

ContainerPower Energy Solutions

Vanadium energy storage electricity cost



Overview

Why is vanadium electrolyte so expensive?

One of the main costs affecting vanadium electrolyte is the price of moving it. Essentially when you transport the electrolyte you are moving acid and water. To reduce the cost of the battery, manufacturing the electrolyte close to the installation makes a lot of sense.

How many litres of vanadium can be produced a year?

Primary vanadium producer Bushveld Minerals in South Africa is completing construction of its BELCO electrolyte plant which is expected to start operation in H1 2023, with an initial capacity of eight million litres per year. This production can be expanded to deliver 32 million litres per year.

Is vanadium a sustainable solution?

US Vanadium can recycle spent electrolyte from VRFBs at a 97% vanadium recovery rate. This makes the VRFB a truly sustainable solution – the vanadium resource is only being borrowed from future generations, not consumed at its expense. One of the main costs affecting vanadium electrolyte is the price of moving it.

Why should you lease a vanadium battery?

Because vanadium electrolyte doesn't degrade, it is an appropriate commodity for leasing. The customer then has an operating expense rather than a capital expense. This also provides comfort to the customer as at the end of the battery's life the electrolyte belongs to someone else who will then be responsible for retrieving and repurposing it.

Why is vanadium a problem?

However, as the grid becomes increasingly dominated by renewables, more and more flow batteries will be needed to provide long-duration storage. Demand for vanadium will grow, and that will be a problem. "Vanadium is

found around the world but in dilute amounts, and extracting it is difficult,” says Rodby.

How long does an energy storage system last?

The 2020 Cost and Performance Assessment analyzed energy storage systems from 2 to 10 hours. The 2022 Cost and Performance Assessment analyzes storage system at additional 24- and 100-hour durations.

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