

Kongres Container

Nordic Energy Storage System Quote



Overview

What are the important parameters for the Nordic grid?

Important parameters were thereby the number of cycles and the energy per cycle for the different FR services. Frequency data for the Nordic grid was collected from Fingrid (n.d.). Data was collected for all months during 2022 and imported to Python. The frequency data was averaged from a 0.1 to a 1 second basis.

Why do we need hydro reservoirs in the Nordic region?

The Nordic region benefits from large hydro reservoirs that provide excellent and cost-effective energy storage options, which are already being efficiently utilised. Meeting growing future flexibility needs with a changing energy mix will require supplementing hydro reservoirs with batteries or hydrogen-based fuels.

Is energy storage a key component of a reliable power system?

Thereby, the Swedish transmission system operator (TSO) Svenska Kraftnät (SvK) identifies flexibility as a crucial component to maintain a reliable power system (Svenska Kraftnät, 2021b). Energy storage can create flexibility by providing numerous ancillary services to the power system.

Are battery energy storage systems a potential flexibility provider?

One potential flexibility provider is battery energy storage systems (BESS). As the costs of these systems have been declining, their role is likely to increase even further in future's power systems (IEA, 2020). Sweden is one example of a country facing increased challenges within the power system.

What happens if the energy storage capacity is reduced?

As the energy storage capacity has been reduced, the battery no longer has 1/3 MWh per MW available at 33%/67% SoC, assuming the battery is running at 1C-rate. To continue to activate the maximum power of the battery, the SoC

range needs to be reduced according to equation 3.2.14 and 3.2.15 where represents the upcoming activation year.

How does an energy storage system generate value?

An energy storage system can generate value by provide system services, decrease operational costs for a facility, or to increase revenue streams. This section will describe potential applications for an energy storage unit that can be beneficial both on an economical and operational basis.

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