Pure [Data Centres], we didn't know whether there would ever be a grid connection. So, we went into this designing a scheme that wasn't there just for five years to bridge a gap because at the time there was no visibility on when a grid would come... so we went into designing a scheme that would be able to run for the foreseeable lifetime of the facility."

"What we are experiencing with this system is that we've built something that removes demand from the grid; but also, when that system gets grid connected, it allows that infrastructure to participate in grid activity... it's the first time in Europe we see data centres actually being a solution to the challenges of the energy transition and mass grid demand."

This "temporary" microgrid – which is seen as the "blueprint" in terms of performance parameters and design considerations for how microgrids will work in the future – forms the basis for the new larger

installation. It uses a mix of several 2.5 MW MTU Rolls-Royce gas and diesel engines, some of which can run on hydrotreated vegetable oil (HVO) when the gas engines or gas network fail, and a 2 x 5 MW BESS.

"This is 'temporary' in the fact that it will one day be decommissioned," said Pritchard. "But everything that we have designed into this scheme is as complex as the larger scheme."

Construction of the new scheme is at an advanced stage. EC1 and EC2 are expected to be fully operational around September 2026 and will be followed by EC3 in 2027.

The larger installation is based on 9.8 MW Wärtsilä dual fuel engines – six already installed (for EC1 and EC2), with three more to come in the future (for EC3). These medium speed engines will run on natural gas with 1 per cent HVO pilot fuel, ready to switch to run 100 per cent on the 72 hours' worth of HVO bio-fuel that is primarily kept for back-up. The microgrid will also incorporate the existing pilot 10 MW BESS alongside a new 10 MW BESS.

Apart from the need to reduce the overall number of engines that would be needed for the larger facility, and thereby the footprint, there were other important drivers behind the engine selection.

Bob Downing, VP Sales, Energy Solutions at AVK, explained: "The medium speed engines are bigger power blocks, easier to control and much more adaptable with load changes. Also, the dual fuel capability meets Ireland's Secondary Fuel Obligation for microgrids. So, you have to be able to switch from natural gas to HVO."

The obligation is specific to Ireland, and Downing points out that technology choice depends on the country. With the ability to provide solutions based on fuel cells medium speed and high speed engines, as well as gas turbines, Downing says the company is targeting microgrid installations in a number of countries. With such systems already taking root in the US, this behind-the-meter solution will no doubt gain popularity elsewhere.

"We are talking to Germany, the Netherlands, UK, more in Ireland, and there's also a lot of interest in Spain and Portugal at the moment," said Downing.

And as the world continues to embrace renewables and the demand for electricity continues to grow, with data centres identified as a strong driver, the developments at Fingal look set to offer a blueprint for data centre developers right across Europe and beyond.

Artist impression of the data centre near Dublin, where construction is well underway





Junior Isles

War... What is it good for?

The war launched by the US and Israel against Iran brings a sense of *déjà vu*. One country, or countries, attacks another, and an energy crisis ensues – but this time the ramifications are geographically far more widespread than those that followed Russia's attack on Ukraine.

Energy crises have repeatedly exposed the vulnerability of fossil fuel dependent energy systems – from the oil shocks of the 1970s to the gas crisis following Russia's invasion of Ukraine and the current conflict in the Middle East.

The war in Iran began pretty much four years to the day after the still ongoing Ukraine invasion, but the world's energy sector seems no more prepared. Both renewables and fossil fuel lobby groups have seized on the current conflicts as pivotal moments in terms of what should be the immediate response or focus.

The Global Wind Energy Council (GWEC) last month launched a Wind Action Plan setting out emergency policy measures for governments to accelerate wind energy deployment and strengthen their energy resilience.

"We need to break the cycle of energy crises. The unfolding tragedy in the Middle East and its impact on surging oil and gas prices is just the latest reminder of our vulnerability to volatile fossil fuels. We simply can't go on like this," said Ben Backwell, CEO of GWEC. "Economies built around limitless, homegrown wind and renewable energy benefit from long-term, low-cost price certainty."

Meanwhile, a new report by Public First, produced in collaboration with

the Royal United Services Institute (RUSI) and commissioned by RenewableUK, warned that ongoing reliance on internationally traded gas has left the UK over-exposed to global price shocks, fiscal risk and hostile state activity. The report finds that although the UK's energy system is resilient, this comes with a heavy price tag for consumers due to unpredictable spikes in the costs of fossil fuels.

Some politicians, and not only in the US, also believe the way to energy independence is to increase domestic oil and gas extraction. In the UK, where energy prices have been among the most affected by the conflicts in Ukraine and Iran, the opposition party has renewed calls for increased drilling in the North Sea.

But is this really the most sensible response, especially when looking for lasting energy independence?

Clearly fossil fuel independence cannot come overnight, and there will be a need for continued investment for a period. The International Gas Union argues that continued investments in energy infrastructure – including LNG – and a diverse energy supply are "critically needed to mitigate market shocks such as the one we are currently experiencing".

The Public First report recognises the ongoing role of the UK's North Sea gas production and the role of gas storage. However, it concludes that domestic gas alone cannot protect the UK from international price volatility, because gas prices are set on global markets regardless of where the gas is produced.

New analysis from Aurora Energy

Research also shows that as gas markets have become more international, prices have become more volatile month-to-month, even in the absence of major shocks.

Perhaps those looking to North Sea fields for the answer should take note of UK public sentiment. After all, the proof of the pudding is always in the eating.

In late March, UK-based energy supplier Octopus said solar and heat pump sales surged by more than half as the Iran conflict not only hit prices at the pump but household energy prices too.

Rebecca Dibb-Simkin, Chief Product Officer at Octopus Energy, commented: "We are seeing a massive shift as people stop just asking and start acting. British families are tired of being held hostage by global fossil fuel prices."

For the last several years, Eurelectric, the organisation representing the common interests of the European electricity industry, has advocated direct electrification using renewables as the primary, cost-effective pathway to EU climate neutrality. Although the main thrust for the need for renewables might have shifted from climate to energy security, the electrification messaging has remained steadfast.

In March 2024, it published its own Electrification Action Plan, identifying the main bottlenecks and laying out concrete proposals to reignite progress. This was followed by the Electrification Alliance's joint recommendations, putting forward 31 proposed actions across nine categories, backed by three overarching priorities.

The EU is expected to officially adopt an electrification action plan this year; the target is to increase electricity's share of final energy consumption to 32 per cent by 2030, up from 23 per cent in 2024.

With the growing global conflicts, the case for electrification is becoming increasingly clear-cut, and this was again brought home at last month's Eurelectric EVision conference, which started just days after the first strikes on Iran.

Electric vehicles not only play an important role in global decarbonisation through the electrification of transport, but would also protect government budgets and drivers from the high fuel prices triggered by the war. But in Europe the clean energy drive has begun to stutter.

During a high-level political debate at EVision, Thomas Pellerin-Carlin, Member of the European Parliament, strongly criticised recent moves by the EU, pointing out that there has been "a lack of policy coherence" in the bloc.

"There has been a lack of policy coherence in everything the Commission has been doing – or rather, undoing – over the last 18 months," he said, noting that "for decades" non-coherent energy policies led to sub-optimal outcomes for the energy sector as a whole. Realising that it needed to take a more system-wide approach – addressing sectors such as transport, heat, industry and electricity – on July 14, 2021, it unveiled the 'Fit for 55' Package.

Pellerin-Carlin commented: "On one single day, you had 20 pieces of legislation that go from the Energy Efficiency Directive to CO₂ standards for cars, to carbon pricing, to energy taxation directive, renewables, and so on. That's the way you need to do policy. [But] that's the way the Commission has stopped doing policy. Over the last 18 months, what we've been witnessing is the great unravelling of the Green Deal, with a salami approach – just one slice after another."

He added: "On December 16th the Automotive Package came in, and the package is about slowing down electrification. You can wrap it how you want but the CO₂ for cars regulation, as proposed by the Commission, is worse than the existing law that should have been implemented [under the 2021 package]."

"A lot of my colleagues think electrification is happening. It's not. We are consuming less electricity now than we did in 2019. And the [new] proposal by the Commission will make electrification worse. So we are in a situation where we have two parallel debates: there is the Eurelectric debate on electricity grids, and there is the debate on slowing down electrification... and at the end of the day, if we don't connect these, we will be building an electricity grid to nowhere."

As the world becomes more divided on the direction of travel, indeed we seem to be going nowhere. Opening the EVision conference, Eurelectric Secretary General, Kristian Ruby summed up the situation best: "How many wars is it going to take us to understand that our way to independence, to strength, goes by our energy – electric energy?"

Edwin Starr once sang "War... What is it good for? Absolutely nothing". Perhaps there is one thing it may well prove good for: accelerating electrification and the clean energy transition.

The future is electric, but things are looking messy!

