



| Photo source Craig Fritz/Sandia National Laboratories

Innovation > Agriculture & Energy > Rock solid energy: storing renewable power in gravel

ROCK SOLID ENERGY: STORING RENEWABLE POWER IN GRAVEL



AGRICULTURE & ENERGY

A partnership is heating rock beds for affordable and accessible storage of renewables

Spotted: Renewable energy sources, like solar or wind, provide abundant clean power. But, because they're intermittent, it can be challenging to rely on them for consistent energy, with some weather conditions enabling ample power generation, while others make it challenging for such sources to produce any energy at all.

This is where energy storage comes in. Sandia National Laboratories, in collaboration with New Mexico-based CSolPower believes the solution to this problem can be found in the utilisation of rocks and thermal energy as a storage unit.

By heating and cooling a bed of rocks with air, the rocks themselves can become an effective method for storing energy – as heat. Instead of excess electricity being wasted or underutilised, it can be used to heat these rock beds, storing energy until periods – such as nighttime for solar power – when generation is low. Crucially, these rocks can be standard gravel from landscaping companies, meaning they are both cost-efficient and widely abundant for easy installation, without requiring extensive cleaning or preparation.

The energy storage method is hoping to accommodate long-duration storage with preliminary testing showing that the rocks could be heated to more than 500 degrees Celsius for over 20 hours. The partnership will continue this testing until June 2024, and should they prove successful, several commercial greenhouses are in line to begin installation of the storage method, which they will use to maintain temperatures during the cold New Mexico night.

We certainly aren't short of energy resources, but storing and transporting power to where it needs to be is where it gets more difficult. Fortunately, Springwise has spotted many innovators looking to

Written By: Archie Cox

20th November 2023

Email: inquiry@csolpower.com

Website: sandia.gov

Contact: sandia.gov/contact-us

[Download PDF](#)

Takeaway:

Intermittency is a huge issue for renewable energy sources such as solar and wind farms, both of which have been known to fluctuate between no power and 23 or 24 gigawatts of energy respectively throughout the day. Therefore, the growth and eventual complete dependence on renewable energy – crucial if climate targets are to be reached – will rely on effective, affordable, and green energy storage infrastructure. This will allow us to accommodate for the intermittency deficit in energy production and provision, and this new gravel-based system could be an effective, affordable option.