Gravity energy storage denmark

Gravity energy storage denmark

Better Energy also said the BESS presents the opportunity to store excess renewable energy at peak generation times to increase the availability of that renewable energy on the grid. However, it didn’t provide details of whether the BESS would charge directly from the solar park or just share the AC grid connection.

Denmark has been relatively quiet for grid-scale energy storage projects, though an 18MWh thermal energy storage project did start commissioning late last year. Virtual power plant (VPP) companies including Nuvve and Flower are active in the country’s ancillary service market primarily through managing EV networks.

Better Energy is active in solar project development in and around its home market of Denmark with projects also in Poland, Sweden and Finland, covered extensively by our sister site PV Tech.

It will be managed via an energy management system (EMS) from Hybrid Greentech and will be optimised with existing solar panels and EV charging at a location south of the airport’s terminals.

The Danish Technological Institute also worked on the project, which is part of the EU-funded Alight programme aimed at showcasing sustainable aiports via sustainable fuels, e-mobility energy storage and waste heat recovery.

Pea sized stones heated to 600?C in large, insulated steel tanks are at the heart of a new innovation project aiming to make a breakthrough in the storage of intermittent wind and solar electricity.

The technology, which stores electrical energy as heat in stones, is called GridScale, and could become a cheap and efficient alternative to storing power from solar and wind in lithium-based batteries. While lithium batteries are only cost-effective for the supply of energy for short periods of up to four hours, a GridScale electricity storage system will cost effectively support electricity supply for longer periods - up to about a week.

"The only real challenge with establishing 100 per cent renewable electricity supply is that we can"t save the electricity generated during windy and sunny weather for use at a later time. Demand and production do not follow the same pattern. There are not yet commercial solutions to this problem, but we hope to be able to deliver this with our GridScale energy storage system," says Henrik Stiesdal, founder of the climate technology company Stiesdal Storage Technologies, which is behind the technology.

In brief, the GridScale technology is about heating and cooling basalt crushed to tiny, pea-sized stones in one or more sets of insulated steel tanks. The storage facility is charged through a system of compressors and turbines, which pumps heat energy from one or more storage tanks filled with cool stones to a similar number

of storage tanks filled with hot stones, when there is surplus power from wind or the sun.

This means the stones in the cold tanks become very cold, while they become very hot in the hot tanks; in fact up to 600oC. The heat can be stored in the stones for many days, and the number of sets of stone-filled tanks can be varied, depending on the length of storage time required.

When there is demand for electricity again, the process reverses, so the stones in the hot tanks become colder while they become warmer in the cold tanks. The system is based on an inexpensive storage material and mature, well-known technology for charging and discharging.

"Basalt is a cheap and sustainable material that can store large amounts of energy in small spaces, and that can withstand countless charges and discharges of the storage facility. We are now developing a prototype for the storage technology to demonstrate the way forward in solving the problem of storing renewable energy - one of the biggest challenges to the development of sustainable energy worldwide," says Ole Alm, head of development at the energy group Andel, which is also part of the project.