ContainerPower Energy Solutions

Flywheel energy storage signal tower installation site

Overview

How does a flywheel energy storage system work?

Since there is very little friction, the flywheel spins continually with very little added energy input needed. Energy can then be drawn from the system on command by tapping into the spinning rotor as a generator. Beacon Power is building the world’s largest flywheel energy storage system in Stephentown, New York.

What is a 20 megawatt flywheel energy storage system?

The 20-megawatt system marks a milestone in flywheel energy storage technology, as similar systems have only been applied in testing and small-scale applications. The system utilizes 200 carbon fiber flywheels levitated in a vacuum chamber. The flywheels absorb grid energy and can steadily discharge 1-megawatt of electricity for 15 minutes.

Can flywheel energy storage be commercially viable?

This project explored flywheel energy storage R&D to reach commercial viability for utility scale energy storage. This required advancing the design, manufacturing capability, system cost, storage capacity, efficiency, reliability, safety, and system level operation of flywheel energy storage technology.

How much power does a flywheel provide?

The flywheels are rated at 0.1 MW and 0.025 MWh, for a plant total of 20.0 MW and 5.0 MWh of frequency response. The image to the right shows a plant in Stephentown, New York, which provides 20 MW of power to the New York Independent System Operator (NYISO) grid.

What are the benefits of the Beacon flywheel system?

An additional benefit of the Beacon flywheel system is integration of greater amounts of intermittent renewable power resources such as wind and solar. Visit nyserda.ny.gov/smartgrid or call 1-866-NYSERDA to learn how you can

reduce your energy consumption and costs.

How do flywheels work?

The flywheels absorb grid energy and can steadily discharge 1-megawatt of electricity for 15 minutes. The system takes the place of supplemental natural gas power plants that have been used to balance supply and demand in grid activity prior, boosting energy production during peak demand, and lowering production during peak supply.

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