Flow battery technology netherlands

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The technology is affordable and easy to scale, which means we can speed up the spread of Elestor flow batteries to store large volumes of electricity over long durations.

Elestor covered by TKI Offshore Energy:"How's Elestor faring, one year after winning both the Offshore Wind Innovators Jury and Audience Awards? We have a look at the innovators of renewable energy storage and the progress they made. Elestor offers an important element for a successful energy transition."

For this podcast episode, we have a special guest, Guido Dalessi, CEO of Elestor. Listen as we delve into their unique Hydrogen-Bromine flow batteries, discuss LDES in the Europe, how to secure right partnerships, and Elestor's plans for growth.Kudos to {antokrator ! https://

A rapid transition to a new and entirely clean energy system is now possible, thanks to Elestor"s large-scale flow battery that can store renewable energy for long periods of time.

The active materials are contained in two tanks separated by a membrane stack, through which protons travel to absorb or release electrons during charging or discharging.

Both active materials are readily available all over the world, and as they are abundant they are also affordable. They make for a system that is robust, long-lasting and flexible.

The power [MW] of a flow battery system, as depicted above, is determined by the surface area of the ion-selective membrane, while the capacity [MWh] of the system is determined by the volume of the catholyte and anolyte reservoirs. The fact that the membrane surface area and the reservoir volumes can be dimensioned individually highlights one of the most distinguishing properties of flow batteries, as opposed to traditional electricity storage systems where power [MW] and capacity [MWh] scale simultaneously.

We conduct rigorous and ongoing life cycle analysis to evaluate and minimize the environmental footprint of our flow battery technology. Elestor continuously comes up with solutions that help reduce resource consumption, emissions and waste. This improves the sustainability of our products and contributes to a cleaner, greener future.

Flow batteries can be built around a large variety of chemistries by using different active materials, or so-called redox couples. From a purely scientific perspective, several solutions are workable, yet only some of these can succeed commercially. Before we chose the hydrogen and bromine redox couple, we benchmarked it against three key criteria:

The power density determines the power the flow battery can deliver per square metre of membrane surface area. The lower the power density, the greater the number of square metres of cell materials, especially membranes. High power density thus equals lower costs for the total flow battery system.

The energy density determines the energy the flow battery can store per cubic metre of active materials. The lower the energy density, the larger the volume of active materials, which means larger tanks, which require more space. High energy density thus equals lower costs for the total flow battery system.

The cost of the active materials, usable capacity, efficiency and lifetime are some of the factors that determine the cost of storage, which in turn determines the economic value of a storage technology, and thus of its market adoption, and finally of its impact on the energy transition.

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