

News From The Block

- > **May 15, 2018** – *Centrica* and *LO3 Energy* expanded their partnership by piloting *Exergy*, LO3 Energy's peer-to-peer energy trading platform, in what is thought to be the largest blockchain energy initiative in the U.K. (one out of four projects in the Local Energy Market Program)
- > **May 8, 2018** – *Green Power Exchange (GPX)* announced they will issue an ICO in Q3 2018, followed by a launch of its platform on which consumers can buy electrons directly from solar projects using smart contracts; the platform will open with 62 active projects and be supplied through *Solar Provider Group*
- > **May 3, 2018** – Australian-based *Power Ledger* continues to expand in the U.S. partnering with the *Clean Energy Blockchain Network* to deploy the first blockchain-based peer-to-peer energy trading system in Chicago
- > **May 2, 2018** – The *Mobility Blockchain Initiative* (“MOBI”) was announced with a goal to explore the potential of blockchain in the automotive and mobility space. MOBI counts *BMW, GM, Ford, Renault, Bosch, Blockchain at Berkeley, Hyperledger, Fetch.ai, IBM* and *IOTA* as founding members
- > **April 24, 2018** – *Tepco* and Singapore-based blockchain startup *Electrify* signed an agreement to test and deploy *Electrify's* peer-to-peer power trading platform that uses blockchain technology in Singapore and Japan
- > **April 17, 2018** – At *Event Horizon 2018* in Berlin, the *Energy Web Foundation* presented *EW Origin*, the first decentralized application running on its *EW Chain* which records the provenance and ownership of renewably generated electricity including location, time, source type and CO2 emissions
- > **April 17, 2018** - U.K.-based machine learning start-up *Verv* executed the first physical energy trade on the blockchain in the U.K.
- > **April 12, 2018** – *Direct Energy* has launched a new “micro-energy hedging” offering with *LO3 Energy* that represents one of the first known uses of blockchain in real-world energy markets
- > **April 5, 2018** – The *Chilean* government announced they will use *Ethereum's* blockchain as a way to record energy sector statistics to “augment levels of security, integrity, traceability and confidence in the information available to the public”

Application in Focus: Slock.it



- > Slock.it is a blockchain start-up that is looking to redefine how the sharing economy operates by applying blockchain and IoT technology to various use cases and applications
- > Slock.it's trading platform *Share&Charge*, developed in collaboration with *Innogy*, leverages *Ethereum* blockchain technology to create a decentralized, digital protocol for EV charging, including peer-to-peer sharing between EV charging station owners and EV drivers
- > Slock.it is also developing a *Universal Sharing Network*, an open platform enabling automated transactions of objects and devices, creating solutions for industrial, manufacturing, supply chain, shipping, smart homes and other energy applications, and bringing transparency, security and auditability to real-world objects
- > At *Event Horizon 2018*, Slock.it won “Top of the Horizon” for its start-up pitch to attendees

Greentech's Dedicated Blockchain Team



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About Greentech Capital Advisors

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Blockchain in Energy Insights

Greentech spoke with Jesse and Sam at the Energy Web Foundation to get insights on the evolution of blockchain in the energy sector



Jesse Morris
Co-Founder & Secretary
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Sam Hartnett
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What should we know about the Energy Web Foundation (“EFW”)?

- > EFW is a standalone non-profit headquartered in Zug, Switzerland co-founded by RMI and GridSingularity
- > Our mission is to foster value creation in the energy sector by promoting an open, decentralized software infrastructure on blockchain technology
- > We want to develop the underlying infrastructure to support new applications and businesses built by developers, startups and energy market participants
- > To accelerate our mission, we are collaborating with our ecosystem of over 50 affiliates to identify promising use cases, develop applications, and educate stakeholders on the opportunities and limitations of blockchain technology

What does EFW do differently from other “blockchain in energy” platforms?

- > The first is the core technology. EFW is the first open-source blockchain platform developed specifically for the energy sector. It features a unique governance model that balances decentralization, regulatory acceptance and agile development of new features as well as a Proof-of-Authority consensus mechanism that increases throughput and reduces costs compared to other public blockchains. Most blockchain / energy companies to date are focused on building applications. We are focused on building an open source platform to support these applications. Any applications that EFW builds will be published under a free and open source license, like the recent release of the alpha version of Origin
- > The second is the ecosystem. We believe EFW has the largest, most diverse group of affiliates of any blockchain / energy consortium

What stage are we at in the blockchain evolution?

- > To be clear, blockchain technology is still in the R&D and pilot phase. Based on our research, over 150 energy companies and startups have made investments in blockchain, around 100 have announced plans for a pilot, fewer than 70 have implemented pilots and there are only a handful (1-5) commercial applications (depending on the definition)
- > That said, the technology is evolving rapidly, especially compared to other technologies like the internet and mobile phones, which took decades to mature

How will blockchain disrupt/ impact the energy sector?

- > EFW evaluated over 100 use cases in 2017 and narrowed our focus to five application domains:
 - 1) Certificates of Origin: Renewable generators create certificates that are issued, traded, retired and tracked on a blockchain;
 - 2) Utility Billing: Utilities use cryptographic identities to manage customers and settlement processes;
 - 3) Demand Response: Aggregators use secure smart contracts to conduct instant M&V and settlements;
 - 4) Electric Vehicle Charging: Use cryptographic identities to manage customers, vehicles and charging infrastructure; and
 - 5) Transactive Energy: A market design based on peer-to-peer interactions – uses software agents on energy producing or consuming devices connected to the grid to bid into the hierarchical energy markets
- > We believe there are real opportunities for blockchain to create value in the first four use cases in the near term (1-5 years). Longer term, blockchain may play an integral role in a transactive energy system – we recently published a concept brief on our vision for how this might play out

What are the main challenges for blockchain to scale?

- > From a technical perspective, scaling is an issue - public blockchains cannot currently compete with centralized systems when it comes to throughput. However, emerging technologies like parachain integration and state channels hold promise to dramatically increase scale. Blockchain protocols also need to become more “developable” - there is a relative shortage of development talent compared to other software protocols that inhibits innovation and application development
- > From a blockchain governance perspective, there are a host of unanswered questions. Governance is a huge topic that warrants its own post but the key questions are: “what constitutes good and bad behavior; how do you incentivize the former and punish the latter?” In a decentralized platform, governance design choices are extremely important
- > Lastly, there is a lack of clarity on how blockchain will be (and should be) regulated by governments and other authorities. Reconciling the decentralized nature of blockchain in such a highly regulated industry has never been done before, but over time this should be addressed

Looking ahead, who should we watch in this space?

- > Things move very quickly and there are hundreds of companies large and small working on the intersection of blockchain and energy. From our perspective, we are very closely tracking all of the startups in the space to see what the first few “killer apps” of blockchain in energy might be
- > We are also keeping our eye closely on the greater body of research and work going on in the non-energy blockchain space. Technologies like new consensus mechanisms (e.g., Hashgraph), off-chain scaling solutions, parachains and advanced cryptography are always on our radar and will have big implications for the energy sector when available

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(1) As of April 30, 2018

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