Gas to Power Journal
Peakload Power and Energy Storage

Focus on oxy-combustion, new nuclear & clean fuels

Weekly News 9 June 2023

Sembcorp signs $1.04 billion deal to import gas from Indonesia

Sembcorp Industries has signed an agreement with Medco E&P Natuna to import natural gas piped from the West Natuna fields in Indonesia at an estimated value of S$1.9 billion (US$1.04bn). The deal is expected to be effective by the second half of 2023, with delivery set to start from 2024 for a tenure of four years.

Natuna fields in the Sarawak Basin & Balanak FPSO

Natuna gas fields are situated is in the Greater Sarawak Basin about 1,100km north of Jakarta and 225km northeast of the Natuna Islands, Indonesia's northernmost territory in the South China Sea. The fields hold an estimated 46 trillion cubic feet (tcf) of recoverable reserves but development has been slow over territorial disputes.

Imported gas from Indonesia is likely to help fuel Sembcorp's multi-utilities centre on Jurong Island for which construction is slated to start this autumn. The centre will cost some S$900 million (US$668.2m) to develop and is due operational in early 2026, including a 600 MW hydrogen-ready, gas-fuelled power plant.

A turnkey contract for the development of the power plant has been awarded to Jurong Engineering and Mitsubishi Power, along with a long-term service agreement. The Japanese manufacturer is also carrying out EPC works for a combined-cycle gas power plant in the Sakra sector of Jurong Island, built on behalf of Keppel Infrastructure which could also purchase part of the natural gas imported from Indonesia.

On Jurong Island, is already running two cogeneration plants at Sakra and Banyan which together produce 1,219 MW of electricity

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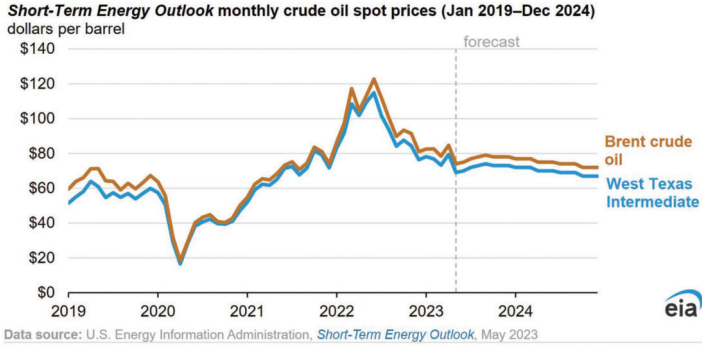
Saudis to cut oil output through 2024, impacting long-term gas prices

Saudi Arabia's latest announcement to further cut oil production through 2024 pushed up prices, impacting oil-indexed gas contracts. The U.S. Energy Information Administration (EIA), meanwhile, had lowered its crude oil price forecast to an average $78/b in the final three months of 2023 amid concerns about China's slow economic growth and a possible U.S. recession.

Saudi Arabia said at the latest OPEC meeting in Vienna it would make additional voluntary cuts of 1 million barrels a day to its oil output to support prices while total production targets of OPEC+ were adjusted to 40.5 million barrels a day for the duration of 2024.

Short-Term Energy Outlook **monthly crude oil spot prices (Jan 2019–Dec 2024)**



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, May 2023

Crude oil prices jumped by almost 3% after these announcements, with North Sea Brent quoted at $76 per barrel and the US benchmark West Texas Intermediate (WTI) price rising to $71 per barrel. At these prices, long-term LNG deliveries would be priced at around $9.90 per million British thermal units.

On the supply side, oil flows from Russia have remained higher than expected which boosts supply and puts downward pressure prices. Easing crude oil prices, in turn, pull down to oil-indexed gas contracts albeit with a time lag of three to six

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AGENDA

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and 1,100 tonnes per hour of process steam for the nearby industry.

EMA pushes for zero carbon power plants

Though Sembcorp continues to count on gas-fuelled power generation, the Energy Market Authority (EMA) of Singapore is trying to incentivise companies to build, own and operate zero-carbon power plants and bunkering facilities on Jurong Island. The aim is to generate at least 50 MW of electricity from hydrogen and ammonia for up to 25 years.

Several parties have submitted expression of interest (EOIs) in April and the EMA head said the regulator is "keen to collaborate with industry partners to explore what could possibly happen." Early movers JERA and MHI are looking to build an ammonia direct combustion power plant. A feasibility study looks at running a 60 MW gas turbine in combined-cycle mode fully on ammonia.

Targeting Net Zero by 2050, the government of Singapore has aside $129 million for phase two of the Low-Carbon Energy Research Programme. This funding was in addition to the $55 million awarded as of October 2022, with further funds expected to follow. ■

Henry Hub gas prices forecast to rise over the summer

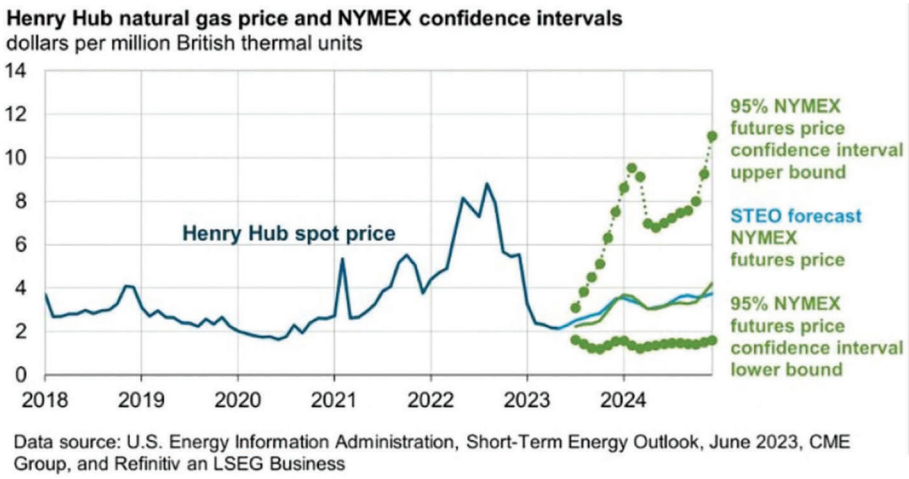
Henry Hub spot gas prices are forecast to rise over the summer to average almost $2.90 per British thermal units (MMBtu) in the second half of 2023, up from $2.15/MMBtu in May amid declining production rising gas-burn for power generation.

In 2024, the US Energy Information Administration (EIA) forecasts prices to rise nearly 30% yoy to around $3.40/MMBtu. On the supply side, US dry gas production is forecast to reach almost 103 billion cubic feet per day (Bcf/d) in the second half of this year, down slightly from earlier estimates of about 104 Bcf/d on average during April and May.

Gas-directed drilling dwindles

"The drop in forecast production reflects less gas-directed drilling because of a more than 75% declined in the Henry Hub gas spot price compared with its recent peak in August 2022," the EIA explained in its latest Short-Term Energy Market Outlook (STEO). However, analysts anticipate growth of associated gas production in the Permian Basin will "mostly offset declines in dry gas output."

Looking at the demand side, the EIA anticipates soaring demand for air-conditioning and a related rising dispatch of gas-fired peaking power plants over the summer.



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023, CME Group, and Refinitiv an LSEG Business

Solar generation is expected to be 24% higher this June, July and August compared with the previous year, requiring flexible gas-fired gensets or energy storage to keep the grid in balance. "The increase in solar capacity, along with lower natural gas prices, contributes to our forecast drop in coal-fired electricity generation this year," analysts pointed out.

Power prices could halve in eastern US

Electricity prices in the eastern half of the United States are likely to cost around 50% less this year thanks to lower natural gas prices.

In contrast, the Northwest, Southwest, and California regions could experience temporary spikes in wholesale power prices this summer, due to a likelihood of limited power supply during peak demand hours. Analysts warned these high hourly power prices bring average monthly prices above $100 per Megawatt-hour in July and August. ■

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months. Meanwhile, if OPEC+ countries stick to voluntary production cuts and exports disruptions from Iraq and Nigeria persist, Brent crude oil prices could edge up from $74/b in May 2023 to $79/b in September before declining slightly to average $78/b in the last three months of this year.

Henry Hub gas spot price may double by December

Spot gas prices could decouple from term prices of oil-indexed gas contracts as EIA analysts anticipate the Henry Hub spot price to nearly double over the course of this year to reach at least $3.71/MMBtu.

Analysts forecast gradual increase in gas prices as LNG exports will rise from a first-quarter average of 11.6 Bcf/d to 12.2 Bcf/d this summer, while gas consumed for power generation will average 38 Bcf/d this summer – the second most on record behind last year.

Dry gas production, meanwhile, is anticipated to fall from recent highs to average 100.4 Bcf/d this summer. But despite falling dry gas production and growing demand, the EIA expects prices to stay much lower than last year, hovering around $2.91/MMBtu for the year – more than half of the 2022 average of $6.42/MMBtu. ■

Gas to Power Journal

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SK Group invests in NET to help roll out oxy-fuel combustion in Asia

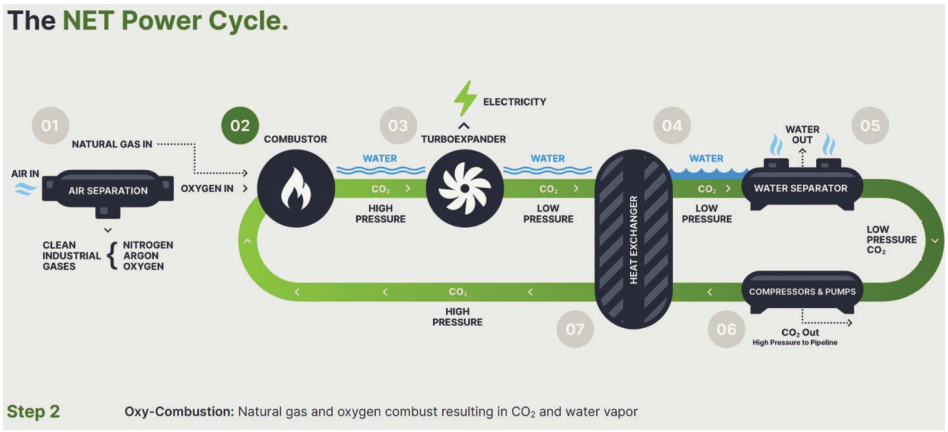
South Korean SK Group's $50 million commitment brings total investment in NET Power to $895 million, helping to accelerate the deployment of utility-scale oxy-combustion power plants across Asia. Oxyfuel combustors burn natural gas with nearly pure oxygen instead of air which results in near-zero emissions. A pilot project, named SN1, near Odessa in Texas is due operational in 2026.

As South Korea's second-largest conglomerate, SK group companies have $139 billion in global annual revenue and invest billions in expanding their U.S. presence through stand-alone business operations or partnerships in hydrogen energy and fuel cells, battery manufacturing, semiconductors and advanced materials.

Ending coal's dominance in Asia

Using oxy-combustion technology is expected to help SK accomplish its pledge to achieve net-zero emissions across all businesses by 2050, said SK Inc. Materials President Young-wook Lee. Deploying NET Power plants throughout Asia, in his view, is "an important step forward in (…) ending a prevailing dependence on high-carbon intensity baseload power generation."

Decarbonising South Korea and other large emitters in Asia like China and Japan is key to achieve climate goals. "Asian power generation, which is primarily fuelled by coal, accounts for nearly 25% of global emissions," said Danny Rice, the incoming CEO of NET Power.



LCOE below $40/MWh

NET's technology combusts natural gas with pure oxygen, producing CO2 and water which gets mixed with recirculated CO2 and use it to spin a turboexpander, producing electricity. When the turboexpander exhaust cools, water and by-products are removed while most of the CO2 is compressed and recirculated back to the turboexpander. Excess carbon exits the cycle, gets captured and sold to the chemical industry.

Oxyfuel combustion plants are designed to generate reliable power with a carbon intensity similar to solar or wind, coupled with a short-duration battery, at a levelized cost of electricity (LCOE) of approximately $21-$40/MWh, the developer said, adding a single utility-scale 300 MW NET power plant would generate enough electricity for over 220,000 homes per year in the United States.

Commercialisation of the first utility-scale oxy-combustion power plant is underway with FEED works in full swing for the SN1 project near Odessa, Texas. The plant is hosted by Occidental Petroleum which will be a key offtaker of high-purity CO2 for its petchem operations. Once proven successful, SK Group is considering rolling out similar plants in South Korea and beyond. ■

SMRs need to be cost-competitive with fossil fuels to enable Net Zero

Cost is still the biggest hurdle to the uptake of small modular reactors (SMRs) as countries aim to decarbonise their power gen mix. Wood Mackenzie's modelling shows that if costs fall to $120/MWh by 2030, SMRs will be competitive with nuclear pressurized water reactors (PWRs), gas and coal – both abated and unabated – in some regions of the world.

This calculation assumes carbon prices in Europe at US$140/tonne in 2030 and US$177/tonne in 2050, analysts noted. Looking ahead, further price declines are likely from 2040 onwards as SMRs realise economies of scale and improve market economics.

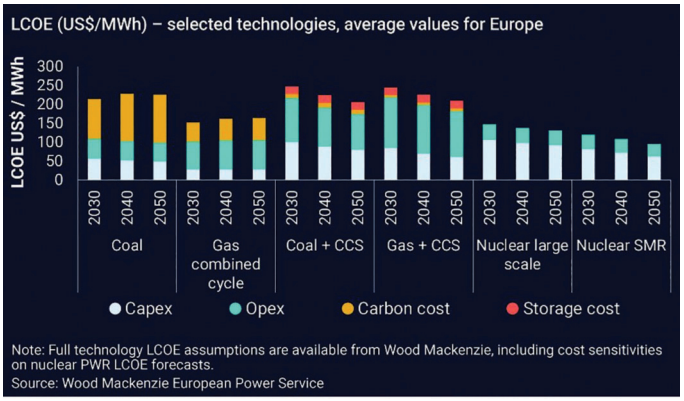
Strikingly, a Chinese nuclear reactor costs roughly 50% less than a similar reactor in Europe, according to WoodMac calculations, in largely due to supportive government policies that set out clear construction timelines.

Need to prioritise a few technologies to curb costs

Designed to be modular, factory assembled and scalable, SMRs have a target construction time of three to five years compared with the 'nameplate' 10 years needed to build a large-pressurised water reactor (PWR). But the technology is expected to play only a "small part in the power market through 2030" as high costs hold back deployments.

First-of-a-kind SMR costs could be as high as US$8,000 per kilowatt (kW) and as low as US$6,000 per kW, according to estimates from developers but WoodMac expects costs to come in a at the high end of this range, or even higher. To bring the costs down, "developers should prioritise a few technologies rather than a wide array of options," analyst recommend. Offtake agreement should also place a value on nuclear's ability to deliver stable zero-carbon electricity and heat, which could partly be used for producing low-carbon hydrogen.

Today, there are only six potential first-of-a-kind SMR projects in the pipeline through to 2020, ranging in size from 80 MW to approximately 450 MW. Investment needed to realise these projects is still unclear and hinges on financing terms, commodity costs and uranium availability – but also on the political will to see projects succeed. ■



Constellation sets record for co-firing gas turbine with hydrogen

Constellation Energy has set an industry record for operating a Siemens Energy SGT6-6000 gas turbine on blend of 38% hydrogen, nearly doubling previous blend ratios for similar turbines. Tests were carried out at the Hillabee Generating Station, a 753 MW combined-cycle power plant in Alabama.

Only "minor modifications" of the combustion chamber and related parts were necessary to allow the CCGT, commissioned in 2010, run on a blend of over one-third hydrogen combined with natural gas.

The tests proved that retrofitting America's existing fleet of gas-fired power stations to co-fire hydrogen can be an effective tool in meeting more stringent emissions rules, recently released by the US Environmental Protection Agency's (EPA). A 38% blend rate would reduce Hillabee's carbon emissions by approximately 270,000 metric tons annually, the equivalent of taking more than 60,000 passenger cars off the road, based on EPA data.

NOx emissions did not increase during this blending test, hence there was no negative impact to local air quality. Hillabee is fitted with Selective Catalytic Reduction (SCR) technology, which significantly reduces NOx emissions, the plant operator pointed out.

Constellation Energy claims to already produce almost 90% of its energy from carbon-free sources and the utility aims to achieve 100% carbon-free generation by 2040. To that end, it plans to transition most of its gas-fired power plants to carbon-free technology in the coming years. ■

Hillabee, a three-unit CCGT near Alexander City, Alabama

Mitsubishi to equip Meranti Power's new OCGTs in Singapore

Japan's Mitsubishi Power will supply a pair of M701F gas turbines, capable of 30% hydrogen co-firing, for Meranti Power two 340 MW open-cycle gas turbine power units that are under development in Singapore and due operational by June 2025. Meranti, a subsidiary of Singapore's Energy Market Authority (EMA), said the plants will primarily run on natural gas and serve as a backup.

"Incorporating rapid-response gas turbines into our power grid is a step towards ensuring stable and reliable power for end-users. Being hydrogen-ready, this power plant will also support Singapore's efforts to transition to lower-carbon fuel sources," said Meranti Power's managing director, Tan Chor Kiat.

A consortium led by Jurong Engineering Limited (JEL) and comprising Mitsubishi Power will design, manufacture, procure and construct the 680 MW power station within less than two years' time. Situated on Jurong Island, the OCGT will deliver electricity on demand to help minimize the risk of energy disruption.

Render of Meranti's OCGTs on Jurong Island

Speaking at the ground-breaking ceremony, Singapore's second minister for Trade and Industry, said, the two new hydrogen-ready plants will partly replace the ageing existing units with a combined capacity of 400 MW and help meet future electricity demand growth. Existing OCGTs in the city state are now over 30 years old.

Mitsubishi's F-Series gas turbines have a long history with 312 units sold globally and accumulated more than 20 million operating hours. JEL will undertake design and supply of Balance of Plant (BOP) equipment and overall construction works for the power station. AECOM is engaged as the Owner's Engineer to oversee project management and implementation. ■

UK Power Networks launched nation's first independent DSO

UK Power Network has launched the nation's first independent Distribution System Operator (DSO) to ensure sufficient electricity capacity exists across London, the East and South East to support the uptake of electric vehicles, heat pumps and renewables. Earlier this month, the DSO procured over 420 MW of additional electricity through a flexibility tender.

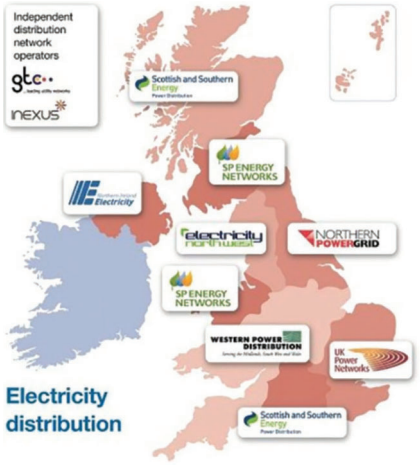
The latest tender round saw UK Power Network seek bids for flexibility from 1,037 customer sites which, for the first time, included contracts to distributed energy resources and aggregators to increase demand or turn down supply during periods of excess power. This flexibility tender attracted more than 1,000 MW of flexible capacity against requirements of 426 MW.

"Tapping into customer flexibility means we can connect more renewable energy and low carbon technologies to the network," explained DSO director Sotiris Georgiopoulos. UK Power Networks currently has 7.4 GW of renewable energy connected to its network, and is preparing for 2.6 million EVs in its regions by 2028, compared to 450,000 vehicles currently charging from their grid.

"We use data, technology and consumer flexibility to operate the network (including electric vehicles and heat pumps) in a smarter way," Georgiopoulos said, suggesting this allows for a more cost-effective grid build-out.

Ofgem urges other network operators to follow suit

Ofgem CEO Jonathan Brearley lauded the initiative as vital as the UK embarks on a massive clean energy transition. "We've talked about transmission assets, we've talked about big offshore wind farms happening but the same is happening locally and we need to make sure we have an integrated plan.



"So, what I'm really hoping that the DNOs [distribution network operator] do is to lean in and make sure they are developing compelling and ambitious plans in terms of their version of the DSO model. But ultimately, we will look nationally, pick out the best bits and make sure we have a system that functions."

Demand-side response saves customers money

The CEO of UK Power Networks, Basil Scarsella, underlined the company is independent, legally-separate entity, that is committed "bring savings to customers" by incentivising them to shift their energy consumption or generation. In the Bracken House office building in Central London, for instance, the DSO has set up a scheme to reduce demand on the grid at peak times by adjusting the building's temperature throughout the day.

Flexible electricity consumption not only applies to heating and air conditioning but also to charging electric vehicles and using heat pumps. Analysts see potential for up to 1 GW demand-side flexibility in London by 2050, which would free up power gen capacity for almost 500,000 electric vehicles. ■

Plea to split Germany's power price zone rejected by six states

Six German state leaders fiercely oppose a plea to split the country's power price zone over geographically uneven capacities. Northern states want the split as the region's many wind farms generate most of Germany's cheap renewable energy although the states currently pay higher grid fees than Bavaria, where build-out of wind energy and grids has been slow.

Industry and manufacturing are mostly situated in the western Ruhr region and in the two southern states and consumers in these regions are keen to buy comparatively cheap offshore wind energy from the north. Grid congestion, however, often forces TSOs to carry out expensive redispatch measures e.g. ordering conventional power stations in north Germany to reduce generation to "make space" in the grid for the high influx of wind power, or order the temporary shut-down of wind turbines at time of an overload. Such re-dispatch interventions cost over €402.5 million back in 2015 and the regulator estimates cost to rise to over 1 billion by 2023.

Grid congestion affects eastern neighbours

The acute lack in transmission capacity and grid connection is also affecting neighbouring countries: Poland and the Czech Republic, for instance, have installed phase-shifters at their border points to prevent loop flows of wind power from northern Germany through their territories designated for Bavaria. The EU agency for the cooperation of energy regulator ACER had proposed splitting Germany into different power zones already last year, although economist from the research institute ZEW say expanding grid capacity would be a "simpler solution."

Costal states in northern Germany – Schleswig-Holsten, Mecklenburg-Western Pomerania and Lower Saxony - have invested to massively build-out their wind power capacity in recent years, while southern states have sourced most of their electricity from nuclear and coal plants as well as gas peakers to balance these. With the nuclear exit soon to be followed by a coal exit, southern utilities are struggling with a stark rise in fuel costs for gas-fired power plants and insufficient grid capacity.

The south-western states now call for an accelerated grid build-out, a rapid ramp-up of the hydrogen economy including the construction of H2-ready gas power plants, better conditions for energy storage and an industry power price. ■

Vietnam approves power development plant focussed on gas & RES

The Vietnamese government has approved the latest power development plan, prioritising the maximum use of domestic gas alongside limited LNG-to-power projects, strong renewables build-out and no new-build coal power station by 2030. Development of the Block B, Blue Whale gas field will be fast-tracked to fuel eight domestic gas-fired power projects with 6,900 MW capacity combined.

Block 118 offshore Vietnam, known as the Ca Voi Xanh field, or Blue Whale, was first discovered by PetroVietnam in 2011 and is said to be a large enough to provide electricity to a city the size of Hanoi for more than 20 years. The Quang Tri power project, meanwhile, will be fuelled gas from Yellow Leopard gas mines, said Linh Doan, head of the Hanoi office of London-based global law firm Watson Farley & Williams and who has written a paper on the plan.

Limited LNG-to-power projects

Development of LNG-to-power projects will, however, be restricted as the government seeks to "prevent the risk of relying on imported fuel" and ensure that the electricity tariff is "reasonable for the Vietnamese market," she explained.

The commercial operation date (COD) for the Long Son integrated LNG import terminal and power gen project has been postponed in the 2031-2035 timeframe. Meanwhile, development of the Thi Vai LNG terminal project are proceeding on schedule, linked to the Nhon Trach 3 &4 power projects and further plants in the southeast region. The Son My LNG terminal and two adjacent power units will also be continued under the revised plan.

The revised Master Plan VII reduced domestic gas- and LNG-fuelled capacity to 19,036 MW in 2030, or 14.7% of Vietnam's total installed power gen capacity – a sharp reduction from the initially planned 14,930 MW of domestic gas-fuelled and 22,400 MW of LNG-fuelled power plants.

"Domestic natural gas projects are currently behind schedule, which may result in the delay of domestic gas to power projects," Linh commented. She noted that in early May 2023, PetroVietnam Gas was the first company granted the licence to import and export LNG.

No FSRU framework in place

Today, there is no legal requirement for Vietnam Electricity (EVN) to commit any minimum offtake of LNG – an "important point for investors [in regas terminals] to consider," she stressed. Moreover, there is no legal framework for offshore terminals such as FSRUs which further adds to developers' risk.

The Master Plan VIII sets out goals to switch certain gas and LNG plants to hydrogen but there is still an absence of legislation in Vietnam for the production of hydrogen and ammonia. By 2050, some 23,430 MW to 27,930 MW, or 4.5% to 5% of total power gen capacity, is meant to be converted from gas-firing to run entirely on hydrogen.

Shift from coal to green energy

Vietnam had been heavily reliant on coal-fired power stations to meet its electricity needs, but no new coal-fired power projects are planned by 2030. Installed coal capacity, under the Master Plan VII only includes projects that are in the development stage which is half compared with the previous plan. By 2050, coal will no longer be used for power generation and thermal energy is instead meant to be produced from biomass and ammonia.

Striving to produce clean energy sources for export, the government is strongly supporting the development of renewable energy. Targeted installed capacity of all renewable energy sources has been lifted to 28.5%, up from 21%, of total capacity. Nearly 22 GW is meant to come from offshore wind complemented by 6 GW onshore wind, nearly 13 GW solar power and 2.2 GW biomass and waste-to-energy 2030 by. Of that total, up to 10,000 MW of renewable energy sources are intended to produce hydrogen and ammonia for export. ■

EVN workers in Vietnam

NEWS NUDGES

Asia counts on abated gas power

Gas-fired power plants have a future as an investment class in Asia, a survey conducted by Black & Veatch shows. Approximately half of the respondents believe that over the next five years there will be "more investment" in gas or LNG-to-power facilities combined with carbon capture.

German nuclear exit without notable effect

Since Germany shut down its last three operating nuclear power plants a month ago, the effects on electricity prices have been "extremely small", the Federal Network Agency (BNetzA) finds. In fact, electricity became cheaper between 15 April and 15 May, as the loss of nuclear power capacity has been outweighed by other effects, especially the rising share of renewable energy sources.

GE ships HSRG from Korea to Japan for installation at 2.3 GW Goi plant

Some of the world's largest Heat Recovery Steam Generators (HSRG) have been shipped from Tongyeong-si in South Korea to the LNG-fuelled Goi power plant east of the Japanese capital Tokyo. The HSRGs, with pressure part modules manufactured by GE at Changwon, will be installed at the 2,340 MW Goi combined-cycle power project, due operational in 2024.

Apart from the three HRSGs, GE is also supplying three 9HA.02 gas turbines for the LNG-fuelled Goi CCGT project which is slated to enter commercial operation in phases, starting from B2024.

A HRSG plays an important part in a combined cycle power plant as it uses heat from the gas turbine exhaust to generate super-heated steam, which powers a steam turbine to create up to 50% more energy without any additional fuel. At the Goi plant, the HRSGs will provide additional electricity and efficiency – crucial for Tokyo's rising energy needs and land constraints.

During the roll-on operation in Korea, barges were put in place to ensure the right sea water depth in front of the quay. In addition, a rampway hanger, buoy and patrol vessels helped accommodate berthing requirements at the Goi jetty.

The HRSGs modules were barged from Tongyeong-si at the Goi site

"We're proud that equipment of this size and tailored to withstand earthquakes was built at our manufacturing facility in Changwon and barged from Tongyeong-si to the Goi site safely, here it will play a critical role supplying electricity for Japanese homes and businesses," said Ramesh Singaram, CEO for GE Gas Power Asia.

GE is now working with Toshiba to integrate the huge HSRGs at the plant. Each of the supermodules weigh approximately 2,500 metric tons and measure between 43 to 46 m in height, almost as tall as The Arc de Triomphe in Paris or a 15-floor building, specified Jason Cooper, CEO of GE Gas Power's heavy-duty gas turbine business.

With an installed base of more than 1,270 HRSGs worldwide and significant technical expertise, GE delivers HRSG solutions that are custom engineered to meet customers' operating flexibility and performance requirements. ■

Caithness opens 1.8 GW Guernsey power station near Marcellus shale

Ohio-based Caithness Energy has cut the ribbon on the newly completed 1,875 MW Guernsey combined-cycle gas power station. The $1.7 billion plant is situated in the heart of the Marcellus and Utica Shale, benefiting from abundant and comparatively cheap fuel. All electricity from the CCGT will be sold into the PJM market area.

The state-of-the-art electric generator is "cleaner and more efficient than older plants," said Ross Ain, Caithness Energy's President. "It uses more efficient technology to curb emission and utilises a dry cooling system that that reduces water use by 95% compared to older facilities," he explained.

Caithess Energy and Apex Power designed and developed the Guernsey CCGT, which was then built by Gemma Power Systems of Glastonbury, Connecticut, with the help of multiple subcontractors. "Guernsey County has benefited directly from nearly 1,000 skilled craft workers at peak construction and approximately 30 permanent high-tech jobs," Ain said.

The CCGT is driven by three GE gas turbines, each with a with a heat recovery steam generator and steam turbine generator. With a capacity of over 1.8 GW, it produces enough electricity to cover the needs of approximately 1.4 million homes within the PJM region. ■

Graham B&V to add open-cycle gas turbine units at SaskPower Stations

Alberta-based Saskatchewan Power Corp has selected a joint venture between Graham Construction and Black & Veatch (B&V) to complete the additions of one open-cycle as turbine to the Ermine Power Station and another to the Yellowhead Power Station. The two fast-ramping OCGTs will supply "reliable, cost-effective baseload power," SaskPower said as it transitions away from coal.

Canada's regional utility SaskPower in mid-May announced plans to make capital expenditure of C$1.15 billion (US$850 million) to grow and modernise its electricity system during the 2023/24 fiscal year. Envisaged investment includes C$505 million in growth projects, notably gas-fired assets such as the 370 MW Aspen power station and the 360 MW Great Plains power station due operational in 2024 – as well as the two OCGTs at Ermine and Yellowhead power stations.

Graham Black & Veatch will carry out design, procurement, construction and commissioning of the two fast-ramp units, SaskPower said. The scope of supply includes two 46 MW GW gas turbines, complete with generators, synchronous-self-shifting clutch and static excitation. The open-cycle turbines can ramp up to full capacity within minutes, if required, or can also be dispatched as a baseload power source that makes use of Alberta's abundant domestic gas resources.

As the province of Saskatchewan turns away from emission-intensive thermal coal and adds more and more intermittent wind and solar power to the grid, dispatchable gas generation will play an integral role in stabilising the grid while helping to reduce the overall carbon footprint.

"Between Graham's local knowledge and previous experience at these sites and Black & Veatch's power resume and familiarity with EPC contracting, our joint venture will deliver reliable, resilient energy to SaskPower's customers for many years to come," said Cecil Dawe, VP Industrial for Graham. ■

Yellowhead Power Station

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