



China's peak electricity demand could rise 12.1% this winter; NEA says

Maximum electricity demand in China may soar by 140 gigawatts (GW) or 12.1% from last year's peak as energy demand rebounded in the second half of this year, the National Energy Administration (NEA) said. China's electricity demand already increased by 9.9% in September from a year earlier to 781,000 GWh as the country's economic recovery gathered speed.

Hotter than usual temperatures also pushed up this summer's peak demand about 50 GW higher than highs reached in the previous summer, with NEA recording a 3.6% increase from last year's 1,390 GW.

Though power supply is generally guaranteed during the winter, there may be shortages in Yunnan province and Inner Mongolia, an official noted. Eager to stabilise supply this winter, NEA wants to ensure that the production of thermal coal remains at a high level – especially coal with a high calorific level from Yunnan.

Stocks of coal at power plants are meant to be kept a record high of 200 million tons – some 30 million tons more than last year's levels – in an attempt to guarantee stable electricity supplies.

Gas consumption could grow 7% this year

Major gas producing provinces like Hainan and Guangdong are also called upon to ensure stable gas supplies to fuel regional power sta-



Construction of the 500-kV Yangtze River crossing power line

tions. NEA expects China's demand to rebound in the second half of 2023 and reach up to 390 billion cubic metres (bcm) for the full year, a 7% increase. Growth is largely driven by city gas demand from the commercial sector and several gas-fuelled power stations being dispatched during the summer.

Gas offtake from industrial users remains very sensitive to price and will likely respond strongly to gas price fluctuations as the autumn and winter season approaches. NEA expects the global gas market to continue being influenced by a rebalancing in Europe, while demand in Asia recovers steadily which fosters the need to restock gas inventories.

continued on page 2

Egypt extends power cuts after gas imports from Israel fall to zero

Electricity outages are being extended in Egypt amid acute fuel shortages after gas imports from neighbouring Israel have ground to a halt earlier this week, falling from 800 million cubic feet per day. Egypt relies on Israeli gas both for power generation and re-export as LNG, but supplies are scarce after Chevron shut down the Tamar field.

European gas traders are closely observing the supply situation in the Middle East as Egypt used to liquefy and re-export some of the gas from Israel to Europe as LNG. The Italian oil major Eni had been confident that Egypt would soon restart LNG export as domestic demand declined in the autumn. These expecta-

tions have now been scattered.

The halt in gas import is linked to Israeli authorities having ordered Chevron to suspend production at the Tamar field, situated offshore Israel's southern Mediterranean coast and not far from the Gaza strip where terrorists attacked Israeli civilians. "In the wake of the situation, Israel's defense establishment has ordered the temporary suspension of natural gas supplies from the Tamar field," the Israeli energy ministry said at the time, suggesting: "The economy's energy needs will be supplied by alternative fuels. The power industry is preparing to use alternative fuels to power its stations."

Egypt suffers fuel shortage, lowers LNG export

For Egypt, in contrast, the suspension Tamar left

continued on page 2



People in Egypt turn to candles during a blackout

AGENDA

INVESTMENT

Georgia Power's updated IRP projects 17 times higher load by 2030 **2**

COMPANIES

Siemens Energy ponders selling stake in Indian affiliate to Siemens AG **3**

Wärtsilä's profitability improves in Q3 amid growth in services **3**

MARKETS

TTF Nov-23 gas contract deemed overvalued amid weak demand **4**

Industry power price in France "significantly lower" than in Germany **4**

PROJECTS

Porthos CCS project to store 2.5mt of CO2 using MAN compressors **6**

Continued from page 1, top story

Domestic gas meant to cover 50% of demand

As one of China's main energy market regulators, NEA underlined the country's gas strategy is to strengthen domestic production and long-term contract, complemented with some spot LNG, to maintain price stability. Natural gas produced in China increased to 220 bcm in 2022, up 6% year-on-year. The government aims for domestic gas to cover more than half of demand in the long-term, allowing for gas to be used as a peak-shaving tool at times of high electricity demand.

To stabilise supply, Chinese companies sealed nearly 17 million tons per year of long-term LNG offtake accords last year, with Free-on-Board (FOB) making up nearly 60% of the total. At the same time, pipeline gas deliveries saw a staggering 54% increase, which according to NEA underlines the importance of this partnership in China's energy import strategy.

Challenges of inflexible pricing

Inflexible pricing embedded in some long-term contract were criticised by NEA as this

resulted in high import costs compared to global LNG spot prices in the first half of this year.

Domestic demand was dampened in this scenario, but gas consumption still rebounded 5.6% year-on-year to 194 bcm, covered by 115.5 bcm of domestic production, plus 33.2 bcm of pipeline gas deliveries and 42.6 bcm of LNG. Pandemic-related restrictions had lowered China's overall gas consumption by 1.2% to 364 bcm lowered, while the share of gas in primary energy consumption fell by 0.5% to 8.4%, the report specified. ■

Georgia Power's updated IRP projects 17 times higher load by 2030

Georgia Power has filed an update to its latest Integrated Resource Plan (IRP), projecting a 17 times higher load growth than what it forecasted earlier due to the state's robust economic growth. A flurry of new manufacturers, technology firms and data centres push up demand for electricity, hence the utility requires about 6,600 MW of additional capacity through 2030.

Previously, Georgia Power had thought an additional 400 MW would be sufficient to meet demand – but the current load projections had to be revised upwards 17 times as many of the new industrial customers' projects are larger than average, some exceeding 1,000 MW.

In its updated IRP, Georgia Power envisages building new conventional power plants and procuring electricity from existing ones as well as the expansion of renewable energy sources, battery energy storage systems (BESS) and distributed energy resources (DER). Specifically, Georgia Power wants to certify a power purchase agreement (PPA) with Mississippi Power as well

as a PPA with Santa Rosa Energy Center to obtain electricity from an existing combined-cycle gas unit in Pace, Florida.

In terms of new-builds, Georgia Power aims to build a new flexible simple-cycle plant at Plant Yates, add various distributed energy sources and set up new demand-response programs.

To accommodate renewables and distributed energy sources, the utility is also seeking approval to extend its power transmission infrastructure. Specifically, it wants energy storage to be co-located with existing as well as new solar power units.

Summarising the planned expansion in the 2023 IRP Update, Georgia Power aims to add some 10,000 MW of new renewable



resources by 2035 – nearly double the volume projected in the 2022 IRP. Plans to develop, own, and operate the 265 MW McGraw Ford BESS project have already been provisionally authorised. In addition, the company also plans to issue a request for proposal for 500 MW of energy storage next year, with resources meant to be onstream by the end of 2028. ■

Continued from page 1

operators of gas-fired power plants out of fuel. Chevron had been trying to honour

some of its contract with Egypt by delivering gas from the Leviathan field instead but flows have now fallen to zero.

In fact, the fate of the three largest Israeli gas development projects – Tamar, Leviathan and Karish – greatly affects the regional market: Egypt imports about 7 billion cubic feet per year (bcm/y) of natural gas from Tamar and Leviathan which helps meet domestic demand and feeds its two liquefaction plants – Idku LNG close to the city of Alexandria – and Damietta SEGAS LNG close to the Suez Canal. Analysts at Rystad Energy account that Egypt exported 3.7 million tonnes of LNG between October 2022 and January 2023, with the peak at just less than 1 million tonnes in December 2022 – roughly equal to Tamar's 33-day production shutdown at current rates.

Egypt exported an isolated LNG cargo from the Idku liquefaction terminal on the 6th of October via the SK Resolute heading to Zeebrugge, but the restart of export came just one day before the Hamas' attacks on Israel. Prior to loading the SK Resolute cargo, Egypt had not seen LNG exports since the beginning of July, when the BW Pavilion Leeara lifted a cargo from Idku LNG for Bangladesh's Summit Group.

The dearth of LNG exports exemplifies a steep increase in Egyptian energy demand from air conditioning this summer when the country struggled with a heatwave of up to 45°C and insufficient gas production, which also left gas-fired power plants short of fuel. As a consequence, Egyptian LNG exports plummeted 67 percent to just 3.01 million tons in the year to date, according to LNG Journal data. ■

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Siemens Energy ponders selling stake in Indian affiliate to Siemens AG

Cash-strapped Siemens Energy is considering selling parts of its 24% stake in an Indian-listed affiliate to its former parent Siemens AG to prop up its balance sheet, sources told Bloomberg. The stake is worth approximately €3.3 billion and a partial sale might be announced this week as Siemens Energy is urging the German government for guarantees worth €16 billion.

Shares in Siemens Energy plunged 38% on Thursday, erasing €3 billion off its market value after the news broke that the company is seeking government guarantees. Analysts say Siemens Energy needs the money to win new contracts for building gas turbines and transmission networks. These business units are still profitable, but steep losses incurred through quality problems at the wind turbine unit Siemens Gamesa has squeezed the company's overall liquidity.

"We don't want any cash from the state. It's all about guarantees that have never been needed in practice. The whole thing is like reinsurance for the banks," sources close to Siemens Energy were quick to point out.

Quick fix rather than state aid

Divesting its shareholding in the India-listed Siemens Ltd would be a quick fix for Siemens Energy's liquidity problems rather than having to court the German state for guarantees. Siemens AG already owns 51% of the Indian-listed Siemens Ltd and raising that stake by another 24% would be easier to justify to its shareholders than issuing guarantees to its spin-off Siemens Energy.



The divestment is one option that is on the table but there is no guarantee there will be an actual transaction. If a deal can be reached, it is expected to be announced before the end of this week.

Economist Marcel Fratzscher is critical of possible federal government guarantees worth billions for the ailing energy technology group Siemens Energy. "This is problematic for several reasons: State guarantees create false incentives for companies because they promote a fully com-

prehensive mentality," the President of the German Institute for Economic Research (DIW) told the paper Rheinische Post.

Siemens AG spun off Siemens Energy in 2020 – "possibly with the intention of no longer having to assume many of the risks of the energy division and being able to transfer them to the state," Fratzscher suggested. In his view, the parent company as Siemens Energy's main owner should alone assume the guarantee for its struggling spin-off, not the German state. ■

Wärtsilä's profitability improves in Q3 amid growth in services

Wärtsilä has improved its profitability in the energy business in the third quarter of 2023 thanks to an 18% rise in order intake to €5214 million, mostly for services. Higher interest rates and gas price volatility, however, made many customers delay decisions on new engine power plants which put a lid on related equipment sales.

Service order intake was up 16% to €2,644 million, leading to a 6% expansion of the order book by then end of September. Net sales increased by 7% to €4,371 million, while cash flow from operating activities reached €432 million – rebounding from minus €113 million in the first three quarters of last year.

Looking at the next 12 months, Wärtsilä CEO Hakan Agnevall expect the demand environment for the company's energy business to be "better to that of the comparison period," while demand will remain range-bound for the marine business.

Constraints in global supply chains have eased considerably, which has had a positive effect especially in battery energy storage, he pointed out, adding that the service business keeps developing well.

A good example of the latter is the ten-year Guaranteed Asset Performance agreement Wärtsilä signed with US utility Omaha Public Power District. Upon activation, the plant will provide dispatchable balancing power as part of the utility's 'Power with Purpose' project. The initiative is designed to add 400 to 600 MW of utility-scale solar generation and 600 MW of balancing natural gas generation.

In the marine segment, growing pressure to decarbonise operation

drives demand for retrofits and services. But capacity limitations at shipyards and increased prices in newbuild dampen the investment appetite in and push back the delivery dates of ships. ■



TTF Nov-23 gas contract deemed overvalued amid weak demand

Energy Aspects is bearish on the November contract at the Dutch TTF gas trading hub and reckons the front-month's strength comes from traders covering short positions amid geopolitical uncertainty. TTF Nov-23 is forecast at €43.60/MWh – below the top of the fuel-switch channel as record supply limits the need to price gas out of competition with coal.

Longstanding supply risks have dissipated after workers at Chevron's Wheatstone and Gorgon LNG terminals called off strike action, while flows through TurkStream are holding up even though Bulgaria levied a €10/MWh tariff on Russian gas imports.

Latest weather forecast show slightly less heating degree days in Northwest Europe, compared to the five-year average, as wet and windy conditions are predicted through mid-November. "We expect this should help long open positions work their way out of the TTF Nov-23 contract by expiry," analysts noted.

The prompt balance is tight due to record gas injections into storage and a temperature-driven rise in demand. TTF day-head prices have averaged €41.60/MWh in October, up by €5/MWh month-on-month as storage injections have risen by 45 million cubic meters per day to an average of 150 mcm/d.

Looking ahead, Energy Aspects says the TTF must price towards the top of the power-sector fuel-switch channel through

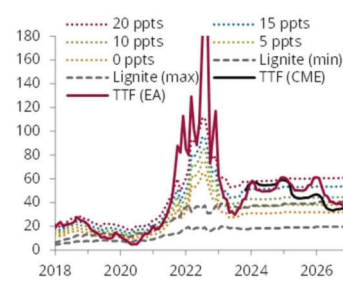
peak winter season.

"Our forecast for TTF balance-of-winter is €1.80/MWh below the traded curve at €54.40/MWh," analysts said, explaining: "The TTF must price gas out of competition with coal in the power sector to avoid a call on storage that would leave too much work to rebuild October 2024 inventories."

A moderately cold winter could lift European gas demand by 9 bcm, though industrial demand will likely stay weak well into 2025. Lower industrial energy tariffs could contribute to a rebound in demand, particularly from the chemical industry, and led to a 7 bcm rise in industrial demand to around 57 bcm over the winter. Demand losses due to energy savings in the residential and commercial sector will hence be key to balance the market.

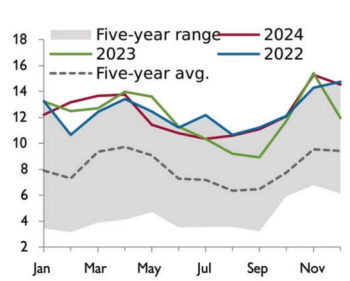
Substantial renewables build-out in Europe

TTF vs coal-to-gas fuel-switch triggers, €/MWh



Source: Bloomberg, Refinitiv, CME, ECB, Energy Aspects

European LNG receipts, bcm



Source: Vortexa, system operators, Energy Aspects

make analysts anticipate strong power-sector gas demand losses through the winter. "We see thermal output at 272 TWh over winter, down by 30 TWh y/y. We see combined solar and wind generation up by 32 TWh y/y at 295 TWh as the UK's 1 GW Seagreen offshore wind farm is now fully operational and the world's largest offshore wind farm at Dogger Bank is sending first power to the grid slightly ahead of our previous expectations, Energy Aspects said, suggesting: "Load will be limited by price pressures on household tariffs and wider economic weakness as well as industrial demand destruction." ■

Industry power price in France "significantly lower" than in Germany

Though electricity prices for industry in Germany is within the EU average, prices in France and also Poland are "significantly lower" and bound to retreat further by 2030, a Prognos study finds. Several energy-intensive companies started to re-locate parts of their production – not only to EU neighbour states but notably to the U.S. or China where they just have to pay around 6 cent per kilowatt-hour (kWh) for electricity.

Cheap energy and generous incentives under the \$500 billion U.S. Inflation Reduction Act (IRA) are triggering more and more German businesses to move production abroad. "Electricity prices for businesses have to fall reliably and permanently to a competitive level, otherwise the [green] transformation of businesses will fail," the head of the Federation of German Business (BDI), Siegfried Russwurm warned. The chemical industry, in particular, is looking to reallocate.

The Prognos study, commissioned by the Bavarian Industry Association (vbw), finds that while there is set to be a convergence of European and Asian gas prices by 2030, it will remain significantly cheaper in the Americas and also Turkey.

Gas prices are bound to retreat from their crisis 2022-levels by the end of the decade, analysts noted, suggesting this

will help lower the fuel costs for power generation.

Particularly cheap gas prices at just 1 or 2 ct/kWh are on offer in the United States, Mexico and Canada, thanks to the abundant and inexpensive local gas production. Things look different in China, Japan and South Korea where gas prices are over 5 ct/kWh, according to Prognos, pointing at the comparatively expensive LNG imports to these countries.

Habeck unveils industry strategy

Eager to prevent the migration of key industries, Germany's economy minister Robert Habeck (Green Party) has rushed out a new strategy. Centre stage is a bridge electricity price for energy-intensive companies, as their production curve in industries such as the chemical, paper and glass has fallen sharply, Habeck said during a press conference. "There is good reason to build a

bridge until access to cheap, renewable energy is available. We should give the industry this time," he vowed.

Yet it is hardly the price of gas that pushes up the price of electricity – the main driver in the EU and particularly in Germany is now the CO2 price that gas- and coal fired power plants have to pay for their emissions, the ifo institute finds. An average CO2 price of €90, like in the first half of this year, is increasing the marginal cost of fossil power generation.

For a gas-fired power plant with CO2 emissions of 500 gram per kilowatt-hour (kWh), this results in 4,5 cent/kWh in carbon costs. Given that such plants are often dispatched for peaking power supply, the cost of carbon gets added to the wholesale power price. If the marginal power plant is coal-fired, the effect is even higher as burning coal produces almost double the emission than burning gas. ■

Mitsubishi delivers Hydaptive equipment for ACES Delta Hub in Utah

First equipment for the Hydaptive hydrogen production plant has been delivered by Mitsubishi Power Americas to the Advanced Clean Energy Storage Hub (ACES Delta Hub) in the US state of Utah. The project, co-developed with Chevron, will convert 220 MW of renewable energy into almost 100 tonnes per day of green hydrogen.

Hydaptive technology uses wind and solar power to split water into hydrogen and oxygen through electrolysis. Hydrogen produced at ACES Delta Hub will be stored in two salt caverns with a storage capacity of more than 300 GWh of dispatchable clean energy.

A pipeline will supply hydrogen to the nearby Intermountain Power Agency's "IPP Renewed" power plant project which is driven by two J-series gas turbines, made by Mitsubishi, with a combined capacity of 840 MW of electricity generation. The turbines will use up to 30% hydrogen blended with natural gas at start-up, with a goal of transitioning up to 100% hydrogen by 2045 or sooner.

DOE splashes out \$7bn in federal hydrogen funding

To accelerate the commercial-scale deployment of zero emission fuels, the US Department

of Energy is about to award \$7 billion to seven regional clean hydrogen hubs. Funded under Infrastructure Investment and Jobs Act (IIJA), the seven H2Hubs include the Appalachian and the California Hydrogen Hub, with the latter receiving up to \$1.2 billion.

When selecting the hubs, the DOE evaluated their technical merit and impact meaning the hubs need to deploy infrastructure and produce at least 50-100 metric tons of clean hydrogen per day. They also had to prove their growth potential, financial viability and outline a workplan on how fast the hub could start operations.

The selected hubs include ARCH2 in the Appalachian region, the Californian Hydrogen Hub ARCES, HyVelocity H2Hub in greater Houston, the Heartland Hydrogen Hub in Minnesota and Dakota as well as the Mid-Atlantic, the Midwest and the Pacific Northwest Hydrogen hubs. ■



Electrolysers arrive at the ACES Delta project

Duke Energy advances 100% clean H2 end-to-end system in Florida

Ground will soon be broken on the first system in the United States to produce, store and combust 100% hydrogen. This demonstration plant is being advanced by Duke Energy, Sargent & Lundy and GE Vernova and will be situated at Duke's DeBary power plant in Florida, using a 74.5 MW solar plant to power two 1 MW electrolysers.

The electrolyser will separate water molecules into oxygen and hydrogen atoms. The oxygen will be released into the atmosphere, while the green hydrogen will be stored in nearby containers.

At times of peak electricity demand, Duke Energy will combust the hydrogen in an onsite turbine at the DeBary plant that will be upgraded using GE combustion turbines that can run on a natural gas/hydrogen blend of up to 100% hydrogen. Once operational, it will be the first turbine in the US to combust such a high percentage of hydrogen, developers pointed out.

Readily available hydrogen is a dispatch-

able energy source, meaning it is available on demand and can be used to balance intermittent wind and solar power supply. "Relying on intermittent energy sources without available dispatchable energy sources would put our future electric system at risk of having insufficient energy to serve customer demand," Duke Energy stressed.

Start-up scheduled for 2024

Construction of the demonstration project in DeBary will begin later this year and could take about one year to complete. Duke Energy anticipates the system will be installed and fully functioning in 2024.

Headquartered in Charlotte, North Carolina, Duke Energy's electric utilities serve 8.2 million customers in North Carolina, South Carolina, Florida, Indiana, Ohio and Kentucky, and collectively own 50,000 MW of power generation capacity. The company has a Net Zero carbon emissions from electricity target by 2050, and aims to halve power sector emissions already by 2030 – with hydrogen being one of the main pathways to reach that goal. ■

Persero aims to export green H2 to fuel power plants in Singapore

Indonesia's state energy firm PT PLN, better known as Persero, has agreed with Sembcorp Utilities to explore the feasibility of producing up to 100,000 tonnes of green hydrogen per year in Indonesia for export to Singapore. Sembcorp Industries CEO Wong Kim Yin stressed "hydrogen and its derivatives remain one of the most promising substitutes for gas in power generation."

The envisaged facility in Indonesia will use locally sourced renewable energy to produce green hydrogen, which will then be exported via subsea pipeline to Singapore. The project is expected to be Indonesia's first H2 export to the neighbouring city state.

The Sembcorp Industries CEO vowed the partnership with Persero is meant to lead to a "viable low-carbon hydrogen supply chain" that will diversify energy sources for both countries. "This will support the decarbonisation of Singapore's power sector as the country progresses towards its 2050 net-zero target," Yin said. ■



Render of DeBary's H2 plant next to the existing gas peaking plant

Porthos CCS project to store 2.5mt of CO2 using MAN compressors

MAN Energy Solutions has won a contract to deliver three integrally-g geared compressor trains (IGC) for Porthos, the first large-scale carbon capture and storage (CCS) project in the Netherlands. Situated at the Port of Rotterdam, Porthos aims to store 2.5 million tons of CO2 annually in depleted gas reservoirs under the North Sea.

Developers of Porthos already signed agreements with Air Liquide, Air Products, ExxonMobil and Shell to capture their respective CO2 emissions and there is significant scope for expansion given that the region around Rotterdam accounts for over 16% of Dutch carbon emissions.

Once captured, the CO2 will be compressed for transport and injection into sealed reservoir of porous sandstone some 3 km beneath the North Sea. A total of 37 million tons of CO2 is meant to be perma-

nently stored in this way over a 15-year timeline. Start of construction for Porthos CCS is scheduled for 2024.

Three of MAN's RG 28-6 type compressor trains will initially be installed at a station on Maasvlakte, the western extension to Europoort, though MAN has an order to add two further units at a later stage. At Maasvlakte, the CO2 will be compressed to different discharge pressure levels – to a maximum of 180 bar – with each compressor handling up to 250 tons of CO2 per hour. Dr. Marco Ernst, MAN's head of Sales & Project Management CCS pointed

out RG compressors run at their own optimised speeds with is ideal for achieving very high-pressure ratios.

From the compressor station, a 22-kilometre pipeline will transport the CO2 in gaseous form to the P18-A platform in the North Sea where it will be pumped into the depleted P18 gas fields

situated up to 3,500 metres below the seafloor. These fields have a CO2 storage capacity of around 37 million tons. The system is expected to be operational by 2026.

Commenting on Porthos, Dr. Uwe Lauber, CEO of MAN Energy Solutions hailed the project's "innovative approach that aims at establishing a CO2 transport and storage infrastructure serving multiple companies." Such initiative, in his view, are crucial in advancing CCS efforts and effectively reducing emissions that are hard to abate. ■



Maxim commissions M2 expansion in Alberta

Calgary-based Maxim Power has commissioned the combined-cycle expansion of its M2 gas-fired power plant near Grande Cache, Alberta, boosting the CCGT's maximum capacity to 300 MW. The M2 expansion captures waste heat and converts it into useful dispatchable electricity, with estimated project costs pegged at \$164 million.

M2 started electricity to the Canadian grid in 2020, replacing the Milner Generating Station which had reached the end of its regulated lifespan. Not only does the M2 expansion help to deliver more electricity to the grid, it also lowers operations and maintenance cost.

According to Maxim, the M2 expansion "completes the coal to gas energy transformation and repowering project at the Milner site" which saw over \$300 million of investment and successfully converted the legacy 150 MW coal-fired facility into a 300 MW CCGT facility. The combined-cycle expansion of M2 is expected to reduce the emissions intensity by over 60% compared to the legacy coal-fired Milner plant.

Construction of the heat recovery technology for the M2 expansion started in 2021 and was originally scheduled for commissioning in the fourth quarter of 2022. However, start-up was delayed due to a fire on September 30, 2022, which caused damage to M2's air inlet filter house.

Repairs were completed in August this year and M2 began generating intermittent electricity to the grid in August and achieved CCGT commercial operations on October 24. ■

First LM6000VELOX package to be installed at TVA plant in Tennessee

The first LM6000VELOX package, built by GE Vernova, has been installed at Tennessee Valley Authority (TVA)'s Johnsonville aeroderivative power plant in Middle Tennessee. The new package aims to shorten the installation and commissioning schedule of aeroderivative gas turbines by up to 40%, saving around 4,000 labour hours and associated costs.

"This technology will be the first of its kind for TVA's fleet of natural gas plants," said Justin McBath, senior project manager of the Johnsonville project. "We have received six of the 10 total units that will be operating at Johnsonville, with final delivery expected in December 2023.

Faced with a rapid renewables build-out, operators like TVA need to plan carefully to be able to quickly meet demand during peak energy usage and supplement solar generation on days when solar generation is limited.

With a scheduled 90-day package installation in a simple cycle configuration, GE's new LM6000VELOX package aim to help reduce site construction delays for power generation utilities, EPC's, and other industry stakeholders.

The package was developed at GE Vernova's Manufacturing Center in Vereşegyház, Hungary. Its key benefits include:



Render of the LM6000VELOX package

enhanced modularity in package mounted air filter including simplified structure for air filter, base-mounted generator and gearbox and a 50% reduction in the number of accessories shipped to site with reduced lifts.

With an installed base of nearly 1,200 across 60 countries, LM6000 turbines are well-known for their quick start time of down to 5 minutes to full power and their high cyclic life and operational flexibility which helps complement intermittent electricity from wind and solar power sources. ■

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