BLOCKCHAIN ENERGIZER – VOLUME 39

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There is a lot of buzz around blockchain technology and its potential to revolutionize a wide range of industries from finance and health care to real estate and supply chain management. Many institutions and companies are forming partnerships to explore how blockchain ledgers and smart contracts can be deployed to manage and share data, create transactional efficiencies, and reduce costs.

Across the energy industry, market participants have formed consortiums, and launched pilot programs testing blockchain-based use cases that could transform energy markets. State regulators, too, are engaging the industry on blockchain's potential. Every other week, the K&L Gates' Blockchain Energizer will highlight emerging issues or stories relating to the use of blockchain technology in the energy space. To subscribe to the Blockchain Energizer newsletter, please click here.

KEPCO PLANS TO DEVELOP AN "OPEN ENERGY COMMUNITY" VIA A BLOCKCHAIN-BASED "FUTURE MICRO GRID."

• South Korea's largest power utility company, the Korea Electric Power Corporation ("KEPCO"), plans to develop the "Future Micro Grid" using hydrogen fuel cells and blockchain technology. According to KEPCO, many microgrids perform inadequately because they cannot consistently supply power to end users. To remedy the instability of microgrids relying on wind turbines or solar panels and energy storage devices, KEPCO will implement its "KEPCO Open MG" framework. The framework will use power-to-gas technology and fuel cells to convert, store, and re-convert hydrogen into electricity. KEPCO plans to facilitate electricity trading between several such microgrids via a common blockchain platform. Blockchain-based electricity trading will transform these existing microgrids into the "Future Micro Grid."

• KEPCO believes blockchain-based integration of distributed clean energy resources will improve energy efficiency, reduce carbon emissions, and promote energy independence. Moreover, blockchain-based electricity trading will minimize disruptions in the power supply by executing fast and secure energy transactions. The main value proposition of the KEPCO Open MG framework will be interoperability. By accessing the framework, each microgrid operator, its consumers, and its other stakeholders will be able to seamlessly transact with one another. The result will be more durable and efficient microgrids.

• As we have previously reported, KEPCO has initiated several blockchain projects. For example, earlier this year, the utility announced a project with Power Ledger, an Australian-based blockchain developer, to establish a separate blockchain-based electricity trading platform. Through the platform, nearly two dozen households will experiment with direct energy trading. KEPCO and Power Ledger's ultimate goal is to create virtual power plants powered by blockchain. KEPCO's continued exploration of blockchain stems from its belief that the energy industry is trending toward "decarbonizaton, decentralization, and digitalization."

SHELL AND OTHER OIL COMPANIES TEST BLOCKCHAIN-BASED CRUDE OIL TRADING ON VAKT.

• Vakt, a London and blockchain-based crude oil trading platform, is now operational and may lead the way to broader blockchain-based trading platforms. Major oil companies such as Shell are now using the Vakt platform to engage in oil trading contracts, using smart contracts to automate the transaction and settlement processes. As a result, participants' trades are input into an immutable, secured transaction record. Vakt was launched last November by a consortium of oil companies, financial institutions, and other industry participants. Since then, Vakt has initiated several pilot programs for digitized crude oil trading settlement services. Participants hope that they can scale the platform to facilitate and record a substantial volume of oil trades.

• In 2019, Vakt will consider partnerships with crude oil pipeline operators in the United States, among others, to further develop the platform. Once fully operational, Vakt's leadership believes their technology will reduce post-trade resolution costs by nearly 40 percent. For now, trading is limited to the "five North Sea crude grades that are used to set dated Brent." Energy trading in the power markets is an often discussed and lauded blockchain-in-energy use case. However, a crude oil trading platform may face fewer regulatory barriers in the short and medium term.

ENERGY WEB FOUNDATION COLLABORATES WITH WIREPAS AND SIEMENS.

• Earlier last month, the Energy Web Foundation ("EWF") and Wirepas announced a proof of concept ("PoC") for a decentralized wireless connection of physically distributed energy resources to EWF's blockchain platform, the "Energy Web Chain." Presenting the PoC at European Utility Week, the organizations utilized a software gateway designed by Wirepas to connect solar panels to EWF's Energy Web Chain. The PoC demonstrated the possibility of connecting physical devices to a blockchain while using smart contracts to automate transactions between them. According to EWF, the demonstration displays the value of integrating blockchain and the "Internet of Things" to create a secure, decentralized platform to balance energy demands on physical electricity grids in real time.

• Also in November, Siemens' Energy Management and Power Generation Services departments became affiliates of EWF. As affiliates, the Siemens departments will collaborate with EWF to explore blockchain's capacity to facilitate "new business models of energy and flexibility trading between consumers, prosumers, producers and network operators, taking into account user preferences and network restrictions." Moreover, Siemens believes blockchain-based applications will spur innovation in asset and project finance. This partnership is not Siemens first foray into the blockchain-in-energy industry. The company has been working with LO3 Energy since late 2017 to develop blockchain-based peer-to-peer energy trading and microgrid infrastructure.

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