Energy vault cost per kwh

Energy vault cost per kwh

The company, Energy Vault, has commercialized the ultimate energy storage technology that will build the foundation of a clean energy future - brick by brick.

The Energy Vault stores excess electrical energy by efficiently transforming it into gravitational potential energy using 35-ton bricks that can be raised and lowered at will, and that can sit still storing the energy for any amount of time, before transforming the energy back to electrical energy when needed.

It is not a battery that can degrade over time. It does not need water or rare elements like Li or Co. It does not depend on the weather and is not affected by extreme weather. It can withstand Cat 4 hurricane winds and magnitude 8 earthquakes (tested at the California Institute of Technology).

It uses common materials like dirt to make the bricks, even solid waste, that can be obtained locally and does not use cement to bind them together. It does not use ten times the steel and concrete that renewables use relative to nuclear or gas. And it has one of, if not the, lowest carbon footprints of any energy generation or storage system.

And this technology comes just in time. According to the U.S. Department of Energy"s Energy Storage Grand Challenge Market Report 2020, the World Energy Council, the U.S. Energy Information Administration, Bloomberg NEF and Lazard, the projected grid-related storage deployments between now and 2030 needs to be about 830 GWh. The cumulative investment in this grid-related storage required over this time period is about $270 billion.

I know that game-changer is an overused term, but this technology really is a game-changer. With it, we can achieve a low-carbon future by mid-century. And we don"t need to waste lithium.

The Energy Vault is based on the science that most of us learned in Middle School - potential energy versus kinetic energy. When you climb the ladder of a water slide in the summer, your muscles are transforming the chemical potential energy you stored from your food into gravitational potential energy. The amount of that potential energy depends on your weight and the height above the pool.

Gravitational potential energy is how a hydroelectric dam generates electricity. The potential energy of the water sitting a hundred meters or so above the downstream level is released as kinetic energy when the water falls, which turns the turbines that turn the generators, producing electricity.

It is no wonder that pumped hydro storage constitutes over 95% of our present energy storage capacity in the world. Pumped hydro basically creates an artificial dam high up near some body of water. Excess renewable energy pumps water up into the reservoir behind the dam, which lets out water to turn hydroelectric turbines

when needed. It"s pretty efficient but requires a lot of concrete and a lot of water. And the public usually votes them down.

The Energy Vault refines this process even further and requires little concrete and no water. Using the same well-understood fundamentals of physics and mechanical engineering as pumped hydro, the Energy Vault replaces water with non-cement custom-made composite blocks through an innovative use of local, low-cost materials and sophisticated material science.

The technology uses motors to raise those massive composite bricks, motors powered by wind or solar energy when the wind and the sun are producing more energy than can be used at the time, like in California during mid-day. Raising the bricks changes this excess renewable energy into gravitational potential energy that can just sit there until needed.

When you need energy, like when the sun has set or the wind stops blowing, you lower those massive bricks and the attached cables spin a motorized generator that generates electricity back to the grid. Typically, the bricks move at 2.0 meters per second (about 6.6 ft/s), but can be accelerated or slowed via artificial intelligence computerized control to allow for faster or slower electricity discharge.One brick raised 100 meters in less than a minute, stores almost 10 MWh of electricity.

Contact us for free full report

Web: https://www.kary.com.pl/contact-us/
Email: energystorage2000@gmail.com
WhatsApp: 8613816583346