

## ENERGY TRANSITION

## Tracking the Energy Transition: Russia Gets on Board, Baker Hughes Expands Efforts, and Solar Gains on Coal in India

Are you trying to stay up to date about developments aimed at energy transition efforts in our industry? This roundup of news presents some of the recent announcements. Visit SPE's HSE Now for more news.

June 30, 2021 By **Judy Feder**  
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Russian oil producers used the St. Petersburg International Economic Forum as a platform to announce new deals with European and US companies to pursue hydrogen, carbon capture, and wind power in their efforts to decarbonize operations. Rosneft signed a cooperation agreement with Baker Hughes to explore ways to use hydrogen as an alternative fuel in its operations. Rosneft also will work with Danish turbine group Vestas on wind power. Gazprom Neft said it will work with Shell to explore the possibility of deploying carbon capture, utilization, and storage (CCUS) solutions at the two companies' joint ventures in Russia.

## Baker Hughes Expands Its ET Collaborations

- Baker Hughes and industrial gas and chemicals company Air Products will collaborate to develop next-generation hydrogen compression to lower the cost of production. Baker Hughes will provide Air Products with advanced hydrogen compression and gas turbine technology, including its NovaLT16 turbines, for Air Products' net-zero hydrogen energy complex in Alberta, Canada, and will provide advanced compression technology for the NEOM carbon-free hydrogen project in Saudi Arabia.
- Baker Hughes is collaborating with Norwegian company Borg CO<sub>2</sub> to develop carbon capture and storage technology for industrial sites at a region near Norway's southeast border with Sweden. The project aims to capture and store up to 90% of the 700,000 mt/a of CO<sub>2</sub> emissions from the involved industrial sites and sequester it in liquid form for eventual storage beneath the North Sea. Borg CO<sub>2</sub> and its partners have already finished their first study of the project and expect to complete prefront-end engineering and design work by the end of the year.
- Italian contractor Rosetti Marino announced it had teamed up with Baker Hughes to develop CCUS in Italy. Under a memorandum of understanding, the pair will potentially develop CCUS projects together and establish an Italian supply chain for other energy transition initiatives.

## Lightsource BP Powers Up Flagship Spanish Solar Project, Adds New European Markets, and Eyes Asia

enables the panels to follow the sun, maximizing energy-generation efficiency. Two overhead transmission lines of 18 and 20 km were constructed to deliver the solar power into the local network to produce the green electricity equivalent of powering more than 107,000 homes. The total power output will be supplied to BP's European power trading team under a long-term power purchase agreement (PPA).

- Lightsource BP continued its rapid expansion by adding markets number 13 and 14 in Portugal and Greece. Entering the two new markets brought the company's total pipeline to 20 GW. In Portugal, which the company considers a natural extension of its existing foothold in Spain, Lightsource BP will develop five large-scale, early-stage projects with a local partner and may sell power to some of the same corporate and utility customers that already buy from its Spanish projects. The company sees Greece as a spot market providing the ability to sell electricity outside of government auctions.
- Lightsource BP is now pursuing opportunities in Asia.

## Is Solar About To Overtake Coal in India?

Bloomberg says NTPC's decision to double its renewable energy commitment is worth watching.

The reason: Two recent moves by India's largest power generator, NTPC, support government projections and a Bloomberg analysis suggesting that solar will overtake coal by the end of 2030. NTPC, a longtime major player in coal-fired electricity, committed in 2020 to build 32 GW of renewable energy by 2032 and has now nearly doubled its commitment by raising its target to 60 GW. Additionally, according to analysis by BNEF, the power from newly built solar capacity in India is now cheaper than that from existing Indian gas and coal plants. NTPC has not said what its future renewable asset mix will be, but most of India's renewables expansion will come from solar. Were it to be entirely solar, 60 GW of total capacity by 2032 would be approximately one-fifth of India's expected solar installations to that date.

## Sage Moving Forward in Closed-Loop Geothermal

Sage Geosystems is moving forward with two projects to scale up closed-loop geothermal energy technology.

building a commercial power plant. This well will be used as the proving ground for different components of Sage's closed-loop technology. The company then plans to complete its pilot commercial installation in the Gulf of Mexico region in 2022. The installation will involve a new well—likely drilled into a geopressured reservoir—and the surface power plant. Nabors Industries and Virya will provide \$17 million in financing toward the development of Sage's technologies and its first commercial installation. Nabors, a leading provider of advanced drilling technology and operator of one of the world's largest land-based drilling fleets, will invest \$10 million. An additional \$7 million—which includes \$5 million in original funding from January 2021—will come from Virya, a project of Chris Anderson, who also coordinates TED and the Countdown climate change initiative, and Solomon Goldstein-Rose, author of *The 100% Solution*.

- Sage and the Bureau of Economic Geology at the Jackson School of Geosciences at The University of Texas at Austin are performing a feasibility study under a grant from the US Air Force to explore closed-loop geothermal technology to deliver power to Ellington Field Joint Reserve Base near Houston. Sage intends to use the same integrated surface/subsurface system approach described at the Ellington field installation. Sage and the bureau have delivered Phase 1 of their feasibility study to the Air Force and plan to deliver Phase 2 over the next 12 months.

## Utah FORGE Spuds New EGS Well

Utah FORGE spudded well 78B-32 on 28 June. The well is located approximately 450 ft south of well 16A(78)-32, the project's first deep, highly deviated well, which was completed in January 2021. The new well is expected to reach a depth of 9,500 ft and be completed in early August. Joseph Moore, principal investigator of Utah FORGE, said, "This hot, deep well will be used to test new technologies and tools needed for enhanced geothermal systems (EGS) development. When it is not being used for technology testing, geophones will be installed as part of our state-of-the-art continuous microseismic monitoring network."

## Siemens and Odfjell Will Develop Mobile Offshore Wind Units

Siemens Gamesa and Siemens Energy have signed a memorandum of understanding with mobile offshore wind company Odfjell Oceanwind to jointly develop mobile offshore wind units based on Odfjell Oceanwind's offshore microgrid platform. Under the memorandum, Odfjell Oceanwind will

transformers, switchboards, and power-control system for the WindGrid system.

## Accelerating Clean Energy

The Rice Alliance Clean Energy Accelerator will launch in 2021 to increase the likelihood of success for early-stage energy startups building solutions for a cleaner, more-efficient and sustainable future. The 12-week accelerator provides startups access to Rice Alliance's network of energy corporations, investors, and advisers—including personalized mentor relationships—to help them quickly accelerate their business, launch pilots, and raise funds. Startups for the inaugural program applied from 14 states and eight countries.

## Hydrogen

Several companies, including Bakken Energy and Mitsubishi Power Americas, are partnering to try to make North Dakota a hydrogen hub that would involve hydrogen production, storage, transportation, and consumption with facilities spread out across the state. As the hub's initial project, Bakken Energy, formerly known as Bakken Midstream, is working with Basin Electric Power Cooperative to acquire its Great Plains Synfuels Plant near Beulah, North Dakota, which produces a number of products including synthetic natural gas derived from lignite coal. Bakken also plans to build a power plant near Williston, North Dakota, that will run on ethane.

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Judy Feder writes about energy transition and upstream industry trends and technology for *JPT*.

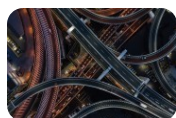
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