

Gravity energy storage port of spain

Scottish start-up Gravitricity is planning a project to store surplus power from renewables at Port of Leith. A 250 kW, grid-connected prototype facility will have its ability to stabilize the network tested. The system involves a 16m rig over a 150-1500m shaft.

Gravitricity is due to begin construction of its ?1 million pilot project in October.

Image: Gravitricity

Scottish start-up Gravitricity has developed a gravity energy storage system it says is perfect for storing solar and wind power.

A 16m-high rig uses the clean power to raise a mass in a 150-1500m shaft and discharges the electricity thus "stored" by releasing the mass to rotate an electric generator.

Gravitricity said the mass used can range from 500 to 5,000 tons and the electricity discharged could power 30,000 nearby homes for two hours.

The start-up claimed sophisticated winches and a control system can lower the mass very quickly, making it flexible enough to stabilize electricity networks at 50Hz and ensuring the set-up can respond to full power demand in less than a second. "Our technology has the fast response time of lithium-ion batteries," the company said.

The Edinburgh-based company said the system offers 25-year service without loss of performance or cyclical degradation and can be sited anywhere, including in city centers. The developer pointed to disused mine shafts as ideal locations, however.

Gravitricity will begin construction of a ?1 million (EUR1.14 million) pilot project in October on an industrial site at Port of Leith, Scotland's largest enclosed deep-water port.

With completion scheduled for December, the 250 kW prototype will be connected to the port's power network and have its speed of response for grid stabilization assessed. "The demonstrator at the Port of Leith will allow the technology to be trialed on a much smaller scale, utilizing an above ground structure," the company said.

The pilot system will use two 25-tonne weights suspended by steel cables. "This two-month test program will confirm our modeling and give us valuable data for our first full-scale, 4 MW project, which will commence in 2021," said Gravitricity lead engineer Miles Franklin.

The lattice tower for the Port of Leith facility will be supplied by U.K. engineer Kelvin Power and the winches and control system will come from Huisman, a Dutch manufacturer of heavy lifting, drilling, pipe laying and mooring systems.

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