Flow battery technology el salvador

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A seven-year observation of a vanadium flow battery in California from Sumitomo Electric has been completed, while US lab PNNL has found an alternative, food-based electrolyte which it said boosted capacity and longevity.

The first is the results of a seven-year long observation of a 2MW/8MWh vanadium redox flow battery (VRFB) system that Japan-based Sumitomo Electric deployed at a site in California, in partnership with utility SDG& E.

Energy-Storage.news reported on the project back in 2017, which sought to show how the technology can reliable help the grid integrate renewables and improve flexibility, and the research has shown high long-term operating rates and capacity retention rates.

The ex-post evaluation by external experts was concluded in December 2022 with a results presentation and tour of the site in February earlier this year (viewable on), but Sumitomo only announced the completion publicly last week (7 July).

The external experts gave high marks on the four evaluation items with “many positive comments”, Sumitomo said, outlined in the table below. Much of the comments and research relates to the suitability of the technology for use in Japan.

“The knowledge obtained through this demonstration project will be particularly useful in forming an electricity market in Japan and creating a system for its operation, and it will serve as a basis for promoting and achieving decarbonisation in Japan,” said one expert comment.

“Technically, it is extremely significant that the storage battery system showed a high operating rate (99% in the final year of the project) and durability (a capacity retention rate of 90% or more for 20-years) in the actual electricity market.”

The project was part-funded by Japan"s New Energy and Industrial Technology Development Organization (NEDO) and the California Governor"s Office of Business and Economic Development (GO-Biz).

However, US national lab PNNL said this week that it found a common food and medicine additive alternative that can “…boost the capacity and longevity of a next-generation flow battery design in a record-setting experiment”. The study was published in journal Joule.

The lab said the flow battery project maintained its capacity to store and release energy for more than a year of continuous charge and discharge, using a simple sugar derivative called v-cyclodextrin. Use of the derivative

of starch boost the battery’s longevity and capacity.

Then, they cycled the battery continuously for over a year, only stopping the experiment when the plastic tubing failed. During this time, the flow battery “barely lost any of its activity to recharge”.

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