



Sao tome flow battery technology

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In our sponsored webinars with Honeywell earlier this year, members of the company's Process Solutions team mentioned that the company had been working on a long-duration battery storage technology and that an announcement would be made in due course.

Also, we understand that this product has been developed through Honeywell Universal Oil Products (UOP), whereas your lithium-ion battery storage systems and services offerings have largely been delivered through Honeywell Process Solutions.

We've been working on it for a few years...we got interested in this space, we saw a core need for a battery that's longer duration, a utility-scale battery that uses non-rare earth elements. We have a fundamental belief that utility-scale batteries have got to use a non-rare earth element.

As for why Honeywell UOP for flow batteries: well, a flow battery looks a lot like a [power] plant, just on a lot smaller scale. You have the flow of material, just like you have in an oil or gas petrochemical plant, you have ion exchange, you have the need to be fundamental in chemistry and molecular science, which is UOP's core value proposition to the market.

And you have to be fundamental in membranes. We've been putting membranes in the market for 30 years, we have our own membrane facility, we test and launch our own membranes. So the combination of those things allowed us to develop in the space.

We're going to be bringing together the management and process control capabilities of Honeywell Process Solutions, and kind of the chemistry and know how, of UOP on the battery side, to launch this battery.

We're not talking about the exact chemistry but it is a non-rare earth element. It uses easy to source materials, and we really like its ability to scale up and down. The characteristics of a flow battery, I think really lends itself well to the utility industry.

At the utility-scale, density is not your primary driver. We really liked that space for its cost profile, and for the ability not to be coupled with a supply chain that could run into challenges that could swing drastically.

How about the development process? We've seen flow battery technology adopted by the renewable sector, but more broadly, the energy tech sector, from the early groundwork by people like NASA and academics decades ago. How much of the development started from scratch with what you guys are doing and what's the process been like? What have been some of the challenges that you've overcome along the way?



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We started from scratch. We're really good at optimising chemistry. So if you look at UOP's core history, we're fundamental in molecular science, we're fundamental in the chemistries.

Not to say we haven't had our experiences with all the challenges, you have with a flow battery around leakage. That's something we've been fundamental on, really making sure we hit the segment correctly. That's why we really like our partnership with Duke -- it's really dialling into what the utility segment's going to be looking for.

In terms of what utilities will be looking for, over the last few years, as battery storage has come into the market, at Energy-Storage.news we were initially mostly reporting on projects with perhaps 15 minutes of storage, typically doing frequency regulation. That's crept up -- or perhaps even jumped up -- to one, two-hour systems and now we're at the point that four-hour is probably the most common among projects announced in the US.

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