

## THE ENERGIZER – VOLUME 67

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### Energy Alert

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### HAWAIIAN ELECTRIC COMPANIES SELECT PLUS POWER TO BUILD GRID-SCALE BATTERY PROJECT

On 26 May 2020, Plus Power announced it was selected by the Hawaiian Electric Companies (Hawaiian Electric) to provide 185 MW / 565 MWh of battery storage from its Kapolei Energy Storage (KES) project to the Hawaiian Electric's grid. The KES project is composed of grid-scale lithium-ion batteries and will interconnect to a critical Hawaiian Electric substation. The project will provide load shifting and fast-frequency response services to Hawaiian Electric, which will enhance grid reliability and accelerate the integration of renewable energy. The project ranks among the largest batteries in the world.

The KES project is one of 16 solar storage and standalone battery projects that Hawaiian Electric plans to build to add 460 MW of solar capacity and nearly 3 GWh of storage to its portfolio. Hawaiian Electric's construction of these new solar and storage facilities is expected to help Hawaii meet its commitment to 100 percent renewable power by 2045. Towards that end, the KES project is positioned to replace the 180 MW AES coal plant which is set for retirement in September 2022. AES is the last coal-generated power plant in the state. If approved by Hawaiian regulators, the KES project will be operations just before in June 2022.

### UK'S LARGEST SOLAR FARM IS ON THE HORIZON

On 28 May 2020, the United Kingdom's Department for Business, Energy and Industrial Strategy approved a £450 million solar farm plan that is slated to be the largest in the nation's history. The project is being spearheaded by a joint venture between Hive Energy and Wirsol. Hive Energy is an American developer of solar PV energy, and Wirsol is an international solar energy provider headquartered in Germany.

The solar farm is expected to house 880,000 solar panels across 900 acres of farmland containing an anticipated generation capacity of 350 MW. The project is expected to reduce the UK's emissions by 68,000 metric tons annually, power up to 91,000 homes, and generate £1 million in annual revenue.

The project is the first solar development in the United Kingdom to receive approval as a Nationally Significant Infrastructure Project. When designated as a NSIP, a development is handled through a unique process distinguishable from normal proposed developments for the purpose of streamlining decision-making and overall administrative process. As a result, the approval could pave the way for future solar PV developments to be developed in a more efficient way within the UK that, due to scale, are also designated as NSIPs.

## **THE IRS ISSUES PROPOSED RULES FOR EARNED CARBON CAPTURE TAX CREDIT**

On 28 May 2020, the United States Internal Revenue Service (IRS) issued a notice of proposed rulemaking specifying how companies may qualify for carbon capture tax credits. Section 45Q of the Internal Revenue Code (IRC) authorizes a tax credit of up to \$50 per metric ton for disposal through geological storage (disposal), tertiary injection and disposal through secure geological storage (injection), utilization in a manner consistent with the IRC, or \$35 per metric ton for enhanced oil recovery where CO<sub>2</sub> is injected into the ground to help extract oil from wells. Under the proposed rule, applicants are required to contractually ensure disposal, injection, or utilization of qualified carbon. The contracts must include “commercially reasonable terms and provide[] for enforcement.” In addition, the proposed rule adopts the International Organization for Standardization 27916 standard as a viable alternative to current IRC standards, which establishes secure geological storage for the use of qualified carbon oxide for enhanced oil recovery. The proposed rule also allows companies to transfer earned credits to another taxpayer.

## **MIT STUDY ANALYZES USE OF SPENT EV BATTERIES FOR UTILITY-SCALE STORAGE**

MIT researchers have published a study evaluating the feasibility of a utility-scale solar and storage systems made from used electric vehicle (EV) batteries. The study examined a 2.5 MW California solar farm in three hypothetical scenarios: (1) without a storage system, (2) with a new lithium-ion storage system, and (3) with a storage system from repurposed EV batteries. Under the assumption that a storageless facility was the least desirable option, the study found that the storage system using EV batteries (at 80 percent of capacity) was the more cost-effective choice. While a new system would not provide a reasonable net return on investment, the EV-battery system could be profitable as long as the batteries cost less than 60 percent of their original price.

Although the study assumed the batteries would only be able to store and release energy on demand until they declined to 70 percent of capacity, one author noted that they could possibly operate safely and productively at a capacity of 60 percent or even less. Moreover, the study found that the batteries could achieve maximum lifetimes and value by never going above 65 percent of full charge or below 15 percent, which challenges some earlier assumptions that running the batteries at maximum capacity would provide the most value.

Although the economics of these projects could vary widely depending on the local regulatory and rate-setting structures, the study demonstrates that repurposed EV systems could provide sufficient value to justify the cost of taking spent batteries from EVs, collecting them, screening them, and repackaging them into a new application. In the next decade, there may be many GWh of storage capacity ready for reuse at renewable generation sites in lieu of recycling them for their component minerals, which is one of the factors currently increasing the cost of EV batteries.

## **VODAFONE AND ENERGY WEB PARTNER TO IDENTIFY AND SECURE DISTRIBUTED ENERGY ASSETS**

On 26 May 2020, Vodafone Business (Vodafone), a global telecommunications company, announced a partnership with Energy Web, a developer of a blockchain platform for the energy sector and other decentralized technologies, to integrate renewable and distributed energy technologies to the power grid. The partnership seeks

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to bolster security of the power grids by increasing the accuracy of identifying distributed energy assets that are connected, allowing energy and communication networks to securely manage them.

The partnership will deploy Vodafone's internet-of-things connectivity with Energy Web's Decentralized Operating System, which runs on open-sourced and decentralized software, working with a SIM-centric distributed ledger technology to assign secure IDs to energy assets. The project will identify renewable and distributed assets, such as solar panels, wind turbines, and batteries, to allow their secure integration with to the grid. The system that the partnership aims to develop will be similar to telecommunication operators' use of SIM cards for identifying mobile phones.

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