Colombia flow battery technology

Colombia flow battery technology

Flow batteries, with their long-duration storage capabilities, reportedly can reduce costs and provide resilience in ways that can cut microgrid costs, reduce the need for sourcing metals outside the U.S. and speed the clean energy transition.

For example, flow battery provider ESS has completed a microgrid installation at Sycamore International, a technology recycling company in West Grove, Pennsylvania. ESS said its long-duration iron flow batteries are less expensive than other storage alternatives, in part because of their long life cycle. According to ESS, the iron flow battery in its Energy Warehouse will last for more than 20,000 cycles -- or more than 20 years -- without any capacity degradation.

San Diego Gas & Electric is installing a flow battery in its Cameron Corners microgrid, with a goal of reducing wildfire risks and the impact of public safety power shutoffs during extreme weather conditions. The microgrid will consist of solar and battery storage that will provide resilience to a middle school, library, health clinic, fire station and telecommunications hub.

A clean energy development this week in the San Diego area isn"t much to look at. Workers will deliver four white shipping containers that house battery storage systems. Soon after, workers will hook up the containers so they can store electricity from a nearby solar array.

The part that I care about is the "flow battery" technology inside those shipping containers, developed by ESS Tech Inc., an Oregon startup. Flow batteries have the potential to be an important part of the energy transition because they can provide electricity storage that runs for much longer than the typical four hours of the dominant technology, lithium-ion batteries.

So what is a flow battery? A key design element is the use of two external tanks that contain electrolyte fluids that get pumped through the battery as it charges and discharges.

The duration of the battery, which is how long it can run before recharging, increases based on the size of the tanks. Think of this as the battery equivalent of one of those novelty baseball helmets that hold two cans of soda. If you switch out cans of soda for two-liter bottles, you can drink a lot more.

"For the whole machine, what you need to do is add more liquid rather than adding many, many more batteries," said Jun Liu, a University of Washington professor and a fellow at the Pacific Northwest National Laboratory. He also is director of the federal government"s Battery500 Consortium, which develops next-generation batteries for electric vehicles.

Lithium-ion batteries also are highly flammable. Leading flow battery types, like "vanadium redox" flow

batteries, have a much lower fire risk. (Vanadium is a metal that doesn"t easily catch on fire, especially when it"s dissolved in a fluid, as it is in a flow battery.)

And one of ESS" selling points to investors and customers is that it doesn"t rely on rare metals like lithium or vanadium at all. The main ingredients of its fluid are iron, salt and water.

The system will be able to discharge 3 megawatt-hours before being recharged, which is enough electricity to meet the needs of about 100 houses for one day. It includes six shipping containers that house the batteries, the last four of which are scheduled to arrive this week. Each container has stacks of batteries, with tanks of electrolyte fluid for each battery.

ESS also is working on a demonstration project with the utility Portland General Electric in Oregon, which should go online later this year. This will be the debut of a larger and less portable version of the ESS battery called the Energy Center.

Contact us for free full report

Web: https://www.hollanddutchtours.nl/contact-us/
Email: energystorage2000@gmail.com
WhatsApp: 8613816583346