



Germany says it “could cope” with halt in Russian gas supply by winter

Accusing the Kremlin to “weaponize fossil fuels”, Germany’s economy minister Robert Habeck stressed the country could cope with a halt in Russian gas deliveries by winter 2022/23. In retaliation for Berlin seizing Gazprom Germania, Russia lowered gas deliveries by around 3% but Habeck is convinced new floating LNG infrastructure will bring in sufficient alternative supply.

“If we have full storage facilities at the turn of the year, if two of the four floating LNG tankers we have rented are already connected to the grid and if we save a lot of energy, we will be able to get through the winter reasonably well if Russian gas supplies are cut off,” he said.

Two of the four FLNG vessels that Germany has leased are already operational and replace around a quarter of current Russian pipeline gas deliveries, Habeck noted. One of the FSRU’s chartered by Uniper from Dynagas is ready for use in the port of Wilhelmshaven. The FSRU has an import and regas capacity of up to 7.5 bcm/y, Uniper said, estimating it could cover about 8.5% of Germany’s future gas demand starting from this winter.

Rival utility RWE has chartered two FSRUs from Höegh LNG on



Uniper and RWE have each leased two FSRUs

behalf of the German government, each capable of receiving up to 170,000 cbm of LNG in one go. The plan is for the FSRU platforms to start operating as early as next winter, RWE announced though it has not determined both unloading sites. Wilhelmshaven was recently chosen as one location but the second FSRU might either be situated in Brunsbüttel, Rostock or Stade.

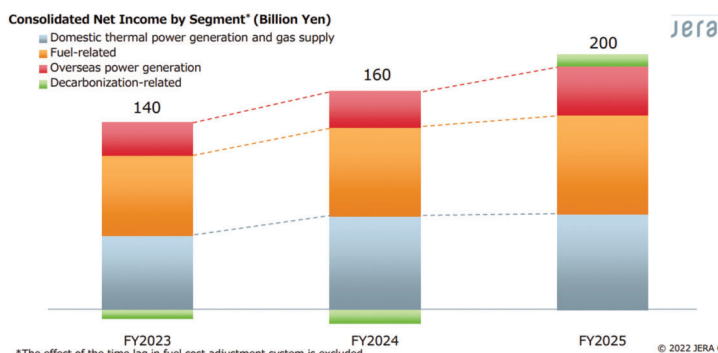
Still, Fitch Rating is less optimistic about the timeline of Germany’s switch to LNG. Analysts warned a sudden stop in Russian

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JERA turns to flexible fuel procurement to ensure stable power supply

JERA, Japan’s largest LNG importer and power producer, has announced it will strive for flexible fuel procurement in the face of soaring gas prices following Russia’s invasion of Ukraine. To ensure supply security, JERA replaced some LNG-fuelled power plants with coal power units while others are being converted to co-fire hydrogen.

Looking forward to financial year 2025, JERA’s has set new targets for profitability, capital efficiency, growth potential, and financial soundness. New management targets aim for a rise in net income from 120 billion yen in 2021 to 200 billion yens in 2025, supported by rising investment in repowering existing power plants and adding new efficient generators. JERA reckons that of the 200 billion yen in planned profits for financial year 2025, about 80% will come from existing investment.



Rebalancing its power gen portfolio, JERA said it completed its adjustment process for LNG procurement and dispatch of LNG-fuelled generators

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gas imports would have severe and far-reaching ramifications that could potentially plunge the German economy into recession.

'Early warning' stage stays in place

Germany remains heavily dependent on Russian oil, coal and natural gas supplies but for the government – for now – did not change the 'early warning' stage of its gas emergency plan to the 'alert' level. According to Habeck, this would only be necessary, if Russian gas flows will be reduced by such a degree that gas storages cannot be sufficiently replenished prior to the upcoming winter. The 'alert' level is the second of a

three-stage plan whose 'emergency' stage would trigger a state intervention into the gas markets to safeguard supply to 'protected customers' such as hospitals and households – while supply to some large industries would have to be rationed.

Reliance on Russian gas has already been reduced, the minister stressed: "On average, we in Germany have imported 55% of our gas from Russia in recent years, and this has now gone down to 40%," he said.

Fitch Rating, in contrast, warns structural changes will affect Germany's energy-intensive industry hard and quicker than initially planned. Not least because Germany's most

gas-hungry industries – like glass, steel and petrochemicals – account for around two-thirds of the country's industrial gas consumption and have so far been dragging their feet to invest into alternative, low-carbon energy sources like hydrogen, or retrofit plant with CCS.

For the energy market, "a halt to Russian supplies could have significant cascading effects, for example for heating and electricity generation," energy security expert Kirsten Westphal agreed. "There are also second order effects for emerging economies that can no longer afford the current LNG prices. Last but not least, we see the effect on domestic food prices." ■

JERA invests to decarbonise power assets and diversify fuel sources

Japan's largest power producers JERA wants to invest 1.4 trillion yen (\$11 billion) to decarbonise fossil power stations at home and to expand its assets overseas in a bid to boost net profits. The announced Capex includes 250 billion yen for upgrading gas power plants to hydrogen co-firing and for sourcing green fuel from abroad.

By 2025, JERA intends to increase its net profit to 200 billion yen, up from 24.6 billion yen in the year just ended.

Eager to expand its global power generation portfolio, the Japanese major just agreed

to purchase all stakes in two of NRG Energy's power stations in the US from the New York investment firm Stonepeak. Following the takeover, JERA wants to decarbonise the Canal Generation Plant and the Bucksport Generation by blending biofuels and hydrogen in the power stations' existing gas turbines, while adding renewables and energy storage.

The Japanese company set a target to reduce CO2 emissions from its domestic power plants by at least 60% by 2035, compared to 2013 levels, mainly through upgrades of thermal generators to ammonia and hydrogen co-firing.

"The global decarbonisation trend will be accelerated by the

Russia-Ukraine conflict," JERA President Satoshi Onoda told a news conference, indicating that the company is striving to reduce its imports of Russian oil and gas. JERA currently buys around 10% of its LNG and thermal coal from Russia, but the company is reviewing coal imports contacts with the aim of limiting supplies.

However, JERA's decarbonisation targets will not clamp down hard on gas generation as Japan would otherwise face even more serious power shortages in the greater Tokyo area. JERA hence decided to resume operation at Unit 1 of the Sodegaura gas power plant in Chiba near Tokyo, and might also restart two units at the nearby Ane-gasaki LNG-fuelled power plant, Mr Onoda announced. ■



JERA's Ane-gasaki LNG-fuelled power plant

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and is now expecting to earn profits from "highly efficient replacement power plants."

To safeguard the electricity supply-demand balance last winter, JERA has been reviving some coal power plants, planned for shut-down. For instance, it resumed operations at the Ane-gasaki Thermal Power Station Unit 5 which had been mothballed. In addition, the Sodegaura Thermal Power Station Unit 1 was readied for operation on 17 April to avoid tight supply in preparation for summer 2022.

Eager to ensure stable electricity supply, JERA has fast-tracked construction works for the coal and bio-mass fuelled Taketoyo Thermal Power Station which is due operational in August this year. Overall, the com-

pany targets for approximately 6.66 GW of new or repowered thermal capacity to start operation in stages between fiscal year 2022 and 2024.

In the belief that the sharp rise in resource prices and growing importance of energy security triggered by Russia's invasion of Ukraine will further accelerate the global trend toward decarbonization, JERA has set a new environmental target for 2035: It now aims to reduce CO2 emissions from domestic operations by at least 60% (relative to 2013) by 2035 by expanding the contribution of renewable energy sources and by reducing the carbon intensity from thermal power plants through hydrogen and ammonia co-firing. ■

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MHI's order intake jumps nearly 22% on growth in power segment

Mitsubishi Heavy Industries (MHI) has achieved a 21.9% jump in order intake for fiscal year 2021 ending March 31, supported by its gas turbine combined-cycle business where revenues increased 15% year-on-year. Strong customer demand for the JAC turbine model, as well as for nuclear power and thermal & drive systems also contributed to MHI's solid results.

Booming demand for steelmaking machinery also led to several new order wins, the Japanese manufacturer said, having just secured several biomass power projects. The strong revenue growth for gas combined-cycle generating systems was mirrored by steady growth for nuclear power systems.

Posting full-year results, MHI said its order intake increased from 3336.3 billion Yen in fiscal 2020 to 4067.7 billion Yen in the current fiscal year, contributing to a rise in revenue from 3999.9 billion Yen to 3860.2 billion Yen over the same period. Free cash flow came in at ¥301.8 billion, a company record high and an increase of ¥579 billion year-over-year.

"FY2021 was a remarkable year for us in

many ways," said Hisato Kozawa, MHI's vice president and chief financial officer (CFO). "We made improvements in all major financial indicators while achieving record-breaking free cash flow and increasing shareholder returns. All of this in a period when difficult market conditions such as soaring materials and logistics costs as well as semiconductor shortages put pressure on our bottom line."

Looking ahead to fiscal 2022/23, MHI anticipates rising profits driven by high revenue in logistics and thermal & drive systems. Recovery of the company's energy system business will also have a positive effect.



Risks to the company's profitability include materials and logistics cost inflation, semiconductor shortages, and geopolitical factors. But MHI stressed it is taking "aggressive countermeasures" such as price negotiations and retooling supply chains with the aim of achieving full-year targets. ■

ACWA Power's operating profit rises on start-up of Jazan power plant

ACWA Power has posted a 19.5% rise in operating income for the first three months of 2022. The Saudi developer, project sponsor and plant operator brought three water and seven power projects that came into operation between February and December 2021, including the Jazan IGCC with 3,800 MW installed power generation capacity.

Earnings were further enhanced by ACWA being able to collect performance liquidated damages from the EPC contractor of one of the projects, which overcompensated losses from extended outages in other plants, the company said without specifying.

"We are pleased to report a solid start to 2022," CEO Paddy Padmanathan said, announcing ACWA Power will evolve its portfolio towards sustainable solutions through renewable expansions, conversion of existing fossil plants to cleaner forms of energy and by investing in some of the largest new green hydrogen and ammonia projects in the world.

Net profits in the first quarter came in at

152 million Saudi Arabian Riyal (SAR), equalling US\$40.53 million – a 9.2% rise compared to the same period last year at SAR 13 million. Adjusted net profit attributable to equity holders of the parent, were recorded at SAR155 million which is 10.6% higher than in Q1-2021.

Coal-fired assets eliminated

Highlights in the first quarter include the announced conversion of the 2,400 MW Hasyan IPP in Dubai from clean coal to natural gas. With operation on natural gas instead of coal, the project will avoid approximately 30 million tons of carbon emissions by 2030.

"This change means that ACWA Power has eliminated all coal fired assets from its portfolio," the company stated.

Other operational achievements include the start of construction for the NEOM green hydrogen project for which ACWA gave limited notice to proceed for about SAR 2.4 billion, signed in relation to EPC contracts. Moreover, the company signed a power purchase

agreement (PPA) worth around SAR 1.7 billion for the 700 MW Ar Rass Solar Photovoltaic IPP and concluded financing of around SAR 4.9 billion to conclude construction of the Red Sea multi-utilities project.

Cost pressures for EPC partners

Though no project achieved final close in the first quarter, ACWA Power's chief financial officer Kashif Rana pointed out the company concluded phase-2 of debt financing for its Rabigh Arabian Water and Electricity Company. RAWEC will supply electricity on a captive basis to Rabigh Refinery.

"Looking ahead to 2022, ACWA Power has access to diverse funding options that include our existing level of strong liquidity to finance our visible pipeline of power, water and green hydrogen projects," he said but acknowledged that "higher costs and supply chain challenges persist and create pressure over our EPC partners" which Rana promised to remedy through "more permanent solutions."

As of March 31, ACWA Power has 65 projects in operation or construction in 12 countries, with capacity to generate 43.4 GW of electricity and produce 6.4 million cbm per day of desalinated water. ■



Jazan refinery and IGCC complex

Dozens of European gas buyers open rouble accounts at Gazprombank

About two dozen European gas importers have opened accounts with Gazprombank, preparing to pay for Russian gas imports in roubles as demanded by President Vladimir Putin. Another 14 clients are understood to be asking the bank for the paperwork to set up such accounts to ensure a new payment scheme is in place prior to a deadline later this month.

Under the new Russian payment systems, gas buyers are obliged to pay euros or dollars into an account at Gazprombank. The privately-held bank will then convert the monies into roubles and transfer it into another account owned by the foreign gas buyer before transferring the payment in roubles to Gazprom.

Italy's Eni, the German utilities RWE and Uniper as well many other of Gazprom's long-standing gas buyers have already opened accounts with Gazprombank. "We are prepared for payment in euros and have opened a corresponding account. We are therefore acting in accordance with European and German regulation," an RWE spokesperson confirmed. Like its peer Uniper, RWE had been obliged by Gazprom to make fuel payments in the Russian currency by the end of May.

The scheme had caused confusion among European gas buyers after national govern-

ment raised concerns it might breach sanctions imposed by the European commissions. But Germany's economy minister Robert Habeck earlier this week sought to reassure buyers that the new method would be feasible and will not cause any problems. His remarks align with the European Union's latest advice that companies can pay for Russian gas – as long as they do so in the currency agreed in their existing long-term gas contracts.

Concerns about supply shortages

The EU and major economies in the bloc are heavily dependent on Russian pipeline gas imports. Currently, Europe has to import about 60% of its gas consumption and Russia used to supply a third of that: 152 Bcm by pipeline and 17 bcm as LNG.

But as the European Commission is pushing to replace two-thirds of Russian gas imports with alternative supplies by year-end – not least to lower the risk of Gazprom suddenly suspending supplies to other EU coun-

tries than Poland and Bulgaria. Poland's state gas company PGNiG had been given notice that deliveries through the Yamal-Europe pipeline would stop on April 27. The 33 bcm/y interconnector carries Russian gas through Belarus and Poland to Germany.

"There will be no shortage of gas in Polish homes," Climate Minister Anna Moskwa tweeted with reference to PGNiG's ample gas storage levels and the possibility to source additional LNG through the Swinoujscie regas terminal, on the Baltic Sea coast. Moreover, a gas pipeline from Norway will become operational later this year.

Bulgaria, meanwhile, is facing greater challenges to find alternative supplies as the Balkan country currently covers over 90% of its gas needs with Russian gas. Moreover, Bulgaria's Chiren gas storage facility was reported juts 21.64% full as of February 20 with 1.257 TWh of working gas volume in store, and filling levels are estimated between 15% and 17% these days. ■



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Demo project underway to separate CO₂ from gas generation exhaust

JERA, Japan's largest LNG importer, together with Chiyoda and researchers at RITE have started a demonstration project whereby solid sorbent material is used to separate CO₂ from the exhaust of a gas-fired power station. Domestically available sorbent material is used to keep down the costs and the research is funded by Japan's Green Innovation Fund.

As Japan's prime gas buyer and power producer, JERA sees a growing need to decarbonise and has been evaluating ways of carbon capture, utilisation and storage (CCUS). However, gas-fired power plants with high combustion efficiency emit relatively low concentrations of CO₂ hence a high and costly energy input is required to separate the CO₂ and store relatively little volumes. Second, equipment and absorption materials for traditional CCUS technologies are very expensive and large sites are required to implement the technology. The three Japanese players are hence looking to develop technology with a smaller footprint and at a lower cost.

Project to run through 2030

The project will cost approximately 10 billion yen over its 9-year schedule from 2022 to 2030, focussing initially on developing absorbent material which is then manufactured and run on a bench test equipment. In a third phases, the three partners seek to set up mass production for the new absorbent material and build and operate a 20 ton of CO₂ per day gas-fired pilot power plant with an integrated carbon utilization process.

The project combines RITE's know-how of CO₂ separation from blast furnace gas and coal combustion exhaust gas with experience of the engineering firm Chiyoda with scaling up LNG and gas-related infrastructure, as well as JERA's track-record of operating and

maintaining gas-fired power station.

The aim is to develop economically viable CCUS technology for gas turbine combustion exhaust gas with 3% to 4% (or less) CO₂, developers said, anticipating high demand for the use of low-carbon natural gas by power generators in Japan and overseas.

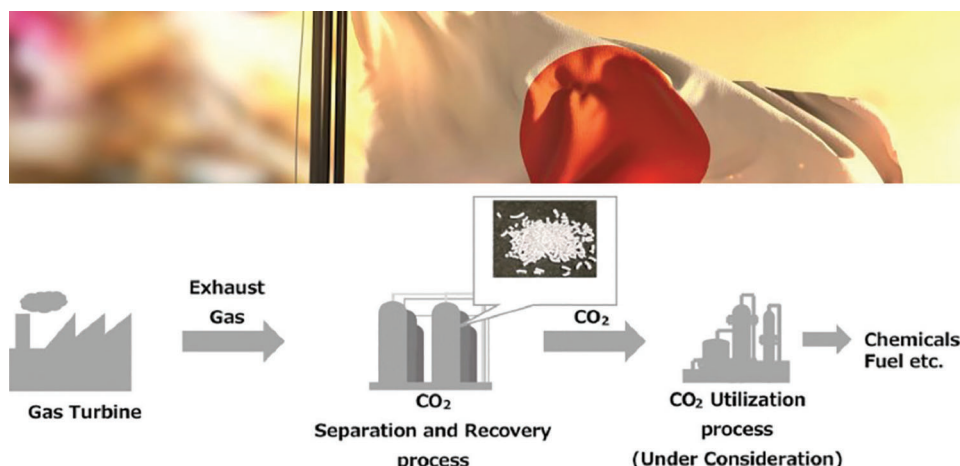
NEWS NUDGES

Carbon utilisation in strong demand

The market for carbon utilisation is forecast to grow rapidly from the 2030s onwards to surpass \$285 billion by 2042, driven by rising climate commitments and a favourable regulatory framework. In its latest report IDTechEx also highlights the role of technology advances such as thermodynamics which help sequester CO₂ permanently.

MTU gensets approved for biofuels

Rolls-Royce has gained approval to use synthetic fuels in its MTU Series 4000 and Series 1600 diesel engines for power generation application. Field testing confirmed both engines can use a range of sustainable fuels including biomass-to-liquid, hydrotreated vegetable oil and power-to-liquid fuels such as e-diesel.



Ansaldo Energia opens new diagnostics and support centre in the UAE

Ansaldo Energia has opened a new diagnostic centre in Abu Dhabi, United Arab Emirates. The integrated plant support team in the UAE works closely with an equal centre in Genoa, Italy, using digital systems and cybersecurity to monitor and manage 106 gas turbines, 42 steam turbines and 132 generators, for a total of over 33 GW worldwide.

In total, the Integrated Plant Support of Ansaldo Energia currently monitors and manages 106 gas turbines, 42 steam turbines and 132 generators, for a total of over 33 GW.

By inaugurating the new headquarters of Integration Plant Support in Abu Dhabi, Ansaldo reinforces its presence in the wider area where it has been operating for over

thirty years. "It is with great satisfaction that we inaugurate this pole of very high technology and innovation" says Giuseppe Marino, CEO of Ansaldo Energia. "We want to strengthen our presence in this area that has great potential and is strategic for the development plans of our company".

Pointing out the innovative tools and synergies between the two centres, Stefano Gianatti, Ansaldo's Vice President Service said teams in Abu Dhabi and Genoa will not only carry out monitoring activities but also remote diagnostics: "the analysis of the data received in real time (more than 130,000 packets of information are downloaded every second) allows to have a nonstop overview of the real status of the turbines or generators, anticipating

any critical issues that can thus be resolved before generating a potentially very critical failure," he explained, adding: "All this is performed in direct contact with the customer, which can therefore improve the reliability of the plant".

Already back in 2010, Ansaldo built a new plant in Abu Dhabi to carry out works on gas turbine parts and this facility was extended in 2027 into the Middle East Service Hub a fully equipped rapid response unit with 120 technicians, with a light mechanical repair shop and a new area for service activities on generators. The facility is seen as a "strategic pole" not only for the Middle East area, where the company has many projects, but also for the Asian region.



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Two LNG-to-Power projects near start-up in the Philippines

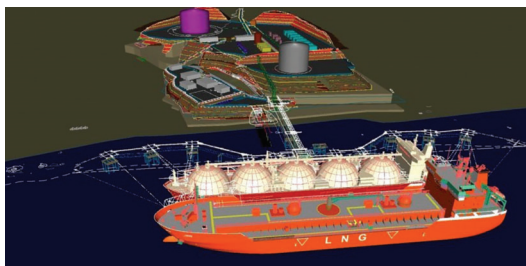
Two of six LNG import projects in the Philippines are about to reach completion, the Department of Energy (DoE) announced. Start-up of Atlantic Gulf and Pacific's (AG&P) import terminal at Batangas is now slated for August 1. Handled by the local firm Linseed Field Power, the terminal will source fuel for the 1,200 MW Ilijan gas power plant.

However, the commissioning date of AG&P's regas terminal had to be delayed from July 1, the regulator said having just finalise an onsite inspection of the LNG import facility. Steady fuel supply for the Ilijan power plant is vital – particularly during the summer season with peak electricity demand – hence the regulator is looking for replacement power in case the new regas facility fails to supply enough LNG to Ilijan.

AG&P's project is called Philippines LNG and will store and dispatch regasified LNG to power plants and industrial and commercial customers. The PLNG project will have initial capacity to deliver up to 3.0 million tonnes per annum (mtpa) by 2022, with additional capacity for distribution in the liquid fuel market.

FirstGen FLNG expected onstream in Q4

Second in line is First Gen's interim offshore LNG import facility which the regulator expects to be operational by the fourth quarter of this year, possibly as early as late October or early November at the latest. FirstGen recently extended its charter for a floating LNG import terminal from BW LNG for five years, allowing a swift increase in



Render of Philippines LNG project

LNG imports before the utility will eventually build a more costly onshore terminal.

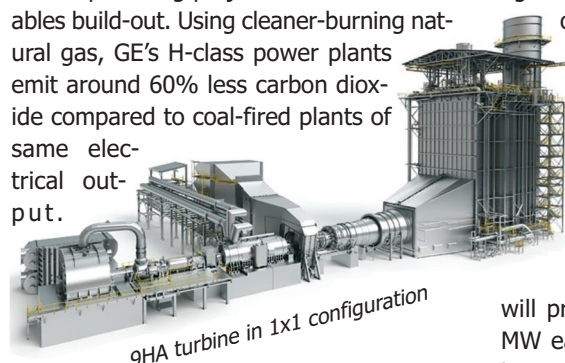
The Government of the Philippines had been accelerating the approval process for LNG import terminals to avoid a spike in electricity prices and power shortages, once Malampaya reserves will be depleted in 2024. Currently, the Malampaya gas and condensate field still provides enough fuel for three gas-fired power plant with combined capacity of 2,700 MW, enough to cover 30% of the electricity needs of the Luzon Island including the capital Manila.

Other projects are still at an infancy stage and not as advanced as the AG&P and FirstGen ventures. Shell Energy Philippine's LNG import plant is still in its permitting phase, while Vires Energy has asked the regulator to extend its permits as it plans to enter MERALCO's competitive bidding process. ■

GE secures first 9HA equipment order in Vietnam

PetroVietnam's Nhon Trach 3&4 units will be the first HA-powered combined-cycle plants in Vietnam once operational in 2025. The project's EPC contractor, Samsung C&T, contracted GE to supply turbines and related equipment for two LNG-fuelled power units that are expected to deliver over 1.6 GW of cleaner electricity, in a shift away from coal.

Coal currently covers a third of Vietnam's electricity consumption and the government supports both coal-to-gas transition and re-powering projects as well as renewables build-out. Using cleaner-burning natural gas, GE's H-class power plants emit around 60% less carbon dioxide compared to coal-fired plants of same electrical output.



Hence, adding two LNG-fuelled units to the Nhon Trach power plant is hailed to help Vietnam reach net zero emission by 2050.

GE and PetroVietnam Power Corp also agreed to develop solutions to improve the operational efficiency of Nhon Trach 1 as well as for maintenance of the Nhon Trach 3&4 units. Once in operation, the new gas-fuelled units will provide electricity for three large industrial areas including Ho Chi Minh City, Dong Nai, and the southern Ba Ria – Vung Tau provinces.

For the Nhon Trach expansion, GE will provide two blocks of more than 800 MW each including: a GE 9HA.02 gas turbine, the company's most efficient 50 Hz

AEG Power integrates solar and gensets into microgrid in South Africa

AEG Power Solution has provided a large shopping mall in Paarl, South Africa, with a reliable microgrid that integrates a solar-powered 1.2 MWh lithium-ion battery for daytime electricity supply with fossil gensets for backup. Peak shaving reduces energy prices to a minimum and leads to an estimate amortization time of 4-5 years.

South Africa's power grid is facing several outages daily – especially during the peak times of 7-10am in the morning and 6-8pm in the evening. Electricity prices per kWh vary between 2,20 Rand for peak times and 1,20 Rand at midday to 0,80 Rand at night – and since the energy crisis in 2008 Eskom's electricity prices have soared by 8 times of their initial rates.

Rembrandt Mall hence decided to take its electricity supply in its own hand by combining solar PV panels with a 0.9 MWh battery energy storage to form its own microgrid with uninterruptible power supply. Through peak shaving, the new system helps lower energy contract prices to a minimum. The overall system consists of eleven 82 kWh batteries and will be extended in the coming weeks to 1.2 MWh battery capacity in total. ■

gas turbine, an STF-D650 steam turbine, a W88 generator, an Once Through Heat Recovery Steam Generator (OT HRSG) as well as the Mark* VIE Distributed Control System (DCS). GE explained its OT HRSG technology features advanced water-steam cycles that deliver higher combined cycle efficiency.

In Vietnam, GE's equipment powers 11 power plants and provides up to 25% of the Vietnam's electricity needs and the US manufacturer has over 1,300 employees throughout the country, including at the GE's Phu My repair facility and Dung Quat HRSG manufacturing plant in, where the pressure part modules for Nhon Trach 3&4 will be manufactured locally. ■



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