

21 October 2019

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K&L Gates' The Energizer – Volume 54

A biweekly update on blockchain technology applications, distributed energy resources, and other innovative technologies in the energy sector.

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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. To subscribe to The Energizer newsletter, please click [here](#).

NANOBIOLAB SCIENTISTS WORKING TO SIMPLIFY AND SCALE LITHIUM-SULFUR BATTERY PRODUCTION

- Scientists from the [Agency for Science, Technology and Research](#) (“A*STAR”) [NanoBio Lab](#) have developed a new method to prepare lithium-sulfur cathodes. The development could accelerate the commercialization of lithium-sulfur batteries. Lithium-ion batteries are commonly used, but have limited storage capacity. Some critics have also raised concerns about product safety as a result of lithium-ions' unique electrochemical properties. Lithium-sulfur batteries, in contrast, can store 10 times more energy than lithium-ion because of sulfur's high theoretical energy density.
- NanoBio Lab's lithium-sulfur cathode has demonstrated even greater potential, reaching a specific capacity of 1,220 mAh/g. Typical lithium-ion cathodes only reach 140 mAh/g. Moreover, it may be more durable than other lithium-sulfur cathodes. Generally, such cathodes are unable to sustain repeated charging and discharging without significant reductions in capacity. Nano Bio Lab's cathode, however, has been able to maintain a high capacity for over 200 charging cycles.
- NanoBio Labs credits its two-step production process for the durability improvements. NanoBio Lab builds a carbon host before adding sulfur to obtain a 3-D interconnected porous nanomaterial. Doing so prevents the carbon scaffold from collapsing when the battery is charged, a problem most conventionally-prepared cathodes face.
- NanoBio Lab's new approach streamlines the time-consuming process to produce sulfur-ion cathodes and uses inexpensive materials. NanoBio Lab is also working on optimizing the anode, separator and electrolyte through nanomaterials engineering. Such research may prove crucial as the energy industry continues to search for a means of scaling the production of new materials that improve battery performance.

CALIFORNIA PUBLIC UTILITIES COMMISSION AWAITS COMMENTARY ON MICROGRID PROCEEDING

- The California [Public Utilities Commission](#) (“CPUC”) has instituted a preliminary [rulemaking](#) in response to [S.B. 1339](#). The California law requires the CPUC to issue a rulemaking to develop standards, protocols, guidelines, and rates for microgrids, including a possible tariff.
- California’s legislature enacted S.B. 1339 to promote microgrids, which legislators believe can further several policy goals, including (1) reducing greenhouse gas emissions, (2) integrating more distributed energy resources, and (3) safeguarding the health and safety of residents during catastrophic events. The CPUC is considering a pilot microgrid program to serve communities susceptible to public safety power shutoffs, which are a response to California’s heightened wildfire problems.
- The public comment period is open until October 19. A second comment period will be open in the third quarter of 2020 before the final rule is issued in the last quarter of 2020.

LARGEST RESIDENTIAL BATTERY DEMAND RESPONSE PROJECT IS OPEN FOR BUSINESS

- [Trade press](#) is reporting that “the largest residential battery demand response project in the United States,” a 600 unit apartment complex, has recently accepted its first residents. The project, [Soleil Lofts](#) apartments located in Herriman, Utah, is the result of a collaboration among [Sonnen](#), a battery developer, [Auric Energy](#), a solar panel developer, [Wasatch Group](#), a real estate developer, and [Rocky Mountain Power](#), an electric utility.
- The apartment complex, including its garages, is covered by 5.2 megawatts (“MW”) of solar panels provided by [Auric Energy](#). Each of the apartment units contains a [Sonnen](#) battery will provide 12.6 MWh of battery storage. The [Soleil Lofts](#) community also includes energy efficiency appliances and over 100 electric vehicle charging stations. [Rocky Mountain Power](#) will control any excess power that is generated and dispatch the power to the grid as needed. According to trade press, approximately 50 percent of the costs of the equipment will be recovered through federal, state, and utility subsidies.
- [Soleil Lofts](#) apartments operates as a virtual power plant representing the power of utility demand management. [Soleil Lofts](#) apartments provides a blueprint for developers in other regions that are interested in collaborating with utilities to create energy efficient housing.

POWER LEDGER EXPANDS REACH WITH NEW TRIALS IN JAPAN AND MALAYSIA

- On October 2, 2019, the Australian blockchain technology firm, [Power Ledger](#), [announced](#) its [second](#) trial in Japan to test the capacity of its blockchain-enabled peer-to-peer (P2P) platform to facilitate the trading of excess solar power by a select group of households. The trial will be conducted in the Kanto region of Japan in December.
- Another goal of the trial is to use distributed energy systems in an effort to avoid the Japanese government’s feed-in-tariff (FIT) reduction scheduled to take effect at the

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end of the month. The reduction will impact more than 500,000 solar power consumers. Power Ledger believes their platform can facilitate inexpensive trades of cheaper renewable energy among residential communities.

- On October 9, 2019, the company [announced](#) a similar trial in Malaysia. Power Ledger is partnering with [Malaysia's Sustainable Energy Development Authority](#) (SEDA) to enable select participants to use Power Ledger's platform to purchase fossil fuel or renewable sources of power. The trial will run for eight months starting at the end of this year.
- As [previously covered](#), Power Ledger recently partnered with a Thailand-based renewable power company to launch a peer-to-peer energy trading platform for consumers, energy sellers, and prosumers in certain parts of Bangkok.

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