Czech republic gravity energy storage

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The Edinburgh-based company has signed a signed a memorandum of understanding with DIAMO, the Czech state enterprise charged with mitigating the consequences of uranium ore and coal mining in the republic.

Gravitricity"s core technology uses heavy weights - totalling up to 12,000 tonnes - suspended in a deep shaft by cables attached to winches. When there is excess electricity, for example on a windy day, the weight is winched to the top of the shaft ready to generate power. This weight can then be released when required - in less than a second - and the winches become generators, producing either a large burst of electricity quickly, or releasing it more slowly depending on what is needed.

The agreement will see the two companies seek funding to transform the former decommissioned Darkov deep mine - which is located in the Moravian-Silesian region of the Czech Republic - into a 4MW / 2MWh energy store, capable of powering more than 16,000 homes. According to Gravitricity the system will store energy by lowering and raising a single massive weight suspended in the Darkov mine shaft. The company has also signed a memorandum with VSB Technical University of Ostrava, whose specialist mining expertise will support the implementation of the technology .

Gravitricity has already demonstrated a scale version of its technology in Edinburgh - built in partnership with Dutch winch specialists Huisman - and now plans to build full-scale schemes in the UK and worldwide. Future multi-weight systems could have a capacity of 25MWh or more.

The company estimates there are around 14,000 mines around the world which could be suitable for gravity energy storage. Indeed, as previously reported by The Engineer, research carried out for the company by KPMG identified 60,000 vertical shafts of 200m or greater in Germany alone. Meanwhile, following discussions with the Coal Authority, the team believes that in the UK there are at least 100 potentially viable deep vertical mineshafts.

Commenting on the latest announcement, Gravitricity Managing Director Charlie Blair said: "We hope our collaboration with DIAMO will allow us to demonstrate this technology at scale and offer a potential future for coal mines that are approaching the end of their original service life."

Ludvik Kasper, CEO of DIAMO added: "Our main task is to provide the liquidation of mines, but at the same time we are looking for new uses for the mine sites according to the needs of the region. The Gravitricity project is an opportunity for mines and also for our experts, who can try working on new projects and cooperation with a foreign entity."

At Darkov, DIAMO is also planning to build a photovoltaic power plant and is considering the production of green hydrogen. The site will also be home to an experimental greenhouse project - called EDEN Silesia -

managed by the Silesian University.

Gravitricity, an Edinburgh-based energy storage company, has signed an agreement with DIAMO, a Czech state enterprise, to seek European Union funding to transform the former Darkov coal mine into a large energy store.

The pair plan to create a 4MW energy store, which they hope could pave the way for similar projects across Europe. The Darkov mine is located in the Czech Republic’s Moravian-Silesian region, near Karvin?. Gravitricity intends to store energy by raising and lowering a single large weight suspended in the Darkov mine shaft.

The company has already demonstrated a scale version of the technology and plans to build full-scale systems in the UK and worldwide. Future multi-weight systems could have a capacity of 25MWh or more, according to the firm.

Gravitricity managing director Charlie Blair said the project offered a future for coal mines reaching the end of their service life. DIAMO is also planning a photovoltaic power plant and considering the production of green hydrogen at the Darkov site.

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