

# THE ENERGY INDUSTRY TIMES

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## Making green investment deliver

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The EU is looking to focus on local US clean energy collaborations as US anti-green rhetoric bubbles over and the US federal government calls for the bloc to water down its clean energy legislation. **Junior Isles**

The EU has said it will work with local US authorities and businesses on clean energy and climate initiatives instead of focusing on the federal government, after US President Donald Trump berated climate change and the green agenda at a UN summit.

In a draft policy paper on climate diplomacy efforts seen by the *Financial Times*, the European Commission said it would “co-operate with the US in the clean energy transition and on clean technologies”, notably with “sub-national entities, business and

think-tanks”.

Several delegations from American states have visited Brussels in recent months to discuss initiatives, such as carbon pricing, as Democratic legislatures try to continue with efforts to tackle climate change despite the policies of the Republican Trump administration.

The EU has one of the most ambitious climate agendas in the world but is facing an increasing backlash from businesses and right-wing politicians who argue the bloc has gone too far,

too fast and the level of green regulation is stifling growth.

The main objectives of the document were to set out how the EU would “help countries with the clean transition” but also how it would reduce its dependency on countries such as China for natural resources, the official said.

According to the *FT*, the draft paper sets out ways the bloc would use its diplomatic clout to advance the global clean energy transition, including by helping countries establish their own

carbon markets and using its development aid arm to invest in “large flagship projects” such as renewable energy plants in developing nations.

It also says it would use its development aid programme to help countries cope with the effects of its carbon border tax, which polluting industries outside the bloc would have to start paying from next year – a move that several major trading partners including the US, India and China have

*Continued on Page 2*

## Global banking climate alliance folds but clean energy funds still flow

The Net-Zero Banking Alliance (NZBA) has folded just four years after its launch, after its members encountered political pressure.

The group lost its highest profile members from the US and European financial sectors, as well as Japan and Canada, over the past year as banks with exposure to the US came under pressure from threats of litigation alleging collusion.

The biggest US lenders, including JPMorgan Chase, Citigroup, Bank of America, Morgan Stanley and Wells Fargo, left the alliance before the Trump inauguration. They were followed this year by major European lenders, including HSBC and Barclays.

Remaining member banks had voted in April to scrap a pledge to support the alignment of the global economy with a target in line with a UN accord to limit global warming to 1.5°C above pre-industrial levels, instead aiming for a less ambitious target.

The NZBA's guidance can still be used by banks, and many have said they would continue to assess climate risks on an individual basis.

Speaking to the *FT*, Jeanne Martin Co-director of Corporate Engagement at the responsible investment non-profit organisation ShareAction, said: “It's bitterly disappointing to see the biggest banks in the world vote to step away from accountability around their commitments to prevent the worst effects of global heating.

“Senior bankers need to be far more courageous in this decisive moment – for all our futures”.

Martin argued, however, that public support for climate action remained high and investors were conscious of the risks climate change posed to the economy.

Despite the setback, clean energy funding and investment continues to flow.

Last month Brookfield Asset Management raised \$20 billion for one of the largest private funds dedicated to investing in energy transition assets, benefiting from interest from investors in powering the artificial intelligence boom.

The group said the fund was closed after commitments from existing and new investors, including \$2 billion

from Alterra, launched by the United Arab Emirates two years ago, and \$1.5 billion from Norges Bank Investment Management. According to the *FT*, Brookfield's holding company, Toronto-based Brookfield Corporation, would contribute about a quarter of the fund.

Meanwhile, in late September the European Investment Bank (EIB) said it is pressing ahead with phase two of its Climate Bank Roadmap, staying the course as anchor financier of the green industrial revolution, energy security and shared prosperity.

The second phase sets out the EIB Group's priorities through to the end of this decade, while radically simplifying its procedures to accelerate green investment.

Since the launch of the Climate Bank Roadmap in 2020, the EIB Group has supported over €560 billion in green investment – around 90 per cent within the European Union (EU) – and is well on track to meet its headline goal of supporting at least €1 trillion in green investment this decade. With the second phase of the roadmap, the EIB Group reaffirms its

commitment to allocate over half of its annual financing to climate action and environmental sustainability.

Looking ahead, the EIB Group will be stepping up efforts to strengthen Europe's competitiveness by supporting cleantech, reinforcing supply chains, helping businesses cut energy costs, and improving energy security, with specialised products such as tailored financing for power purchase agreements. The EIB Group has planned a record €11 billion in new financing for energy grids this year alone, having already mobilised 40 per cent of Europe's total investment in this sector in 2024. It has ambitions to raise the figure even higher this year.

A new €17 billion initiative will help 350 000 European small and medium-sized enterprises (SMEs) invest in energy savings, while counter-guarantees for wind and grid manufacturers will secure sustainable supply. The TechEU programme, Europe's largest innovation financing initiative, aims to mobilise €250 billion by 2027, with support for cleantech innovators among its key priorities.

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criticised.

In late September, President Donald Trump criticised world leaders at the United Nations General Assembly for pursuing actions to confront rising emissions.

"I've been right about everything and I'm telling you that if you don't get away from the green energy scam, your country is going to fail," he said.

Washington is pushing countries, financial institutions and businesses to roll back their climate change policies, using international forums ranging from the World Bank to stock market regulators.

Notably, the EU has come under pressure over recent laws aimed at big technology groups. Corporate due diligence rules, which came into force last year, require companies operating in the bloc to identify any environmental and social harms in their supply chains, in a bid to crack down on forced labour and pollution.

The Trump administration described the legislation as a "serious and unwarranted regulatory overreach" that "imposes significant economic and regulatory burdens on US companies".

According to US officials, several American companies have said that they will need to halt operations in the EU as a result of the due diligence and sustainability reporting rules, which demand that companies report on hundreds of data points related to their environmental footprint.

The EU legislation has also come under fire from US oil and gas companies, with ExxonMobil's Chief Executive Darren Woods describing the rules as threatening US companies with "bone-crunching" penalties.

Although there has been some pushback from Brussels, the Commission says it is undertaking efforts to simplify its green regulations.

It also announced the bloc would launch a "clean transition business council" to advise the commission on clean tech investment opportunities abroad and appoint a "special co-ordinator for the global clean transition" to similarly promote EU clean tech companies.

"We are being way more transactional in the way that we do business and the way that we do climate and diplomacy," an EU official said.

US demands for the EU to water down parts of its green legislation just months after agreeing a tariff pact, risks a transatlantic trade war. But one EU official said that unlike traditional trade negotiations, the US is not offering concessions in return. "It's a one-way street."

The US's latest demands expand on the Trump administration's concerns set out in July's trade pact, reached at Turnberry in Scotland, which said "undue restrictions" should not be imposed on transatlantic trade, and specified that the EU should make changes to cut red tape.



Photo by LinkedIn

**Woods: US companies face "bone crunching" penalties**

# US policy reversals will only have marginal impact on global energy transition

- Almost even split between fossil and non-fossil fuels by 2050
- Global carbon dioxide emissions now forecast to be 4 per cent higher

Photo by Pixabay

Junior Isles

The global shift towards cleaner energy remains robust even though the pace of the energy transition in the US has slowed sharply due to recent policy reversals. According to the ninth edition of DNV's 'Energy Transition Outlook', the US slowdown will have only a marginal effect on worldwide progress, as momentum continues to build elsewhere – most notably in China.

In the US, policy reversals and renewed support for fossil fuels are expected to delay emission reductions by about five years, with annual carbon dioxide emissions projected to be 500 to 1000 million tonnes higher than previously forecast.

DNV forecasts a slightly slower transition with the energy mix to be split 51:49 per cent between fossil and non-fossil fuels in 2050. Likewise, 2050 global carbon dioxide emissions are

now forecast to be 4 per cent higher compared to last year's Outlook.

"It is more important than ever to evaluate the energy transition from a global perspective. The global energy transition is not stalling – it is evolving, with momentum shifting to regions that are doubling down on clean technologies," said Remi Eriksen, Group President and CEO of DNV. "Security has become the dominant driver of energy policy, and as our forecast shows, this is in sum accelerating the shift to renewables."

DNV's outlook finds that the net effect of energy security is decreasing emissions. Global emissions are forecast to be 1-2 per cent lower per year due to the implementation of energy security policy. Nuclear power, for example, will account for 9 per cent of electricity supply in 2060. Without energy security policies, nuclear power would have been one third lower. In Europe, emissions are forecast to be 9 per cent lower in 2050 due to energy

security as it pivots away from imported fossil fuels.

A separate report from McKinsey & Company also noted a slowdown in the pace of the global energy transition. Its tenth annual 'Global Energy Perspective' said the world may be moving towards a slower energy transition across all scenarios, as governments and policymakers increasingly emphasize energy affordability and security amid geopolitical uncertainty.

The report notes that while clean, firm power sources and renewable storage technologies are likely to expand, fossil fuels are projected to retain a large share of the energy mix beyond 2050. They could make up approximately 41 per cent to 55 per cent of global energy consumption by 2050 depending on the scenario, it said.

The Global Energy Perspective aims to highlight the gap between the world's current trajectory and what would be needed to avoid the worst effects of climate change as defined by

the Paris Agreement. It describes three plausible scenarios for how a transition to a system of lower carbon energy could play out: Slow Evolution, Continued Momentum, and Sustainable Transformation.

Commenting on the findings, Diego Hernandez Diaz, Partner at McKinsey, said: "Ten years on from the inaugural Global Energy Perspective, our view of the energy transition has matured. The transition is no less urgent, but the pathways to closing the gap to Paris Agreement targets are now more complex."

"The current and evolving affordability challenge means that some alternative energy sources may not be competitive with traditional fuels in the near term, but a local or regional pathway made up of a mix of emerging technologies and "triple win" technologies – those that provide affordable, low-carbon, and secure energy simultaneously – may allow for an economically pragmatic transition."

## Renewables overtake coal but world must move faster

Renewables overtook coal for the first time as the world's leading source of electricity in the first half of this year, according to new data from the global energy think-tank Ember.

Renewables supplied 5072 TWh and coal supplied 4896 TWh, the report said. Sonia Dunlop, Chief Executive of the Global Solar Council, said it was a "historic shift".

According to Ember, global solar generation grew by 31 per cent in the first half of 2025, with wind generation also up by 7.7 per cent. At the same time, total fossil fuel generation fell slightly, by less than one per cent.

However, Ember says the headlines mask a mixed global picture. Developing countries, especially China, led the clean energy charge but richer nations including the US and EU relied more than before on fossil fuels for electricity generation.

Even though China is still adding to its fleet of coal fired power stations, it also remains way ahead in clean energy growth, adding more solar and wind capacity than the rest of the world combined. This enabled the growth in renewable generation in China to outpace rising electricity demand and helped reduce its fossil fuel generation by 2 per cent. India experienced slower electricity demand growth and also added significant new solar and wind capacity, meaning it also cut back on coal and gas.

Commenting on the findings, Gareth Redmond-King, Head of International Programme at the Energy and Climate Intelligence Unit (ECIU) said: "As we hit the 10th anniversary of the Paris Agreement, the evidence is everywhere of the sea change it has helped drive. Over the last decade, the pace of growth in planet-heating emissions has

slowed five-fold to the point now where China's emissions may have peaked."

But despite record-breaking progress on renewable energy, a report by the International Renewable Energy Agency (IRENA), the COP30 Brazilian Presidency and the Global Renewables Alliance (GRA), warned that this alone will not prevent global warming from exceeding 1.5°C.

Unveiled during a pre-COP30 event, the report found that global renewable capacity additions reached 582 GW last year, marking a 15.1 per cent annual growth rate compared to 2023's 14.4 per cent growth rate.

While this trend is positive, to stay on track for the COP28 UAE Consensus target of tripling renewables to 11.2 TW by 2030, 1122 GW of renewable capacity must be added every year from 2025 onward.

If the capacity growth seen in 2024 continues at the same rate through the rest of the decade, only 10.3 TW of renewable power capacity would be installed by 2030.

United Nations Secretary-General António Guterres hailed the clean energy revolution as "unstoppable" but argued the world must "step up, scale up and speed up" the energy transition.

"Renewables are deployed faster and cheaper than fossil fuels, driving growth, jobs, and affordable power," he said. "But the window to keep the 1.5°C limit within reach is rapidly closing."

The news came as the Climate Central and World Weather Attribution groups of international scientists reported that more than 100 countries now experience at least 10 more "hot days" a year than a decade ago when the Paris climate accord was drawn up.

## Global renewable capacity is set to grow strongly, driven by solar PV, says IEA

Renewable sources of electricity generation are continuing to grow strongly around the world, with global capacity expected to more than double by 2030, according to the International Energy Agency's (IEA) latest medium-term forecast.

'Renewables 2025', the IEA's main annual report on the sector, sees global renewable power capacity increasing by 4600 GW by 2030.

Solar PV will account for around

80 per cent of the global increase in renewable power capacity over the next five years – driven by low costs and faster permitting timeframes – followed by wind, hydro, bioenergy and geothermal. Geothermal installations are on course to hit historic highs in key markets, including the United States, Japan, Indonesia and a host of emerging and developing economies.

Rising grid integration challenges are renewing interest in pumped-storage

hydropower, whose growth is expected to be almost 80 per cent faster over the next five years compared with the previous five.

In emerging economies across Asia, the Middle East and Africa, cost competitiveness and stronger policy support are spurring faster growth of renewables, with many governments introducing new auction programmes and raising their targets. India is on course to become the second-largest

renewables growth market globally, after China, and is expected to comfortably reach its ambitious target by 2030.

The IEA, however, cut in half its forecast for renewable energy growth in the US this decade. The global energy agency said last year it expected the US to add 500 GW of new capacity – almost all solar and wind power – by 2030. But it now expects it to add 250 GW.



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# US federal government seizes oversight of renewables projects

- New approvals process applies to generation and transmission
- Projects set for delays and cancellations

Janet Wood

An order by the US Department of the Interior (DOI) that increases federal oversight of solar and wind projects, and associated transmission lines, has put new developments across the US in doubt.

All decisions, actions, and consultations related to solar and wind facilities will now undergo a three-tiered approval process, culminating at the Office of the Secretary. The same applies to transmission lines “when they are part of, and necessary for, a wind or solar energy project”.

A DOI spokesperson said: “The Department-wide review of wind and solar projects – regardless of whether they are proposed on federal, state or private lands – ensures that there is appropriate oversight when federal resources, permits or consultations are involved.”

Kevin Smith, CEO of Arevon, said that of the 10 GW of large clean power projects that are scheduled to start construction between 2026 and 2028, largely in the Midwest and Southeast, half could be delayed by the DOI’s scrutiny of associated transmission lines.

“We’re reviewing timelines, we’re looking at whether or not we should be rerouting to try and avoid any federal issues, if that’s even possible,” Smith said.

Most clean energy projects, even on private land, require some federal permits or consultation with the DOI, Smith noted.

The Bureau of Land Management has already scrapped approval for Esmeralda 7, a 6.2 GW solar and battery project in Nevada. The state Governor Joe Lombardo wrote to the DOI because around 80 per cent of Nevada’s land is federally managed

and over 33 GW of proposed solar energy and battery storage projects, as well as associated network, is at various stages of development.

Now clean energy advocates are stressing that renewables and storage are the lowest cost options to increase generation to meet fast-growing demand. In Nevada, for example, NV Energy, projects that power demand will be 34 per cent higher in 2035 compared with 2022.

“The cleanest solutions are the most affordable solutions and that has huge pocketbook benefits for people’s lives,” said Vickie Patton, general

counsel at the Environmental Defense Fund.

“We remain deeply concerned that this administration continues to flout the law to the detriment of consumers, the grid and America’s economic competitiveness,” said Ben Norris, Vice-President of regulatory affairs for the Solar Energy Industries Association.

“We need more power on the grid, fast, and the solar and storage industry is ready to provide it, but we need the administration to get serious about truly achieving American energy dominance.”

## Offshore wind tenders progress in Canada and Colombia

The Canada-Nova Scotia Offshore Energy Regulator (CNSOER) has issued a Call for Information and opened a pre-qualification window for the first offshore wind auction to be launched in Canada.

The government and the Province of Nova Scotia designated the first four wind energy areas in July. In September, CNSOER received a joint strategic direction from the governments of Canada and Nova Scotia in September to formally initiate the process for the offshore wind auction. The Call for Information and the pre-qualification period are open until mid-January 2026.

CNSOER will review and identify eligible companies that can participate in the offshore wind Call for Bids. Only companies that are pre-qualified by the CNSOER will be eligible to bid.

Meanwhile, Colombia’s first off-

shore wind auction, which could top 1 GW of capacity, has attracted a bid from a subsidiary of Denmark’s Copenhagen Infrastructure Partners (CIP). Orlando Velandia, who heads Colombia’s National Hydrocarbons Agency (ANH), said CIP subsidiary CI GMF Cooperatief U.A. had submitted an offer, adding “The participation of CIP, one of the world’s leading investment funds in energy infrastructure and the green transition, represents an international vote of confidence.”

The companies prequalified to participate in the first offshore wind auction are CIF, BlueFloat Energy, China Three Gorges Corporation, Powerchina, DynaEnergy, Ecopetrol and Celsia, and Belgium’s DEME and Jan De Nul.

## Canadian transformer production facility to triple in size

Hitachi Energy has announced plans to invest an additional \$270 million (\$195 million) to expand its large power transformer manufacturing capacity in Varennes, Quebec.

The expansion will triple the site’s annual production capacity, adding to an expansion announced in 2024.

Transformers are required in fast-expanding transmission systems, grid interconnections, renewable energy integration and the electrification of transport. They are also used for data centre operations and energy-intensive industries such as mining, aluminium production, and steel manufacturing.

The Varennes expansion is a step in Hitachi Energy’s global plan to increase transformer production capacity to meet growing mid- and long-term customer needs in the energy

transition.

“This investment will allow us to significantly increase our ability to meet the fast-growing demand for large power transformers, reactors, and HVDC technology, which are critical to achieving key energy transition goals,” said Carla Vicente, Country Managing Director, Hitachi Energy in Canada.

The company says the Varennes facility is one of the largest manufacturers of HVDC transformers in the world and is also CSA N299-certified for nuclear quality assurance. It said these capabilities position the site to address demand for transformers driven by the expansion of nuclear power generation, increased interconnection, refurbishment of existing infrastructure, and surging electricity demand.



Photo by Virginia Mercury

- CFS signs PPA with Eni
- Pacific Fusion finds New Mexico home

Janet Wood

Italian energy company Eni has signed a \$1 billion power purchase agreement with Commonwealth Fusion System for a fusion project in Virginia that will not start up until the early 2030s. Eni agreed to buy power from the 400 MW ARC project in Chesterfield County, Virginia, despite CFS not knowing the exact project cost or when it will be completed.

Virginia is home to the world’s biggest concentration of data centres.

“This is showing in concrete terms, that people that use large amounts of energy, that know the energy market, that they want fusion power and that they’re willing to contract for it,” said Bob Mumgaard, CFS CEO and co-founder.

“We’re not here saying today that fusion power has no technology left to do,” said Mumgaard. “But the character of that technology has shifted from... ‘Can this ever work?’ into a

question like ‘Okay, what’re the details of how, when and where?’”

Eni, traditionally a major fossil fuel company, has been investing in CFS since 2018.

CFS has raised nearly \$3 billion in capital. It struck a similar power purchase deal in June with Alphabet’s Google for 200 MW from the ARC plant for an undisclosed price.

Across the country in New Mexico Governor Michelle Lujan Grisham recently announced that Pacific Fusion has selected New Mexico as the site for its \$1 billion Research and Manufacturing Campus. That includes a Demonstration System but the new facility will focus exclusively on research and manufacturing, not power generation.

“Pacific Fusion’s decision to build in New Mexico proves that our state can compete – and win – in the race to attract the most innovative companies in the world,” Lujan Grisham said. The centre should be built by 2030.

Pacific Fusion builds on research at Sandia National Laboratories. It has raised more than \$900 million in private capital. The company headquarters will remain in Northern California. It is being designed to operate safely and without disruption to the surrounding area.

“New Mexico is on the brink of an economic development surge that will demand more energy than ever,” State Senator Michael Padilla said. “Fusion power offers a meaningful solution to help meet that growing demand, and Pacific Fusion’s investment here shows that New Mexico will be a leader in delivering it.”

Meanwhile a new report, ‘Bringing Fusion Energy to the Grid: Challenges and Pathways’, examines barriers to commercial fusion projects. It said fusion faces engineering problems, supply chain uncertainty and a relatively small academic research ecosystem that could limit its economic viability.

## US battery deployment to fall back after 2025 surge

US battery developers have forecast a slowdown in deployment next year after federal government imposed stricter import rules and cut tax credits. The US was previously expected to install 87.8 GW of energy storage in 2025-29, but this could fall by 16.5 GW, according to recent estimates.

From 2026, energy storage projects must comply with new foreign entity rules to gain investment tax credits (ITCs). Material from so-called ‘for-

foreign entities of concern’, including China, must be limited to below 45 per cent of material costs, a limit that will fall to 25 per cent by 2030. Developers are racing to build both stand-alone projects and those co-located with wind and solar to qualify for ITCs. Allison Weis, Global Head of Storage at Wood Mackenzie, told *Reuters Events* that 16.2 GW of storage is expected to be commissioned in the US in 2025, up 49 per cent from 2024.

Robert Greskowiak, Chief Commercial Officer (CCO) at Lightshift Energy, said storage developers may capitalise on an oversupply of batteries for the electric vehicle market. LG Energy is expanding US energy storage manufacturing capacity to 16.5 GWh by the end of 2025 and is “looking at expanding that to probably over 40 GWh by the end of next year,” said Tristan Doherty, Chief Product Officer at LG Energy Solution Vertech.



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## 6 | Asia News



- Over 30 projects to come online by end of 2027
- Plan aligns with government push to convert urban waste into renewable energy

Syed Ali

Indonesia is planning a total of 33 waste-to-energy (WtE) projects as the country looks to improve its sustainability and green credentials.

The country's sovereign wealth manager, Danantara Indonesia, said it is preparing Rp2-3 trillion (\$123-\$185 million) for each WtE project site.

Danantara also said 54 foreign companies have shown an interest in joining the programme. The companies, mainly from Japan, China, Germany, the Netherlands, and Singapore, are among 107 firms that have expressed

interest in the project. The remaining 53 are domestic, said Danantara CEO Rosan Roeslani.

Construction on the first facilities is scheduled to begin by late 2025 in 10 cities, including Jakarta, Bandung, Surabaya, and Bali. They are due to be completed by the end of 2027. Each WtE facility will be able to process around 2000 tons of waste per day.

The plan aligns with a broader government push to convert urban waste into renewable energy, driven by rising pollution levels and growing public health concerns.

Last month saw the signing of Pres-

idential Regulation No. 109, which outlines a national strategy for managing waste sustainably while boosting clean energy output. The regulation states that the waste processed into energy is not limited to electricity, but also renewable fuel and other products.

Coordinating Minister for Food Zulkifli Hasan noted that prior to the issuance of the regulation, his ministry had already started the incinerator installation project in several cities.

Data from the National Waste Management Information System (SIPSN) showed that Indonesia generated 34.7 million tons of waste in 2024, based on

reports from 328 districts and cities. Of the total, the volume of unmanaged waste reached 23.4 million tons.

Bioenergy, which can be produced from such waste, has been cited as an energy source that can help fulfil the country's desire to utilise its full renewable energy potential.

Last month during the launch of Electricity Connect 2025 in Jakarta, Suroso Isnandar, Director of New and Renewable Energy at state electricity company PLN, said Indonesia possesses abundant sources of renewable energy, including solar, hydro, bioenergy, wind, geothermal, and marine

energy. These renewable energy sources collectively have a potential capacity of 3686 GW, yet Indonesia has only utilised 9.4 GW. "This is a challenge on how we can actually realise this potential."

He explained that the majority of PLN's electricity supply still comes from coal fired plants, which contribute 66 per cent of the supply, followed by gas fired plants at 17 per cent. Suroso stressed that PLN aims to shift away from fossil fuels. "We must make a 180-degree turn from prioritising fossil fuels to now embracing renewable energy. It has to change," he stressed.

## Thailand prepares to enhance cross-border power trading

Thailand is preparing to enhance cross-border electricity connectivity between four countries, while also working with Asean to jointly reduce carbon dioxide emissions, said Thai Energy Minister Auttapol Rerkpiboon.

The plan known as the Laos, Thailand, Malaysia and Singapore Power Integration Project (LTMS-PIP) aims to forge stronger cooperation on regional power trade, and was approved by the cabinet ahead of the 43rd Asean Ministerial Meeting on Energy, held in Kuala Lumpur last month.

The latest statement marks the second phase of the LTMS-PIP. In the first phase, Laos sold 100 MW of electricity to Singapore via Thai and Malaysian transmission lines. In the second phase, Malaysia agreed to sell additional electricity to Singapore,

bringing total power trade to 200 MW.

The Thai cabinet also approved another joint statement on cooperation to curb carbon dioxide emissions for the third Asia Zero Emission Community (Azec) Ministerial Meeting. Azec commits 11 countries – Australia, Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam – to address climate change and achieve carbon neutrality, a balance between carbon dioxide emissions and absorption.

The announcement came as authorities started drafting a new version of the power development plan (PDP), focusing on the nation's long-term power supply management amid a surge in solar power, says the Energy Policy and Planning Office (Eppo).

The Energy Ministry aims to generate Baht720 billion in investment for energy development projects, notably solar power and carbon capture and storage, putting Thailand on a fast-track towards its net zero goal – achieving it 15 years sooner than the target date 2065.

The projects are meant to reduce carbon dioxide emissions and stimulate the economy under the ministry's "Quick Big Win" energy campaign, aligning with the policy of the Anutin Charnvirakul government, which wants to see Thailand strike a balance between greenhouse gas emissions and absorption by 2050.

The combined projects are expected to create 16 000 jobs and reduce carbon dioxide emissions by 10 million tons a year.

## MGEN prepares for Malaysia data centre power demand

Meralco PowerGen Corp. (MGEN), the power generation arm of Philippines-based Manila Electric Co., is exploring opportunities to develop up to 1500 MW of new capacity in Asean neighbour Malaysia to meet growing demand from its data centre industry.

MGEN President Emmanuel Rubio told reporters that Malaysia is preparing for significant investments in data centres, which are expected to require substantial new power capacity. "They're expecting or trying to

attract 8000 MW of capacity (in data centres)," Rubio said.

Malaysia has attracted data centre investments from tech giants including Microsoft, Google, Amazon, Huawei and Alibaba. Rubio said MGEN is also scouting for a local partner to help it participate in the market.

He said MGEN aims to secure 1200-1500 MW of capacity, a size similar to its investments in Singapore, with a target completion date of late 2028 at the earliest.

## Australian capacity investment scheme selects battery projects in latest funding round

The Capacity Investment Scheme (CIS), the Australian government's revenue underwriting scheme to accelerate investment in renewable energy generation and battery storage, has selected an additional 16 projects in its latest funding round.

The large-scale lithium-ion battery projects, if delivered, will provide an additional 4.13 GW of dispatchable battery capacity, with five selected in each of New South Wales and Victoria, four in Queensland and two in South Australia.

Chris Bowen, Minister for Climate change and energy, described the

successful tender process as "another massive boost to the nation's dispatchable, clean energy capability".

The CIS provides a long-term revenue safety net that decreases financial risk for investors, ensuring more renewable energy projects are built. Long-term, the CIS aims to incentivise the deployment of 40 GW of renewable and dispatchable capacity by 2030, helping deliver the Australian government's 82 per cent renewable electricity by 2030 target.

Australia's shift to renewables will not only help meet emission targets, it is also expected to slow the rising cost

of electricity.

A recent study carried out by Griffith University experts reveals the 30 per cent increase in consumer power bills since 2021 would have been worse under a fossil fuel-only scenario. The cost of generating electricity would be up to 50 per cent higher today if Australia had relied solely on coal and gas instead of pursuing renewables, the analysis found.

Right-leaning politicians and climate deniers have seized on the 30 per cent increase in electricity bills since 2021 to call for new coal fired power plants to replace renewable projects, claiming

it would bring down energy bills.

To examine the claims, Paul Simshauser and Joel Gilmore from Griffith University's Centre for Applied Energy Economics and Policy Research modelled a counter-factual scenario where resource-rich Queensland had ignored the global push towards net zero and climate science and instead pursued an electricity grid based on fossil fuels from 2005 – when coal and gas were "unambiguously the lowest cost technologies".

But Simshauser and Gilmore concluded that soaring commodity prices, rising costs associated with building

new power plants, and major advances in clean energy technology means that coal can no longer claim to be the cheap energy source it once was.

In results they said were applicable to the rest of the east coast states, the renewables scenario produced an average wholesale price of \$99.70 per megawatt hour – in line with the \$93 to \$103 range predicted for Queensland over the coming three years, based on futures pricing.

The average cost for an all-coal or all-gas power grid, in contrast, reached just over \$150/MWh, according to the modelling.

# Offshore projects face stuttering development process

■ No guarantees on permitting or finance ■ Hydrogen project moves up development process

Janet Wood

The Swedish government has had the go-ahead from the County Administrative Board of Uppsala for Deep Wind Offshore's planned Olof Skötkonung wind farm. It supported granting of a government permit under the Act on the Swedish Exclusive Economic Zone.

"Offshore wind is the fastest tool the government has to bring large-scale power into the system at a time when new capacity is in high demand. It also provides the stability services the grid requires. Independent research from

Energiforsk, the Swedish energy research institute, confirms that Sweden can integrate more renewable electricity without reducing reliability," said Magnus Hallman, Country Manager at Deep Wind Offshore in Sweden.

The 1.4 GW Olof Skötkonung wind farm is located in the Bothnian Sea.

In contrast, Lithuania's National Energy Regulatory Council (NERC) has confirmed that the nation's second offshore wind tender, aimed at developing a 700 MW project, was halted because only one participant applied.

Under Article 22 (10) of Lithuania's

Law on Renewable Energy, a tender is considered invalid if fewer than two participants submit their applications. According to NERC, the decision on whether to announce a new tender rests with the government.

Meanwhile in the UK, the Department for Energy Security & Net Zero has postponed until February a decision on a permit for the 1.5 GW Outer Dowsing offshore wind farm, 54 km off the Lincolnshire coast.

The decision on the wind farm, being developed by TotalEnergies, Corio Generation, and Gulf Energy Development, was expected on 10 October.

However, the consortium developing the Milford Haven: Hydrogen Kingdom (MH:HK) project say they have advanced both the technical design and consenting pathway. The demonstrator, in the Celtic Sea, will produce hydrogen for renewable energy using a combination of offshore wind and electrolysis.

MH:HK is being delivered by a consortium including Celtic Sea Power, Dolphyn Hydrogen, The Offshore Renewable Energy (ORE) Catapult and Wales & West Utilities. MH:HK would initially deploy a 10-15 MW demonstrator, with plans to scale up

to over 135 MW, producing more than 10 000 t of hydrogen annually.

"The project helps further lay the foundations for a large scale, low-carbon hydrogen economy in Wales," said Brad Davies, Survey and Consents Manager at Celtic Sea Power. "A key element of this pioneer project was to establish a consenting pathway that involved engagement with regulators and a wide range of stakeholders.

"CSP were delighted to play a role here to help strengthen the case for investment in South Wales's clean energy future."

## TenneT Holding secures investment in German TSO

TenneT Holding has reached an agreement with APG (acting on behalf of pension fund ABP), Norges Bank Investment Management (NBIM), and the Singapore sovereign wealth fund GIC to invest €9.5 billion in the German transmission system operator (TSO).

The three institutional investors are set to acquire around 46 per cent of the shares, with the remaining 54 per cent retained by TenneT Holding. Completion remains subject to regulatory approvals, and is expected in the first half of 2026.

"This announcement marks the end of an intense period during which we have separated our Dutch and German operations within the group, implemented a new funding structure for TenneT Netherlands and secured

equity funding for TenneT Germany," said Manon van Beek, CEO of TenneT Holding.

In April, TenneT announced that TenneT Netherlands will raise the financing required for the Dutch TSO business and TenneT Germany for the German TSO business. Recently TenneT Germany signed a €12 billion revolving credit facility (RCF) with BNP Paribas, Deutsche Bank, ING, and UniCredit as underwriters.

TenneT Holding said TenneT Netherlands and TenneT Germany will continue to cooperate on strategic areas, including a 2 GW programme expanding the offshore grid. Among recent projects, TenneT Germany has completed commissioning of the HVDC connection to the 900 MW DolWin 5 offshore wind farm.

## Warnings over GB move to real consumer data

GB utilities have begun migrating domestic consumers to a new settlements system that will use real half-hourly data from domestic meters, instead of billing customers according to one of a handful of 'profiles' that make assumptions on when they use power.

The industry believes using real data could deliver £4.5 billion in savings by incentivising customer flexibility, allocating risk more precisely and allowing settlements between industry participants in four months, instead of 18 months. It could also better match green energy with users.

However, some companies warn that the benefits will be compromised because of failings in the meter rollout, including lack of telecoms coverage, that affect up to a third of meters.

JP Cerda, Chief Executive at Renewabl, said: "Half-hourly settlement is essential infrastructure for a credible, low-carbon power market. It's the same data infrastructure that we're working with corporates on – enabling the next generation of 24/7 renewable energy strategies, driven by the GHG Protocol's Scope 2 developments, where every megawatt-hour is matched in time and location. It creates the transparency corporate buyers will need for credible renewable energy claims. But accuracy still matters: if the underlying data isn't reliable, we're building the smart market of the future on patchy ground. Getting this right will determine how quickly the UK can move toward real-time flexibility markets and true hourly carbon accounting."

## Europe struggles to expand electrification

■ EC seeks evidence on solution ■ Eurelectric offers five immediate actions

Janet Wood

European electricity demand only grew by 1 per cent in 2024, remaining 7 per cent lower than 2021 levels. But the EU agrees that incentivising electrification will be key to reaching the 32 per cent target by 2030, as set out in the bloc's Clean Industrial Deal.

European Commission President Ursula von der Leyen highlighted electrification in her recent State of the European Union speech, saying "we know what brings prices down: clean homegrown energy. The future is electric".

The Commission recently held a consultation that aimed to "collect in-depth and high-quality evidence, information, data and feedback on measures required to promote cost-effective and system-friendly electrification".

It sought comment from public authorities, energy system operators, energy generators, retail and flexibility suppliers, charging point operators, e-mobility service providers, consumer organisations, industrial consumers,

manufacturers of electrification technologies, installers, training organisations, standardisation bodies and academia.

European electricity organisation Eurelectric has supported the electrification agenda, and in its 'Power Barometer 2025' publication it said that higher shares of clean and renewable electricity, combined with stagnating demand, were responsible for lowering average electricity prices to €82/MWh from €227/MWh in 2022. Renewables and nuclear together accounted for 72 per cent of electricity generation in the year.

However, Eurelectric highlighted persistent regional price spikes – particularly in southeastern Europe – and market volatility. It said that stabilising the market would require faster electrification, as well as expanded grids, more storage and flexibility.

"To address market volatility, we need to invest in grids, storage and flexibility. At the same time, sluggish demand remains a barrier to sustained investments," said Kristian Ruby,

Secretary General of Eurelectric.

The group recently wrote an open letter to the bloc's energy ministers, when they met as an Energy Council with electrification – and an upcoming Electrification Action Plan – on the agenda.

Eurelectric proposed five concrete actions in its letter to energy ministers, which it said were needed to "remove persistent barriers to investment, finance, and public awareness – and to put Europe's energy transition back on a competitive track". They were:

- Institutionalise the pilot auction of the Industrial Decarbonisation Bank as a permanent financing instrument
- Promote 'electrification acceleration areas' with faster grid connection and permitting
- Enable social leasing for electrification purposes across the EU
- Include electrification monitoring and forecasts in a revised EU governance legislation
- Develop information hubs on electrification solutions and funding opportunities.

## Reservation procedures to be published for Germany's hydrogen network

The operators of Germany's nascent hydrogen core network recently released information for the market to facilitate the reservation of hydrogen capacities, applying from the beginning of 2026.

The initiative aims to provide market participants with security for early planning and send a signal for the

ramp-up of the hydrogen economy in Germany.

Under the reservation concept, binding reservations for entry and exit capacities for hydrogen deliveries will be possible. Reservations will later be replaced by capacity bookings. In the initial phase, marketing will occur within dedicated clusters, allowing for

flexible use of firm and freely allocable capacity. Transport between clusters will also be enabled.

The process aligns German hydrogen core network operators with their European counterparts, who are initiating similar network user processes. The regulatory framework will include the Federal Network Agency's

determination procedures (WaKandA, WasABi), which will be integrated into the ongoing development of standard contracts.

The hydrogen core network operators include AquaDuctus Pipeline, badenovaNETZE, Bayernets, Creos Deutschland, Creos Deutschland Wasserstoff, Ferngas Netzgesellschaft,

Fluxys Deutschland, GASCADE Gas-transport, Gasunie Deutschland, Gas-transport Nord, Hamburger Energieneetze, NaTran Deutschland, NBB Netzgesellschaft Berlin-Brandenburg, N-ERGIE Netz, Netze BW, Nowega, Open Grid Europe, ONTRAS Gas-transport, RheinNetz, SachsenNetze, terranets bw and Thyssengas H2.

## 8 | International News

# Türkiye secures World Bank loan for power grid modernisation

Photo by Pixabay

- \$28 billion to be invested in transmission infrastructure through 2035
- Targeting 120 GW solar/wind by 2035 and 20 GW nuclear by 2050

Nadia Weekes

Türkiye has secured a \$750 million credit agreement with the World Bank to overhaul its electricity transmission infrastructure, as the country prepares for a three-fold increase in power demand by 2050.

Last year, Türkiye announced a commitment to invest \$28 billion in electricity transmission infrastructure through 2035. The Transmission System Transformation Project will focus on three main components: strengthening the transmission network, digitalising grid operations and management, and providing technical assistance and capacity building to the Turkish Electricity Transmission Corporation (TEIAS).

With limited oil and natural gas resources, Türkiye is working on several fronts to reduce its energy deficit and secure sufficient domestic generation.

Energy Minister Alparslan Bayraktar said the first reactor of the Akkuyu nuclear power plant should be commissioned in 2026. Currently under construction by Rosatom on the Mediterranean coast, the Akkuyu plant comprises four 1.2 GW reactors. Türkiye has recently signed a nuclear agreement with the US on small modular reactors (SMRs), conventional reactors, and the use of nuclear energy in medicine, agriculture and industry.

Bayraktar is targeting 20 GW of nuclear power by 2050, with at least 5 GW from SMRs. The minister added

that Türkiye is in talks with Russia, China, Canada and South Korea for the second and third nuclear power plants it plans to build in Sinop and Thrace.

The country aims for 120 GW of installed wind and solar capacity by 2035, requiring up to 10 GW of annual installations. A \$1 billion joint solar project with the UAE is nearing completion. As of September, Türkiye's installed solar power capacity reached 24 GW, according to TEIAS data, accounting for 12.39 per cent of the country's total electricity generation of 29.38 million MWh.

In addition, 28.9 GW of storage-integrated solar capacity is planned to be commissioned by 2035. The district of Nigde in central Türkiye will host a 1.1 GW solar power plant with

energy storage – one of the largest single renewable investments in the country's history.

Meanwhile, discussions are ongoing with China's Dongfang Electric Corporation (DEC) on a \$250 million wind turbine facility with an annual capacity of 2 GW, Bayraktar revealed.

Türkiye currently has around 36 GW of installed wind and solar capacity. To achieve the 2035 goal, the government plans to hold capacity allocation tenders of 2 GW each year.

According to analysis by international energy think-tank Ember, adding 8 GW of hybrid solar capacity to existing hydroelectric and wind power plants would enable Türkiye to exceed 30 GW of total solar capacity without additional grid infrastructure

investments.

"It is clear that Türkiye needs a broad policy set along with hybrid solar investments to meet the increasing energy demand projected for 2030 and 2035 and to accelerate the green transition," Energy Investors Association (GUYAD) President Cem Ozkok told state-run *Anadolu Agency (AA)* in September.

Creating flexible market mechanisms will pave the way for investments, according to Ozkok. "If policies centred on storage, market incentives, grid modernisation and energy efficiency are implemented simultaneously with hybrid solar investments, Türkiye can realise its energy transformation much faster and stronger within the next 10-15 years," he said.

## Plans advance for Egypt-Europe electricity links

The Egyptian Electricity Transmission Company (EETC) has entered into a cooperation agreement with UAE-based K&K Investment Co. to finalise the feasibility studies for a subsea cable transmission link between Egypt and Italy, while a similar agreement has been signed for an interconnection project exporting up to 3 GW of Egyptian power to Europe via Greece.

Prime Minister Mostafa Madbouly said the agreements reflect Egypt's ongoing commitment to electricity interconnection projects with Europe and to maximising the use of renewable resources.

Egyptian Electricity Minister Mahmoud Esmat stressed the project's

significance for both nations, describing it as a "bridge for transferring clean energy from Egypt to the European Union".

The Egypt-Greece project, known as GREGY, first emerged in 2009 but was revived in 2021 and gained urgency after Europe's gas crisis worsened by the Russia-Ukraine war. Its core objective is to transmit electricity, primarily from Egypt's solar and wind farms, to Europe.

The project, which is included in the EU list of funded electricity interconnection projects, is expected to unlock €1 billion in grants and concessional funding.

GREGY is the second power-link

project connecting Egypt and Greece. The first, the EuroAfrica Interconnector, involving Cyprus, has a planned capacity of 2 GW.

Egypt's broader strategy is to cement its role as a regional energy hub, expanding clean energy exports to Europe and strengthening cross-border electricity connections with neighbouring countries.

Madbouly has also ordered the accelerated completion of the second phase of the Egypt-Saudi Arabia electricity interconnection project, designed to transmit up to 3 GW of electricity via overhead lines and subsea cables. It is set to begin operations by April 2026.

## Rosatom inks \$25 billion Iran nuclear deal

Iran's Hormoz and Russia's Rosatom have signed a \$25 billion deal to build four nuclear power plants in the Islamic republic. According to state news agency *IRNA*, each plant will have a capacity of 1255 MW.

Rosatom described the deal as a "strategic project". The agreement came just as so-called snapback sanctions were announced by the UK, France and Germany related to the 2015 deal about Iran's nuclear programme.

Iran's only operational nuclear power

plant, in the southern location of Bushehr, has a capacity of 1 GW. A second phase of the plant, which includes two reactors, is under construction. Russian-designed VVER-1000 reactors could come online as soon as next year.

Iran has a reported goal of generating at least 20 GW of electricity from nuclear power by 2040. Russian officials earlier this year said they have a plan to build at least eight reactors in the country.

## Strong growth for CCS but long-term concerns remain

- CO<sub>2</sub> capture capacity goes up but proves hard to scale
- Steep cost reduction for direct air capture remains elusive

Nadia Weekes

Carbon capture and storage (CCS) has advanced strongly in 2025 despite global headwinds, with operational projects increasing 54 per cent year-on-year as 27 new facilities came online in the past 12 months, while total carbon dioxide capture capacity (operating and in development) grew 23 per cent to 513 million tonnes per annum (Mtpa).

These are the findings of a status report from the Global CCS Institute. CEO Jarad Daniels said CCS is essential to achieving climate goals, adding that further progress required

"durable policies, investable business models, and greater international collaboration".

CCS continues to deploy in key industrial sectors such as cement, chemicals and energy, but it is proving hard to scale.

Meanwhile, direct air capture, which involves operating large fans to vacuum up carbon dioxide (CO<sub>2</sub>) directly from the atmosphere, is seen by some technology companies and governments as a crucial new development. But Climeworks, owner of the world's largest direct air capture station, said it was still far from meeting the cost-cutting targets it had set

for itself.

In 2019, the Swiss start-up predicted it would cut its capture costs from \$600 per tonne to roughly \$100 per tonne in "another four years". Now, it has a more modest expectation of \$250-\$350 per tonne by the end of the decade, rising to \$400-\$600 per tonne once you factor in carbon storage, according to figures Climeworks shared with the *Financial Times*.

US President Donald Trump's hostility to climate initiatives has put government funding at risk, while the combined effects of rising costs and policy uncertainty raise questions about the viability of carbon offset

markets crucial to funding and scaling up projects.

Direct air capture is seen as complementary to conventional carbon capture and storage as it can extract existing CO<sub>2</sub>, rather than just at the point of emission. But it is pricier and requires more energy.

The techniques have also been criticised by environmentalists for taking attention away from investing in reducing emissions.

BloombergNEF data suggests that investment into the sector is not rising fast enough. It drew \$1 billion last year, down from \$1.3 billion in 2023. Investors poured in \$11.2 billion in

the first quarter of 2025, from \$52 million a year earlier. Current costs are far higher than the cost of credits for polluters in markets where they are legally obliged to pay for their emissions. They are also much higher than the tax credits received from the US government.

A big test of the technology's prospects will come later this year, when oil and gas company Occidental Petroleum opens Stratos, a direct air capture facility in west Texas. Asset manager BlackRock has pledged up to \$550 million towards Stratos, which will be able to capture 500 000 tonnes of CO<sub>2</sub> annually.

## Companies News

# Offshore wind woes continue to bite

Photo courtesy of Pixabay

- Ørsted to cut a quarter of staff
- Vestas shelve plans for new blade factory in Poland

## Junior Isles

Danish multinational energy company Ørsted will slash its workforce by about a quarter following several setbacks, as political changes and higher interest rates hit the offshore wind industry.

The company said it planned to cut about 2000 staff from its 8000 workforce by the end of 2027, through a combination of natural attrition, redundancies and asset sales.

“Towards the end of 2027, the organisation will be right-sized in parallel with the decline in construction activities”, Ørsted said in a press release. Problems in the US, triggered by the

Trump administration’s hostility to the sector, have caused Ørsted to abandon two projects there in recent months. The company has also paused a major offshore wind project in the UK and is selling off its entire European onshore wind business as it struggles with higher interest rates and an overstretched supply chain that has pushed up equipment costs.

Commenting on the decision to lay-off staff, Chief Executive Rasmus Errboe, told the *Financial Times*: “This is a necessary consequence of our decision to focus our business and the fact that we’ll be finalising our large construction portfolio in the coming

years – which is why we’ll need fewer employees.”

Ørsted said it is focusing on finishing the 8.1 GW of offshore wind projects it has under construction around the world, and will then focus its attention on Europe and select markets in Asia-Pacific.

Errboe added that greater efficiencies should save Ørsted DKK2 billion (\$311 million) annually from 2028. The company plans to make around 500 workers redundant this year, including around 235 in Denmark.

The difficult market conditions have also had an impact on fellow Danish company, Vestas. Europe’s leading

wind turbine manufacturer recently announced that it has shelved plans to open its biggest factory in Poland, citing sluggish demand in its core European market. Vestas announced last year that it would build the plant outside Szczecin, close to the Baltic Sea coast, to make blades used in its 15 MW offshore wind turbines.

However, the Danish group has now decided to suspend its investment in a facility that was initially expected to open in 2026 and employ more than 1000 people. The company told the *FT* that the plans had been “paused due to lower than projected demand for offshore wind in Europe”.

The EU, UK and Norway have a combined offshore wind target of at least 129 GW either operating or under construction by the end of the decade.

However, consultancy TGS 4C has said they are on track for only about 84 GW, with Denmark and Germany both failing to find bidders for projects in separate auctions over the past 12 months.

Turbine makers such as Vestas are generally keen to be certain of demand before investing heavily.

Vestas said it “continues to invest in a local manufacturing footprint where offshore wind market volume and certainty allow”.

## TotalEnergies adjusts green business interests



TotalEnergies and the independent French consulting and engineering group Oteis have signed a deal for the sale of TotalEnergies’ sustainable consultancy and solutions affiliate GreenFlex to Oteis – a divestment that reflects TotalEnergies’ strategy to concentrate its activities on energy production and supply.

Following the divestment, TotalEnergies will become a major GreenFlex customer, signing a contract for the production of French Energy Saving Certificates (CEEs).

The move follows an earlier decision to sell 50 per cent of a 1.4 GW solar

portfolio in North America to KKR, a leading global investment firm. TotalEnergies will keep a 50 per cent stake in the assets and continue to operate them after the closing of this transaction, which is subject to customary conditions.

“We are pleased to enter into this new strategic partnership with KKR in North America, a key deregulated electricity market to expand our integrated business model”, said Stéphane Michel, President of Gas, Renewables & Power at TotalEnergies. “Aligned with our strategy, this transaction unlocks value from newly

commissioned assets and further strengthens the profitability of our Integrated Power business.”

TotalEnergies says it is building a competitive portfolio that combines renewables (solar, onshore wind, offshore wind) and flexible assets (CCGT, storage) to deliver clean firm power to its customers. To achieve the 12 per cent profitability target set for its Integrated Power business, TotalEnergies divests up to 50 per cent of its renewable assets once they reach commercial operation date and are derisked, allowing the company to maximise asset value and manage risks.

## Iberdrola grapples with UK retail market challenges

Spanish energy group Iberdrola is believed to be speaking with rivals about a possible combination with its UK retail energy business Scottish Power, as it grapples with the challenges facing the retail energy market.

According to the *Financial Times*, citing sources familiar with the matter, talks with several companies in the sector have taken place since the start of the year. Discussions excluded Scottish Power’s networks and power generation businesses but no formal deal process was conducted and no partner had been found.

Options reviewed included potential combinations that could have seen Iberdrola sharing control of the business, some sources said. Scottish Power said it “does not comment on market speculation”.

Questions over the future of Scottish Power, which has about 4.4 million gas and electricity customers, follow a major shakeup of the energy market in recent times.

Thirty smaller providers collapsed in late 2021 and early 2022 after being caught between surging wholesale energy prices and government-mandated

price caps, which limited their ability to pass on costs to customers. Shell exited the market in 2023, citing poor returns, just six years after entering it as part of its efforts to diversify from fossil fuels.

Octopus Energy is now the country’s largest household energy supplier after overtaking British Gas this year.

Scottish Power’s UK retail unit produced net profits of £182 million in 2024 on revenue of £4.7 billion, according to its most recent accounts.

Iberdrola’s Chairman Ignacio Galan has been upbeat on the UK, praising “predictability and stability” in the country and saying the UK and the US would receive almost two-thirds of €58 billion in planned investment by Iberdrola over the next three years.

Last month the electricity distributed by Iberdrola worldwide during the first nine months of the 2025 financial year increased by 6 per cent to 188 753 GWh, driven by the business in the UK (+43 per cent, including the contribution of Electricity North West) and in Spain (+3 per cent), as reported by the company to the National Securities Market Commission (CNMV).

## ABB and Nvidia to collaborate on powering AI data centres

ABB and Nvidia are to collaborate on creating new power solutions for future gigawatt-scale data centres.

According to ABB, innovation will focus on the development and deployment of “cutting-edge power solutions” needed to create high-efficiency, scalable power delivery for future AI workloads. The research and development projects will support Nvidia’s planned introduction of 800 VDC power architecture for 1 MW server racks.

Delivering this level of power effi-

ciently requires major advancements in power distribution technologies and architecture. Future data centre power architectures will combine a medium voltage (MV) uninterruptible power supply (UPS) with direct current (DC) power distribution to the server room using solid-state power electronics devices.

“ABB is leading the development of the key new power distribution technologies that will create the next generation of data centres. We have been an early investor in the cutting-edge

UPS, DC and solid-state electronics that will enable data centres to stay ahead of AI’s growing power demands,” said Giampiero Frisio, President, ABB Electrification. “This collaboration supporting the development of 800 VDC architectures for future data centres is one of the many ways we are engaging with the data centre community to serve the needs of this dynamic market.”

According to Dell’Oro Group, global data centre demand is forecast to rise from 80 GW in 2024 to reach around

220 GW by 2030, with capital expenditure projected to exceed \$1 trillion. AI workloads are expected to account for around 70 per cent of this growth.

As AI demands continue to grow around the world, data centres require new approaches to power distribution that improve efficiency and simplify designs,” said Dion Harris, Senior Director, HPC, Cloud and AI Infrastructure, Nvidia. “Through our collaboration, Nvidia and ABB are supporting the industry in advancing toward 800 volt architectures that will enable the

high-density AI infrastructure needed to fuel the next generation of AI.”

ABB’s portfolio for data centres encompasses intelligent power distribution systems, backup power solutions, digital monitoring, and other essential technologies that ensure continuous operations and optimise energy use for AI servers. Approximately 40 per cent of ABB’s scientific research in electrification is in areas critical to next generation data centres such as electrical architectures, protection devices, DC distribution and cooling.

## 10 | Tenders, Bids & Contracts

### Americas

#### Wärtsilä wins O&M contract in Brazil

Wärtsilä has signed a five-year O&M agreement for three power plants owned by Brazilian Ambar Energia, the energy company of J&F Group. The O&M agreement is an outcome-based performance model to enable the power plants to meet the requirements of uninterrupted power availability and reliability.

Each of the three power plants, all located in the Amazon city of Manaus, have an output of 92 MW from five Wärtsilä 50SG engines. The plants were recently converted to run on natural gas.

Wärtsilä said that it would provide high operational efficiency and productivity for the power plants, while maintaining predictable long-term operational costs.

In addition, Wärtsilä will supply the equipment for a power plant needed for a new gold mine in Guyana. The Oko West Gold Project is located in a remote region 95 km west of Georgetown, Guyana. Once operational, the 56 MW plant will consist of six Wärtsilä 32 engines. The power plant is scheduled to be operational by H2 2027.

#### Phase II for geothermal plant for Utah

Turboden has been awarded a contract to supply equipment for three Organic Rankine Cycle (ORC) units, each with a capacity of 60 MW, for Phase II of the Cape Station geothermal project in Utah, USA.

Phase I is scheduled to enter commercial operation in 2026. Phase II engineering and procurement of the core equipment will be delivered and commissioned by 2028.

#### Hyundai to design nuclear plants in USA

Hyundai Engineering & Construction has signed a front-end engineering design contract with Fermi America to build four large-scale nuclear power plants in the USA. This is the first time a Korean company has won a contract to design and construct large-scale nuclear power plants in the USA.

Fermi America is leading a \$500 billion project near Amarillo, Texas, USA to create the world's largest private power grid to support AI (artificial intelligence) infrastructure.

The project will generate 11 GW, and will combine four AP1000 reactors, SMRs for additional power generation, a gas fired combined cycle power plant, solar power facilities, and a battery energy storage system. A new AI data centre will utilise the generated power.

Under the contract, Hyundai E&C will carry out preliminary design work, including site layout development, cooling system reviews, and cost and schedule estimation, marking the first phase of construction.

### Asia-Pacific

#### O&M contract for Taiwan offshore wind project

IOW Wind, formerly known as CWind Taiwan, has secured an operation and maintenance (O&M) contract for the balance-of-plant for the 1 GW Hai Long offshore wind project in Taiwan.

The scope of the contract includes inspections of a newly installed offshore substation as well as inspection and maintenance of transition pieces, subsea foundations, and other structural components.

The 1022 MW Hai Long project comprises two offshore wind farms,

split into three sites: Hai Long 2a, Hai Long 2b, and Hai Long 3.

#### First order for Mitsubishi BFG-fired M100S turbine

Jiangsu Lihuai Steel of China has placed an order for a 100 MW CCGT power plant featuring the newly developed M100S gas turbine from Mitsubishi Power. The turbine will be fired by blast furnace gas (BFG). It is scheduled to start operation in 2027.

This is the first order for the M100S. The M100S has an output of 100 MW in a combined cycle setting and Mitsubishi Power says that it is both smaller and more efficient than conventional models. In addition to BFG, the gas turbine can be co-fired with various gases generated as by-products from steel plant equipment such as coke ovens and converters.

#### Wärtsilä supports Indonesia's power supply

Wärtsilä has signed a shared O&M agreement to support the reliable power supply on the Indonesian island of Lombok. Lombok is a popular tourist destination, which relies on the local power plant to ensure the availability of electricity.

The 30-month agreement has been signed with PT PLN Nusantara Power Services. It covers a 138 MW power plant that consists of 13 Wärtsilä 34DF dual fuel engines and a steam turbine generator.

Jakfar Sadiq, President Director of PT PLN Nusantara Power Services, said: "This plant is the first combined cycle gas engine power plant in Indonesia. About 60 per cent of Lombok's island grid is supplied by this plant, which indicates the importance of having it operating as efficiently and reliably as possible."

### Europe

#### First Spanish order for Nordex N175/6.X turbines

Nordex has won an order from the Spanish IPP Abei Energy for eight N175/6.X wind turbines for the 50 MW Avellanosa wind farm, located near Burgos in the Castile and León region of Spain. Nordex will also provide a 20-year maintenance service contract for the turbines.

The N175 turbines will be installed by Nordex on tubular steel towers with a hub height of 119 m. Installation is scheduled to begin in late summer 2026, and commissioned in early 2027.

Francisco Cejudo, Director Sales Spain for Nordex Group, said: "The turbine type is ideal for the site conditions in Spain. We are confident that this turbine will deliver the best results for our customers and become a key asset in future wind energy projects in the country."

#### Ukrnafta to construct 400 MW in Ukraine

PJSC Ukrnafta, Ukraine's largest oil extraction company, has secured €150 million in grants and a loan for €250 million from the European Bank for Reconstruction and Development (EBRD) to develop 400 MW of new generation projects.

Oleksandr Hryban, Director of Sustainable Development and Non-Financial Reporting said: "In order for the company's gas to become more than just a commodity and create added value, we made a strategic decision to develop a generation portfolio." He added that Ukrnafta will develop balancing capacities to replace those lost to Russian attacks,

and encourage the development of renewable energy.

Hryban said that the 400 MW of generation would involve gas engine plants to support Ukraine's regions, including front-line areas, as well as a 250 MW CCGT in Dnipropetrovsk region.

#### Ukraine orders 189 MW from Nordex

The OKKO Group has placed orders for two projects with a combined capacity of 188.8 MW in Ukraine from Nordex. The contracts also include 20-year service agreements.

From mid-2026, Nordex will supply 32 N163/5.X turbines. Each project will have a capacity of 94.4 MW and will be located in western Ukraine.

#### Tekmar signs agreement for 2 GW offshore grid

Tekmar Group has signed a framework agreement with Jan De Nul for the engineering, manufacturing, and supply of the Cable Protection System (CPS) for TenneT's 2 GW offshore grid connection programme in Germany.

The first awards under the agreement cover two projects. Work has commenced immediately on the first project, with delivery expected in 2027.

The second project is expected to be delivered in 2028.

A consortium of Jan De Nul, LS Cable, and Denys will install 525 kV HVDC cable systems for several offshore wind projects in Germany for TenneT. The consortium will develop the cable connections in Lower Saxony to BalWin4 and LanWin1, both to be connected in the Unterweser area, and LanWin5 in the Rastede area, Germany.

#### Arabelle to supply turbine islands for Sizewell C

Arabelle Solutions will supply the two complete turbine islands for the 3.2 GW Sizewell C nuclear power plant in the UK.

Each turbine hall will include an Arabelle steam turbine with a 75-inch last stage blade, a 1.7GW GIGATOP generator, heat exchangers, pumps, and auxiliary equipment.

Each shaft line will be approximately 70 m long and consist of a high-pressure and intermediate-pressure module, three low-pressure modules and the generator.

Catherine Cornand, CEO of Arabelle Solutions, said: "Our commitment to a long-term partnership also includes supporting workforce training and skills that will deliver the UK's nuclear ambitions for the generations to come."

#### RTE awards offshore substations contract

Eiffage has been awarded a contract by the French transmission system operator RTE to develop and build three substations for the Bretagne Sud, Narbonnaise Sud-Hérault, and Golfe de Fos French offshore wind farms. Each substation will have a capacity of 750 MW.

The engineering, procurement, construction, installation, and commissioning contract is valued at €1.5 billion. The contract covers construction of jacket foundations and their topsides, which house the electrical equipment.

The jackets will be 115 m high, 25 m wide, and 35 m long for the Bretagne Sud project, and approximately 110 m high, 45 m wide, and 50 m long for the Narbonnaise

Sud-Hérault and Fos projects. The topsides will weigh approximately 5000 tonnes and measure over 20 m high, 35 m wide, and 70 m long.

### International

#### Abu Dhabi awards 1.5 GW solar contract

Emirates Water and Electricity Company (EWEC) has awarded the contract for the 1.5 GW Khazna solar project to Engie and Masdar. A PPA was also signed between EWEC and the developers.

Under the terms of the agreement, Engie and Masdar will design, finance, construct, and operate the plant near the Al Khazna area of Abu Dhabi. The PPA has been structured so that EWEC only pays for the net energy supplied by the plant to the grid.

The project's financial closure is expected by the end of Q4 2025. The project will comprise around three million solar panels.

#### Deal signed for Iraqi 3 GW CCGT

Iraq's Ministry of Electricity has signed an agreement to construct the 3 GW Al-Faw combined cycle gas turbine (CCGT) power plant in Basra. The contract is between the Iraqi entities Southern Power Production General Company and Advanced Technology Systems Company, with the project to be carried out by GE.

The project will operate for 25 years under a "Take and Pay" model, where the government pays only for the electricity it receives.

The combined cycle power plant will have four gas turbines and two steam units. Iraq's Minister of Electricity emphasised Al-Faw's strategic location, close to the Grand Faw Port and connected to the new Wafra-Faw interconnection line with Kuwait. The Minister said that the plant will position Basra as a future regional energy hub.

#### Samsung and GE Hitachi sign MOU for SMR

Samsung C&T, the construction unit of Samsung Group, has signed an MOU with GE Venova Hitachi Nuclear Energy (GVH) to join their SMR projects, mainly in the EPC stages.

Samsung C&T said that the partnership covers SMR projects in Europe, Southeast Asia, and the Middle East.

Oh Se-chul, President of Samsung C&T, said: "We expect the combination of Samsung C&T's EPC expertise and GVH's SMR technologies to provide optimal energy solutions for our clients. Through this partnership, we aim to strengthen our presence in global SMR markets."

#### Nordex wins 90 MW wind deal in Türkiye

Nordex has won a 90 MW order from ADY Akdeniz Rüzgar Enerjisi Üretim in Türkiye. The order is to deliver and install 14 N163/6.X wind turbines for the R24-Gürün wind energy project located in the north of the Gürün district in central Sivas province.

The contract also includes a 10-year service package.

Nordex will deliver the Delta4000 wind turbines in a cold climate version and install the units on tubular steel towers with a hub height of 113 m.

The R24-Gürün wind energy project is the first venture of ADY Akdeniz Rüzgar.



## Hydrogen

# H<sub>2</sub>CAST project enables major strides for Europe in large-scale hydrogen storage and delivery

The European hydrogen economy, long focused on securing production capacity, is now visibly maturing on a critical, often overlooked front: storage and delivery. Recent successful operations in Germany highlight that the continent is moving beyond pilot projects to establish the robust physical infrastructure needed to manage a volatile green energy supply and distribute it across industrial heartlands.

Gary Lakes

Notable progress has been made in the European hydrogen industry with a joint German initiative, the Hydrogen Cavern Storage Transition (H<sub>2</sub>CAST) project. Led by infrastructure giants Gasunie and Stora Etzel, the project recently served as a proving ground for the delivery and underground storage of hydrogen, with US-based Plug Power successfully completing the first phase of its supply mandate.

This pilot initiative involved the delivery of 44.5 tonnes of hydrogen, demonstrating the viability of using repurposed salt caverns for large-scale, long-duration energy storage. Following this success, Plug Power was awarded a second contract for an additional 35 t, underscoring the operational reliability of the delivery logistics and the engineering confidence in the underground storage solution.

“The success of our recent projects in Germany with H<sub>2</sub>CAST shows that hydrogen works, and that it is scalable for strategic national energy requirements,” said Jose Luis Crespo, President and Chief Research Officer of Plug Power. “Plug’s ability to deliver

hydrogen on time, at volume, and with our own transport and delivery equipment for our customers underscores Plug’s leadership in Europe’s fast-growing hydrogen economy,” he said in a company statement.

The Plug Power hydrogen supply will continue to come from Hy2Gen Atlantis in Werlte, Germany. Plug Power holds exclusive rights to 100 per cent of the green hydrogen produced at the site. Furthermore, the company’s performance proved that hydrogen can be safely transported and stored on a large scale in Germany.

The ability to store vast quantities of hydrogen underground is a strategic game-changer for Europe’s energy transition. Green hydrogen, produced via electrolysis powered by intermittent renewable sources like wind and solar, cannot be produced on a constant basis. To ensure continuous supply for industry – from steel production to heavy transport – massive buffering capacity is essential.

Salt caverns, which already safely store natural gas across the continent, offer the ideal solution. Located deep beneath the surface, these geological formations can hold energy measured

in terawatt-hours, turning hydrogen from an intermittent fuel into a reliable, dispatchable energy source. This capability is vital for grid balancing and providing the kind of national energy resilience that policymakers have prioritised following geopolitical energy shocks. The successful injection and withdrawal demonstrated by the H<sub>2</sub>CAST partners validate this concept, paving the way for the deployment of similar storage sites across the European Hydrogen Backbone.

The European Hydrogen Backbone (EHB) initiative consists of a group of 33 energy infrastructure operators, united through a shared vision of a climate-neutral Europe enabled by a thriving renewable and low-carbon hydrogen market. The initiative aims to accelerate Europe’s decarbonisation journey by defining the role of hydrogen infrastructure – based on existing and new pipelines – in enabling the development of a competitive, liquid, pan-European renewable and low-carbon hydrogen market. It seeks to foster market competition, security of supply, security of demand, and cross-border collaboration between European countries and their neighbours.

The H<sub>2</sub>CAST project and Plug Power’s participation in it address these important goals.

While cavern storage addresses the ‘when’ of hydrogen availability, the most ambitious development addresses the ‘how’ and ‘where’ of its distribution. The successful operation of smaller-scale, dedicated delivery vehicles – like the fleet used by Plug Power in Germany – is a necessary first step, but the long-term vision centres on a massive build-out of pipelines.

The EHB aims to create a pan-European network of pipelines that will transport hydrogen throughout the continent. This will be done largely by repurposing natural gas lines, that will connect regions of high renewable hydrogen production (such as the North Sea coast and the Iberian Peninsula) with major demand centres. Germany, a key industrial nation, has already announced plans for a 9000 km domestic hydrogen network, set for completion between 2028 and 2032.

This pipeline network will dramatically lower the cost of hydrogen delivery compared to trucking or shipping, thereby making it economically competitive with fossil fuels. Crucially, it

links up with industrial clusters – geographical areas with high hydrogen demand – facilitating the essential decarbonisation of hard-to-abate sectors. Without this physical infrastructure, the EU’s target of producing and importing 10 million tonnes of renewable hydrogen by 2030 would remain an unachievable ambition.

The momentum in infrastructure development is being heavily supported by policy and capital. Recent developments, such as the announcement of nearly €275 million in funding from Austria to support hydrogen projects including storage and cross-border transport, underscore the role of national governments in driving the physical build-out.

Despite this progress, the industry continues to navigate significant hurdles. The recent IMO decision to delay a net zero framework for the global shipping industry, for example, represents a setback, delaying the creation of major, consolidated demand for hydrogen-derived fuels like ammonia. Furthermore, high costs and the complexity of ensuring a final investment decision (FID) for capital-intensive projects remain a challenge.

## Gas

# Egypt’s energy crisis reshapes East Med gas market, forcing reliance on Israeli, Cypriot and LNG imports

A severe and unexpected decline in domestic natural gas production, primarily from the flagship Zohr mega-field, is plunging Egypt into an acute energy shortage, forcing a swift return to large-scale imports. This dramatic shift is rapidly solidifying a new, interconnected regional gas market in the Eastern Mediterranean, with Israel as the immediate key supplier and Cyprus preparing to enter the fray.

Gary Lakes

Egypt is moving quickly to address a new energy crisis, while neighbouring countries and operating companies are building momentum to finally develop offshore fields with a view to maximising exports.

Experts in LNG and gas marketing, as well as regional gas developments addressed this issue at the EMC East Mediterranean Energy Conference and Exhibition in Limassol, Cyprus, in late October. Speakers analysed Egypt’s steps to import gas from LNG markets, the installation of more FSRUs, and the growing reliance on Israel as a gas supplier. Furthermore, the conference saw the signing of agreements between Egypt and Cyprus regarding the future import by sub-sea pipeline of shipments of Cypriot natural gas to Egypt and its LNG export plants.

The crisis, which has caused intermittent electricity blackouts across parts of the country and led to restricted gas supplies for heavy industry, marks a significant reversal for Egypt. The

2015 discovery of Zohr, a giant field with an estimated resource of 30 trillion cubic feet (tcf), had been hailed as the country’s answer to its long-running energy woes, briefly turning it back into a gas exporter.

Production at the offshore Zohr field, operated by Italy’s Eni, has suffered significant technical setbacks. Sources indicate that water infiltration into the reservoir has critically impacted output, dropping its capacity significantly. The field, which peaked at 2.7 billion cubic feet per day (bcf/day) in 2019, was recently reported to be producing closer to 1.33 bcf/day this year, according to industry reports.

This domestic shortfall – with national gas production forecasted to drop from 70 billion cubic metres (bcm) in 2021 to an estimated 53 bcm in 2024 – comes as Egypt’s energy demand continues to soar. The result has been a frantic push by Cairo to secure both liquefied natural gas (LNG) cargoes from global suppliers like the US and Qatar, and a big increase in pipeline gas from its neighbour,

Israel.

Egypt now has four Floating Storage and Regasification Units (FSRUs) installed – three in Ain Sukna and one at the Port of Alexandria – and will obtain another by the end of next year. Most of its LNG deliveries are obtained from the spot market, which provides a degree of flexibility.

Israel has emerged as the primary beneficiary of Egypt’s sudden need for stable gas supply. Already delivering around 10 bcm of natural gas to Egypt in 2024, Israel is currently responsible for approximately 60 per cent of Egypt’s total gas imports, with flows coming from the Leviathan and Tamar fields via the East Mediterranean Gas (EMG) pipeline.

In a landmark deal underscoring this new interdependency, the Egyptian firm Blue Ocean Energy signed a \$35 billion agreement in August with the partners of the Chevron-operated Leviathan field. This deal is set to significantly boost Israeli exports to Egypt via the planned Nitzana pipeline, which is expected to become

operational in 2028.

The \$609 million Nitzana pipeline project, announced in late October by the Israel Natural Gas Lines Company (INGL) and funded entirely by the Israeli gas exporters, is designed to ship an additional 6 bcm to Egypt annually. Analysts suggest this strengthened energy axis between Cairo and Tel Aviv could help bolster political and economic ties, even amidst regional conflict.

Further regional integration is on the horizon, with Cyprus positioning its offshore discoveries as the next logical source of supply for the Egyptian market.

Eni’s Cronos field is slated to produce a development plan by the end of this year for the field, with hopes to start production in 2026 and exports in 2027. The plan involves piping the Cronos gas to the existing Zohr production facilities before transferring it to Eni’s Damietta LNG export facility in Egypt for processing. Eni, and its partner TotalEnergies, has discovered several other gas fields in the vicinity of

Cronos and they are expected to eventually be joined to the export pipeline.

The Aphrodite field will also play a role in supplying Egypt and/or its other LNG export facility. The Cypriot government has approved the development plan for the Aphrodite field, discovered in 2011. Operator Chevron is expected to complete final engineering for a pipeline to the EGAS LNG facility at Idku, with a final investment decision (FID) targeted for 2027.

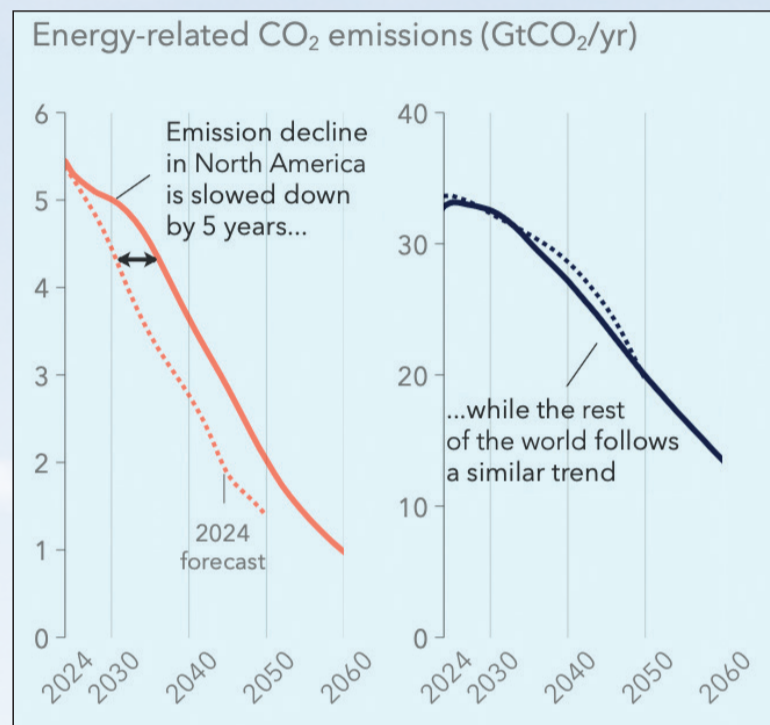
By leveraging its LNG processing infrastructure, Egypt serves as the essential gateway for its neighbours’ gas resources to reach both its own domestic market and the profitable European and global markets.

Ultimately, the combination of Israel’s stepped-up pipeline deliveries, the anticipated arrival of Cypriot gas, and Egypt’s increased flexibility to import LNG via its FSRUs should mitigate the current supply crisis. More importantly, it creates a new layer of energy interdependence – and potential stability – among the Eastern Mediterranean nations.

# Highlights from the DNV Energy Transition Outlook 2025

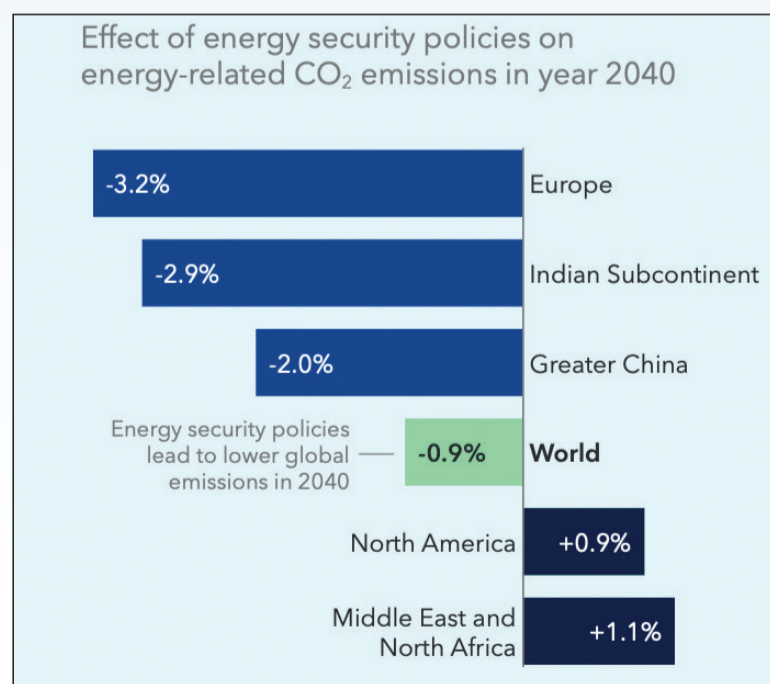
**Headquarters:**  
 DNV AS  
 NO-1322 Høvik, Norway  
 Website: <https://www.dnv.com/energy-transition-outlook/2025/>

**Policy reversals in the US will have only a marginal impact on the global energy transition**



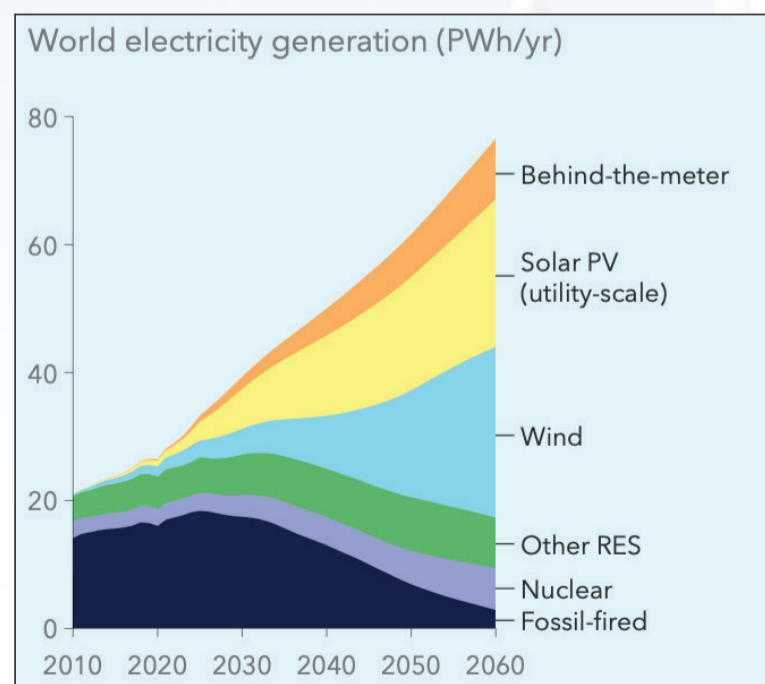
Energy Transition Outlook 2025 Summary, page 5

**EV and solar set new milestones as electricity production grows and greens with a progressively higher non-fossil share**



Energy Transition Outlook 2025 Summary, page 5

**Energy security actions globally produce a net result of lower emissions over time**



Energy Transition Outlook 2025 Summary, page 5

# On the ground impact: making green investment deliver for nations

Photo by Kervin Edward Lara

Across the world, governments and investors are putting more money into clean energy. From offshore wind farms in the North Sea to solar fields across Africa, the flow of capital towards green projects has grown steadily over the past decade. Yet behind the headline numbers, a more important question remains: how is this money changing lives on the ground? Mongolian government adviser, **Zula Luvsandorj** explains.

**G**reen finance is often discussed in abstract terms, focusing on large funds, risk profiles and ESG standards. What really matters, however, is whether investment is helping countries to modernise their grids, reduce reliance on fossil fuels, create jobs and build resilience to climate change. In other words, does green money deliver real impact? What is going well, and what still needs to change for financing to reach its full potential?

Green finance is no longer on the sidelines; it's now a key driver of the global move toward sustainability. It means directing money from governments, banks, and investors into projects that cut pollution, protect nature, and support long-term growth. What was once niche is now essential, with billions being invested in renewable energy around the world.

The International Energy Agency estimates that nearly \$2 trillion was invested into clean energy in 2023. More of this funding is now going to emerging economies, where populations are growing quickly and demand for electricity is rising.

In principle, this is a win-win. Countries gain access to new technologies and more reliable power, while investors can tap into growing markets, but the reality on the ground is more complex.

One of the clearest impacts of green investment is new access to electricity. In sub-Saharan Africa, more than half a billion people still live without reliable power. Large-scale grid expansion is costly and slow, which is why investors are backing solar mini-grids and small hydro schemes.

For example, in Kenya and Tanzania, blended finance models have enabled private firms to roll out village-scale solar systems. These projects may seem small compared to utility-scale solar parks. Still, their impact is direct and immediate: children can study after dark, clinics can refrigerate vaccines, and local businesses can operate longer hours.

In South Asia, renewable investment has supported grid stability. India has used green bonds and international capital to expand its solar and wind fleet. This has helped to reduce reliance on imported coal and ease pressure on urban air quality. While challenges remain in transmission and storage, the groundwork for a cleaner power mix is visible.

Green investment is also changing labour markets. Building wind farms, solar parks and battery plants requires local workers. According to the International Renewable Energy Agency (IRENA), renewable energy jobs worldwide passed 13 million in 2022.

In Vietnam, foreign investment in solar manufacturing has turned the country into a major exporter of solar panels, creating tens of thousands of skilled jobs. In Morocco, investment in solar and wind has not only expanded domestic energy supply but also built technical capacity among engineers and technicians.

The challenge is to ensure these jobs are not only temporary construction roles but part of long-term industrial strategies. Countries that link renewable projects with local supply chains and training programmes are better placed to retain value within their economies.

One of the strongest arguments for clean energy is energy security. In frontier and emerging markets, countries that import fossil fuels for power generation face volatile costs and supply risks. Investments in domestic solar, wind or geothermal reduce this exposure and support greater self-reliance.

Mongolia provides a clear example. The country relies heavily on coal for both power and heating, but it also has some of the world's best wind and solar resources. In recent years, international investment has supported the construction of large wind farms on vast, flat grasslands,

which now supply growing amounts of clean electricity to the grid. These projects help to diversify the energy mix, reduce local air pollution and cut dependence on imported fuel for diesel back-up.

By backing local renewable resources, green finance enables nations like Mongolia to strengthen their energy security while also laying the foundations for long-term economic diversification. This is not only an environmental goal but also a strategic one for national development.

The type of financing matters as much as the amount. Traditional investment structures often do not fit the realities of emerging economies. Projects can stall if investors demand high compliance standards that local developers cannot meet.

Blended finance has proved to be one of the most effective tools. By combining concessional funds from governments or development banks with private capital, the risk is reduced and the project becomes more attractive. Guarantees and insurance products can also help to address concerns about political or regulatory instability.

Tiered ESG requirements are another emerging solution. Rather than apply uniform reporting standards, investors can tailor expectations to the size and context of a project. This allows small but impactful projects, such as rural solar mini-grids, to access capital they might otherwise miss.

For green finance to succeed, communities must see the benefits. This requires more than just electricity connections. Public trust grows when projects also support healthcare, education and local enterprise.

In Latin America, renewable developers have increasingly invested in social programmes as part of project design. For instance, wind projects in Mexico have included community funds for schools and roads. While not without challenges, this approach recognises that successful energy transition depends on local support.

Public engagement is equally important in wealthier countries. In the UK and Germany, wind and solar expansion has sometimes faced local opposition. Financing models that share revenues with communities or lower household bills have proved more effective than those that treat projects purely as commercial ventures.

Despite progress, several barriers still slow the delivery of impact:

- **High upfront costs:** Renewable projects often require large capital investment before revenue begins

- **Policy uncertainty:** Shifting regulations or weak institutions can deter private investors

- **Grid constraints:** New capacity cannot always be integrated into ageing grids

- **Access to finance:** Small developers in low-income countries still struggle to meet investor requirements.

Without targeted reforms, these barriers will continue to limit the reach of green finance.

To make green investments deliver more effectively, three areas stand out:

1. **Policy stability:** Governments need to set clear long-term targets that survive political cycles. Investors are more likely to commit if they trust the regulatory environment.

2. **Stronger partnerships:** Collaboration between governments, investors and communities ensures that projects align with national priorities and public needs.

3. **Capacity building:** Beyond financing hardware, there must be support for local skills, institutions and supply chains. This builds resilience and long-term impact.

Looking ahead, the world cannot afford a two-speed energy transition. If wealthy countries race ahead while frontier markets lag, global climate goals will remain out of reach. Green finance has the potential to bridge this gap, but only if it is designed with impact in mind.

Success should not only be measured in megawatts installed or capital deployed, but also in the number of households gaining reliable power, the workers trained in new industries, and the communities whose futures are more secure.

On the ground, the transition is not an abstract financial exercise. It is a matter of whether a farmer can pump water for crops without expensive diesel, whether a child can study under electric light, and whether a nation can chart its own energy path. Green investment is delivering progress, but the challenge now is to make it broader, deeper and faster.

If financing models evolve to match the realities of each country, the promise of green finance can be fully realised. Nations will not only cut emissions, they will also build stronger economies and more resilient societies. That is the true measure of impact.

*Zula Luvsandorj is an energy strategist and infrastructure finance expert with 15+ years of global experience and over \$20 billion in closed deals. She currently advises Mongolia's Deputy Prime Minister on energy transition and investment strategy.*

**Zula: For green finance to succeed, communities must see the benefits. This requires more than just electricity connections**



# Fuelling clean tech: AI's role in global decarbonisation

The rapid rise of artificial intelligence (AI) and data centres raises a mix of concerns and opportunities. A central issue is their role in the energy transition, which raises several key questions.

**Joseph Jacobelli** takes a closer look.

Artificial Intelligence (AI) and data centres dominate the headlines almost daily, driven by both concerns and opportunities. Certainly, their role in the energy transition raises critical questions including, what is the expected electricity demand from data centres in general, and AI in particular? How will this demand be met? In which areas is data accelerating the energy transition?

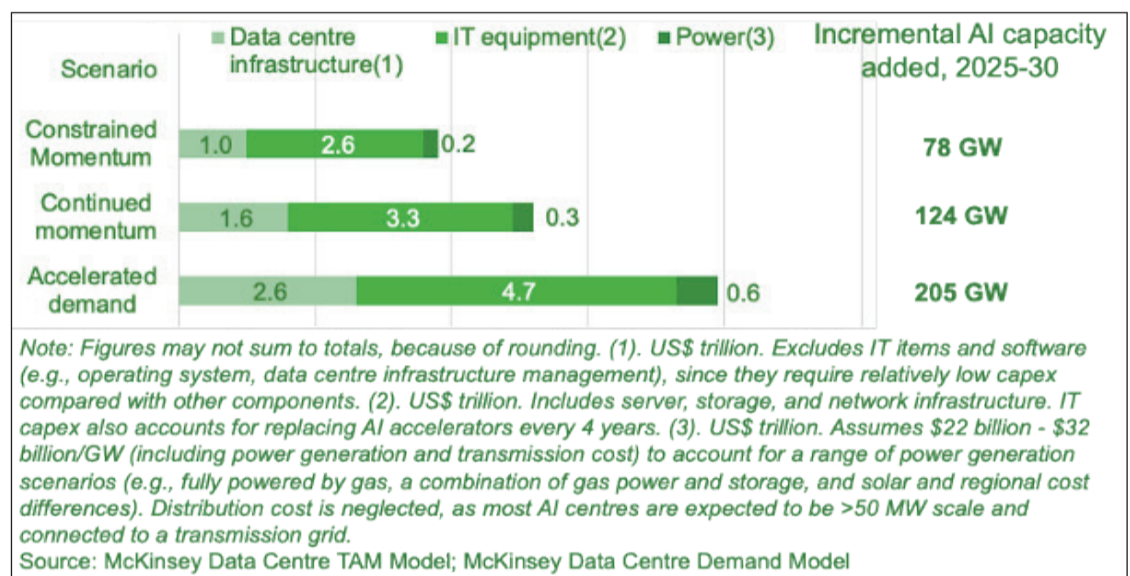
AI-related data centres require a staggering amount of capital investment over the next few years. Global consultancy McKinsey calculates the amount to be between \$3.7 and \$7.9 trillion by 2030. The wide range is because of three scenarios, including \$3.7 trillion in a constrained momentum scenario, \$5.2 trillion in a continued momentum scenario, and \$7.9 trillion in an accelerated demand one. Global real estate consultancy Knight Frank estimates as much as \$4 trillion may be needed. An amount similar to the base case of \$4.2 trillion by the International Energy Agency (IEA), which projects mid and high cases of \$5.5 trillion and \$5.7 trillion.

The massive investments in data centres means more electricity demand. The amount of electric power peak supply is estimated at between 78 GW and 205 GW by McKinsey, and well over 100 GW by others. The typical utilisation rate range is 40-80 per cent, translating into a total consumption by AI-related data centres of at least 274 TWh assuming 78 GW at a 40 per cent utilisation, up to 1435 TWh assuming 205 GW at an 80 per cent utilisation. Global independent assurance and risk management company DNV in its 2025 'Energy Transition Outlook' report notes that "a review of over 50 publications with recent estimates... shows a vast range in global data centre energy demand for 2030" of 210 TWh to as much as 7900 TWh at the high end. A realistic amount would be 1000-1500 TWh, between a two- and three-fold increase versus 2024.

The extra demand is unlikely to create a supply crunch. The assumption by the IEA and others is that global power demand will be about 30 000 TWh by 2030. This would mean that the consumption by data centres would only represent a modest amount of 3.3 per cent to 5 per cent. Still the incremental growth will not only happen in emerging countries, which should experience consumption at significantly higher rates than developed countries. It will also occur in developed economies such as Europe and North America.

New demand will be met by a variety of energy sources. Clean power coupled with energy storage systems are likely to take the lead. The supply should be reinforced by flexible gas fired generation. Some countries may opt to also add coal fired generation, but this is more likely to be a short-term rather than a long-term plan. Longer term the revival of nuclear energy should also play a significant role. Probably from the next decade small modular reactors (SMRs), currently an early-stage technology, especially in terms of cost, are also likely to play an important role.

Most hyperscale data centres, which



Global data centre capacity expenditure driven by AI by category and scenario, 2025-2030 projection (\$, trillion)

have a massive cloud computing scale capacity, are located outside dense urban areas. However, smaller edge (local fast computing) and co-location (shared or rented server space) sites are found near or in urban areas. Edge and co-location facilities secure energy from the local grid. Hyperscalers rely on grid-supplied energy or secure supply from dedicated generation capacity. Investors in this capacity are commonly third-parties, not the owner and operator of the hyperscale data centre, such as Amazon, Google, or Microsoft. Tech giants will usually conclude a long term corporate power purchase agreement (CPPA) with the power plant owner, and sometimes even a shareholder in the generation facility. Whatever the financial arrangement the facility can more easily secure bank financing with the CPPA in place.

Data centres have an intimate relationship with global decarbonisation. Their operation contributes to greenhouse gas emissions, but at the same time enable significant emissions reductions across various sectors.

The carbon footprint of data centres includes electricity consumption when the grid's carbon intensity is high. They also include the embodied emissions of the information technology equipment, the construction and materials used, and cooling refrigerants and systems. Overall, a data centre's carbon footprint is typically significantly lower than an average energy intensive manufacturing facility. It is also worth highlighting that while data centres electricity load is relatively stable, AI does raise the load volatility at data centres, in terms of magnitude and frequency of peaks.

In parallel, AI-related data centres play an increasingly vital role in the global path to decarbonisation. The rapidly growing computing power is helping to accelerate the energy transition in several ways.

They are driving major advances in carbon accounting, research and development of clean energy technologies, in discovering new clean tech materials, climate modelling, and in improving industrial and urban energy efficiency. AI-related data centres are also playing a key role in optimising

sectoral operations through computational modelling, predictive analytics, or real-time enhancements. Fields such as industrial processes, energy storage, policy simulation, grid management and the optimisation of data centres themselves are among those benefitting from these capabilities.

For example, US-based KoBold Metals uses AI to accelerate the discovery of critical materials, such as cobalt or lithium. It deploys an AI-powered system which integrates geoscientific data to reduce unnecessary drilling and environmental impact. Another US-based company, Climate AI, uses an AI-driven platform to generate high-resolution climate forecasts. It helps agriculture, finance and other industries adapt to climate variability, improving operational resilience and enabling proactive emissions planning. The number of large corporations using AI for decarbonisation-related applications is growing rapidly. These include ABB, Enel, Siemens, and Schneider in Europe and Alibaba, Hitachi, Mit-

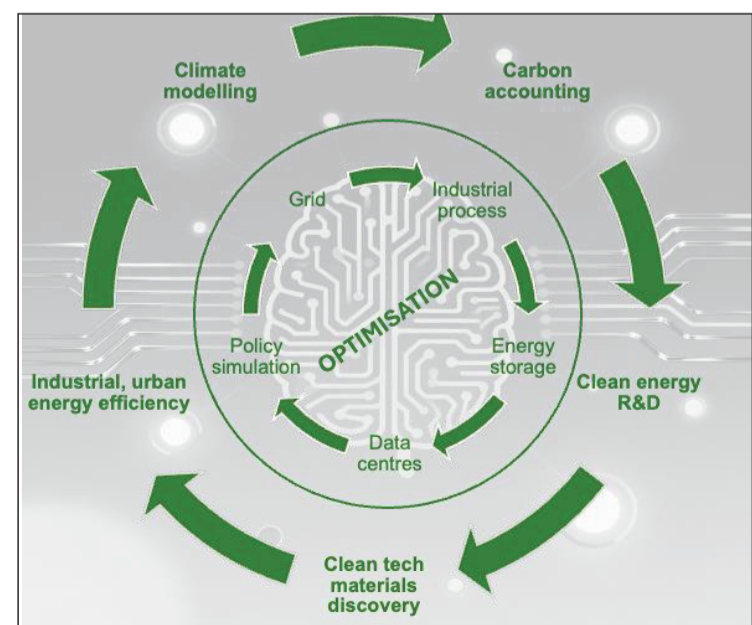
subishi, and PetroChina.

AI and data centres are at the heart of the energy transition. They bring both significant challenges and meaningful opportunities. Their increasing electricity demand calls for careful planning, strategic investment and thoughtful management to avoid supply strains. At the same time, their ability to accelerate decarbonisation and drive breakthroughs in clean energy innovation by enabling advanced data analysis, accelerating research and development, and improving optimisation, is undeniable. Successfully balancing growing energy needs with robust sustainability measures will be critical to harnessing AI's full potential and securing a low-carbon future.

*Giuseppe 'Joseph' Jacobelli, head of single-family office Bourne Impact Capital, has 30+ years in energy markets. He champions sustainable finance through his 'Asia Climate Finance Podcast' and writings like his upcoming book, 'Powering the Unstoppable Green Shift'.*



**Jacobelli: Rapidly growing computing power is helping to accelerate the energy transition in several ways**



Contributions to decarbonisation from AI

Source: Author, 10 October 2025. Background image: Perplexity AI, 'Black and white AI sketch with brain and circuits' (generated image, Perplexity AI, 9 October 2025)

# Carbon capture at Worksop offers food for thought

Commercial operation has commenced at the Worksop Gas Engine carbon capture power plant in the UK. The 10 MW project is a demonstration of the patented FlexPower Plus® concept, capable of delivering electricity while producing food-grade CO<sub>2</sub> for industrial use. Landmark Power Holdings' **Astrid Mynborg**; Rolls-Royce Power Systems' **Patrick Roth** and **Fabian Weber** at Asco Carbon Dioxide, explain the technology.

The Worksop carbon capture plant in Nottinghamshire, UK, has been operating since August this year



Gas fired power generation serves as a critical bridge in the energy transition, providing controllable, flexible, and reliable energy today, while supporting the ongoing expansion of renewables. Reducing CO<sub>2</sub> emissions from these plants, however, remains important.

Carbon capture, utilisation & storage (CCUS) is emerging as a key technology for a low-carbon energy future. Driven by stricter regulations, rising CO<sub>2</sub> prices, and corporate climate pledges, CCUS – especially in modular gas engine plants – offers a commercially viable, mature solution to cut emissions by up to 95 per cent while ensuring reliable power supply.

In August, following three years of construction, a carbon capture and utilisation project has begun commercial operations. The Worksop plant in Nottinghamshire, UK, is a demonstration of the patented FlexPower Plus® concept. Developed by Landmark Power Holdings (LMPH) in collaboration with Victory Hill, Rolls-Royce Power Systems and Asco Carbon Dioxide (Asco) the facility delivers 10 MW of electricity, while producing food-grade CO<sub>2</sub> for industrial use.

Ralph Spring, CEO, Asco Carbon Dioxide Ltd, noted: “Revenue diversification is always a key driver for businesses. As CO<sub>2</sub> pricing rises and net zero targets tighten, CCUS as a sustainable strategy is a timely and valuable solution.”

Gas fired power plants with CCUS provide operational flexibility, reliability, and geographic adaptability. They can integrate effectively with variable renewable generation, stabilising the grid during periods of low solar or wind output and while green hydrogen and biomethane are potential long-term decarbonisation options, their current availability and cost limitations make CCUS the only commercially mature solution capable of delivering immediate reductions in CO<sub>2</sub> emissions from gas fired generation. Additionally, captured CO<sub>2</sub> is an industrial commodity with a wide range of applications.

“Carbon dioxide can be used in mineralisation processes for construction materials such as cement or concrete, in the production of synthetic fuels, or as a chemical feedstock, providing an additional

revenue stream beyond electricity sales,” said Spring. “CO<sub>2</sub> is also widely used in the food and beverage industry – for example in carbonated drinks, refrigeration, and packaging – as well as in other sectors such as horticulture for greenhouse enrichment and water treatment.”

Forecasts suggest annual new CCUS capacity – currently in the double-digit MW range – could reach several hundred MW by 2030, totalling gigawatts cumulatively. Economic drivers include carbon credit revenues, lower EU ETS compliance costs, and infrastructure synergies (e.g., access to existing storage in Northern Europe). The modular, scalable design (from tens to hundreds of MW) enables cost-effective, flexible CO<sub>2</sub> reduction. With rising CO<sub>2</sub> prices and supportive UK/EU policies, these plants offer a compelling near-term investment to accelerate decarbonisation.

In the UK, the Net Zero Innovation Portfolio (NZIP) funds pilot projects, while the Cluster Sequencing Model backs regional infrastructure, fostering coordinated industrial and energy cluster deployment. New mechanisms like Dispatchable Power Agreements (DPAs) and low-emission electricity incentives aim to boost project viability and attract private investment, positioning CCUS plants as reliable mid-merit assets in the UK’s 2035 decarbonisation strategy. At the EU level, the Innovation Fund supports large-scale decarbonisation, though targeted backing for engine-based CCUS is still developing.

The Worksop project integrates multiple technologies to maximise energy efficiency, combining high-efficiency mtu gas engines, Organic Rankine Cycle Turbines (ORCs), and Asco carbon capture modules in a flexible, modular design.

The plant’s power generation is based on six mtu Series 4000 L64F-NER gas engines, selected for their high efficiency, rapid load response, and reliable performance under varying grid conditions. Compared to large gas turbines, gas engines provide compact, scalable designs with faster deployment, making them ideal for small to medium-sized plants and complementing renewables and hydrogen in the transition to net zero.

These compact, standardised engines are designed for modular, containerised deployment, which simplifies commissioning and allows flexible operation. Heat from the engine jacket water is recovered by four low-temperature ORCs, each directly coupled to an individual engine, to generate additional electricity.

In future iterations, a ring main configuration will enable the ORCs to draw heat collectively. This means that if one ORC is offline for maintenance, the others can increase their output. It also opens the opportunity to capture heat from additional sources, including the carbon capture process, further enhancing overall plant efficiency.

“At the Worksop plant, a high-temperature ORC currently uses exhaust gas heat to generate additional electricity. In future projects, this exhaust heat will be redirected to

produce steam for the CCU system, simplifying operations, enhancing overall CHP (combined heat and power) efficiency, and reducing operating costs,” said Ollie Fergusson, Head of Project Development, Landmark Power Holdings.

The Asco carbon capture modules manage the separation, purification, and liquefaction of CO<sub>2</sub>, with the plant achieving a total annual CO<sub>2</sub> capture capacity of 30 000 tons. The plant layout, shaped by its evolution from a peaking site to a high-efficiency power plant and finally to a CCUS-integrated facility, provides valuable insights for future sites. These lessons will allow closer integration of power generation and CCU units, optimising flue gas routing and CO<sub>2</sub> handling.

Additional benefits of the modular configuration include the ability to continue operations during maintenance and the ease of replicating similar plants in other locations. By combining proven gas engine technology with ORC heat recovery and carbon capture, Worksop demonstrates that small-to-medium-scale plants can deliver tangible environmental and economic benefits.

The development of the Worksop plant followed a phased approach, demonstrating how modular CCUS plants can progress from concept to full operation. This timeline highlights the importance of robust project management, flexibility, and close supplier collaboration, particularly when navigating complex integrated systems. In parallel, key intellectual property milestones illustrate the innovative technologies underpinning the project.

Key project milestones included: financial close, October 2021; EPC contract signed November 2021; Power Purchase Agreement (PPA) concluded March 2022; on-site construction start April 2022; back energisation completed April 2023; original EPC contractor entered administration; June 2023; works resumed under LMPH project management, with contracts renegotiated August 2023; engine commissioning started April 2024; CCU commissioning started October 2024; first CO<sub>2</sub> captured February 2025; and start of commercial operations in August 2025.

This roadmap showcases how careful planning, adaptability, strong supplier relationships, and concurrent innovation through patented technologies enable complex projects to move from planning to successful operation, even in the face of unexpected challenges.

Despite the challenges posed by the EPC contractor’s insolvency, the project was successfully completed thanks to strong partnerships with key suppliers, including Rolls-Royce Power Systems, Asco, Climeon, and Turboden. LMPH’s direct management of contracts allowed the project to maintain momentum, although with an unavoidable delay.

The absence of a pre-FEED study and incomplete EPC design required on-the-fly modifications during construction, including adjustments to the Turboden hot oil system, absorber/desorber spray nozzles, and the scrubber cooling system. Future projects will prioritise

complete design packages and detailed construction and commissioning schedules prior to construction. The plant’s modular configuration allowed operational flexibility during redesign activities and will continue to do so during operational maintenance, reinforcing the value of flexible layouts for both current operations and future expansion. These lessons provide a roadmap for future modular CCUS projects, emphasizing risk mitigation, supplier collaboration, and operational optimisation.

“Our factory-validated, fast-to-market modular mtu gas container solutions align perfectly with Asco’s expertise in delivering turnkey carbon capture systems. Together, under Landmark’s FlexPower Plus concept, we provide maximum efficiency and reliability to meet any customer requirement,” said Michael Stipa, Senior Vice President Business Development & Product Management, Stationary Power Solutions, Rolls-Royce Power Systems.

The planned investment for Worksop was approximately £3.5 million per MW installed, although costs were affected by EPC disruptions.

“The project is expected to deliver returns of around 12 per cent, based on multiple revenue streams, including electricity sales to the grid, capacity market contracts, and CO<sub>2</sub> offtake agreements,” said Michael Avison, CEO, Landmark Power Holdings. “Private wire sales to a nearby industrial customer will further enhance the return on investment.”

The modular design also enables integration with microgrids and behind-the-meter supply for industrial clients. The combination of electricity and CO<sub>2</sub> revenues demonstrates the commercial viability of modular CCUS plants.

The project has strategic significance and market prospects are promising.

“The Worksop plant’s success validates the potential for flexible, modular gas engine CCUS systems to meet growing demand for low-emission power in the UK, Europe, and the USA,” said Stipa. “Its combination of technical maturity, scalable design, and diversified revenue streams demonstrates that small-to-medium plants can achieve measurable emissions reductions while remaining commercially viable, offering a bridge between intermittent renewables, grid stability requirements, and the decarbonisation of hard-to-electrify sectors.”

Key market opportunities include electricity sales (both grid-connected and private wire) and CO<sub>2</sub> offtake for industrial, or synthetic fuel applications. Additional opportunities include co-locating plants with industrial users, microgrid solutions, and sustainable aviation fuel (SAF) production. Rising CO<sub>2</sub> prices, supportive UK energy policy, and growing demand for reliable low-carbon power further strengthen the commercial case. Together, these factors position Worksop and future FlexPower Plus sites as cornerstones of the energy transition, delivering both environmental and commercial value at scale.



Junior Isles

# Gaslighting the climate change debate

**B**alancing that three-legged stool we call the energy trilemma is no easy task, often leading to fierce debate on what fuel mix and/or energy policies offer the best path to the goals of affordability, security and environmental sustainability. While there is little argument that the ultimate demise of coal is certain, any similar conclusion over the future of gas is far from clear cut.

While much of last month's International Gas Turbine Conference (IGTC) organised by the European Turbine Network (ETN) discussed technology programmes around gas turbine technology – both promising ideas and mature solutions – the opening keynote session attempted to reach some kind of consensus on the future of gas fired generation and the policies needed to support that future role.

Opening the keynote Ruud Kempner, European Commission Deputy Head of Energy Security and Safety noted that the energy trilemma “is very much at the heart of the EU energy policy

debate”. Decarbonisation was the focus in 2020 with the European Green but since the start of Russia's war on Ukraine, security and affordability have gained prominence.

Kempner said some important enablers were required to follow the EU's energy transition pathway, which has been in place since 2019. “We need flexibility in the system to manage the transition; rethink and be more innovative in terms of the localised vs European element of this energy transition – when do we need to look at more local energy systems to make them more balanced and secure, and when do we need to take advantage of the resources we have across the interconnected EU to make a liquid energy market across the continent. And third, we need to talk about investment.”

But it is the role of gas in providing flexibility in the system that seems to be the most important reason for the continued use of gas, at least through to 2050. While Kempner noted that the Commission thinks about flexibility in

a “holistic way”, citing demand shifting and the use of electric vehicles, Kempner also noted that gas turbines and ongoing technology developments were not only important for balancing variable renewables but also contributed to fuel flexibility. He nodded to programmes aimed at burning hydrogen in machines and how the ability to utilise biogas and e-fuels would allow the use of local resources for dispatchable power generation.

“If you take that flexibility and the ability to adapt to local circumstances, those are the two elements that will be your design principles to ensure your investments make a return not only now, but also in 25 years,” Kempner told delegates.

It was a point that Dennis Hesselting, Head of Gas, Coal & Power Markets Division, International Energy Agency, also picked up on.

“In view of the strong growth of renewables, gas in power generation will be less about baseload and more about flexibility and system services,” he stated. “Current policy discussions address flexibility in power markets (both supply and demand), affordability (for industry and for consumers), and the upcoming LNG supply wave.”

Hesselting showed that global LNG supply growth is set to accelerate further to 7 per cent in 2026 – its fastest pace since 2019. This strong growth will be primarily supported by North America and Qatar's North Field East expansion.

There has certainly been a great deal of attention on the US and the impact the Trump administration's pivot from renewables to gas will have domestically, as well as globally.

Due to the US government shutdown, Robert Schrecengost, Director of Advanced Energy Systems Division, at the US Department of Energy was unable to join the keynote panel discussion. However, Bobby Noble, Senior Programme Manager at the Electric Power Research Institute (EPRI) offered some useful insights for the gas turbine sector.

“We've had a lot of reversals in the US this year, but a lot of the states and companies already have specific goals, which are still in place. So, what we are really seeing is changes in what's getting funded. While many renewable projects are being cancelled, when we think about long-term aspects for decarbonisation of gas turbines – and while those words are maybe not spoken directly – there's still a lot of research going on. Companies are still doing work to ensure that gas turbines can be part of that mix.”

When looking at policy changes, Noble said it is important to look at how quickly they make an impact on decisions.

“Last year when the ruling came around gas turbines, and combined cycles specifically, there were some things that some companies had to think about. It would hit units that had a capacity factor of 30 or 40 per cent and above... so when you look at orders for last year, mostly things went simple cycle for the US. But now when you look at the [policy] changes this year, it's looking like things are going to boom.”

The rise in the use of artificial intelligence and subsequent growth in data

centres will also be another major driver, he said. “When we look at projections, we're talking double, triple, quadruple [electricity] demand in a decade or so... Many of these data centres are well over 1 GW; that starts to become a perfect scenario for combined cycle gas turbines,” Noble explained.

If the demand for data centres does not prove to be a bubble, this, along with US President Donald Trump's “drill, baby drill” mantra, certainly prolongs the inclusion of gas in the electricity mix.

Unfortunately, the debate around gas has become an emotive one; and political. To some degree it is understandable. With the need to urgently tackle climate change, the stakes are high.

In the US, the government's position now borders on the extreme. The Energy Department has added “climate change”, “green” and “decarbonization” to its growing “list of words to avoid” at its Office of Energy Efficiency and Renewable Energy. Trump has called climate change a “hoax” and told more than 150 world leaders at the UN recently: “If you don't get away from this green scam, your country is going to fail.”

What is worrying is that such thinking is taking root in certain political corners. UK Conservative leader Kemi Badenoch has said net zero by 2050 is impossible, and argues the UK's current climate policies are “driving up the cost of energy”. Last month the leader of the opposition party said if she became Prime Minister, her party would repeal the 2008 Climate Change Act, which set targets for cutting carbon emissions and reaching net zero.

But despite the narrative, largely from right-wing politicians, that it is renewables and green policies that are driving up electricity prices, it is clear that is not really the case. While green levies do add a small amount to energy bills, it is a market design that links the cost of electricity to gas that is the real problem. This is clear when looking at the UK, where gas fired generation sets the electricity price 98 per cent of the time. The country subsequently has the highest power prices in Europe.

At the other end of the debate, environmental activists are responding – perhaps in ways that do not best serve their cause. In late September, eight climbers from Greenpeace UK scaled two exhaust stacks at Staythorpe power station, England's largest gas fired power station, to “expose the role expensive gas plays” in setting electricity prices and pushing up bills.

Speaking about his involvement in the protest, Vincent McGoldrick, a 68-year-old retiree, said: “I'm a pensioner – I shouldn't be climbing on power stations. But something has to happen – something has to change.”

Something does have to change but climbing chimneys is not helpful or sensible. Neither is banning words from documentation. Putting the brakes on renewables and claiming climate change is a scam is just gaslighting the entire gas debate and stymies efforts to balance the energy trilemma. Gas has its place in the electricity mix – at least for now – and gas turbine manufacturers must continue to work towards making those machines as emissions-free as possible.

