



India's grid build-out shifts generation mix from coal toward solar

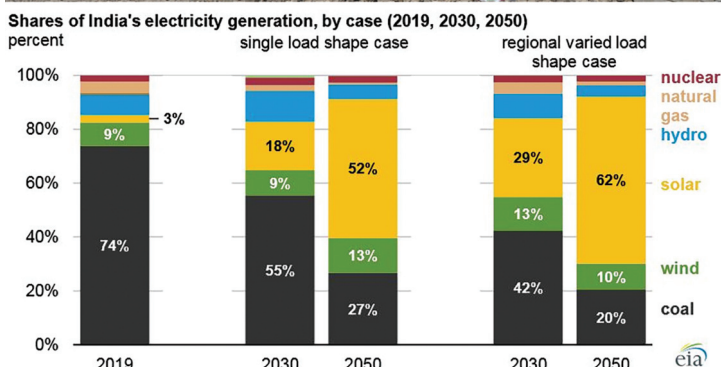
Build-out of India's power interconnectors and electricity trade between regions will likely result in more power generation from solar and flexible gas gensets and less from coal. Modelling varying load shapes by region, analysts expect low-cost solar PV to account for 62% of India's power mix by 2050.

With more than 1.3 billion people, India is the second-most populous country in the world and has the third-highest energy consumption level after China and the United States. Though electricity demand is rising rapidly across India, the lack of grid connectivity had meant that industrial regions with higher electricity needs usually meet demand with higher cost generation, often based on fossil fuels.

Shift to modelling regional load shapes

In the International Energy Outlook 2020 (IEO2020), US government analysts modelled India's power market as five distinct regions, representing the country's five regional power grids. A decisive difference to past models, when the Indian power market seen as one region with a single load shape, assuming electricity customers across the country consumed electricity at the same hourly, daily, and seasonal rates.

In fact, there are stark variations in electricity use across India



as climates and local economies differ greatly across the country. Regional load shapes better reflect seasonal and daily reflections in electricity consumption, as well as regional differences in fuel prices

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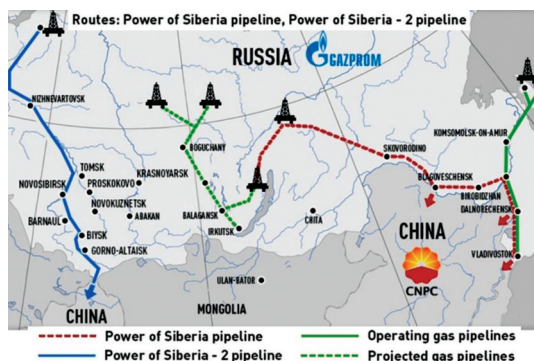
Gazprom steps up daily export volumes to China by up to 25%

Russia's Gazprom has been delivering more natural gas than contracted to China through the 'Power of Siberia' pipeline. Upon request by China's CNPC, daily deliveries were raised by up to 25% in October and during the first twenty days of November. Further increases are planned in 2021.

CNPC chairman Dai Houliang told his counterpart at Gazprom, Alexey Miller, that China intends to double gas imports of comparatively cheap Russian gas via Power of Siberia from January.

Miller proposed to increase Russian gas deliveries by an additional 6 billion cubic meters (bcm). Prices were not disclosed but it is understood that supply of partly oil-indexed gas from Siberia is significantly cheaper for China than importing spot LNG. The overall 'Power of Siberia' gas contract is for 38 Bcm per annum, while the 5 Bcm delivered in the first year was equivalent to 3.7 million tonnes of LNG, less than from a standard Train at a large-scale plant.

The upward revision of the contract comes after supply gas been "consistently and in excess of the planned amounts" from early October until today. Gazprom specified that on November 12 the surplus in daily deliveries were a quarter more than the contracted volumes.



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and the installed power generation fleet.

Varying load shapes by region incentivise electricity trade, provided sufficient power interconnectors are in place, the U.S. Energy Information Administration (EIA) found. Electricity with low variable costs from wind and solar PV can then be sold from rural regions with excess supply to industrial regions with higher demand, limiting the need for higher-cost fossil generation.

Despite the initial cost of adding the necessary transmission capacity, EIA analysts find the rise in power trade is bound to lower the overall cost of electricity and will allow for a larger build-out of wind and solar generation.

Aspiring for a 'gas-based economy'

Transforming India to a "gas-based economy" has been President Narendra Modi's vision for years but the country can ill afford subsidizing LNG imports to reduce fuel costs

for power plants. Banks invested some Rs50,000 crores (\$7.18bn) in these projects – many unable to repay their debt, leaving Indian public money at risk.

State-owned banks, forced to write-off loans to operators of stranded gas power plants, are weighing heavy on the Indian public purse. A parliamentary panel urged the Government to take action, saying that "since this stranded gas-based capacity involves a significant amount of public money, it cannot be allowed to become junk."

"Since these gas-based power plants were set up on the basis of the government's assurance regarding supply of gas, it becomes incumbent upon the government to help them come out of stress," it stressed, urging the Government to prioritise gas supplies to power plants.

Dwindling domestic gas supply from the Krishna Godavari Dhirubhai 6 (KG D6) block and comparatively high prices for LNG im-

ports have led to affordability issues. Cheaper fuel prices for other power sources—coal, solar, wind, and hydro—mean that the gas-fired plants can't pass on these costs without losing their competitiveness.

Mixed feelings over price deregulation

Deregulating fuel prices has for long been touted as a panacea for India's domestic gas shortages, though critics warn free-market pricing will result in exorbitant prices. Analysts at the Saudi-based Kapsarc institute have suggested to either index Indian upstream gas prices with international markets of using opportunity costs linked to LNG import parities or weighted average of fuel oil and coal.

'Postage stamp' transportation pricing could introduce simplicity, and substantial investment in gas transportation infrastructure would be required to realize President Modi's vision of a 'gas-based economy'. ■

Eskom needs to curb coal reliance, embrace clean energy

South Africa's state utility Eskom is under pressure to reduce its reliance on coal. World Bank lending requirements stipulate a shift to green energy – "technology, they might only be able to implement in 2030 and at a huge cost," said Bhavtik Vallabhjee, Head of Power Utilities at Absa Bank.

Infrastructure project in Africa takes 8 years on average to move from ideation to coming online, so developers need partners who are prepared to invest for the long-haul. So far, Eskom largely sticks to thermal energy, with market observers criticizing the incumbent's lack of flexibility and green credentials.

The South African government has set a target for renewable energy sources to contribute a cumulative 10 000 GWh of energy. State-run Eskom said it would be able to offer customers a maximum of 300 GWh per annum of renewable energy generated from the Sere wind farm, a far cry of the

overall target.

"Eskom has become a multi-headed hydra holding back economic growth in the country on a number of fronts," Vallabhjee said. "On one hand, South Africa needs to continue funding aging infrastructure at the utility and network level to ensure the lights are kept on," he conceded, "but on the other hand, the country needs to invest in additional supply that will ultimately be cheaper, more technologically advanced and more efficient."

Not all is in the doldrums. The Independent Power Producer (IPP) Programme in South Africa has been a "remarkable success," according to Absa Bank. "With more than 120 IPPs either online or coming online shortly, it proves that public and private sector interests can align for economic benefit."

State-run utilities like Eskom, however, are feeling the pinch as state revenues have come under pressure in 2020 as a result of



lockdowns to contain the spread of the coronavirus. Foreign Direct Investment (FDI) has dried up and governments are less able to shoulder infrastructure investments along.

"Going forward, governments should play the role of 'referee' in order to create the enabling environment to encourage investment from the private sector," Vallabhjee urged, arguing that "In this regard, they can deliver modern infrastructure for power, water, roads, social infrastructure, and healthcare using Public Private Partnerships (PPPs)." ■

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Works underway on Power of Siberia's 2nd section

Starting from early November, Gazprom is busy laying the second 800-km section of the Power of Siberia gas pipeline, running between the Kovyktinskoye field Irkutsk to the Chayandinskoye field and onwards to the Chinese border across Mongolia.

In a video call, Houliang and Miller pointed

out the importance of stable and competitively-priced Russian to educed use of coal-burn for power generation and the use of coal by industrial and residential consumers.

The Russian and Chinese state gas companies are also aligning their planning and investment in underground gas storage, gas-fired power generation, use of gas as a vehicle fuel and equipment certification. ■

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IEA urges Middle East gov's to use cheap solar PV to produce hydrogen

Economies of oil exporting countries in the Middle East will shrink 6.6% this year compared to 1.1% for importers, the International Energy Agency (IEA) forecasts. But analysts urged cash-strapped utilities and governments in the Middle East to make use of cheap energy from solar PV to produce hydrogen for export instead.

There are compelling arguments for renewables – particularly solar PV – to play a larger role in the energy mix across economies in the Middle East and North Africa. According to IEA calculations, solar PV is already competitive, on a levelised cost of electricity basis, with the existing oil-fired generating fleet when crude oil is priced at \$40/b and above.

Falling technology cost is expected to make solar PV also competitive with gas-fired generation by 2030. Solar could become the main source of power generation in Middle East, and some developers in the United Arab Emirates (UAE) have already launched ambitious solar PV projects.

Excess solar PV helps produce green hydrogen

Sun-soaked countries in the Middle East are aspiring to use excess volumes of solar power to produce green hydrogen through electrolysis.

Saudi Arabia, the world's largest oil exporter, has formed a joint venture to build a "green hydrogen" plant, powered by 4 gigawatts (GW) of renewable electricity, with a planned capacity of 650 tonnes per day. Oman is also working on the formation of a national hydrogen strategy. The green hydrogen facility would be part of Saudi Arabia's Neom 'smart city' project.

In September, Saudi Arabia shipped its first cargo of "blue ammonia" to Japan. The emissions generated from the formation of the ammonia were captured for use in methanol production and enhanced oil recovery. The IEA hailed the technology as a model for MENA's oil and gas producers



Large solar farm in Saudi Arabia

with cost efficient, carbon storage options.

If Middle East countries can produce vast amounts of low-cost, carbon-free electricity, they will become attractive as a location for energy-intensive industry. Some of the world's large petrochemical producers and steel makers may consider shifting parts of their production to the Arab Peninsula. ■

Carmaker expect up to 15 million cars on German roads by 2030

Germans are embracing electric cars more quickly than initially assumed, so carmakers now calculate over 14.8 million pure electric cars and plug-in hybrids could be on the roads by 2030. This fast e-vehicle adoption would require more charging infrastructure and boosts electricity demand.

BMW, Mercedes and VW had submitted confidential calculations to the German transport ministry, prompting policy makers to revise outlooks upwards. The ministry had initially thought to have just seven to 10 million e-

vehicles on the road by the end of next decade, and some believe the rollout will be even slower.

The consulting firm Deloitte says about six million electric vehicles seem "feasible at best," because the automotive industry is

not in a position to switch from the currently still profitable combustion engines to the as yet unprofitable electric drive technology.

Though many suppliers still heavily rely on combustion engine technology, Germany's large carmakers are shifting ever more decisively towards electric mobility. In a highly symbolic move, BMW decided to move its combustion engine production abroad, and focus on electric mobility in its German plants

The German government just committed to spend an additional €3 billion to help the car industry manage a smooth transition to clean mobility and weather the coronavirus crisis.

Assuming a faster e-vehicle adoption, the transport ministry concludes that 440,000 to 843,000 public charging points in Germany will be sufficient by 2030, depending on how many people can charge at home. The government currently aims to have one million public charging points by that date. ■



RWE e-vehicle charging station in Germany

MAN's ETES energy storage gets €200,000 funding from German state

Germany's federal state North Rhine-Westphalia (NRW) has freed up €200,000 in funding for a study to evaluate MAN ETES energy-storage. The still-untested technology offers a CO₂-free alternative to traditional large-scale heat supply and the study is a prerequisite for building a research facility near Aachen in 2021.

Project partners – RWTH Aachen University, Stadtwerke Aachen Aktiengesellschaft (STAWAG) and MAN Energy Solutions – want to investigate the potential for implementing the technology in NRW. An electro-thermal electricity-storage system with a capacity of up to 7 MW is planned and the study is meant to determine energy industry's framework-conditions, and space requirements.

Converting electric into thermal energy

The ETES system is based on heat-pump and heat-engine technologies using CO₂ charging-&-discharging cycles, and the storage of pumped heat.

The basic principle is the reversible conversion of electrical energy into thermal energy, which is stored in the form of hot water and ice in insulated reservoirs. It is preferable to distribute the heat and cold generated to users, depending on demand and margins. Alternatively, the head can be converted back into electricity.

The technology helps balance the grid by making use of surplus renewable energy and feeding it back into the grid when needed. The multi-functional system can generate, store and provide thermal energy for heating and cooling purposes.

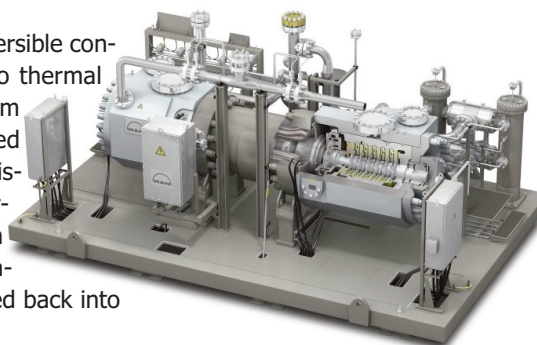
Water used as storage medium

Technical innovations of ETES is using of water as a storage medium, as well as toxicologically and environmentally safe CO₂ as a working medium for the entire energy-storage system. In the charging cycle, the system uses the hermetically-sealed MAN HOFIM turbo-compressor to compress the CO₂ working medium to a supercritical

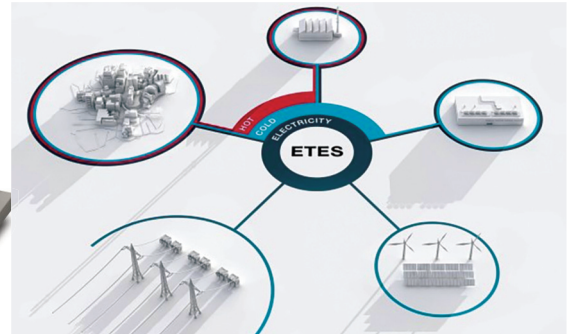
state, typically at 140 bar and approx. 120°C to 150°C.

Energy storage and grid balancing is vital for industry states like NRW which is home of much of Germany's heavy industry. Considering the planned coal exit, the NRW state government supports the research by RWTH Aachen University, seeking to use an ETES research facility for an emission-free heating-and-cooling supply.

Provided that the framework conditions of the energy industry are correct and feasibility can be validated, the construction of a pilot plant with an electricity-to-electricity storage efficiency of about 50% will take place in 2021.



HOFIM turbo-compressors generates the heat for the ETES system



Costs for utility-scale storage fell nearly 70% in the U.S.

Energy capacity cost of utility-scale battery storage in the United States has rapidly decreased from \$2,152 per kilowatthour (kWh) on average in 2015 to below \$625/kWh in 2018, falling further since. Long-duration batteries are cheaper and costs vary by region, coming in at just \$947/kWh in Hawaii.

The United States added 152 MW of battery storage capacity in 2019 and added an additional 301 MW in 2020 through July 2020. These additions add to the end-2018 capacity, when the U.S. had over 869 MW of installed battery power capacity (the maximum amount of power a battery can provide at a given moment) and 1,236 MWh of battery energy capacity (the total amount of energy that can be stored by a battery).

Looking ahead, the US Energy Administration (EIA) expects battery storage to increase by more than 6,900 MW in the next few years. Falling

technology costs incentivise the use of large battery storage system, linked to renewables, to increase grid reliability and resilience.

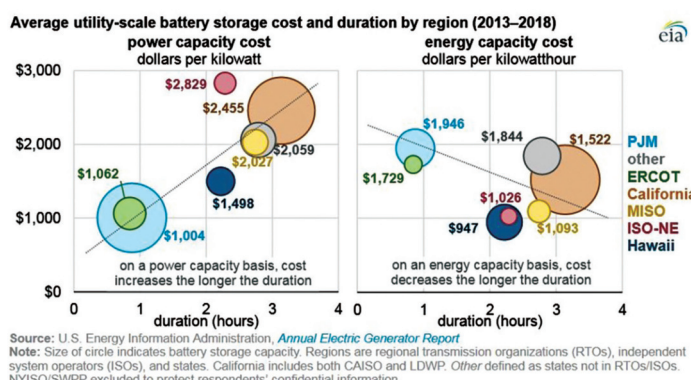
Costs vary by region and application

At the regional level, the 2013 to 2018 aver-

age utility-scale battery costs ranged from \$1,946/kWh in the PJM Interconnection (PJM), which manages the electric power grid in 13 eastern and midwestern states and the District of Columbia, to as low as \$1,026/kWh in ISO New England.

In power capacity cost terms, short-duration batteries cost less than long-duration batteries. But looking at energy capacity costs, long-duration batteries are less expensive.

California had the most installed battery capacity of any state in 2019. The average battery storage cost in California was \$1,522/kWh. About two-thirds of battery storage capacity in California is used for frequency regulation. Batteries in the state also provide energy-oriented services, including ancillary services, black start services, and easing transmission congestion.



Nigerian utility revises EPC contract to fast-track 2 GW new capacity

Niger Delta Power Holding Company (NDPHC) is looking to hire new Engineering, Procurement and Construction (EPC) contractors to fast-track works on four gas power plants with 2,000 MW combined capacity. Situated in Alaoji, Egbema, Omoku and Gbarain the four plants are vital to avert looming power shortages.

NDPHC's new executive director generation, Kassim Abdullahi, would "engage the right EPCs to make sure we complete them [the plants], and have a thorough follow up on all key open issues." Looking for a "quick fix", he aims to make substantial progress on construction in the next few months.

Slow work, deadlines breached

The Alaoji project, a 789 MW combined-cycle unit powered by four GE 9E turbines was meant to start full commercial operations in March 2015 but EPC contractor Rockson Engineering did not manage to finish works in time.

"We have four power plants that were being built by Rockson Engineering. This one in Egbema, there is a 252MW power plant in Omoku, 30km away from here, and then there is another 252MW plant in Gbarain Obie, Bayelsa State, as well as the 1,074MW Alaoji Power plant," NDPHC's head generation projects, Mohammed Sa'adu told local media. "Alaoji and Gbarain are in op-

eration being that parts of them have been completed by the former contractor and they put them into national grid but we are yet to complete them to scope."

Delays cause power shortages

The 378 MW project in Egbema, Imo State, had to be taken back from its EPC contracts after a long delay which had caused serious electricity shortages in the region, impacting citizens and local industry. The contract had been initially awarded to Rockson Engineering which was unable to bring the plant to its design output.

As for the 252 MW Omoku gas-fired power plant in Rivers State, Mr. Abdullahi called on the EPC company to quickly return to site to ensure that the project is completed. Payment issues had caused delays but now seem to be resolved.

With regards to the 252MW gas power plant in Gbarain, Bayelsa State, he said NDPHC's inhouse generation team would take over from the EPC contractor, and ensure the remaining unit will start operation in early 2021. ■



View of the incomplete Alaoji CCGT

NEWS NUDGES

Rolls-Royce opens US customer center

Rolls-Royce has opened its latest US customer support center in Savannah, Georgia. The 62,000 square foot facility houses a power plant completion center, a wing services repair unit and a warehouse, all under one roof.

Lithium Werks grows manufacturing

US-Dutch manufacturer Lithium Werks is growing the output and sales fuel cells and battery modules for use as power, pulse, and stand-by applications. The company's 26650 Nanophosphate cells are used as single cells, as well as to build cell-packs and modules like Lithium Werks P40-24 battery modules. The Austin and Enschede-based company said it can "produce millions of 18650 and 26650 cells a month in China."

AGL plans 1,000 MWh battery

Australian power producer and retailer ALG wants to realise a large grid-connected battery storage unit of up to 250 MW rated output and four hours' duration of storage, equalling 1,000 MWh. The battery will be built in stages on the site of Torrens Island Power Station in South Australia. AGL vowed to reach net zero emissions by 2050, but is currently still operating some 40 GW of coal-fired generation.

CHP industry to grow 14.4% through 2025

The combined heat and power (CHP) market, evaluated at \$12.152 billion, is expected to expand nearly 14.4% per year to reach \$27.196 billion by 2025. Growth is primarily driven by government funding and subsidy schemes. According to the U.S Environmental Protection Agency, the country aims to install 40 GW of new, cost-effective CHP to save \$10 billion per year, compared to current energy use. ■

GE supplies HA turbine for 500 MW district heating plant in South Korea

General Electric has secured an order to supply a 7HA.02 gas turbine with matching H65 generator for a district heating plant South Korea. The 500 MW plant will provide both electricity and steam for district heating for the citizens of Naepo City, some 125 km south of Seoul.

Built by Lotte Engineering & Construction on behalf, the Naepo district heating plant will benefit from the HA technology's capability to reach nearly 64% efficiency in combined cycle, and more than 91% efficiency in district heating mode.

By capturing and reusing wasted heat or steam, which would otherwise be released into the air, the district heating plant generates more energy per unit of fuel. The 500 MW plant can produce the equivalent electricity output needed to power about 125,000 homes and supply district heating for more than 100,000 citizens of Naepo.

The customer and plant operator Naepo Green Energy (NPGE) said it selected GE equipment because of the manufacturer's "notable history of on-time and safe delivery." Apart from the HA turbine, GE's scope of supply includes one STF-D650 Steam Turbine, one H35 generator, one Heat Recov-

ery Steam Generator (HRSG), one GE condenser and equipment maintenance services for 19 years.

Dongsoo Kim, EVP of NPGE said: "We trust GE's equipment to help us in meeting the energy and heating needs of our communities in Naepo City, with temperatures as low as 14 degrees Fahrenheit, or -10 degrees Celsius, in the winter months."

Additions of new gas-fuelled district heating plants are supported by the Korean government as a way of shifting away from solid refuse fuel in order to reduce air pollution. GE pointed out that district heating plants help save energy and reduce CO₂ and NO_x emissions. District heating plants such as Naepo's offer cost-effective supply of electricity and thermal heating, reducing the need for end-users to produce hot water at home through boilers.

GE has been present in South Korea



Bird's eye view of Naepo City

since 1976 and recently supplied a 7HA.02 gas turbine for GS Power's combined-cycle power plant in Anyang, as well as a 7F gas turbine for the Oseong CCGT in Pyeongtaek. All of GE's gas turbines installed in South Korea have the capacity to generate more than 14, 000MW of electricity with an installed base of over 75 units. ■

Siemens to upgrade and service Jebel Ali L2 power station in Dubai

Dubai Electricity and Water Authority's (DEWA) has contracted Siemens to expand services for its Jebel Ali L2 station. Each of the power station's four SGT5-4000F gas turbines will be upgraded with intelligent controllers, combined with the SPPA-T3000 system to reduce the risk of outages and enhance operational flexibility.

Upgrades for the SGT5-4000F gas turbines will allow for a higher number of starts and increase operational flexibility. It extends the interval between necessary plant outages and reduces downtimes by approximately 25%.

The thermodynamic turbine controller was co-developed by DEWA and Siemens in 2019, using Artificial Intelligence (AI) and Machine Learning. It gives power plant operators a complete and continuous overview and scenario-based assessment of power plant operations.

The upgraded SPPA-T3000 control system can be updated in patches online, enabling the utility to keep the plant running continuously during the update. It does not require a system shutdown. All equipment is run on one control system, making it easier to plan maintenance services and delivery of

spare parts.

Nasser Lootah, DEWA's executive vice president of generation said the utility was "consolidating its leading position" by providing reliable, safe and efficient power and water services both in Dubai and abroad. Siemens Energy's technologies contribute to around 53% of DEWA's total generation capacity, enough power for more than 2.5 million residents in Dubai. ■



Construction of Jebel Ali L2 station

Wärtsilä delivers gas gensets for cement producers in Pakistan

Pakistan's Lucky Cement has ordered and additional three Wärtsilä 34DF dual-fuel engines to power new cement lines at its factory in Pezu. The onsite power plant is running with ten engines but that is not enough for the enlarged cement production.

The Pezu facility is a combined cycle power plant that makes use of steam generated from a waste heat recovery boiler to produce additional electricity. This helps save energy that would otherwise be wasted, and leads to higher operating efficiency.

The plant's dual fuel engines will be primarily running on natural gas, but could also burn fuel oil if needed. "It is important for large cement producers to have operational flexibility to run the power plant on multiple fuels in case the gas supply is interrupted, or whenever otherwise required," said Syed Noman Hasan, Executive Director at Lucky Cement.

Due to its remote location in Pakistan's Khyber Pakhtunkhwa province, the cement factory is relying purely on the on-site power plant, with Wärtsilä gensets providing the necessary fuel flexibility. The orders for Wärtsilä gensets were placed in April, August, and November 2020. ■

Nokia, A1 provide VPN for microgrid in Vienna

Nokia and the Austrian telecommunication provider A1 are looking to provide a private wireless network (VPN) to operate utility microgrids. Applications are tested at A1's 'campus solution, deployed at the company's headquarters in Vienna.

The Siemens-built Vienna campus microgrid project includes solar generation, electric vehicle (EV) charging, building management and battery storage. Initially, the German OEM has implemented 320kW of solar generation and 500kWh battery storage, all to support around 50 EV charging stations.

Small, but complex system

Despite their size, microgrids are complex as they integrate various distributed energy sources such as solar cells and battery storage. Voltage levels across the grid are in a



Control room of A1's microgrid in Vienna

constant state of flux, requiring constant load balancing and optimization between different energy sources.

With private wireless, the microgrid controller can easily connect to all assets to balance energy demand with the availability of local distributed energy resources.

Local, and secure supply

Both industries and power generators embrace microgrids to reduce their carbon footprint. Smartly managed renewables within a microgrid help save energy costs. Microgrids also allow producing electricity where it is needed which enhances local supply security.

Connecting sensors to manage the microgrid without cabling helps speed up deployment and makes it easier to expand the grid at a later stage.

5G, used for smartgrids

A1 network slicing, together with edge cloud processing, can achieve the low latency needed for automated microgrid control re-

sponses to manage instantaneous load fluctuations. This infrastructure can be used for additional industrial use cases where wireless connectivity and high reliability are critical.

"By using this private campus network as the foundation of the Siemens microgrid, we are demonstrating how 5G technologies enable the optimal control of energy facilities," said Marcus Grausam, CEO of A1 Austria.

"Managing microgrids is another example where both utilities and enterprises, such as Siemens, can benefit from the reliable wireless connectivity provided by private wireless networks," said Peter Wukowits, Head of Nokia Austria-

Nokia brings its experience of supporting more than 200 utility customers in mission-critical networking to this microgrid project. "Our private wireless LTE/4.9G solutions contain many of the capabilities required for today's Industry 4.0 applications, as the Siemens microgrid deployment demonstrates," he said, adding that more capabilities for future industrial use cases will follow with 5G." ■

Siemens Energy to strengthen reliability of Kuwait's power grid

Kuwait's Ministry of Electricity and Water (MEW) has contracted Siemens Energy to maintain 116 high-voltage substations to keep the lights on in the Emirate. The 5-year service agreement covers preventive maintenance and emergency repair of the substations, including switchgears of different voltage levels, and power transformers.

Around quarter of the electricity generated and transmitted in Kuwait utilizes Siemens Energy's technology. Reliable and efficient substations are key for transmitting electricity, and Siemens engineers will use preventative maintenance to ensure the grid infrastructure is fully functional.

The latest contract win builds on Siemens' track record of successful projects in Kuwait. The German OEM Siemens Energy has executed high-voltage maintenance projects for more than 50 years, and Katharina Beumelburg, Vice President Transmission Service is pleased that MEW "now trusts once again in our long-term service abilities."

"The advanced maintenance services provided to these substations will help maximize performance, lower operating costs and deliver better and more reliable network operations for Kuwait's Ministry of Electric-



ity," said Ananthnarayan Iyer, VP Transmission Service, Siemens Energy Middle East.

The Ministry of Electricity in January issued several substation tenders in Al-Sabah Medical District. Each of the Project involves the construction of a new indoor 132/11 kV Gas Insulated Substation, arranged in single bus single breaker configuration. Winning bidders are required to perform works on a lump sum turnkey basis, including EPC, quality management, factory inspection/testing, transport and delivery to site, installation, construction, site inspection, testing and commissioning. ■

NEWS NUDGES

First German-Belgium power link to start operation

The two TSOs Amprion and Elia are preparing to launch the first electric interconnector between Germany and Belgium. The 1,000 MW interconnector stretches between Aachen and Lüttich, from where it links to the Rhineland region and Wallonia. It will go into operation as of 18 November, with intraday capacities to begin trading on 8 December.

Pandemic triggers 10% cut in German energy emissions

Lockdowns to contain the coronavirus pandemic are expected to reduce Germany's energy consumption by 7% this year, triggering a 10% drop in related carbon emissions. Researchers at AGEA expect energy-related CO2 emissions to fall by about 72 million tonnes, meaning Germany will likely surpass its original overall greenhouse gas reduction target of 40 percent by 2020, compared to 1990 levels. ■

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