



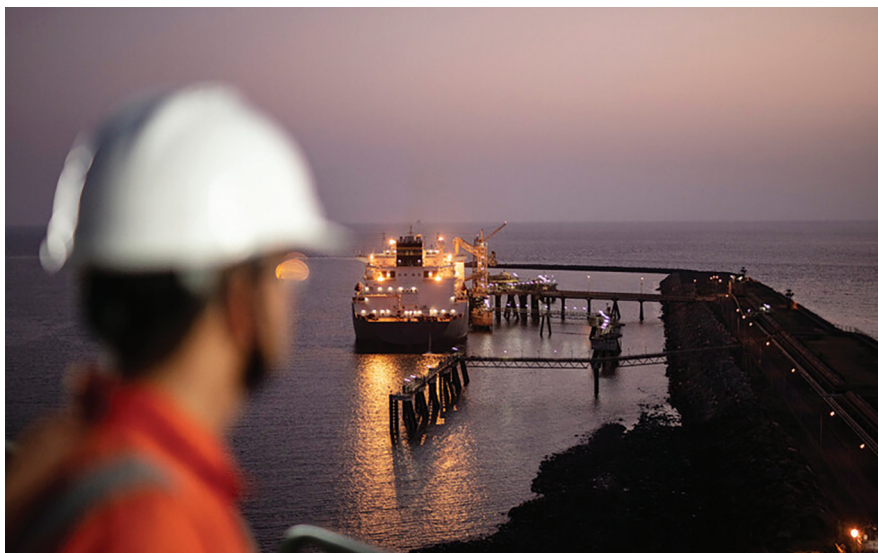
Shell's LNG margins hit by oil price slump, shifts focus to integrated power

Royal Dutch Shell's margins on LNG sales are squeezed by low oil prices. Over 80% of the company's term LNG sales are linked to oil with a 6-month price lag, dragging down margins in the third quarter. In consequence, Shell places greater emphasis on integrated power, biofuels and hydrogen.

Though Shell strives to unlocking new and expanding existing LNG markets, it is rapidly transforming into to provide lower and zero carbon solutions by integrating gas-fired power and renewables, as well as hydrogen.

Oil and gas production, Shell's traditional business, is expected to reach between 820 and 860 thousand barrels of oil equivalent per day. Gas liquefaction volumes will be between 7.9 and 8.3 million tonnes, but trading results are expected to be "below average".

Moreover, a one-off tax charge is expected to have a negative impact on adjusted earnings in the range of \$100 to \$200 million, the Shell CEO Ben van Beurden conceded in an update to Shell's third quarter 2020 outlook.



Aspiring to sell zero carbon products

The Integrated Gas business is meant to grow with a strong focus on helping customers decarbonise and organised around the sectors in which we have customers, like aviation, like shipping, like heavy-duty road transport.

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Siemens Energy stages "modest" debut on Frankfurt stock exchange

Shares in Siemens Energy have opened lower than anticipated on their first trading day in Frankfurt in what analysts called a "modest market debut." Shares opened at 22.01 Euros apiece on Monday, giving the Siemens spin-off a market value of 16 billion Euros – less than the previously estimated 22 billion Euros.

A source close to Siemens Group had told Reuters last week the consensus forecast for the value of the business were 21 billion to 22 billion Euros. Today's actual market value was initially just 16 billion Euros.

At 7:20 GMT shares were trading below the opening value, down at 19.35 Euros, but recovered since to 21.53 Euros.

Siemens Energy, maker of gas turbines and power transmission systems was carved out of the wider Siemens Group and listed as a standalone company due to weak profit margins. CEO Christian Bruch said the listing gives the new company "the entrepreneurial flexibility we need." He pledged the independent company is "now doing everything in our power to seize the opportunities



offered by the global energy transformation."

With 91,000 employees in more than 90 countries, Siemens Energy is an energy technology company with a global reach and an offering that spans almost the entire energy value chain. An estimated one-sixth of the world's power generation is already based on Siemens technologies.

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"We have to change the type of products that we sell" Shell CEO Ben van Beurden underlined. On aviation, for example, Shell is looking to make biofuels a reality. As for hydrogen, the company is striving to work with decision makers and policy makers to put new legislation in place and clear technical bottlenecks.

Restructuring of Shell's organization is

underway with a view to cutting costs by \$3.0 to \$4.0 billion by the first quarter 2021. This includes some 7,000 to 9,000 job reductions, partly through voluntary redundancies, by the end of 2022.

Striving to become "more nimble"

Commenting on the restructuring, van Beurden said the redundancies will be "an

extremely tough process." However, the company needs to be a simpler, more streamlined, more competitive organisation that is more nimble and able to respond to customers. Staff, currently dispersed through the company's organisational structure, will be brought all into one place. That same is true for whole deal-making capability. ■

Hygo Energy IPO on hold as CEO named in Brazilian corruption probe

Plans for debut trading in Hygo Energy at the US stock exchange NASDAQ have been shelved amid corruption allegations against the company's CEO Eduardo Antonello. Hygo, a joint venture between Golar LNG and the U.S. private equity firm Stonepeak Infrastructure Partners, had plans to develop two LNG-to-Power projects in Brazil.

Stakes are high for Golar, which together with Stonepeak, has invested more than \$500 million in Hygo Energy. The Initial Public Offering (IPO) of Hygo shares was meant to raise up to \$485 million.

Mr Antonello is a former executive of offshore oil rig company Seadrill Ltd and he is named in a bribery investigation in a court filing by Brazilian federal prosecutors. Hygo was quick to point out that the allegations against Mr Antonello "involve conduct that predates and does not, in any way, implicate his current work."

Golar might be excluded from Petrobras tender

Though no formal charges have been made against Mr Antonello, the Brazilian oil and gas major Petrobras is considering withdrawing Hygo's right to participate in a tender for a floating storage and regasification unit (FSRU) at Salvador in Bahia.

Petrobras' three FSRUs, the second situated at Guanabara Bay and the third at Pecem, are significantly underutilised and are hence being opened for third party access. However, Petrobras is now reviewing the integrity of Hygo.

Casting doubt over Golar Power's participation in the tender for the FSRU, Petrobras states that a review of this supplier's integrity analysis is in progress.

"Any change in the perception of integrity risk to which Petrobras may be exposed when dealing with the companies of the Golar Power Group will be communicated in a timely manner to its legal representatives. "In the case of the bidding process for the lease of the Bahia Regasification Terminal (TR-BA), the no-

tice prevents the participation of any company or consortium with a high Degree of Integrity Risk," explained Petrobras.

The review also impacts Golar's future participation in the LNG fuel market of northeast Brazil with a Petrobras fuel affiliate BR Distribuidora. Petrobras confirmed it has asked BR Distribuidora to clarify its partnership with Golar Power in light of the issues revealed by 'Operation Car Wash' - Brazil's far-reaching corruption scandal. ■



Eduardo Antonello has taken leave from office.

Gas to Power Journal

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Growth hoped to return in 2021

Going forward, Siemens Energy is expected to reach a margin of up to 1% in 2020 on earnings before interest, tax and amortisation before special items (EBITDA), due to the coronavirus-related downturn and issues with its onshore wind turbine business. EBITDA is meant to increase 6.5% and 8.5% in 2023, propelled up by more than 1.3 billion Euros in cost cutting that will likely include the closure of some

manufacturing plants.

Sales could drop by as much as 1.4 billion Euros to 27.4 billion Euros this year, before growing again in a range of 2-12% in 2021.

Maria Ferraro, Chief Financial Officer (CFO) of Siemens Energy said the company aims for a "solid dividend policy" and intends to pay out between 40 and 60 percent of consolidated net income after taxes to shareholders each year. ■

Indonesia, Malaysia reduce LNG exports amid rising domestic demand

Asia's largest LNG exporters, Indonesia and Malaysia, are stepping up domestic LNG deliveries. A flurry of decentralised gas power plants are under development in Malaysia and across the Indonesian archipelago, looking for steady and attractively-priced LNG supply.

Indonesia started exporting LNG back in 1977 and Malaysia followed suit in 1983, but both countries are now using a rising share of their domestic gas production at home. Gas-burn in the power sector is forecast to rise by over 5% annually, while exporting LNG abroad has become less attractive as global oil and gas prices fell due to the Covid-19 health crisis.

Gas gains ground against coal

For the island nation of Indonesia, small-scale LNG shipments offer the easiest way of fuelling power stations in remote locations where there are no gas pipelines from the country's large production centers. Pertamina, Indonesia's national energy company is expected to need to come up with more than 3.1 million tons of LNG, up 63% year-on-year, to meet domestic demand in the second half of this year.

Come 2021, demand could rise further as falling gas prices incentivise power producers to turn their back on burning coal. Nat-



Render of Pertamina's Jawa-1 LNG-fuelled power plant (1,760 MW)

ural gas currently accounts for just 14% of the country's energy mix, so analysts see much upside for coal-to-gas switching.

Lower pipeline gas prices and any reduction in spot prices for LNG are likely to support Indonesia's domestic LNG demand. The government in Jakarta recently launched regulations aimed at lowering domestic gas prices to \$6 per million British thermal unit (mmbtu) for seven key industries and the electricity sector.

Domestic LNG demand curbs exports

Indonesia has three LNG export plants, Bon-tang, Tangguh and Dongii-Senora with total

nameplate capacity of over 21 million tons per annum (mtpa). Its biggest customers in 2019 were China, supplied with 4.45 million tons of LNG, Japan 4.04 million tons and South Korea 2.31 million tons. The domestic gas market in Indonesia also used 3.58 million of LNG in 2019, delivered through floating storage and regasification units.

Petronas' main production complex is situated on the island of Borneo, where the Bintulu LNG complex has nine production trains with a combined capacity of over 25 mtpa. Growing domestic demand will inevitably absorb a proportion of supply from the Petronas portfolio, which would otherwise be sold into the international market. ■

Asian power sector seen attract \$1.5 trillion investment through 2030

Investment in the power generation sector in Asia Pacific will amount to over \$1.5 trillion over the coming decade, Wood Mackenzie forecasts. Wind and solar are seen account for up 66% or \$1 trillion of that investment, with just \$500 billion spent on new gas- and coal-fired power projects.

Availability of low-cost coal and energy security had traditionally been key drivers for investment into coal-fired power plants in Asia, but the sentiment is shifting as political leaders strive to set economies on a greener and cleaner pathway.

"The next decade will see gas/coal investment split at 40/60 but the share of coal

is falling and beyond 2030 gas will contribute 70% with coal falling to 30%," said Wood Mackenzie senior analyst Rishab Shrestha. "Coal investment, meanwhile, will fall from its peak of \$57 billion in 2013 to \$18 billion by the end of the decade."

A staggering 170 gigawatts (GW) of new power capacity is forecast to be added annually in the Asia Pacific region, and analysts say the pace of

additions will accelerate beyond 2030.

"We should see a slight slow-down in capacity additions in the next five years due to coronavirus related sluggish demand," Shrestha said, adding "this should pick up from 2026 onwards."

However, there

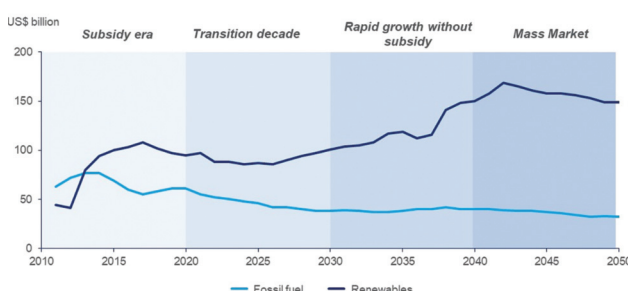
are some headwinds for renewable investment as Asia Pacific is progressing on its energy transition path. Wind and solar investment is likely to fall 20% from peaks seen in 2017 given that generous subsidies are being gradually withdrawn.

Variable generation to more than double

By 2030 the share of wind and solar in the Asia Pacific power generation will more than double to 17% with over 51 regional markets out of 81 modelled exceeding 10% variable renewable energy in generation (VRE). By then, renewables will outcompete new coal power units on cost.

Gas and dispatchable power will continue to play a key role in providing flexibility to power systems. Energy storage capacity will more than double during the transition decade to 9% of peak load, with pumped hydro storage dominating, as battery storage rapidly develops. ■

Asia is entering a transition decade; moving towards unsubsidised renewables
Annual CAPEX deployment for Asia's power generation by technology, 2011-50



Source: Wood Mackenzie. Note: CAPEX deployment includes investment in wind, solar, coal and gas

FirstGen gets go-ahead to develop floating LNG facility at Batangas

Philippines' largest utility First Gen has received regulatory approval to build a floating LNG import unit to fuel 3.2 Gigawatt (GW) of power gen capacity near Batangas City. Construction will start in the fourth quarter, with the aim of receiving the first LNG cargo in the autumn of 2022.

First Gen is also about to tender for a floating storage and regas unit (FSRU) to source gas for its future power gen projects. First Gen already operates four gas-fired power plants with an aggregate capacity of about 2,000 MW, notably the 1,000 MW Santa Rita plant, the 500 MW San Lorenzo facility and the 414 MW San Gabriel and 97MW Avion plants.

By facilitating LNG imports, First Gen strives to encourage construction of additional gas-fired power generation capacity across the Filipino archipelago.

Tender for FSRU

FGEN LNG, owned by First Gen, has started to modify an existing jetty and is also building an onshore gas receiving unit in Batangas City. In parallel with construction works, the company is also preparing to launch a binding invitation to tender for a floating storage and regasification unit (FSRU).

Three FSRU providers – Singapore-based BW Gas, Greek-owned shipping company GasLog LNG and Norway's Høegh LNG – have already expressed interest in striking a charter deal for the FSRU that will provide storage and regasification services to the interim project.

Deployment of an FSRU is meant to allow

the Philippines to import LNG as early as from the third quarter of 2022.

Importing LNG is "advantageous for us," Francis Giles B. Puno, First Gen President and COO said, noting that prices for spot LNG cargoes are currently "quite attractive and even cheaper than gas from the domestic Malampaya field."

LNG to substitute Malampaya gas

The floating LNG import terminal along with the FSRU is believed to play a critical role in ensuring gas supply security of the northern Philippines and the capital Manila. Domestic supply from the Malampaya field is running out, hence imported LNG will have to substitute domestic gas supplies. Upstream contracts to tap Malampaya gas are set to expire in 2024, though the field is expected to not be depleted before 2027.

Once operational the FSRU is meant to cover the serve the natural gas requirements of existing and future gas-fired power



plants of third parties and FGEN LNG affiliates," First Gen said, adding these gas imports will "bring the country closer to its goals of energy security, expanded energy access and low-carbon future as stated in the Philippine Energy Plan 2017-2040."

FirstGen is jointly developing the FSRU at Bantangas with Tokyo Gas, which holds a 20% stake in the project. To attract further investors, FirstGen said it is prepared to decrease its stake in the project from currently 80% to about 51%.

Australia-listed Energy World Corp has also completed a regas facility at Pagbilao in Quezon province, linked to its 650 MW gas-fired power projects. LNG imports are slated to start only once the power plant has been built. ■

Karpowership launches 1st floating LNG-to-Power project in Indonesia

Turkish Karadeniz Energy Group has brought Indonesia's first ever floating LNG-to-Power project into operation. The 125 MW Karpowership *Zeynep Sultan* burns regasified LNG, supplied via a floating storage regas unit (FSRU).

The power barge requires no land-based construction and can be moved to a different location, if needed. Steady LNG supply is ensured through a contract with Indonesia's state-owned PLN which provides the fuel through PT Pertamina.

The Powership 'Zeynep Sultan', built in 104, was initially running on marine fuel oil

but has recently been converted to dual-fuel with LNG capability

"Through our Powership's dual-fuel engine capability, combined with the innovation of FSRU technology, we are able to offer a seamless transition to LNG-to-Power for our partners in Amurang," said Karpowership's Chief Commercial Officer, Zeynep Harezi. The Turkish maritime infrastructure provider aims to have 80% of its Powership fleet running on LNG by 2025.

Karpowership is a subsidiary of the Turkish industrial group, Karadeniz Holding, whose CEO is Orhan Remzi Karadeniz. The Karpowership unit operates 25 floating power plants in a dozen countries around the world and the Indonesian venture is the first in operating using LNG.

FSRU built in China

The LNG offshore Amurang is being converted via a small-scale floating storage and regasification unit (FSRU), the 14,000 cubic metres capacity vessel Hua Xiang 8, according to shipping data. The small-scale FSRU was constructed in China in 2017 at the Qidong Fengshun yard for Zhejiang Huaxiang, a Chinese liquefied petroleum gas (LPG) market player with plans to build up a fleet of coastal LNG carriers of various sizes.

The FSRU is now working for PT Sulawesi Regas Satu, a joint venture comprising the government-owned utility company Perusahaan Listrik Negara (PLN) and Indonesian shipping company PT Humpuss, which said earlier in 2020 it was acquiring the Chinese FSRU. ■



Karpowership *Zeynep Sultan* en route to Amurang

Batteries and hydrogen electrolyzers 'ready for the big time'

Falling costs for lithium-ion batteries and hydrogen electrolyzers have rendered both technologies ready for mass commercialization. The International Energy Agency (IEA) projects the cost of 4-hour battery systems to fall to \$220/kWh by 2040, so utility-scale battery deployment could reach nearly 220 GW by 2040.

Stimulus-fuelled investment to rekindle economies after the corona crisis could help trigger a large-scale roll-out of green energy sources and drive cost declines as the technologies progress. Both lithium-ion batteries and electrolyzers are at the stage in their development where wind and solar were in 2008-2009, the IEA executive director Fatih Birol said, suggesting "they have the potential to be the coming decade's breakout technologies."

Similar support schemes were once set up for wind and solar PV – "today both are cost-competitive in large parts of the global energy system in their own right," Dr. Birol noted. Offshore wind, in particular, "is now ready for massive investment," he stressed. Wind turbines are based on mechanical engineering in which European countries, especially Germany, have a comparative advantage. But solar panels are an extension of semiconductor electronics, an area where China already had a competitive edge.

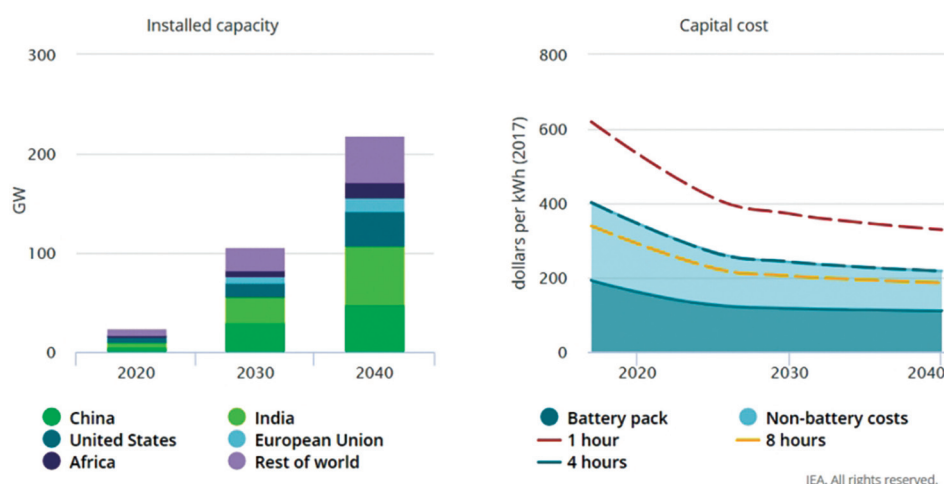
Clean energy stimulus rekindles economy

Trying to revive the economy, governments around the world are cobbling together massive stimulus packages. These huge public spending programs will shape countries' infrastructure and energy systems for decades to come.

Time is of the essence, given that the pandemic has triggered the biggest economic collapse since the Great Depression. Hence, the IEA is urging national government to put clean energy jobs at the centre of stimulus packages. Investing in energy efficiency also has large benefits for employment; previous stimulus plans in the United States and elsewhere supported large numbers of jobs by fuelling demand for the labour-intensive work of upgrading building.

Electricity and internet networks are vital to keep professionals connected while working from home and help industries get through the current crisis. However, current grids are not ready for a more electrified future in which wind and solar account for a rising share of power generation, the IEA warned. Governments should hence help TSO to integrate smart digital technologies in their operation to enhance grid stability. ■

Deployment and costs of utility-scale battery storage systems in the New Policies Scenario



Construction costs for wind power still higher than for gas generators

Investment in U.S. generating capacity is dominated by gas power units due to its cheap capacity costs. Though construction costs for solar PV more than halved to \$1,848 and costs for onshore wind fell to \$1,382, both lose out on gas-fired units which cost just \$837 per capacity added.

Gas-fired power projects account for 46% of total US capacity addition, with growth led by significant additions in new capacity from combined-cycle unit which almost doubled year-on-year. The cost to build a new CCGT fell by 4% to around \$858 per kilowatt (kW) in recent years and may fall further.

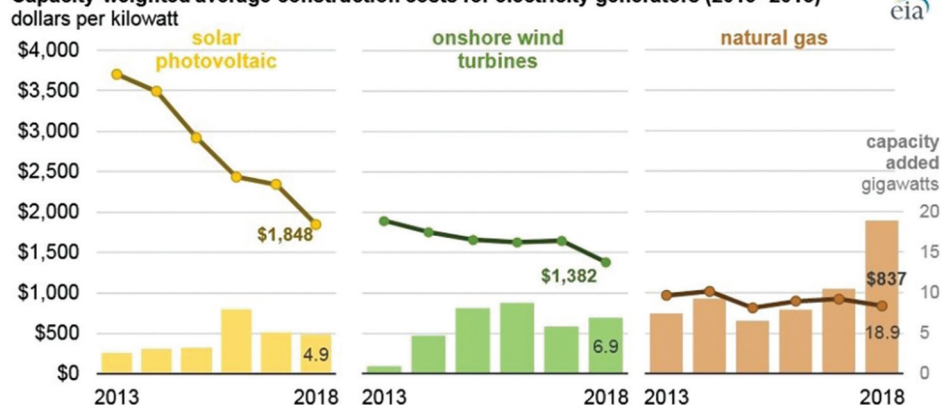
Construction costs for wind turbines dropped 16% to \$1,382 per kW, with the largest decreases in costs seen at wind farms with 1 megawatt (MW) to 25 MW of capacity. According to the U.S. Energy Information Administration (EIA), construction costs at these farms decreased by 22.6% to \$1,790 per kW.

Solar photovoltaic (PV) generators have enjoyed a steeper drop in average construction costs than wind and solar, largely

due to falling costs for crystalline silicon fixed-tilt panels which used to be available for \$1,767 per kW. These fixed-tilt panels account for 1.7 GW, or more than one third of solar capacity added.

Crystalline silicon axis-based tracking panels had the highest share, with 2.0 GW or 41% of total solar capacity additions in the U.S., effectuated at an average cost of \$1,834 per kW. ■

Capacity-weighted average construction costs for electricity generators (2013–2018)



Source: U.S. Energy Information Administration, *Electric Generator Construction Costs* and *Annual Electric Generator Inventory*

L&T India, Siemens apply new method for remote steam GTP blow tests

Larsen & Toubro Ltd (L&T India) and Siemens Energy have applied a new method to successfully conduct a remote steam blowing of the gas turbine at the 400 MW Bibiyana South power plant in Bangladesh. The steam blowing was carried out from Erlangen, Germany, owing to the Covid-19 situation.

New methods of blow testing had to be applied to continue with commissioning works, since the technical personnel of the German OEM had returned to their home countries when the spread of the coronavirus started to accelerate in Bangladesh.

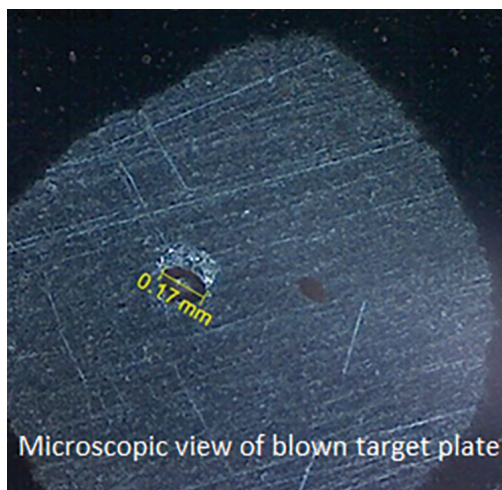
The 400 MW Bibiyana South CCPP, situated in Sylhet district, is being built on behalf of the Bangladesh Power Development Board (BPDB), executed on an EPC basis by a joint venture of Samsung C&T and Larsen & Toubro. The plant consists of one SGT5-4000F Siemens gas turbine and one heat recovery steam generator (HRSG) connected to a SST5-3000 steam turbine generator, arranged in single shaft configuration.

The gas turbine was synchronized with the grid on May 17, 2020, and starting from the following day gas was admitted in the HRSG and steam blowing. For stage 3 target blow acceptance, digital microscopic pictures of the target plates were sent to Siemens Energy's design and process team for approval June 6 and acceptance was received just three days later.

Tests conducted remotely from Erlangen

Prior to blow testing and turbine synchronization, Siemens Energy set up a secure remote VPN connection between the CRSP router at the Bibiyana South site and the physical server located at Siemens' Energy campus in Erlangen. Online access – via end point call through a public I/P of 5 MBPS – to Bibiyana site's application server was obtained through a secure server, with backup at three locations in Germany, Singapore and the U.S.

Smart glass technology was used to physically check the status of each part of the equipment. The remote Siemens technical team could see all the equipment through the eyes of the L&T engineer wearing the smart glasses at Bibiyana South site.



Microscopic view of blown target plate



400MW Bibiyana South CCPP

Thorough checks prior to start-up

Once a remote connection was established, L&T and Siemens ensured system readiness prior to start-up of the gas turbines. A physical remote inspection was carried out for the gas turbine compressor air inlet area, the gas turbine exhaust diffuser and the gas turbine fuel gas pilot.

Stroke checking was done for the premix valve, IGV, cooling air valves, blow off valves and all other equipment pieces. The L&T team conducted the HRSG ready for hot gas admission and the test of trip protection logics. Test for physical fitness of all auxiliaries were completed in one day and the gas turbine, the HRSG and all other systems were declared ready for start-up.

To ensure early completion of steam blowing during the Covid-19 pandemic, the two partners implemented several new technical initiatives such as a continuous steam blowing instead of the conventional puff method. To that end, a temporarily converted CWST (clarified water storage Tank) with a capacity of 13600 cubic meters was used as additional DM water reserve to facilitate continuous steam blowing.

Novel technologies to ensure early completion

Additional provisions were made to cooling

tower make-up pump with a capacity of 610 m³/hr to transfer water from the storage tank to the hot well in order to establish constant makeup at higher flow during blow off conditions.

A dedicated online DF (disturbance factor/cleaning ratio) monitoring facility was set up in plant DCS to ensure the necessary pressure, temperature and flow condition for steam blow out at a maximum rate. The number of circuits/stages was optimised to five to clean HP/LP/IP/HRH/CRH circuits, with one common circuit for both HP and HRH.

Digital microscopic pictures were used of each target plates to check Siemens acceptance criteria for stage completion.

Risk mitigation for remote operation

Certain risks that were anticipated for remote operations were mitigated in consultation with Siemens Energy experts, such as misinterpretations of controls during remote communication, analysis and monitoring vigilantly during fault occurrence, Internet connectivity and internet speed / gateway issues.

Daily readiness of the remote communication was ensured before plant start-up, to facilitate a close coordination for open-cycle and combined-cycle mode of gas turbine operation. ■

Doosan to deploy proprietary gas turbine at five Korean utilities

South Korea's power plant developer Doosan Heavy Industries has joined forces with five public power companies to build a model combined-cycle power plant, driven by a proprietary gas turbine. Doosan has been striving to develop a turbine since 2013, aimed at Asia's growing LNG-to-Power market.

The five public power companies involved include Korea South-East Power, Korea Midland Power, Korea Western Power, Korea Southern Power and Korea East-West Power subsidiaries of Korea Electric Power Corp. (KEPCO).

The cooperation was announced just after President Moon Jae-in visited Doosan's gas turbine manufacturing plant in Changwon, about 400 kilometers southeast of Seoul.

"Given that a huge market growth is expected, we aim to further promote our company's growth by leveraging our industry-academia-research alliances to effectively develop a top-notch Korean standard gas-fired combined cycle power plant

model," said Hongook Park, CEO of Doosan Heavy's Power Service Business Group.

Last year, Doosan Heavy managed to independently develop a turbine for LNG-fuelled combined-cycle power plants, making it the fifth turbine manufacturer globally. Doosan's first Korea-made turbines had been under development for six years as part of a government-backed project before the final assembly was completed in September 2019 of the first turbine.

Cash-strapped Doosan Heavy is hoping the new gas turbine business will bring fresh revenue from its Korean home market. The company is understood to prepare issuing new shares worth 1.3 trillion won to weather the storm and gain bridge financing. ■

“

...we aim to further promote our company's growth by leveraging our industry-academia-research alliances to effectively develop a top-notch Korean standard gas-fired combined cycle power plant model

”

- Hongook Park, CEO of Doosan Heavy's Power Service Business Group.



Workers assemble a turbine at Doosan's plant in Changwon

Mitsubishi to help Entergy decarbonise utilities in four US states

Mitsubishi Power and the US utility Entergy will work together to limit emissions from electric power generation in Arkansas, Louisiana, New Orleans, Mississippi and Texas. The cooperation will focus on the adoption of hydrogen-capable gas turbine as well as utility-scale battery storage systems.

Entergy owns and operates power plants with approximately 30,000 MW of installed capacity, including 8,000 MW of nuclear power, serving customers in 4 US states. The utility has annual revenues of \$11 billion and aims to lower its carbon emission rate to half of year-2000 levels by 2030.

Focus on hydrogen retrofits

Entergy said Mitsubishi Power was chosen due to its demonstrated ability to leverage multiple technologies to decarbonise operations. The Japanese OEM is a first mover in hydrogen-enabled gas turbines as well as energy storage.

Hydaptive and Hystore, the world's first and only standard integrated green hydrogen packages, facilitate the simultaneous use of renewables, energy storage, and hydrogen-enabled gas turbine power plants. ■

Rolls-Royce supplies 15 Bergen genset to Australian mine

Rolls-Royce has been selected to deliver 15 medium speed gas gensets of its Bergen Engines brand to power the Iron Bridge Magnetite Project in Western Australia, managed by Formosa Steel. The gensets are based on the new Bergen 20-cylinder B36:45 gas engine.

Through the Pilbara Generation Project, the Bergen gas gensets will be integrated with a 150 MW solar PV farm and battery storage. The hybrid energy system will be connected to the new transmission network Fortescue is building in the Pilbara, ensuring reliable and efficient power supply.

The contract will be Rolls-Royce's first project with medium speed engines for stationary power supply in Australia. The engines will be shipped from Bergen, Norway in the spring of 2021. ■

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