



Weekly News

23 July 2021

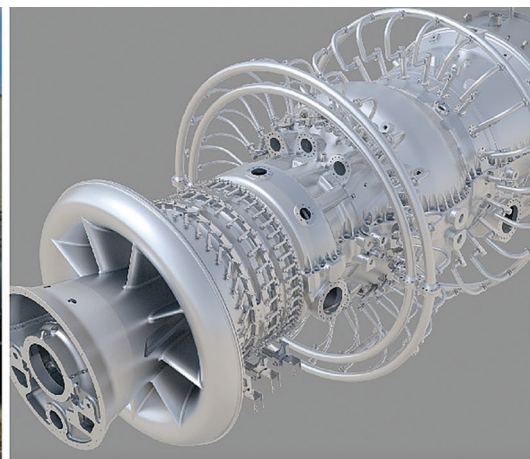
Uniper successfully tests GT26 HE upgrade at Enfield Power Station

GE has implemented the first high-efficiency upgrade of a GT26 turbine at Uniper's Enfield Power Station in north London. The revamped turbine at Enfield reaches nearly 60% combined-cycle efficiency, and the successful test made GE win two new contracts for similar upgrades with customers in Argentina and Singapore.

The upgrade was installed to improve the performance and extend the maintenance interval of the Enfield combined cycle plant. GE's cooperation agreement to decarbonise Uniper's gas-fired power plants and storage facilities might well herald further GT26 HE upgrades in the utility's generating fleet.

Tests confirm improved performance

"Increasing efficiency and output, whilst lowering carbon emissions, operational, and maintenance costs, is crucial for the long-term success of our fleet" said Simon Balmer, Operations Director, Gas Turbine Fleet, Uniper. "The post implementation tests have checked



The GT26 HE upgrade increases Enfield's power output by 25 MW

the accuracy of the modelled configuration data compared to actual performance," he explained, "and the results have confirmed that the upgrade has met the expected benefits in terms of performance and efficiency."

The extensive tests were conducted with over 2000 sensors, providing data to GE's engineering team. Operability, combustion, aeromechanics and key engine parameters were all within GE's engineering

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Wärtsilä net sales down 13% amid many delayed power project

Despite early signs of a recovery, Wärtsilä has faced a 13% plunge in net sales to €2,078 million in the first half of this year as many investments in new power plant capacity continue to be postponed. The build-out of energy storage was "at a good level," especially when linked to thermal balancing power units.

The order intake saw a moderate 6% increase to € 2,398 million, while service orders were up by a more substantial 17% to € 1,308 million. The overall order book at the end of July was 3% lower at € 5,238 million, resulting in a book-to-bill ratio of 1.15

Markets improved between April and June, when the order intake was up 14% to €1,154 million as more investors were moving their projects towards FID.

Orders intake improved from April

"Despite the relatively challenging overall market environment, our order intake grew across businesses, with a total increase of 14%. It was also



encouraging to see that our service order intake grew by 24% [between April and June] driven by several customer segments", Wärtsilä President and CEO Håkan Agnevall said when presenting the company's January-June 2021 financial report.

The recent order for a 156 MW multi-fuel power

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acceptance criteria and the unit was successfully released for commercial operation.

Fuel savings through higher baseload efficiency

The GT26 was originally developed and introduced by Alstom in 1998, but the French manufacturer was acquired by GE in 2015. In the following years, GE was working on the GT26 upgrade which now been proven to increase baseload efficiency by up to 2% which translates in as much as \$4 million in fuel savings annually per unit.

According to GE calculations, up to 1% point higher efficiency in part load, yielding up to \$1 million in fuel savings a year per unit. The upgrade also increases the plant output by up to 25 MW per unit and extends inspection intervals by up to 32,000 hours, reducing long-term maintenance costs.

Two new customers-wins

Successful performance tests of the GT26 upgrade at Enfield CCGT have brought GE two new customer wins in South America and Singapore. Enel Argentina selected the

GT26 HE upgrade for its 755 MW Dock Sud Power Station located in Buenos Aires, commercially operational since 2001. Works are due completed before the end of 2022.

In addition, Keppel Merlimau Cogen (KMC) has selected the GT26 upgrade for its combined cycle 1300 MW power plant in Jurong Island, Singapore. The turbine revamp will include additive manufactured parts, aerodynamics innovation, and material science and combustion dynamics to transform the turbine from F-class to H-class. Works are scheduled for the second half of 2022. ■

Electrification 'critical' for EU to reach its 55% by 2030 emission target

The European Commission's 'Fit for 55' legislative sets a 55% net emission reduction target to 1990-levels by 2030 and acknowledges the critical role electricity will play. "Everything that can be electrified, should be electrified," analysts commented. For industry sectors not suitable for electrification, Brussels is promoting low-carbon hydrogen, carbon capture and storage and biofuels.

Carbon pricing will be strengthened and Wood Mackenzie gas analysts Murray Douglas noted the proposals "will hopefully be set at levels where they begin to incentivise industrial decarbonisation, from technologies like high temperature heat pumps or carbon capture."

Introducing carbon taxes may well be necessary to decarbonise the cement and steel sector. Though the EU Emissions Trading System (ETS) covers sectors that

generate half of the bloc's emissions – power, industry and aviation – these sectors will only deliver a third of the cuts needed by 2030.

The more stringent 55% emission reduction target will require vast amount of capital – both private and public – to be invested in decarbonisation. In Douglas's view, most of the money will be funnelled into the build-out of wind, solar and energy storage capacity.

Ramp up on renewable build-out

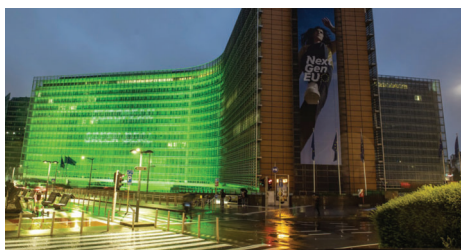
Renewables were initially meant to cover 53% of Europe's electricity supply, and the EU's revised target will require 65% renewable power supply by 2030. According to Wood Mackenzie calculations, this will require 472 GW of additional wind and solar across the Europe power system to meet the new target.

Spread over nine years - that's 52 GW of

wind and solar additions per year – a stark contrast to the EU's average build-out rate of 20 GW per annum. "To reach, the new target a staggering 160% ramp up on renewable build-out would be required," Douglas noted, questioning whether this will be achievable.

Reward flexibility, ease permitting process

Capital for green investment is seen readily available but to make it forthcoming, policy makers will have to first streamline the planning, connection and permitting process of new energy projects. Distribution grids need to be build out – not only for green electricity but also for hydrogen, he explained. "On top of this, system flexibility build out will need to be supported, and market reforms will need to be in place to ensure it is fit for operating in a zero marginal cost producers' environment." ■



The Commission was lit in green to mark the 'Fit for 55' launch

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plant in Nebraska and the start of execution of the 380 MW project for Metaenergia in Italy show how flexible thermal balancing power enables a higher share of wind and solar energy in power systems in different parts of the world.

Strong demand for services

Demand for services was "at a good level," Agnevall noted, with customers showing interest in long-term agreements which brings stability to the business during low market volumes. Still, the Finnish manufacturer's operating result in the first half of 2021 was

down 7% to € 94 million which represents 4.5% of net sales.

Despite falling net sales, Wärtsilä managed to improve its profit margins and the comparable operating profit increased by 30%, the company's CEO pointed out. "Marine Power and Energy clearly improved their results," he underlined, "while Marine Systems suffered from low net sales driven by postponed scrubber retrofits."

"Our cash flow from operating activities was very strong," he stressed. Wärtsilä's asset-light business with a high service volumes delivers overall operational stability. ■

China rushes to source more cobalt, nickel and lithium for batteries

Three-quarters of global lithium-ion battery and half of the world's electric vehicles (EVs) are made in China, hence the Peoples Republic has entered the global race for cobalt, nickel and lithium. These raw materials largely need to be imported and prices are rising fast as demand lithium demand is forecast to surge 510% by 2040.

Global nickel production will rise almost 80% over the next two decades, while cobalt and lithium demand will increase 180% and 510%, respectively, according to Wood Mackenzie's base-case scenario. And if China – and the rest of the world – decarbonises more rapidly, demand rises far faster.

To reduce dependence on foreign copper miners, China has gone to quite some length to increase ownership cobalt resources in the Democratic Republic of Congo, to lithium reserves in Chile and to Indonesian nickel mines. Components

for batteries are predominantly Chinese-made. From access to rare earth metals to its near-absolute control over refined cobalt chemical capacity, China casts a long shadow over the EV supply chain.

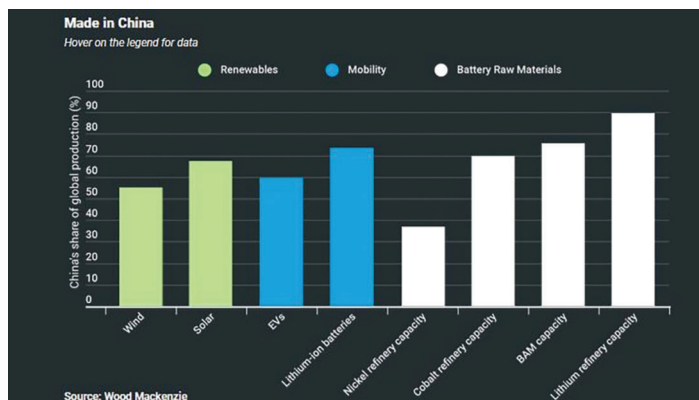
Shift towards solid-state batteries

Manufacturers in Europe and the US seek to

innovate by investing heavily in thriving to reduce the share of pricey and risky cobalt in batteries. They are making progress on increasing energy density, with high-nickel, low-cobalt cells.

Solid-state batteries are the 'holy grail' of the motive and storage battery space. There is a huge range of battery chemistries that could be commercialised, particularly for stationary storage, including vanadium flow, zinc and aluminium-air batteries.

"All these developments will help reduce reliance on the scarce, risky and expensive metals," Wood Mackenzie commented, suggesting the move toward solid-state batteries will also help to reduce manufacturers' dependence on components made in China.



Pivot builds energy storage near Birmingham to supports EV chargers

Pivot Power, part of EDF Renewables, has contracted Wärtsilä to supply 100MW / 200MWh of energy storage systems on the outskirts of Birmingham to support the city's network of electric vehicle chargers. Construction at the Sandwell site is due to start in the fourth quarter of this year, and at Coventry in the first quarter of 2022.

The two energy storages will be part of Pivot Power's new Energy Superhub in the West Midlands. A similar 100MW energy storage is deployed for the Energy Superhub Oxford (ESO), where Wärtsilä is providing 50MW of energy storage systems, and a further 50MW in Kemsley, Kent.

Hybrid battery supports EV chargers

The West Midlands ESO project will feature the world's largest lithium-ion and vanadium-flow hybrid grid-scale energy storage system, developed together Invinity. The energy storage will help power an electric vehicle (EV) charging network, spread across Birmingham, and share a connection to the city's high voltage grid.

Energy storage deployments are crucial to meet the UK Government's new 2035 target to reduce emissions by 78%. To reach this goal, all electricity production would have to be carbon-neutral in less than fifteen years' time.

ESO projects will help to cost-effectively integrate more wind and solar power units into the UK electricity grid, while shielding the system against the inherent intermittency of renewables. Charging and discharging cycles of the energy storage units will be optimised through Wärtsilä's GEMS platform.

In the long run, the ESO network could provide up to 10% of the storage capacity the UK is predicted to need by 2050. Grid balancing through energy storage could also help National Grid save up to £ 40 billion, according to Wärtsilä's calculations. Income earned by energy storage providers in the UK was up by 21% during the first coronavirus lockdown last year.



Render of Wärtsilä energy storage

Siemens sigs LoI for 100 MW battery storage

Zukunftsenergie Nordostbayern (ZENOB) and Siemens Smart Infrastructure have signed a letter of intent (LoI) for the turnkey construction of a 100 MW battery storage unit in the German town of Wunsiedel. With 200 MWh storage capacity, the lithium-ion battery will use surplus renewable energy to balance demand peaks in the Bavarian power grid.

The lithium-ion battery storage system will be provided by Fluence, a joint venture between AES and Siemens, while the latter will handle the technical implementation, the set-up of medium-voltage switchgear and the battery's connection to the high-voltage grid.

The planned storage system will be able to store and release large amounts of green power. This will allow the grid operator to use clean energy beyond the hours of production, including during periods of expensive peak load.

For the grid operator, the solution promises significant relief. "Switching on and off large industrial plants in the grid area requires a lot of electricity," said Siemens' project manager Andreas Schmuderer. "Up to now, the network operator has had to maintain considerable reserves. If these can be eliminated in the future, there will be great potential for reducing CO2 emissions in the local energy market."

Renewables cannot keep up with world's electricity demand – IEA says

Despite a rapid build-out, renewables cannot keep up with the pace of global electricity demand growth which requires more fossil generation. After falling by about 1% in 2020 due to the pandemic, demand is set to grow by nearly 5% in 2021 and 4% in 2022, the International Energy Agency (IEA) finds.

The contribution of renewables is expected to 8% this year and over 6% in 2022, but this will only be able to serve around half of global demand growth. The other half will have to be met by fossil fuels, notably coal. Analysts warned this is threatening to push CO2 emissions from the power sector to record levels in 2022.

Fossil power is set to cover 45% of additional demand in 2021 and 40% in 2022, while nuclear generation is expected to grow by just 1% this year and 2% in 2022.

Coal-burn, after falling 4.6% in 2020, will increase by almost 5% in 2021 to exceed pre-pandemic levels. It will grow by a further 3% in 2022 and could set an all-time high. Meanwhile, gas-burn fell by 2% in the year of the pandemic and is now seen increase 1% in 2021 and by close to 2% in 2022.

"Gas growth lags behind coal, as it plays a smaller role in the fast-growing Asia Pacific region, and as it faces increasing competition from renewables in the United States and Europe," IEA analysts noted.

Power sector emissions surge

Lockdowns and reduced industrial activity during the pandemic caused a 3.5% fall in emissions last year, but they are rebounding by 3.5% in 2021 and likely to rise by a further

2.5% in 2022. This would take them to an all-time high, the IEA said, calling for "stronger policy actions" to reach climate goals.

In the IEA Net-Zero Emissions by 2050 Scenario, nearly three-quarters of emissions reductions between 2020 and 2025 take place in the power sector, where emissions decline by 4.4% per year on average. To achieve this decline, coal-fired electricity generation needs to fall by more than 6% a year, partially replaced by gas, which grows by around 5% a year.

Prices jumped in reaction to growing demand. Tracking wholesale electricity prices in advanced economies, the IEA noted they were 54% higher in the first half of 2021 compared with H1-2020. The strong rebound comes after prices plummeted by 25% for the full year of 2020. "The large swings were caused by strong variation in coal and natural gas prices during the pandemic as well as changes to related electricity demand," analysts commented.

Looking ahead, the IEA pointed out that rising shares of variable renewables have a measurable impact on the operation and design of electricity systems. The oftentimes stark changes in hourly supply have to be matched by flexible gas generation, demand-side response and energy storage. ■

NEWS NUDGES

CVEC to be converted to hydrogen

Cricket Valley Energy Center (CVEC) is taking steps to run the combined-cycle plants on hydrogen. Works to convert the plant will be carried out by GE and are scheduled to start in late 2022. One of three GE 7F.05 gas turbines at CVEC will be introduced to a 5% hydrogen blend with natural gas.

Electricity sales to US industry rebounds

Economic recovery has caused a 5.1% rise electricity sales to US industry this year, dwarfing 2.8% more retail sales and a 2.1% rise in the commercial sector as many office workers continue working from home. The US Energy Information Administration's (EIA) acting administrator, Steve Nalley, called the rebound in electricity sales to industry a "strong sign of rising levels of economic output as the Covid-19 pandemic recedes."



Wärtsilä tests carbon-free solutions with hydrogen and ammonia

Full-scale engine tests for hydrogen and ammonia co-firing are being carried at Wärtsilä's engine laboratory in Vaasa, Finland, to assess the optimum parameters for combusting these carbon-neutral fuels. The aim is to have an engine and power plant concept for pure hydrogen operation ready by 2025.

The test results are "very encouraging," the manufacturer said, with one test engine performing very well when running on a fuel with 70% ammonia content at a typical marine load range. Tests were also completed successfully on another engine in pure hydrogen operation, Wärtsilä added without specifying the engine type.

Its fuel agnostic approach enables Wärtsilä to support both the energy and marine sector. For example, hydrogen can be used as a fuel in its existing state or as a raw ma-

terial for producing ammonia and synthetic methane – each with different benefits for industry and the transport sector.

Pure hydrogen engine by 2025

Test runs will continue throughout next year with the aim of defining the most feasible internal combustion engine-based solutions for power plant and marine applications. For the energy market, Wärtsilä said it expects to have an engine and plant concept for pure hydrogen operation ready by 2025.

For the marine sector, the company is optimistic to have an engine running on an ammonia blend already this year, followed by an engine running with pure ammonia in 2023.

Håkan Agnevall, CEO of Wärtsilä said reaching these timelines will be "milestone moments" in Wärtsilä's fuel transition. He cautioned, however, that "society will have to

invest significant amounts into infrastructure to develop green hydrogen, but those investments require market-ready engines that can run on the fuel once it is readily available."

Trend towards hybrid power systems

To achieve the transition to full renewable energy by 2050, a substantial amount of balancing power will be needed to ensure stable energy supply when the sun is not shining and the wind is not blowing. Hybrid systems, based on combustion engines and battery storage will for the core of balancing solutions.

"By developing engines that can run on green hydrogen, we are enabling that grid balancing can be done via a 100% renewable process, thereby enabling the energy systems of tomorrow," Agnevall explained.

Green hydrogen co-firing in the power sector is meant to deliver 7% of global electricity supply by 2050. ■



Fuel tests at Vaasa lab in Finland

Woodside and Marubeni seek to ship ammonia from Australia to Japan

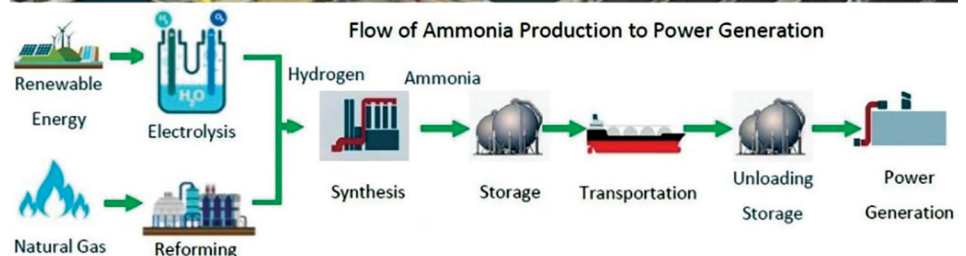
Ammonia is set to become a novel zero-emission fuel for Japanese power plants as Woodside Petroleum and Marubeni strive to set up a supply chain to ship the green fuel from Down Under to Hokuriku Electric and Kansai Electric.

The Australian oil and gas major Woodside is striving to diversify its business and seeks to identify opportunities related to large-scale ammonia production lines.

Together with the Japanese partners, Woodside will study the feasibility of producing clean ammonia in Australia with natural gas with CO₂ abatement methods such as Carbon Capture Storage (CCS) and bio-sequestration.

In Japan, Marubeni has already conducted trial runs on ammonia co-firing, making use of stored hydrogen at low cost. A recent technical study, running through to the end for February 2021, entailed a series of trials for direct usage of ammonia as a fuel in JERA's thermal power plants.

In the context of the feasibility study and during technical trials, researchers from Marubeni and IHI Corp have been also scrutinizing the economics of equipment and operational expenses as well as the cost for producing and transporting ammonia to the power stations.



Gov' support NEDO research

Marubeni and IHI Corp's have also been looking into ammonia co-firing, in line with the Japanese government's aspirations to implement hydrogen-based energy projects. Dubbed NEDO, the research project seeks to develop multi-burner ammonia co-firing technology for pulverized coal boilers, which

can later be amended for use in gas-fired power units.

JERA is looking to find out the necessary capital investment to retrofit its existing plants with the novel ammonia co-firing technology, once it is ready for commercialization. To this end, it is allowing researchers to carry out tests and trial runs at some of its thermal power plants. ■

ExxonMobil joins Acorn CCS in shift towards Low Carbon Solution

US oil giant ExxonMobil has agreed to participate in the Acorn Carbon Capture and Storage (CCS) project, designed to capture and store about 5-6 million tons of CO₂ per year by 2030 from gas terminals at the St Fergus complex at Peterhead. In addition, ExxonMobil explore technology options to help reduce industry emissions in Scotland.

The Acorn CCS project could potentially provide more than half of the 10 million tons per year of CO₂ storage the UK government is targeting. Once expanded, it could store more than 20 million tons of CO₂ emissions per year by the mid-2030s.

Shifting away from its core oil business, ExxonMobil has set up a Low Carbon Solutions unit and pledged to invest \$3 billion on green energy and CCS through 2025. Joe Blommaert, head of the new unit, specified multiple projects are under evaluation in Southeast Texas and Wyoming, as well as the Porthos project in Rotterdam.

Decarbonise industry emissions is key if European countries want to reduce their

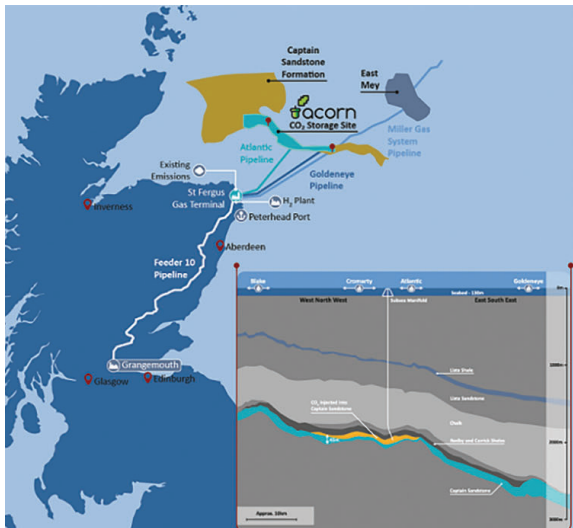
climate goal and could become big business for technology-savvy companies. Drawing on its 30-year experience in CCS technology, ExxonMobil joined the NECCUS alliance committed to curb emission from industry in Scotland. It will explore the potential of new carbon-avoidance solutions in cooperation with four leading universities and several industry players.

Scaling up La Barge CCS in Wyoming

On its US home turf, Exxon Mobil seeks to speed up permitting for the expansion of its La Barge CCS facilities in Wyoming, which could enable an additional one million tonnes of CO₂ per year to be captured. Ex-

isting facilities currently capture approximately 7 million tonnes per year. Mr Blommaert also talks with potential partner on a partnership for a CCS hub concept in South-east Texas and other projects along the US Gulf Coast.

"CCS opportunities are becoming more commercially attractive through government policy, such as the so-called 'United States tax credit 45Q' and similar policies in the European Union, Canada and Singapore," Blommaert said in a statement. Since 2000, the Texas-based company has spent more than \$10 billion to develop and deploy high-efficiency and lower-emission energy solutions across its operations.



Acorn CCS at St Fergus gas terminal



Porthos combines CCS and hydrogen

The Porthos project in the Netherlands, officially known as the Port of Rotterdam CO₂ Transportation Hub and Offshore Storage project, aims to collect CO₂ emissions from industrial sources and transport them by pipeline to depleted North Sea offshore gas fields. Porthos and its potential customers have applied for EU and national support mechanisms. In the Netherlands, ExxonMobil also participates in the H-Vision study into large-scale production of low-carbon hydrogen in Rotterdam.

Ansaldo deploys world's first MXL3 upgrade at ENGIE-operated plant

Maxima-Flevo, a combined cycle power plant owned by the French utility ENGIE, will get the world's first MXL3 turbine upgrade by Ansaldo Energia in spring 2023. The upgrade will boost Maxima-Flevo Unit-5's present maximum output by up to 35 MW, driven by the first F-class turbine in Western Europe to reach more than 60% efficiency.

Featuring latest H-class technology, the revamp makes the turbine over 1.5% more efficient which could help save up to 40,000 tons of CO₂ per year, depending on the running profile. The upgraded turbine can switch between 'performance' optimized mode and 'maintenance cost' optimized mode depending on the market

requirements.

"By acting as launch customer for the introduction of the MXL3 upgrade at Maxima-Flevo power plant, ENGIE continues to be a first mover in the market," said Cedric Osterrieth, chief executive of ENGIE GENERATION Europe.

Hydrogen-ready turbine

The MXL3 technology facilitates fuel flexibility and allows the co-firing of hydrogen up to 45% of volume flow, with no additional changes to the gas turbine hardware. Raising the hydrogen share of the overall fuel helps to further reduce emissions during the combustion process.

ENGIE is committed to reach Net Zero carbon emissions by 2024 and is hence considering to applying Ansaldo MXL3 technology to all GT26 turbines of its European fleet.



Maxima-Flevo CCGT near Lelystad, Netherlands

GenCell deploys G5 fuel cells for back-up power at US West Coast

As the US West Coast is caught in a cycle of extreme heat, drought and fire, a utility in Washington State has urged GenCell to provide G5 hydrogen-fuelled alkaline fuel cells as a back-up power source. The utility Douglas PUD will run the G5s on own hydrogen, making the fuel cells cheaper than diesel standby generators.

Fires keep propagating throughout the US west on the heels of record heat waves which caused evacuations and interrupted electricity supply in several places. Fire-fighters are battling blazes from Arizona to Washington State that are burning with a worrying ferocity, while officials say California is already set to outpace last year's record-breaking fire season.

Failsafe, sustainable backup power

Extreme climate across much of the United States is prompting electric utilities to invest in grid reinforcements, and in many cases, this involves using backup diesel standby generators. Noting diesel gensets are "expensive and environmentally unfriendly," Rami Reshef, CEO GenCell Energy pointed out the company will supply Douglas PUD

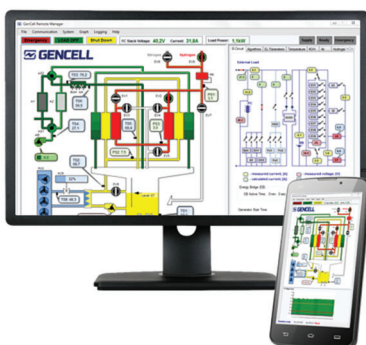
with a "fail-safe hydrogen backup power solution that is fully aligned with their sustainability goals."

Douglas PUD, a not-for-profit public utility, generates re-

newables electricity from the Wells Hydro-electric Project which includes 840 MW from Wells Dam. It provides the local community reliable service at low rates, while preserving the Wells Dam watershed.

The utility uses its excess electricity to make and sell renewable hydrogen gas, and it also recently built a new substation. Now, it looks for a resilient backup for the substation that could supply utility-scale fuel cell functionality and comply with all the strictest IEC, ISO, IEEE and OSHA safety and quality certifications for utilities.

Use of the G5 fuel cells will allow Douglas PUD to consume the renewable hydrogen produced on-site, at the highest reliability and maximum energy and cost efficiency. PUD will also deploy the GenCell IoT Remote Manager software to monitor the mission-critical equipment and have the system ready for an emergency – such as providing backup power at times of peak demand during heat waves or a wildfire blaze. ■



Monitoring device for a G5 fuel cell



GE wins two GT26 HE follow-up orders in Argentina and Singapore

Two order wins for GT26 HE upgrades follow on the heels of GE's first successful performance test of a HE revamp at Enfield Power Station in north London. Enel Argentina selected the upgrade for a plant in Buenos Aires and Keppel Merlimau Cogen for its CCGT on Singapore's Jurong Island.

Two GT26 turbines will be upgraded at Enel's Central Dock Sud power plant by the end of 2022, enabling the plant to inject over 100 MW into the Argentine power grid in addition to its current 755 MW capacity.

"Thanks to this significant power increase we will decommission our high-fogging system, which saves costs," Juan José Marcet, General Manager at Central Dock Sud said, explaining the upgrade will help us produce more power, while reducing CO2 emissions per MW."

Improving every GT component

Technically speaking, the HE upgrades improve every major component of the GT26 frame – turbine, compressor and combustor – allowing the turbine to reach H-class performance levels. To save costs, the upgrade is engineered to integrate all components within the unit's existing footprint rather than installing an equivalent new class unit.

During the upgrade installation, both gas

and steam turbine rotors will be replaced, as well as combustor casings and structural parts. Upgrades to the generator, steam turbine and Balance of Plant complement the scope with a view to extending maintenance intervals from 24'000 to 32'000 operating hours.

The HE's dual fuel capability allows the plant operator to burn diesel backup fuel in winter in case of a gas shortage. The modernization is also expected to extend the unit's lifetime by another 15-20 years.

"GE has invested significantly in the development of this upgrade," said Amit Kulkarni, Head of Product Management for Heavy Duty gas turbines. Improving energy efficiency while increasing the output from installed power plants helps generate more energy per unit of fuel.

KMG unit to get first HE upgrade in Asia

Keppel Merlimau Cogen's (KMC) combined-cycle power plant will be the first GT26 HE upgrade in Singapore and in South East



Enel's Central Dock Sud plant in Buenos Aires

Asia. The upgrade will increase the unit's efficiency, extend maintenance intervals, and abate up to approximately 50,000,000 kilowatt-hour equivalent of carbon emissions each year in line with the government's goals to lower Singapore's carbon footprint.

"We selected GE's GT26 HE solution because of its excellent part load efficiency and its fuel-flexible combustion system, the most advanced solution ever introduced on a GT26 gas turbine," said Cindy Lim, Chief Executive Officer, Keppel Infrastructure. Improved generating efficiency and a lower carbon footprint at the Jurong Island CCGT helps KMC to meet its Vision 2030 sustainability goals. ■



Atlas Copco

"Our Atlas Copco fuel gas boosters provide us with the reliability and peace of mind we need to keep our power plant running."

Ciector Whitelock
Maintenance Manager
Astoria Energy, New York City

For more than 25 years, Atlas Copco Gas and Process has helped plant operators around the world handle the pressures that come with running their power generation facilities. Our standard and customized compressor solutions cover the entire range of Fuel Gas Boosting applications and readily adapt to the changing conditions in your plant.

Our experts will partner with you from day one to develop a solution to help you save OPEX while reducing your environmental impact, and our worldwide Aftermarket services team is here 24/7 to continue to help reduce your downtime.

Learn more about how our range of Fuel Gas Boosting solutions can help your plant at www.atlascopco.com/powergen