

THE BLOCKCHAIN ENERGIZER

May 7, 2018

In this issue:

Energy Web Foundation Is Implementing a Different Consensus Protocol to Reduce Blockchain Electricity Demand..... 1

Energy Storage Meets Blockchain: Sonnen Joins the NEMoGrid Project. 2

Softbank and TEPCO Announce a Blockchain Pilot Program to Reduce Carbon Emissions..... 2

IOT Group to Re-open an Australian Power Plant to Provide Electricity for Blockchain Companies; Washington Counties Take Divergent Approaches to Cryptocurrency Mining..... 2

K&L Gates LLP. Global legal counsel across five continents. For more information, visit www.klgates.com.

K&L Gates Blockchain Energizer – Volume 27

A biweekly update on applications of blockchain technology in the energy industry

By *Buck Endemann, Ben Tejblum, and Dan S. Cohen*

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. Reports estimate that over \$4.5 billion was invested in blockchain startups in 2017 alone, and 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.

While virtual currencies and blockchain technology in the financial services industry have been the subject of significant debate and discussion, blockchain applications that could transform the energy industry have received comparatively less attention. 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](#).

Authors Buck Endemann and Ben Tejblum will be in attendance at EUCI's, "[Blockchain Technology for the Energy Sector](#)" Conference in Houston, Texas, from May 8–9, 2018. They will be available to discuss the latest in blockchain.

Energy Web Foundation Is Implementing a Different Consensus Protocol to Reduce Blockchain Electricity Demand.

- [Energy Web Foundation](#) ("EWF") is [developing](#) a new form of consensus protocol designed to facilitate energy industry blockchain applications. The protocol, which is based on a Proof-of-Authority ("POA") architecture, allows a preselected set of network participants to serve as "network validators," making them responsible for authenticating transactions on the blockchain network.
- EWF believes that the use of a POA protocol will allow energy companies to use blockchain to record millions of transactions while using only a fraction of the energy required by a Proof-of-Work ("POW") consensus protocol like the one used by the Bitcoin blockchain. EWF also [announced](#) that it has added a "secret transactions" feature to Tobalaba, EWF's blockchain test platform that went [live](#) late last year. The feature will encrypt smart contracts on the EWF blockchain to ensure the information contained within them is visible to the contracting parties but is kept private from third parties.
- The significant energy usage required by POW protocols, such as the protocol for Bitcoin, is a long-standing issue for blockchain platforms seeking to facilitate more than a few transactions per minute. EWF's decision to employ a POA protocol is the latest in a series of moves by the industry to transition away from POW protocols in favor of more energy-efficient alternatives. For example, [Ethereum](#) is considering a proposal to adopt a hybrid POW and Proof-of-Stake ("POS") protocol as it [considers](#) shifting to a POS model entirely.

Energy Storage Meets Blockchain: Sonnen Joins the NEMoGrid Project.

- Energy storage manufacturer [Sonnen](#) has joined [NEMoGrid](#), making it the first battery producer to participate in a blockchain-based energy trading project. NEMoGrid was established in 2017 with financial support from the German, Swiss, and Swedish governments, as well as the European Union's Horizon 2020, to design and evaluate "new business models favoring the grid-integration of decentralized resources." The NEMoGrid project will test these business models in simulations before conducting live tests in Germany, Switzerland, and Sweden. NEMoGrid will also analyze, among other things, the effect of electricity tariffs and peer-to-peer ("P2P") trading on local electricity costs and the effect of P2P electricity trading on local grid stability. NEMoGrid will finish its work by the spring of 2020.
- According to Sonnen's press release [announcing](#) the partnership, Sonnen hopes that combining blockchain with energy storage facilities will lower electricity prices and mitigate stress on local grids from P2P trading by allowing greater optionality of energy use at the distribution level. As a result, households will be able to reduce their electricity bills by trading electricity in real time in a manner that stabilizes the grid, thus preventing expensive demand-response interventions.
- Sonnen has developed the "sonnenCommunity" program, which allows its customers to share the energy they produce with one another. Surplus energy from one participant's home is placed into a "virtual energy pool" from which other members can draw on. As [Green Tech Media](#) has [pointed out](#), advances in distributed ledger technology will enable P2P programs like Sonnen's to scale more efficiently. Scaling up P2P programs could also make households an important agent in energy distribution networks.

Softbank and TEPCO Announce a Blockchain Pilot Program to Reduce Carbon Emissions.

- [TEPCO](#) and several other Japanese companies announced recently a [plan](#) to launch a blockchain-based carbon emissions trading platform for consumers in rural areas of Japan. Through the platform, renewable energy prosumers will be able to sell carbon dioxide offsets to other consumers. All trades will be transacted through the blockchain platform, with all the relevant information recorded into the underlying blockchain.
- Japan's [Ministry of the Environment](#) chose this platform as a model pilot project with the hope that it will encourage greater demand for and supply of renewable energy, thus decreasing carbon emissions. This is not the first blockchain-based project aimed at reducing carbon emissions. As we have previously [reported](#), in late 2016, [IBM](#) and Chinese blockchain developer [Energy Blockchain Labs](#) started developing a blockchain carbon asset trading platform. The platform has made it easier for Chinese companies to meet their carbon emissions quotas by making carbon asset trading more efficient.

IOT Group to Re-open an Australian Power Plant to Provide Electricity for Blockchain Companies; Washington Counties Take Divergent Approaches to Cryptocurrency Mining.

- [IOT Group](#) and [Hunter Energy](#) announced recently that they will [recommission](#) a coal-fired power plant in Australia to provide blockchain companies a low-cost source of electricity. Hunter Energy will provide IOT Group electricity from the plant directly at wholesale, and IOT Group will offer blockchain operators access to this power, thus allowing them to bypass the grid and forego transmission costs. By providing low-cost

K&L Gates Blockchain Energizer – Volume 27

energy, IOT believes it can incentivize blockchain companies to relocate to Australia. The companies plan to begin generating electricity in Q1 2019.

- As discussed above, the energy consumption required by POW blockchains continues to challenge blockchain companies, energy providers, and regulators around the world. In the United States, the [Mason County Public Utility District](#) (“PUD”) in the state of Washington is the latest in a series of energy providers to place a moratorium on cryptocurrency mining operations. Notably, the moratorium applies to more than just cryptocurrency mining, covering “data processing loads related to...blockchain or similar purposes.” The PUD plans to study the effects of cryptocurrency mining on the grid and electricity rates and the safety considerations that such operations raise. As we have previously [reported](#), [Chelan County Public Utility District](#) in the state of Washington has also issued a moratorium on cryptocurrency mining, as has the city of [Plattsburgh](#) in New York.

K&L GATES

K&L Gates is a fully integrated global law firm with lawyers located across five continents. The firm represents leading multinational corporations, growth and middle-market companies, capital markets participants and entrepreneurs in every major industry group as well as public sector entities, educational institutions, philanthropic organizations and individuals. For more information about K&L Gates or its locations, practices and registrations, visit www.klgates.com.

This publication is for informational purposes and does not contain or convey legal advice. The information herein should not be used or relied upon in regard to any particular facts or circumstances without first consulting a lawyer.

©2018 K&L Gates LLP. All Rights Reserved.