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THE ENERGIZER

6 June 2019

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K&L Gates' *The Energizer* – Volume 46

A biweekly update on blockchain technology applications, distributed energy resources, and other innovative technologies in the energy sector.

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There is a lot of buzz around blockchain technology, distributed energy resources ("DERs"), microgrids, and other technological innovations in the energy industry. As these innovations develop, energy markets will undergo substantial changes to which consumer and industry participants alike will need to adapt and leverage. Every other week, K&L Gates' The Energizer *will highlight emerging issues or stories relating to the use of blockchain technology, DERs, and other innovations driving the energy industry forward. To subscribe to* The Energizer *newsletter, please click here.*

United States to Become the Largest Grid-Connected Energy Storage Market in the World

- For the last two years, South Korea has been the global leader in grid-connected energy storage, but, according to a recent IHS Markit report, the United States is poised to become the world's largest grid-connected energy storage market by the end of this year. In 2018, the United States deployed approximately 376MW in energy storage capacity. IHS Markit projects that if storage capacity growth continues at the current pace, capacity will double to over 700MW. By 2023, the United States may have 5GW in energy storage systems tied to its electrical grids.
- IHS Markit attributes this boom to federal policy developments, including the Federal Energy Regulatory Commission's Order 841 ("FERC Order 841") and solar investment tax credits ("ITC"), as well as utilities' increasing efforts to integrate renewals while meeting demand response. More specifically, the availability of the ITC through 2023 for battery-storage systems that are paired with solar projects will continue to drive the co-location of utility-scale photovoltaic systems with energy storage. IHS Markit predicts over 2GW of energy storage will be paired with utility-scale solar photovoltaic systems from 2019 to 2023 and that that solar-plus-storage will be competitive with U.S. natural gas resources by 2023.
- For more on the development and growth of energy storage in the United States, check out the K&L Gates Energy Storage Handbook, accessible here. For more information on the implications of FERC Order 841, see the K&L Gates Global Power Law & Policy blog, accessible here.

Utah Storage Project to Be Largest Renewable Storage Project in the United States

- On May 30th, Utah Governor Gary Herbert, Mitsubishi Hitachi Power Systems ("MHPS"), and Magnum Development announced the launch of world's largest clean energy storage program: the Advanced Clean Energy Storage ("ACES") project in central Utah. The ACES

project will combine hydrogen-fueled turbines with four storage technologies: renewable hydrogen, compressed air energy storage, large-scale flow batteries, and solid oxide fuel cells. MHPS has already developed a gas turbine that can operate efficiently with a mixture of natural gas and hydrogen. It plans to eventually use a gas turbine powered solely using hydrogen. An "initial phase" of 250 MW of storage is anticipated to be operational by 2025. The ultimate goal is for the 1-GW ACES facility to power 150,000 households for an entire year.

Texas Legislature Passes Three Grid-Protection Bills

- Shortly before the end of the 86th legislative session, Texas legislators passed three bills to protect the state's electric grid from cyber and physical attacks. The bills await Governor Abbot's signature.
- Senate Bill 936 requires the Public Utility Commission of Texas ("PUCT") and the Electric Reliability Council of Texas ("ERCOT") to contract with an entity to serve as the state's cybersecurity monitor (the "Monitor"). The Monitor will be required to manage a comprehensive cybersecurity outreach program, meet regularly with utilities to discuss emerging threats, develop best business practices, and review self-assessments of cybersecurity efforts voluntarily disclosed by utilities. The bill also authorizes utilities to "recover reasonable and necessary costs" incurred in connection with activities under the cybersecurity monitor program.
- Senate Bill 475 establishes the Texas Electric Grid Security Council (the "Council") to coordinate the implementation of best security practices for the electric industry. The Council—composed of the PUCT commissioner, the CEO of ERCOT, and the Governor (or his appointee)—will be tasked with developing grid security standards, preparing for grid-related security threats, and amending the state emergency plan to ensure coordinated response and recovery efforts in case of an attack.
- Senate Bill 64 revises the requirements for Texas agency information resources, specifically including oversight of cybersecurity practices related to the state's electric grid. Senate Bill 64 requires the PUCT to establish a program to monitor cybersecurity efforts among Texas utilities and to provide guidance on best practices for cybersecurity. It further requires ERCOT to conduct an internal cybersecurity risk assessment, vulnerability testing, and employee training and to submit an annual report to the PUCT on compliance with applicable cybersecurity and information security laws.

Lyft Offers EV Drivers Free Charging In Portland

- Leveraging its partnership with Portland General Electric ("PGE"), Lyft announced earlier this month that its drivers who use plug-in hybrid or all-electric vehicles (collectively, "EVs") to charge their vehicles at various stations across the metro-Portland area for free. According to trade press, there are three charging stations currently prepared to offer free charging services, and two under construction that will be completed in 2020. This initiative is part of Lyft's broader strategy to expand its use of EVs. Earlier this year, Lyft announced that it would add a new service to its platform called "Green Mode" in select cities to allow riders to select an EV. Lyft also offered drivers the opportunity to rent EVs to pick up passengers.
- Lyft's new initiative could encourage even more ride-sharing drivers to purchase EVs, which furthers Lyft's commitment to "introduce thousands of EVs" into their ride-sharing platform. Reflecting on this new initiative, David Robertson, Vice President of Public Policy at PGE, states: "We're proud to fuel Lyft's mission to minimize its impact on the environment with a robust and healthy EV charging network, as it aligns with our goal to

help deploy electric transportation that serves everyone — regardless of how they choose to move throughout our region."

Toyota Explores Blockchain P2P Trading in Japan

- On May 23, 2019, Toyota Motor Corporation announced a partnership with the University of Tokyo ("Toyota") and TRENDE Inc., a Japanese renewable energy retailer, to implement a pilot peer-to-peer ("P2P") electricity-trading platform. The platform will operate on top of a private blockchain and will use artificial intelligence to act as a trading agent. Toyota's Higashifuji Technical Center will house a pilot program that will enable households, businesses, schools, and EVs located in its vicinity to trade electricity.
- Toyota stated that the endeavor is the world's first test of P2P energy trading by individuals using solar panels, plug-in hybrid electric vehicles, and secondary batteries on a distributed power supply. Toyota's goal is to reduce retail electricity costs creating a more efficient energy trading market. The program will also test whether the system can predict electricity demands for EVs, an issue of particular importance to Toyota as a leading manufacturer of EVs.

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