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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.

Article By   Benjamin L. Tejblum
Buck B. Endemann Daniel S. Cohen
Toks A. Arowojolu Olivia B. Mora
Abraham F. Johns K&L Gates
K&L Gates HUB Environmental, Energy & Resources
Communications, Media & Internet
All Federal
Russia

GAZPROM DEVELOPS BLOCKCHAIN PLATFORM PROTOTYPE.

- On April 3, 2019, major Russian gas company Gazprom announced that it intends to incorporate distributed ledger technology as part of its initiative to digitize its gas supply process. Specifically, Gazprom has developed a distributed ledger platform prototype that automates contract execution and monitoring and calculates payments. In the initial phase of testing, the platform will be available only to "major industrial consumers," but the end goal is widespread use by all of Gazprom's gas supply counterparties.

- Gazprom has experimented with blockchain in the past. For instance, through its subsidiary Gazpromneft-Aero, the company has tested blockchain and smart contracts to help automate operations and accounting procedures in managing its fuel stock.

- The switch to blockchain may make Gazprom's natural gas transactions more traceable, efficient, and accurate. Moreover, the platform also could reduce transaction costs while minimizing contract tampering and unauthorized charges.

WIEN ENERGIE TESTS BLOCKCHAIN FOR EV CHARGING STATIONS AND SMART FRIDGES.

- On March 28, 2019, RIDDLE&CODE, a European blockchain-interfacing startup, announced its partnership with Austria's largest energy provider, Wien Energie, and the launch of a distributed ledger-based e-charger in Vienna, Austria, for electric vehicles. The announcement describes an initial first step of testing followed by a rollout of the system planned for the fourth quarter of 2019.

- Wien Energie is also currently testing hardware for other e-charging stations, household meters, and photovoltaic cells. Using distributed ledger technology may provide its charging systems with greater accuracy and flexibility for charging cars as more Austrian drivers move from gas-powered to electric vehicles.

- In addition to exploring blockchain in the electric vehicle industry, Wien Energie is wading into the smart appliances sector, creating a blockchain-based refrigerator prototype. Wien Energie introduced its model on April 3, 2019, in Vienna. Through the refrigerator's technology, consumers can select the machine's energy source, such as solar energy from solar panels or wind generated by turbines, and trace each kilowatt of energy used to its generation source. Additionally, consumers can operate their refrigerators via a smartphone app, changing temperature control and controlling the energy sourcing. The model will be tested by three consumers in the next few months.

FEDERAL BILL TO EXTEND TAX CREDITS TO ENERGY STORAGE INTRODUCED.

- On April 4, 2019, Representative Mike Doyle (D-PA-18) introduced H.R. 2096, a bill that would extend the 30 percent Investment Tax Credit ("ITC") currently available for solar photovoltaic systems to standalone energy storage systems. H.R. 2096 — an updated version of the Energy Storage Tax Incentive and Deployment Act of 2017 — would grant full ITC eligibility to residential, commercial, and utility-scale energy storage investments., but subject to the current rate decrease schedule for solar storage. Accordingly, the credit would decrease from 30 percent to 26 percent in 2020 and to 22 percent in 2021. After 2021, the ITC would no longer be available. Investments in commercial and utility-scale projects, however, would still be eligible for a 10 percent ITC.

- The Internal Revenue Service ("IRS") has already approved batteries paired with ITC-eligible solar systems for inclusion in the storage-related costs for both new systems and retrofits. However, the IRS requires eligible batteries to be charged exclusively from solar and limits how much storage relative to solar is eligible for the credit. If approved, project developers may start initial investment in a storage project and complete it within four years to qualify for the credit.

- Rep. Doyle and more than 100 House Democrats also signed a letter addressed to House Way & Means Chairman Richard Neal (D-MA-1) urging him to support legislation that clarifies the tax code with respect to energy storage technologies and extends the solar ITC and performance-based tax incentives for energy efficiency in buildings.

AMEREN AND OPUS ONE SOLUTIONS ANNOUNCE NEW BLOCKCHAIN PROJECT.

- On March 28, 2019, Ameren Corporation ("Ameren"), a U.S. investor-owned utility, and Opus One Solutions ("Opus One"), a blockchain startup, announced a new project that will test a "transactive energy marketplace" ("TEM") using blockchain and DERs. The project is designed to evaluate how DERs, like solar, electric vehicles, and behind the meter batteries, when coupled with blockchain technology can promote microgrid efficiency and resiliency. The TEM will be located at Ameren's Technology Applications Center in Illinois — which is reportedly one of the only utility-scale microgrids operating under live conditions in the nation.

- Ameren intends to implement the project in two phases. Phase 1 will be a computer simulation phase, during which Ameren will create simulations to model the existing wind and solar systems on its microgrid. In Phase 2, Ameren intends to test the software in its TEM featuring real energy pricing provided by MISO.

- Ameren and Opus One's new project further indicates utilities' growing interest in integrating DERs into their grid plans. Utilities in California, New York, Hawaii, and Illinois are now utilizing innovative technologies to build a clean energy infrastructure.

PILOT PROGRAM TESTS BLOCKCHAIN TO IMPROVE CYBERSECURITY OF ELECTRICITY INFRASTRUCTURE.

- In 2017, Pacific Northwest National Laboratory ("PNNL") embarked on one the largest blockchain-based, electric grid cybersecurity projects in existence. Funded by the U.S. Department of Energy ("DOE"), the Keyless Infrastructure Security System ("KISS") project has three key goals: (1) developing a blockchain-enabled cybersecurity controller that uses a PNNL platform to execute complex energy exchanges that are more resilient against modification or manipulation, (2) developing the first blockchain prototype to continuously monitor and autonomously verify the integrity of critical energy delivery systems, and (3) understanding how blockchain can mitigate cybersecurity threats.

- KISS is one of six PNNL projects funded by the DOE. Recently, PNNL demonstrated two KISS use cases. The first focused on securing critical data stored and exchanged between energy management systems or distribution management systems and energy delivery systems. The second demonstrated how blockchain can help improve asset management and supply-chain security for critical energy delivery systems. The PNNL team expects to start commercializing a blockchain-enabled cybersecurity controller and move to utility-scale deployments sometime this year.

- Because blockchain is such a new technology in the energy industry, KISS and similar projects are crucial to exploring the challenges related to interoperability, security, and scalability. While not a panacea for energy cybersecurity, this still nascent technology could help decentralize energy transactions and directly link consumers and producers of energy while ensuring a more secure grid.

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