



IEA sees coal-to-gas switch accelerate due to record low gas prices

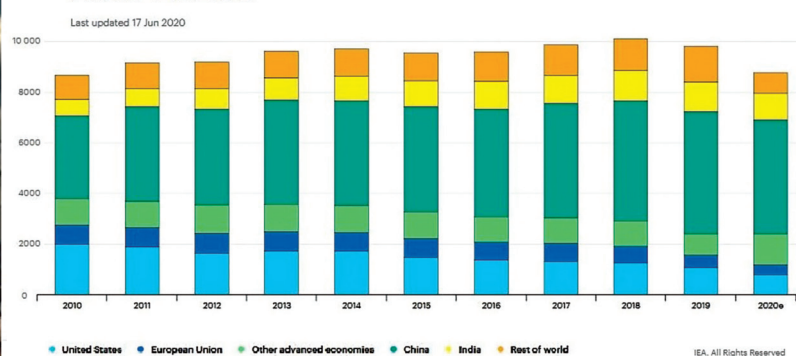
Falling gas prices have substantially improved the economics of coal-to-gas switching, the International Energy Agency (IEA) finds. Still, nearly 130 Gigawatts (GW) of coal-fired capacity was under construction at the start of 2020, and a further 500 GW in a planning phase but may now be at risk.

Natural gas is the largest source of electricity in most advanced economies but also used to be one of the most expensive options to generate peakload power. Hence, higher output from hydro or nuclear used to mainly reduce the amount of dispatched gas-fired generation.

In 2019, coal was still the largest source of electricity at 36%, IEA figures show, followed by natural gas at 23%. However, analysts say both gas- and coal-fired generation are set to fall in 2020, largely due to a sharp reducing in global electricity demand



Coal-fired electricity generation by region, 2010-2020e
Last updated 17 Jun 2020



due to lockdowns in April, May and parts of June to contain the outbreak of the coronavirus.

In New York, one of the cities most affected by the virus, the lockdowns slashed daily electricity demand on weekdays between 11% and 14% in March and April, according to government figures. Downtown

New York, the NYISO Zone J, was hardest hit with demand up to 16% lower than temperature-comparable historical demand.

Downtown New York, the NYISO Zone J, normally consumes about one-third of total NYISO supply but business closures curtailed daily weekday electricity demand by 16%, compared to normal levels.

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Siemens strives to get SeaFloat onstream in Dom Rep by early 2021

Though travel restrictions are still in place in the Dominican Republic to contain the coronavirus, Siemens is striving to deliver a barge-mounted power plant, based on SGT-800 gas turbine, on time and on budget. The 145 MW Estrella del Mar III is due to start operations by spring 2021.

Siemens claims the SeaFloat barge-mounted power plant will supply the Dominican Republic with electricity at a lower cost than a land-based fossil power plant. Installed on behalf Seaboard, an independent power producer (IPP), Estrella del Mar III will be moored offshore Santo Domingo.

Cheaper than land-based plant

Once operational in spring 2021, the floating power plant will provide the Dominican Republic with "a quality proven power plant at a lower cost in comparison to a similar land-based power plant," the project partners stressed.

Due to site constraints with limited free land, the customer selected a SCC-800 2x1 SeaFloat concept with two Siemens SGT-800 gas turbines and one SST-600 steam turbine. The turbine



gensets are of single lift package design for floating applications, utilizing a frame-based design with a three-point mount. "This allows increasing the plant size in comparison to a land-based power plant," Siemens underlined.

Turnkey 'plug and play' concept

Siemens will realize the project under a turnkey 'plug and play' concept, whereby the German OEM

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The NYISO grid operator said "the reduction in electric demand from commercial customers is a leading driver of overall reduced electricity consumption." More than half of New York State's electricity sales go to commercial end-users, a percentage only exceeded by the District of Columbia (72%) which includes Washington DC.

In India, nationwide lockdowns have rendered coal-fired power plants uncompetitive compared with gas or renewables. In the first 33 days of the 2020/21 fiscal year,

coal-fired generation was down just shy of 30 Terawatt-hours (TWh).

Coal power hit hardest

In India, coal-fired generation has borne the brunt of the Covid-19 power demand loss, running at half the capacity rate assumed in the Indian Central Electricity Authority's modelling guidelines used to evaluate the financial and operating performance of new coal-fired power plants.

Fuel pricing trends for new power pro-

jects clearly favour renewable energy over coal, particularly when it comes to expensive non-mine mouth or import coal-fired power proposals. Investors, including India's domestic banks, are increasingly reluctant to provide financing for coal power projects, given the very cost-competitive low-carbon alternatives.

A landmark 2GW solar tender awarded by NHPC in April 2020 priced at a near record low of Rs2.55/kWh, fixed flat for 25 years. ■

CRYOBattery project near Manchester gets £10 million UK gov' grant

Highview Power has received £10 million from the British government to build a 50 MW liquid air, or cryogenic energy storage unit with 250 MWh minimum output in Greater Manchester. The CRYOBattery project is being implemented together with Carlton Power, backed by £35 million from Sumitomo Heavy Industries.

Once onstream, the 50 MW cryogenic energy storage will be one of Europe's largest battery storage systems and help achieve the UK's net-zero carbon goals.

"This new cryogenic energy storage plant will deliver much needed long-duration energy storage and provide valuable services to the National Grid," said Javier Cavada, Highview Power CEO.

In-operation date in 2022

Highview has teamed up with the UK independent developer Carlton Power to build and operate the energy storage facility at Trafford Energy Park, just outside of Manchester. Situated in Carrington Village, it will be one of Europe's largest battery storage systems.

Construction of the CRYOBattery facility at Trafford Park is expected to start later this year and enter commercial operation in 2022.

It will use existing substation and transmission infrastructure, with its income derived

from several markets, including arbitrage, grid balancing, and ancillary services such as frequency response and voltage support.

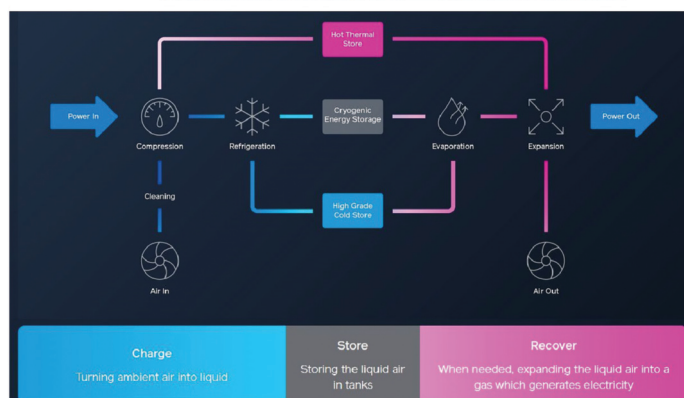
Cheap, large and long-duration storage technology

In terms of technology Highview cryogenic energy storage systems use liquid air as the storage medium which allows them to store large quantities of energy for a long-duration. The facilities can offer multiple gigawatt-hours of storage. That represents weeks' worth of storage, not just hours or days.

"At giga-scale, CRYOBatteries paired with renewables are equivalent in performance to – and could replace – thermal and nuclear baseload power in addition to supporting electricity transmission and

distribution systems while providing additional security of supply," Highview stated.

At approximately £110/MWh for a 10-hour, 200 MW / 2 GWh system, the CRYOBattery is said to offer a "competitive levelised cost of storage for large-scale applications." ■



Render of Carlton Powers 50MW-250MWh CRYO battery

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will design and build the 145 MW combined-cycle power plant.

Singapore-based ST Engineering will be responsible for the engineering design, procurement and construction (EPC) of the floating power barge, the balance of plant and the installation works. Fluence Energy, a JV company of Siemens and AES, will provide a 5MW/10 MWh battery that will be

integrated in the power plant for frequency regulation control, allowing it to operate at full capacity with highest fuel efficiency.

Siemens SeaFloat power plants are adaptable for various needs. While most market requests are for the SGT-800 gas turbine, further solutions are available based on the SGT-A65 and SGT-8000H series. ■

Keppel and MHI aim to use hydrogen-fuelled gensets for data centres

Keppel Data Centres has teamed up with the Asia Pacific arm of Mitsubishi Heavy Industries (MHI-AP) to explore and implement the use of hydrogen-fuelled tri-generation plants. The aim is to provide electricity and cooling for Keppel's Floating Data Centre Park project in Singapore, collocated with LNG-to-power infrastructure.

The Floating Data Centre Park, under development by Keppel and Royal Vopak, is designed to assess the commercial viability of establishing LNG and possibly hydrogen infrastructure for power plants. The huge data centre will be situated at the 32 hectares offshore supply base at Loyang, Singapore.

Aspiring to partly fuel the data centre by hydrogen, MHI and Keppel are exploring the onsite production of hydrogen through the process of steam methane reforming (SMR), and the subsequent use of the fuel in tri-generation generator sets.

As combustion fuel, hydrogen has clear advantages over fossil fuels given that it produces no emissions when burnt. A tri-generation plant produces heat, power and

cooling, so the supported data centre can not only reduce its reliance on the grid but also use the chilled water produced by the plant to cool the data centre's computer systems.

Producing hydrogen through SMR

As part of the cooperation, Keppel and MHI will also export producing hydrogen through the steam methane reforming (SMR) process.

Methane hereby reacts with steam under 3-25 bar pressure in the presence of a catalyst to produce hydro-

gen, carbon monoxide, and a small amount of carbon dioxide. The process is endothermic, so heat needs to be supplied externally to get the chemical reaction going. ■



Render of Keppel's Floating Data Centre Park project in Singapore

Toshiba to relocate hydrogen energy production site

Toshiba Energy Systems & Solutions (EES) has started to relocate its hydrogen production site from Yokohama City to Kawasaki City in order to increase capacity and output. At the new facility, due completed in autumn 2020, Toshiba will produce fuel cell stacks based on its H2One energy supply system and its H2Rex hydrogen fuel cell.

The new site in Hamakawasaki, just outside Kawasaki City, will be equipped with Toshiba's advanced fuel cell production technology which helps streamline processes and reduce production costs.

Tenfold rise in production capacity

The new research and manufacturing facility at Hamakawasaki can scale up to ap-

proximately ten times the current production capacity, subject to product demand. Hydrogen, supplied at low cost via pipeline from a nearby electrolyzer, will be used for inspections and experiments related to fuel cell production.

Toshiba's latest H2Rex technology is a clean generator that emits only water. The pure hydrogen fuel cell system has been developed from decades of research dating back to the 1960s.

Fuel cells generate electricity through electrochemical reactions between the stored hydrogen and atmospheric oxygen. Fuel Cell Stacks are comprised of multiple unit cells which are composed of positive electrode, negative electrode, and electrolytes in-between both types of electrodes.

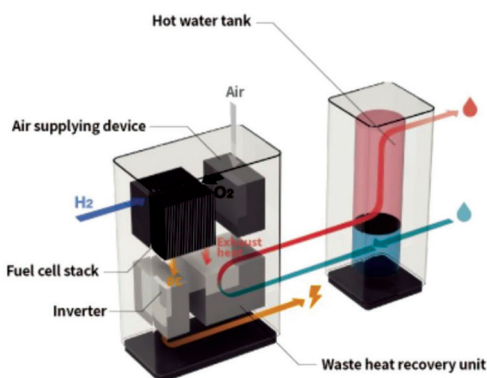
Over 120 H2Rex units sold

Toshiba ESS has already sold and delivered over 120 units 'H2Rex' pure hydrogen fuel cell systems. Customers are wholesale food markets, hotels, convenience stores, and sports facilities.

In China, Toshiba has entered a partnership to develop fuel cell system and stacks with a local startup called More Hydrogen Energy Technology Co. "We are working towards expansion of our cell stack technology in the Chinese market," said Yoshihisa Sanagi, General Manager of the Hydrogen Energy Business Division at Toshiba ESS.

By deploying hydrogen energy technology at scale, Toshiba seeks to "contribute to the growth and maturation of renewable energy sources worldwide," he concluded. ■

Schematic configuration and flow of H2Rex™



Energy investors flock to Egypt, pushing up power supply surplus

Devaluation of the Egyptian pound and cuts in fuel subsidies have opened space for investment in the energy sector, though analysts say "a great deal more structural reform is needed." According to ResearchandMarket projections, Egypt's electricity supply surplus could reach 74 GW by 2035.

Despite the corona crisis, the Egyptian government maintains its target of 6-7% economic growth in the current fiscal year 2019/20. The International Monetary Fund (IMF), meanwhile, forecasts Egypt will reach a 5.9% growth in GDP.

Though fiscal reforms and reduction in subsidies have won Egypt the confidence of credit rating agencies and foreign investors, the immediate effect has been a fall in living standards. Between 2015 and 2018 the proportion of Egyptians living below the poverty line increased sharply. This means that not only are the benefits of reform not being felt, the reforms are actually causing pain and public unrest.

Mitigating blackout risks to avoid public unrest

The political imperative to avoid blackouts and to ensure the consistent availability of electric power at peak times has been a defining feature of the Sisi presidency, analysts noted. The collapse of the Mubarak regime and the brief rise and fall of the Brotherhood's Mohamed Morsi took place against a backdrop of a severe energy crisis. The long-term mismanagement of the gas

production and export industry meant that by 2012 Egypt not only had to cease gas exports, it also had insufficient production to supply domestic industry and power generation.

"Morsi's failure to respond to these economic challenges was an important factor behind his downfall. It is certainly the case that after taking control in July 2013, the military swiftly resolved the most debilitating aspects of the power supply crisis," ResearchandMarkets commented.

Three Siemens-build plants add 14.4 GW power gen capacity

To avert future power shortages, President Sisi struck an 8 billion Euro deal with Siemens to build the three mega power plants – Beni Suef, New Capital and Burullus (4.8 GW each) – together with its consortium partners, Orascom Construction and Elsewedy Electric. The three CCGTs, along with some smaller wind and solar PV installations, helped raise Egypt's installed power generation capacity to over 47 GW, and boosted the available reserve to 25.7% of installed capacity.



Two of the three Siemens-built power plants in Egypt

"It was President Al-Sisi's decision to trust Siemens with this enormous national power project. Joe Kaeser and Al-Sisi shook hand on this deal," Peter Ullrich, overall project director CCGT Megaproject Egypt told Gas to Power Journal. Precondition for an order of this size, in his view, was a political interest at European level to stabilize Egypt as a country.

To realize the mega power projects, state-owned EEHC had to finance nearly 85% of the cost of 6 billion Euros (\$6.7 billion) through a loan provided by Deutsche Bank, HSBC and KfW-IPEX.

Blackstone affiliate Zarou as well as Edra Power Holdings of Malaysia in May 2019 both expressed interest to purchase three Siemens-build CCGTs from the Egyptian state-run owner and operator EEHC. A sale would ease Egypt's burden of treasury-guaranteed debt that equalled 20.4% of GDP in the 2019/20 state budget. About a quarter of that debt is being owed by electricity companies. ■

ADB vows to enact "stricter criteria" to end fossil fuel financing

The Asian Development Bank (ADB) bank has vowed to enact "stricter criteria for clean energy," scrutinize all fossil projects and "firmly exclude" the financing of coal power. At this week's Asia Clean Energy Forum (ACEF) 2020, the bank had to concede that not all of its current clean energy investment is climate-friendly.

The ADB's self-imposed 'Strategy 2030' calls for climate finance from the bank's own resources to reach \$80 billion between now and 2030. It also committed to focus at least 75% of its operations to support climate change mitigation.

Over the past three years, however, the bank has heavily invested in fossil gas and

related infrastructure across Asia and is now facing the reality of stalled construction in several places and rising environmental costs.

Critics call for policy shift

A network of over 250 civil society organizations across Asia have used the occasion of the Asia Clean Energy Forum (ACEF) 2020, organised this week as a virtual conference from Manila, to call on the bank to "make an immediate shift towards renewable energy pathways for a Paris Aligned COVID-19 recovery."

The future of ADB Energy investments should be in renewable energy and community microgrids, they say with "no space for

fossil fuels especially coal."

Independent data suggests renewable energy will create more jobs and is cheaper to produce. "The age of fossil fuel baseload power generation has come to an end," critics underlined urging the ADB to "take action to align its investment policies with the 1.5 degree target of the Paris Agreement."

Established in 1966, the Asian Development Bank is owned by 68 members, with 49 originating from the region. ADB President Takehiko Nakao underlined that in addition to clean energy targets, "a sustainable and secure energy supply remains essential as more than 350 million people still lack access to electricity in our developing member countries." ■



Karpowership about to supply emergency power to South Africa

Turkey's Karpowership is gearing up to plug South Africa's gap in electricity supply and help state-owned utility Eskom source up to 3,000 MW of emergency power-gen capacity. The world's largest supplier of power barges has proposed to supply "several ships" to South Africa to help meet peak summer demand.

The South African energy department in December issued a request for information (RFI) to source between 2,000 and 3,000 megawatts (MW) of power generation capacity at the least cost. That RFI calls for start of commercial operation, following financial close, of either three to six month or six to twelve month.

Eskom currently has a shortfall in generation of well over 2,000 MW which puts supply security at risk as energy demand rises over the summer.

Suitable locations for new ships identified

"In our proposal, we have spelled out what is possible, where and how we would look to do it," said Patrick O'Driscoll, global sales director at Karpowership. Several locations have been identified as potential mooring points for the new ships, suitable to inject the electricity generated off-

shore into the South African power grid.

Karpowership has a fleet of 22 ships, which have a combined generating capacity of 3,500MW, with the largest single ship generating 470MW – about a tenth of the 4,800MW Eskom's Medupi and Kusile power stations each generate.

Each ship can provide a range of power supply options between 30 MW and 600 MW, and could be hired by Eskom for different time spans. O'Driscoll pointed out using gas-fuelled power ships would be "very affordable" compared to Eskom's currently dispatched diesel-fired emergency gensets.



Karpowership Osman Khana, currently moored in Ghana.

Cheaper fuel costs, shorter delivery times

Eskom currently needs to spend billion of South African rand annually to buy diesel for emergency power units, mostly driven by open-cycle gas turbines. Karpowership underlined that the operational cost of one of its gas-fuelled ships will be "significantly less, maybe even half the cost of those [Eskom's] peakers."

Speed of delivery is crucial for emergency power solutions; hence O'Driscoll pointed out that a Karpowership was recently delivered and operated a 120MW contract in Senegal within just nine weeks. In addition, the 235 MW Powership Aysegül Sultan is moored off Dakar since August 2019, contracted to supply 15 percent of Senegal's electricity needs for 5.5 years.

Headquartered in Istanbul, Karpowership is the only owner, operator and builder of the first Powership fleet in the world. It has 25 powerships, all built in Turkey, in operation and an order book to build new vessels in excess of 4,400 MW.

Vietnam courts ExxonMobil to invest in LNG-to-Power projects

The Vietnamese Prime Minister Nguyen Yuan Phuc has welcomed ExxonMobil's plan to build an integrated LNG-to-Power projects in Haiphon city and potentially another one in Long An province. Exxon is looking to set up an LNG-to-Power generation supply chain with a combined capacity of 4,000 MW, creating an outlet for US LNG exports.

To that end, the US oil and gas major will need to ensure a continuous stream of LNG supply - either from its Golden Pass LNG venture or sourced through natural gas exploration offshore Vietnam.

Apart from the proposed Long An LNG-to-Power venture in the Mekong Delta region, the Vietnamese government in Hanoi is also keen for ExxonMobil to go ahead with an integrated LNG-to-Power plant in the northern part of Vietnam. The 4,000 MW venture is meant to be built in the northern port city of Haiphong, adding and could be completed between 2025 and 2030.

Feedgas could come from Ca Voi Xanh field

ExxonMobil has been seeking to progress oil and gas production activities offshore Viet-

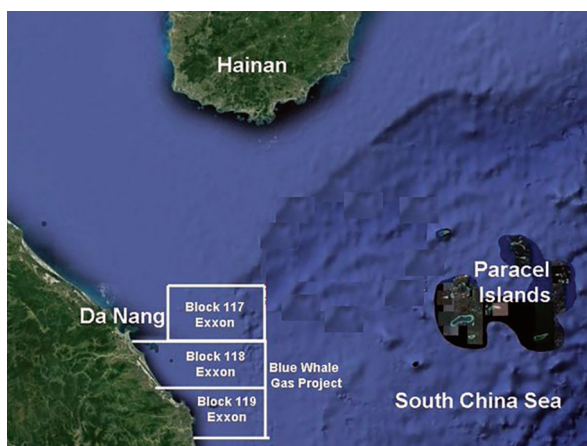
nam for several years, though with little success. Pre-FEED was competed on the Ca Voi Xanh field in 2018, but activities stalled ever since even though the field is though large enough to provide electricity for a city the

size of Hanoi for more than 20 years.

Targeting 125GW installed capacity by 2030

Natural gas is meant to become one of the backbones of Vietnam's future electricity mix, with the government supporting initiatives to develop LNG regas to import up to 8 million cubic metres per annum (MMcm/y).

Vietnam's vibrant economy is facing severe energy shortages from 2021 as construction of new power plants cannot keep up with rising electricity demand. The government in Hanoi hence set out guidelines to boost generating capacity from currently 54 GW to 125 GW by 2030.



Location of Ca Voi Xanh field in the South China Sea.

GE safely completes 'most complex' 9E gas turbine overhaul in China

GE has completed the first major inspection project in China since the coronavirus outbreak. Modernisation of two 9E.03 turbines at the 360 MW Baochang power plant, Guangdong province, was delivered safe and ahead of schedule on behalf of the customer Shenzhen Baochang Power Supply Company.

The initial schedule was for 35 days but was extended to 69 days due to the customer's expanded work scope and the 14-day quarantine before the project started. Engineers from GE and Field-Core implemented safety measures to ensure the steady operation of the plant outage. They managed to deliver the project more than one day ahead of schedule.

On-site engineers actively quarantined

The COVID-19 outbreak brought "unexpected and unprecedented difficulties" for the inspection project, Xu Yong, General Manager at Shenzhen Baochang Power Plant Co., said, stressing GE's ability to do it safely and in a timely manner was critical to the success of the project.

"During the most severe period of the pandemic, our 21 on-site engineers volunteered to go to the site and actively quarantine while solving logistical problems and

guaranteeing the end result," said Xu Xin, China OTR leader, GE Gas Power.

The upgrade was important to ensure the Baochang Power Plant was back up and running "as quickly as possible," he stressed and "the collaboration with Shenzhen Baochang was crucial to monitor and cope with the fast-moving situation"

The latest modernization project was complex and involved a lot of lifting work, with works focused on replacing the aging parts of the two turbine units.

According to GE, it was "the most complete inspection of the gas turbine, through overhaul and necessary replacement for all detachable parts." These made up more than 300 items, including the large axial, rotor, hot gas path, compressor, combustion and the turbine's air inlet system.

In Shenzhen, Guangdong Province, GE has the largest installed base for the 9E gas turbine in China.

In April 2019, GE announced that it had



Works at the Baochang power plant in Shenzhen, China.

successfully completed the world's first installation of its DLN1.0+ with Ultra Low NOx combustion upgrade on nine GE 9E gas turbines at five power generation enterprises to help improve air quality and public health throughout China by reducing nitrogen oxide (NOx) emissions. ■

Ghazafar Group and HA Utilities co-develop \$89m IPP in Afghanistan

Afghan conglomerate Ghazafar Group and HA Utilities, part of Egypt's construction giant Hassan Allam Holdings, have set up a joint venture to build a gas-fired power plant at Mazar-e-Sharif. The 59 MW plant will come at an estimated cost of \$89 million.

Mazar-e-Sharif's electricity supply currently hinges largely on hydropower and the Northern Fertilizer and Power Plant (48 MW, pictured). Hence the new Ghazafar Group's IPP project is urgently needed to avert power shortages. All electricity produced by the 59 MW gas IPP will be bought by the Afghan utility DABS.

Developed as a greenfield plant, the IPP will be fuelled by natural gas sourced from the Sheberghan fields. The developers expect to generate around 400 GWh of electricity annually for the residents of Mazar-e-Sharif, Kabul, and Jalalabad.

First Afghan IPP

The Mazar-e-Sharif gas power plant is Afghanistan's first long-term public-private partnership, financed through a \$21.2 million senior loan of the International Financial Corporation (IFC) and \$1.5 million of client risk-management swap.



Mazar-e-Sharif's Northern Fertilizer and Power Plant

In addition, the IFC mobilised \$41.2 million in parallel loans from other lenders, including the Germany's DEG and the Asian Development Bank (ADB). The financing package also includes a \$12 million guarantee from World Bank affiliate IDA, designed to give developers short-term liquidity for

payment obligations to the Afghan utility and power offtake DABS.

Nena Stojiljkovic, the IFC's vice president for Asia and Pacific, said "the project sends a clear signal to the world that internationally bankable deals with the private sector are possible in Afghanistan. ■

Viking Link secures multi ECA-covered \$743 million loan

National Grid has secured the first multi export credit agency (ECA) covered loan for the Viking Link, a 1,400 MW subsea power cable between the UK and Denmark. The \$743 million financing package is made up of \$488 million from SACE Export Credit and \$255 million from Euler Hermes.

BNP Paribas acted as the structuring bank, bookrunner, mandated lead arranger (MLA) and lender for both credit facilities. Euler Hermes was joined by HSBC Bank as bookrunner for the agent of the SACE export credit and by and by Natwest as bookrunner and MLA for the Euler Hermes export credit.

In-service date in late 2023

Viking Link – the UK's first subsea power cable to Denmark – will stretch over 474 miles from the Lincolnshire coast to Revsing on the Danish west coast. It is being built by a joint venture between National Grid and the Danish TSO Energinet.

The interconnector will be formed by two parallel HVDC (High Voltage Direct Current) cables, manufactured and installed by Prys-

mian Powerlink and NKT HV Cables. The former will deliver four of the five cable lots, while NKT will supply the onshore cable lot in Denmark. Siemens, meanwhile, will supply and install equipment for two converter station in Lincolnshire and Revsing.

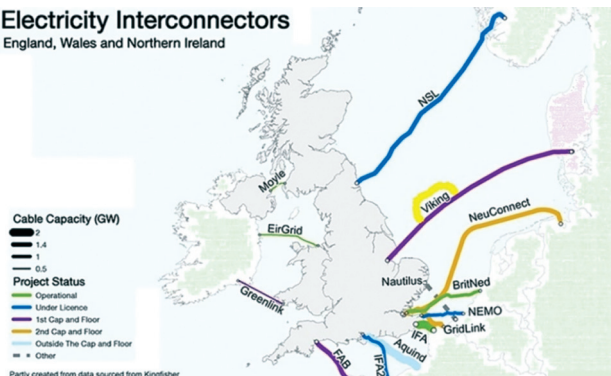
Due completed before the end of 2023, the interconnector is meant to 1400 MW cable will supply renewable energy (mostly wind power) to 1.4 million households in Britain.

Britain's 6th interconnector to Europe

For Britain, Viking Link will be the sixth interconnector to Europe. National Grid already has three operational interconnectors to France (IFA), the Netherlands (BritNed) and Belgium (Nemo Link). Two further projects are under construction to France (IFA2, operational 2020) and Norway (North Sea Link, operational 2021).

Following the completion of Viking Link, National Grid will have 7.8 GW of interconnector capacity – enough to power 8 million homes. The TSO aspires to source 90% of its electricity imports from 'zero carbon sources' by 2030. ■

Electricity Interconnectors
England, Wales and Northern Ireland



Siemens to refurbish Moyle Interconnector between NI and Scotland

Mutual Energy has selected Siemens to refurbish the Moyle Interconnector between Ballycronan More in County Antrim, Northern Ireland (NI), and Auchencrosh, Scotland. The 500 MW high-voltage direct-current (HVDC) link is nearly 20 years old. Refurbishment works and installation of a new HVDC Classic system are due completed in September 2022.

Siemens will upgrade operations of the Moyle interconnector with its HVDC Classic system. Hauke Jürgensen, Head of Large Transmission Solutions at Siemens Energy explained "the upgraded system will provide more operational stability to weaker AC grids and will operate in a wider range of AC grid system conditions." So in the future, more energy can be transmitted from Scotland to Northern Ireland and vice versa.

Under the Moyle refurbishment contract, Siemens will supply the detailed design, manufacturing, factory testing, installation, and commissioning of the control and protection system, and the supply of a control training simulator.

Overload capability

The upgrade enables Mutual Energy to offer ancillary services. By introducing an overload capability, the Scotland-Northern Ireland will have greater operational flexibility to accommodate more in-feed of variable renewable generation. ■

Tractebel selected to build 380kV power line in northern Germany

Tennet, Germany's largest power transmission system operator, has contracted Tractebel to build a 380 kilovolt (kV) overhead power line. The aim is to bring wind power from northern Germany's numerous wind parks to energy-intensive industrial areas further south.

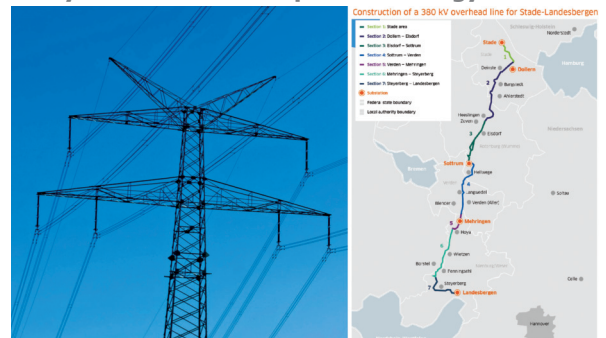
Called 'A250 Stade-Landesbergen' project, Tennet's latest grid expansion foresees the construction of a 145km power line between Dollern and Landesbergen. It is part of a government-led wider grid expansion plan, designed to remove existing grid bottlenecks and facilitate an efficient flow of wind power from the north to the south of the country.

"The energy transition in Germany will only be successful if the increase in offshore wind energy and solar energy is integrated with the expansion of the grid. The Tennet A250 grid expansion project is therefore

a critical factor in Germany's drive to achieve its climate goals," commented Dr. Thomas Brandstätt, board chairman at Tractebel Engineering.

Tractebel Engineering will lead the project over the next six years under an EPCM (or Engineering, Procurement and Construction Management) contract, whereby Tractebel's Lahmeyer unit will be working with external partners including ERM Group and EQOS Energie Deutschland.

Headquartered in Brussels, Tractebel is one of the world's leading engineering



companies with over 5,000 employees and a turnover of 671 million Euros in 2019. The Lahmeyer Group was acquired in 2014 by Tractebel which in turn is part of Paris-based ENGIE Group. ■

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