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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 email janina.quilacio@klgates.com.

OVO INVESTS IN ELECTRON'S DISTRIBUTED FLEXIBILITY MARKETPLACE; SAUDI ARAMCO LAUNCHES BLOCKCHAIN PILOT PROGRAM.

- On March 12, OVO, a UK-based energy company, announced that its newly formed technology division, Kaluza, recently invested in Electron's "distributed flexibility marketplace." Electron is a UK-based company that creates blockchain platforms that facilitate energy asset registration, flexibility trading, and coordinate usage of distributed energy resources. According to Ovo, "[t]he development of Electron's shared asset register will be crucial to supporting the growth of Kaluza and deliver on its mission to securely connect all devices to an intelligent zero-carbon grid." Kaluza's ultimate goal is connect "Internet of Things" devices to electric grids, and use distributed ledger technology to improve electric grid data and functioning.
- On March 13, 2019, Saudi Aramco announced a pilot program integrating blockchain technology to improve quality, safety, and administration of production lines. Aramco's program will work to confirm the origin and quality of the oil products with the goal of eventually assessing the entire supply chain of petroleum. Saudi Aramco is touting the benefits of blockchain in an interview with Sputnik News, stating that "[blockchain] has a lot of advantages in ensuring the quality of the product and the sources of the product." Blockchain technology will improve the transparency and traceability of transactions, while reducing transaction costs and increasing data integrity.

PUERTO RICO ENERGY COMMISSION LOOKS TO MICROGRIDS TO PROMOTE ELECTRIC GRID RESILIENCE.

- Hurricane Maria hit Puerto Rico on September 20, 2017, severely damaging the island's electric grid and disconnecting most households from power. For almost an entire year, the island experienced rolling blackouts. Cognizant of the electric grid's critical weaknesses and the risk of future storms precipitating subsequent blackouts, the Puerto Rico Energy Commission ("PREC") issued the Regulation on Microgrid Development (the "Regulation") in May 2018. PREC's goal is to promote energy resilience by

implementing a "stable and predictable regulatory framework" under which communities can develop sustainable microgrids. Ultimately, the PREC believes microgrids will promote "customer choice and control," "increase system resiliency," and "foster energy efficiency and environmentally sustainable initiatives."

- The Regulation creates a regulatory framework categorizing microgrids and defining the scope of their permissible activities. It categorizes microgrids by ownership, and divides them into three types: personal, cooperative, and third-party. Personal microgrids provide power to one or two consumers and can—with PREC permission—provide excess energy and grid services to neighboring customers. Cooperative microgrids are microgrids owned and developed jointly by three or more energy consumers. Cooperative microgrids also may sell excess energy and services to third-parties. Lastly, third-party microgrids are microgrids whose primary purpose is to sell energy services. The PREC must approve a third-party microgrid's rates before it can sell energy. Certain cooperative microgrids and third-party microgrids are also subject to reporting requirements.
- In order for microgrids to function effectively, the Puerto Rico Electric Power Authority ("PREPA") will need to incorporate them into a customer-centric Integrated Resources Plan ("IRP"). To this end, PREPA recently issued its first IRP focused on decentralized generation and the growth of solar and storage resources. The PREC rejected the plan, however, citing numerous problems, including PREPA's failure to submit a proposed interconnection regulation tied to the Regulation. PREPA has until April 14 to resubmit a plan.
- The not-for-profit sector may be rallying behind the PERC's push for microgrids. Environmental Defense Fund ("EDF"), for instance, announced a three-year collaboration with the government of Puerto Rico to building low-carbon microgrids in some of the island's most rural areas. EDF intends to develop a holistic package that addresses the structural barriers preventing the effective implementation of microgrids in such communities. The microgrids will rely on solar power and battery storage technology. Puerto Rico's pivot to sustainable microgrids could help promote energy resiliency by enabling communities to draw electricity from battery storage devices during blackouts. It's possible that Puerto Rico's model could provide a pathway for other utilities at risk o of natural disasters and climate change, like California's investor-owned utilities.

THE PUERTO RICO ENERGY PUBLIC POLICY ACT: 100% RENEWABLE ENERGY ELECTRIC GRID BY 2050.

- On March 25, 2019, trade press reported that Puerto Rico's Congress passed the "Puerto Rico Energy Public Policy Act." The bill that seeks to ensure that the island's electric grid operates solely on renewable energy by 2050. To achieve this goal, the bill aims to promote greater adoption of distributed energy generation and storage. An unofficial translation of the bill states that parties to energy deals will "identify the most effective and economical ways to make the electrical infrastructure of Puerto Rico more distributed, intelligent, resilient, reliable," among other things. The bill also highlights the use of microgrids as a "reliable, robust and decentralized system that promotes resilience, integrates new technology, sources of renewable energy, avoids the loss of energy in indispensable service facilities and provides alternatives to consumers." The bill is now before the governor who has previously expressed his support.

