

# Us flywheel energy storage data





## Overview

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The global flywheel energy storage market was valued at USD 1.3 billion in 2024 and is expected to reach a value of USD 1.9 billion by 2034, growing at a CAGR of 4.2% from 2025 to 2034. Flywheels are used for uninterruptible power supply (UPS) systems in data centers due to their instant response.

The flywheel energy storage market is projected to grow from USD 1.4 billion in 2025 to USD 2.0 billion by 2035, at a CAGR of 4.2%. Utility will dominate with a 46.8% market share in 2025. The flywheel energy storage market is projected to reach USD 1.3 billion in 2025 and expand to USD 2.0 billion.

The global Flywheel Energy Storage Systems (FESS) market was estimated at USD 461.11 billion in 2024 and is projected to reach USD 631.81 billion by 2030, growing at a CAGR of 5.2% from 2025 to 2030. The market for Flywheel Energy Storage Systems (FESS) is experiencing significant growth driven by.

The U.S. flywheel energy storage market size was worth USD 66.79 million in 2022 and is projected to grow at a CAGR of 7.13% during the forecast period. Flywheel energy storage is a technology that stores energy in the form of kinetic energy by spinning a massive wheel at high speeds. This stored.

The flywheel energy storage market, currently valued at \$159.6 million in 2025, is projected to experience steady growth, driven by increasing demand for reliable and efficient energy storage solutions across diverse sectors. A compound annual growth rate (CAGR) of 3.6% indicates a consistent.

Flywheel energy storage systems are rapidly shaping the future of grid resilience, providing high-speed, mechanically robust solutions for utilities,



commercial, and industrial organizations aiming to improve stability and decarbonization. Leveraging advanced rotational technology, these systems. Are flywheel energy storage systems a good choice?

Li-ion and lead-acid batteries are the most commonly used energy storage systems here. However, advantages of flywheel energy storage systems such as higher efficiency and longer life are projected to increase the demand for flywheel energy storage systems, within the country.

Does national highways have a flywheel energy storage system?

National Highways is partnering with Levistor to test our Flywheel Energy Storage System (FESS) alongside batteries and solar installations. We're pleased to be working with Ansys and benefitting from their Startup Programme.

How much energy is stored in a flywheel?

At the MIT Magnet Laboratory, energy is stored in huge solid flywheels of mass  $7.7 \times 10^4$  kg and radius 2.4 m. The flywheels ride on shafts 41 cm in diameter. If a frictional force of 34 kN acts tangentially on the shaft, how long will it take the flywheel to come to a stop from its usual 360 rpm rotation rate?

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What are flywheels used for?

Flywheels are used as intermediate energy storage systems for transport applications such as automobiles. Flywheel storage energy systems are more commonly used in Formula 1 cars and hybrid vehicles. However, manufacturers such as Maruti Suzuki have adopted this technology for passenger vehicles also.

What is flywheel storage?

Flywheel storage basically consists of a flywheel that is accelerated to very high speeds and suspended in a vacuum, energy is stored in the form of rotary motion that can be extracted by decelerating the flywheel. With recent advancements, yields of around 80% have been achieved which is the highest compared to any other storage device.

Which countries use flywheel energy storage?



Some of the major automobile manufacturers such as Volkswagen, Mercedes Benz, and Porsche are headquartered in this country. Thus, the growing automobile industry is one of the biggest drivers of the flywheel energy storage market in Germany. The UK is committed in making use of renewable sources for energy storage.



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### Flywheel Energy Storage Market Statistics, 2025-2034 Report

The flywheel energy storage market size crossed USD 1.3 billion in 2024 and is expected to register at a CAGR of 4.2% from 2025 to 2034, driven by rising demand for reliable UPS ...

### Beacon Power

Beacon flywheel storage systems have much faster ramp rates than traditional generation and can correct imbalances sooner with much greater accuracy and efficiency. In fact, Beacon ...



### Flywheel Energy Storage Market Size, Share & Analysis, 2032

The Flywheel Energy Storage Market size was valued at US\$ 340 million in 2023 and is expected to reach US\$ 839 million by 2032 with a CAGR of 10.55%



### [Flywheel based energy storage? : r/SolarDIY](#)

One of the problems with flywheels as electrical energy storage is the losses in inputting or outputting electrical power, as there's a loss each way either when spinning up the flywheel ...



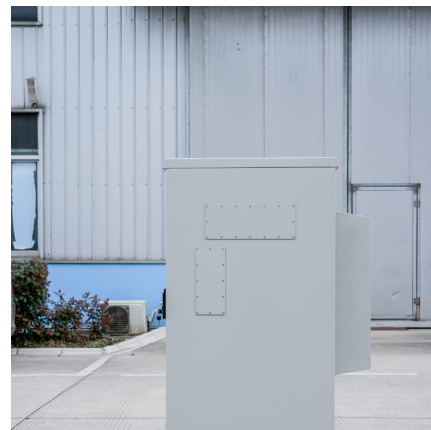
### [Flywheel Energy Storage Market Size to Worth USD ...](#)

Flywheel energy storage devices offer quick response times for energy storage, which helps maintain grid resilience and stability. To help ...



### **Grid Energy Storage**

As the United States and the world increase electrification and decarbonize energy use, the need for reliable and cost-effective energy storage methods will become even more critical.



### **Flywheel Energy Storage Market Size, Share & Analysis, 2032**

It is the largest flywheel energy storage market, with the United States occupying the largest share of the regional market. In the United States, flywheels are ...





### **A Critical Analysis of Flywheel Energy Storage Systems' ...**

The penetration of renewable energy sources (RES) is going to increase day by day in the existing grid to fulfill the increased demand. According to Central Electricity Authority CEA ...



### **Flywheel Energy Storage for Grid and Industrial Applications with ...**

Flywheel Energy Storage Nova Spin Our flywheel energy storage device is built to meet the needs of utility grid operators and C& I buildings.



### **WP\_articles\_TD2**

A flywheel's energy-storage potential is proportional to its mass moment of inertia and the square of the rotational speed. For a specific rotor configuration, speed is limited by the material's ...



### [The Amber Kinetics Energy Storage System](#)

Amber Kinetics pioneered long duration flywheel energy storage and is now revolutionizing the field by providing high speed, rapid response and near ...



### [Next-Generation Flywheel Energy Storage , ARPA-E](#)

Beacon Power is developing a flywheel energy storage system that costs substantially less than existing flywheel technologies. Flywheels store the energy created by ...



### [Flywheel Energy Storage Systems , Electricity ...](#)

RotorVault flywheel storage systems provide reliable energy storage solutions for residential, commercial and grid-scale applications worldwide.



### [Flywheel Energy Storage Market to Grow by USD 224.2 Million ...](#)

The Energy Storage Association reports that flywheel energy storage is becoming increasingly popular for frequency regulation applications, hybrid projects, and UPS ...





### **VYCON Lights Out Data Center**

The VYCON Lights Out Data Center - Flywheel Energy Storage System is an 8,000kW energy storage project located in Texas, US. The electro-mechanical energy storage ...

### **\$200 Million For Renewables-Friendly Flywheel Energy Storage**

6 ???· The US startup Torus Energy combines flywheel technology with 21st century battery chemistry in one advanced energy storage system

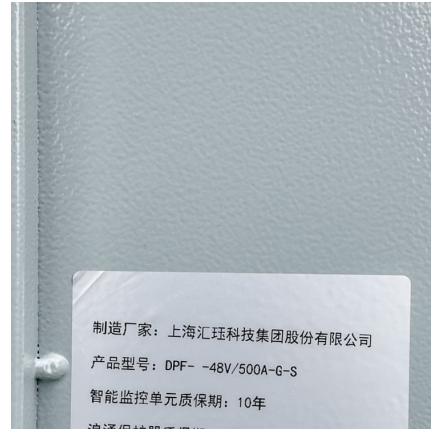


### **Flywheel Energy Storage: The Game-Changer for Data Center ...**

Kinetic Energy Storage That Defies Physics (Sort Of) Flywheel systems convert electricity to rotational energy at 16,000-100,000 RPM in vacuum-sealed chambers. When the grid stutters, ...

### **Flywheel (Kinetic) , Storage Lab**

Qnetic is a novel flywheel energy storage system designed for stationary, large-scale and multiple-hour discharge applications. This is differentiated from ...



### Flywheel Energy Storage System Market

In terms of revenue and power capacity, it is the largest market for flywheel energy storage systems, with the United States accounting for the majority of ...

### **Flywheel Energy Storage Market Size , Growth Report [2032]**

Flywheel Energy Storage Market Size, Share & Industry Analysis, By Application (Uninterrupted Power Supply, Distributed Energy Generation, Data Centers, Transport, and ...



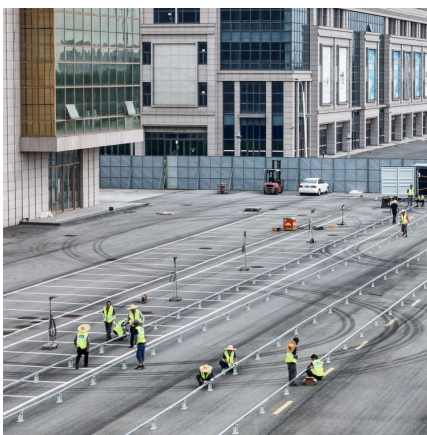
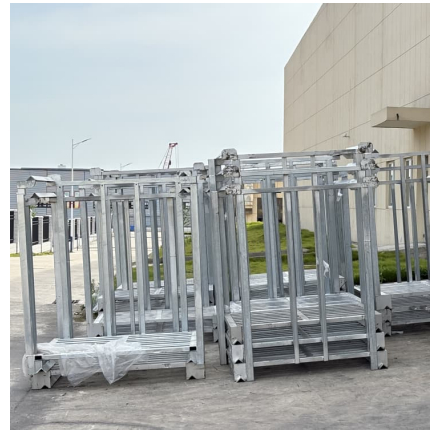
### **Battery Storage in the United States: An Update on Market ...**

Energy storage plays a pivotal role in enabling power grids to function with more flexibility and resilience. In this report, we provide data on trends in battery storage capacity ...



### [Flywheel Energy Storage System Basics](#)

The power-hungry nature of data centers make them prime candidates for energy-efficient and green power solutions. Reliability, efficiency, cooling issues, space ...



### **Revolutionizing Energy Solutions for Data Centers with Torus**

Nate Walkingshaw is the CEO and Co-Founder of Torus, an energy solutions company bringing advanced commercial batteries and innovative energy storage technologies ...

### [Flywheel Energy Storage Systems Decade Long Trends, ...](#)

The flywheel energy storage systems (FESS) market is experiencing robust growth, projected to reach a market size of \$166.4 million in 2025, exhibiting a Compound ...



### [Flywheel Energy Storage for Grid and Industrial ...](#)

Flywheel Energy Storage Nova Spin Our flywheel energy storage device is built to meet the needs of utility grid operators and C& I buildings.

