

Does vanadium have a supply chain?

In total, 242 variables were selected to characterize vanadium's supply chain. Considering a successful energy transformation in 2050, four logic-stochastic models were created to assess the supply risks associated with four different market shares of VRFBs at the storage market, i.e. 10%, 25%, 50%, and 100%.

Where does Germany import vanadium?

Germany has trade agreements with the majority of countries that have vanadium reserves . On the basis of EC data ,Europe imports firstly from Russia(71% of the overall demand share),secondly from South Africa (13% of the overall demand share) and thirdly from China (13% of the overall demand share).

Does vanadium cause supply disruptions?

This study assesses the risks of supply disruptions associated with vanadium for VRFBs for the German market through the Holistic Risk Analysis and Modelling (HoRAM) method. The analysis includes not only technological parameters but also HSE and societal ones. In total, 242 variables were selected to characterize vanadium's supply chain.

Is mining a safe supply of vanadium?

The study confirmed the high relevance of mining,including refining processes,for a secure supply of vanadium. Beyond that,the study highlights that,amongst the four analysed cases,that bearing the lowest risk is 50% market adoption. This result is counterintuitive,as one might have expected the 10% of adoption be the lower.

Does Germany need energy storage systems?

While around 254 terawatt-hours (TWh) of electricity were generated from renewable energy in Germany in 2022,600 TWh of electricity are expected to come from renewable sources by 2030. Germany is particularly dependent on a market ramp-up of energy storage systems,especially battery storage systems. What role do energy storage systems play?

Can vanadium disrupt the energy supply chain?

A supply chain disruption of vanadium can generate complex impacts on national energy systemsin particular on the reliability of electricity provision,potentially demanding a reconsideration of the chosen strategy for the energy transformation process.

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