

August 9, 2018

In this issue:

Four New York Utilities Will Collaborate to Develop “Transformative” Use Cases for “Shared Blockchain Infrastructure.” 1

Franklin County Public Utility District (“PUD”) Becomes Third Washington PUD to Place a Moratorium on Cryptocurrency Miner Applications for Electricity..... 2

Green Power Exchange and bitcoinClean Developers Partner to Promote a Green Energy Trading and a Green bitcoin Hardfork. 2

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K&L Gates Blockchain Energizer – Volume 33

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

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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.

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](#).

Four New York Utilities Will Collaborate to Develop “Transformative” Use Cases for “Shared Blockchain Infrastructure.”

- [Avangrid](#), [Con Edison](#), [New York Power Authority](#), and [National Grid](#) (hereinafter, the “[Blockchain Cohort](#)”) announced in mid-July that they will work together to research use cases for Shared Blockchain Infrastructure. The Blockchain Cohort, in consultation with the [Indigo Advisory Group](#), evaluated over fifty potential use cases and determined that blockchain solutions related to customer management, clearing and settlement processes, decentralized energy markets, cybersecurity, distributed energy resource (“DER”) management, and electrical vehicles merited further research and development. Several of these solutions are aimed at enhancing data security, transparency, and efficiency. For example, the Blockchain Cohort believes that a blockchain-based “trust portal” could improve customer management by increasing efficiency and making data sharing transactions more transparent. In this use case, utilities and registered third parties, such as DER providers, would record such transactions on a blockchain. Once recorded, regulators, customers, and other authorized entities could review, but not edit, the details of these transactions by using the online portal to access the blockchain. By governing read/write authority, the portal would ensure transparency while preserving data integrity. Similarly, the Blockchain Cohort contends that combining smart meter devices with blockchain and smart contracts could increase data privacy and security while enabling automated demand respond measures. This group will also explore more transformative use cases, such as an automated, decentralized peer-to-peer electricity transaction and supply system.
- The Blockchain Cohort will also engage in discussions with blockchain industry participants and other stakeholders to determine how to leverage “permissionless,” or public, blockchains; analyze the benefits and limits of blockchain applications in industries; and monitor the maturation of protocol and network development,

K&L Gates Blockchain Energizer – Volume 33

interoperability, and standardization. The Blockchain Cohort plans to develop a joint virtual proof-of-concept demonstrating how utilities can implement blockchain infrastructure to execute at least one of these use cases.

- The use cases these utilities are exploring could provide significant benefits to utilities, particularly once blockchain solutions mature and scale. However, the extent to which utilities can use blockchain to integrate DERs into wholesale markets, or facilitate automated peer-to-peer energy transactions, is dependent upon changes to each state's regulatory framework. A decentralized peer-to-peer electricity transaction system in New York, for example, would require participants to meet a variety of registration, reporting, and certification obligations that could be burdensome for residential or small commercial participants. While utility buy-in is an essential component of the long-term viability of blockchain technology in the energy industry, collaborative efforts by utilities without the support of regulators will likely be impractical.

Franklin County Public Utility District (“PUD”) Becomes Third Washington PUD to Place a Moratorium on Cryptocurrency Miner Applications for Electricity.

- [Franklin County PUD](#) has [issued](#) a moratorium on applications for “high density load” service requests related to cryptocurrency mining and “similar purpose[s]” to determine the potential impact of these demands on the county's infrastructure and electricity capacity. Although the PUD has [“not experienced an influx”](#) of service requests from cryptocurrency miners, it is concerned by the strain such demands have placed on other Washington communities' grids. While the moratorium is in place, the PUD's staff will evaluate a rate structure for high density load demands and cost recovery and will assess the county grid's capacity to accommodate such requests and the safety risks associated with such demands.
- The scope of the moratorium is broad, applying to cryptocurrency mining and “similar purpose[s].” Accordingly, the moratorium likely could be interpreted to cover an electricity service demand related to validating transactions on a blockchain, provided the demand is for high density loads, even when validation does not require “mining.” On the other hand, since the moratorium applies only to demands for high density loads, it does not cover all cryptocurrency mining per se. Functionally, however, the moratorium will likely preclude commercial mining of most cryptocurrencies based on a “Proof-of-Work” consensus protocol.
- This moratorium underscores the continuing challenge and growing concern all load serving entities face in mitigating the strain that high density loads from cryptocurrency mining place on their grids. These challenges are currently acute in areas like the Pacific Northwest where electricity prices are low relative to other markets. [Chelan County PUD](#), another PUD in Washington state, for example, has issued a moratorium on electricity demands from cryptocurrency miners earlier this year (see our previous discussion [here](#)).

Green Power Exchange and bitcoinClean Developers Partner to Promote a Green Energy Trading and a Green bitcoin Hardfork.

- [Green Power Exchange](#) (“GPX”) and developers of [“bitcoinClean,”](#) a hardfork version of bitcoin whose transactions are validated by miners that use exclusively renewable energy, have [partnered](#) to promote blockchain-based renewable energy trading and green cryptocurrency mining. Once mining pools are established by the end of Q3 2018, bitcoinClean miners will be able to use the GPX platform to prove their renewable energy use. Such proof is essential because bitcoinClean uses a “Proof-of-Greenness” protocol, meaning that a transaction validated by a specific miner will not be recognized by the

majority of miners unless the miner only expended electricity generated solely from renewable energy sources in the process of validating the transaction. Additionally, GPX and bitcoinClean will share technical knowledge and cross-market each other to improve their blockchain protocols and to build a larger ecosystem, respectively.

- bitcoinClean will be the first cryptocurrency mined exclusively with renewable energy. If successful, this partnership may demonstrate the viability of low-carbon intensive cryptocurrency mining, thereby addressing one of the most salient criticisms of bitcoin and many other Proof-of-Work-based cryptocurrencies.

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