

Flywheel Energy Storage Market Report by Application (Uninterruptible Power Supply (UPS), Distributed Energy Generation, Transport, Data Centers, and Others), and Region 2023-2028

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Abstracts

The global flywheel energy storage market size reached US\$ 295.9 Million in 2022. Looking forward, IMARC Group expects the market to reach US\$ 474.9 Million by 2028, exhibiting a growth rate (CAGR) of 8.2% during 2022-2028. The growing demand for renewable energy, the rising need for uninterrupted power supply, and the expanding product adoption across various industries represent some of the key factors driving the market.

Flywheel energy storage refers to the process of storing energy by accelerating rotors at high speed while retaining it in the system as rotational energy. It consists of a rotating mass, typically a heavy cylindrical rotor, which is enclosed in a vacuum chamber to reduce friction and air resistance. The rotor is connected to an electric generator, which can convert the rotational energy into electricity as needed. Flywheel energy storage technology operates in a high vacuum environment and uses electrical motors to transform electrical power into mechanical power. It is extensively used in power grid frequency modulation since it offers low friction, moderate wind resistance, a long-life span, environmental safety, and requires no maintenance.

Flywheel Energy Storage Market Trends:

The expanding product adoption across the automotive, transmission and distribution, and information technology (IT) industries represents the key factor driving the flywheel energy storage market growth. Besides this, the growing demand for uninterrupted and clean electricity supply in various end-use sectors is creating a favorable outlook for the market. In line with this, the implementation of numerous government initiatives encouraging the generation of clean power is acting as another significant growth-inducing factor. Moreover, the rising use of flywheel energy storage in transportation

and aerospace applications for transferring energy and stabilizing or driving satellites is presenting remunerative growth opportunities for the market. Concurrent with this, the widespread product utilization in grid balancing, renewable integration, and providing power supply to islands and isolated grids is contributing to the market growth. In addition to this, the increasing popularity of electric vehicles (EVs), which employ flywheel energy storage in their regenerative braking systems, along with the escalating consumer concerns about the environment and the rising need to reduce carbon emissions, are aiding in market expansion. Furthermore, extensive investments in research and development (R&D) activities and innovations, such as the use of electrical machines, magnetic bearings, and high-strength composite materials obtained from carbon fibers, are positively impacting the market growth.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global flywheel energy storage market report, along with forecasts at the global, regional and country level from 2023-2028. Our report has categorized the market based on application.

Application Insights:

Uninterruptible Power Supply (UPS)

Distributed Energy Generation

Transport

Data Centers

Others

The report has provided a detailed breakup and analysis of the flywheel energy storage market based on the application. This includes uninterruptible power supply (UPS), distributed energy generation, transport, data centers, and others. According to the report, uninterruptible power supply (UPS) represented the largest segment.

Regional Insights:

North America

United States

Canada

Asia-Pacific

China

Japan

India

South Korea

Australia

Indonesia

Others

Europe

Germany

France

United Kingdom

Italy

Spain

Russia

Others

Latin America

Brazil

Mexico

Others

Middle East and Africa

The report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, North America was the largest market for flywheel energy storage. Some of the factors driving the North America flywheel energy storage market included the rising demand for renewable and clean energy, expanding installment of smart grid networks, and the growing consumer demand for electronic vehicles (EVs).

Competitive Landscape:

The report has also provided a comprehensive analysis of the competitive landscape in the global flywheel energy storage market. Competitive analysis such as market structure, market share by key players, player positioning, top winning strategies, competitive dashboard, and company evaluation quadrant has been covered in the report. Also, detailed profiles of all major companies have been provided. Some of the companies covered include ABB Ltd, Adaptive Balancing Power GmbH, Amber Kinetics Inc., Beacon Power LLC, Calnetix Technologies LLC, Energiestro, Langley Holdings plc, Oxta Energy, Phillips Service Industries Inc., Schwungrad Energie Limited, Siemens Aktiengesellschaft, Stornetic GmbH, and Teraloop Oy. Kindly note that this only represents a partial list of companies, and the complete list has been provided in the report.

Key Questions Answered in This Report

1. How big is the global flywheel energy storage market?
2. What is the expected growth rate of the global flywheel energy storage market during 2023-2028?
3. What are the key factors driving the global flywheel energy storage market?
4. What has been the impact of COVID-19 on the global flywheel energy storage

market?

5. What is the breakup of the global flywheel energy storage market based on the application?

6. What are the key regions in the global flywheel energy storage market?

7. Who are the key players/companies in the global flywheel energy storage market?

Contents

1 PREFACE

2 SCOPE AND METHODOLOGY

- 2.1 Objectives of the Study
- 2.2 Stakeholders
- 2.3 Data Sources
 - 2.3.1 Primary Sources
 - 2.3.2 Secondary Sources
- 2.4 Market Estimation
 - 2.4.1 Bottom-Up Approach
 - 2.4.2 Top-Down Approach
- 2.5 Forecasting Methodology

3 EXECUTIVE SUMMARY

4 INTRODUCTION

- 4.1 Overview
- 4.2 Key Industry Trends

5 GLOBAL FLYWHEEL ENERGY STORAGE MARKET

- 5.1 Market Overview
- 5.2 Market Performance
- 5.3 Impact of COVID-19
- 5.4 Market Forecast

6 MARKET BREAKUP BY APPLICATION

- 6.1 Uninterruptible Power Supply (UPS)
 - 6.1.1 Market Trends
 - 6.1.2 Market Forecast
- 6.2 Distributed Energy Generation
 - 6.2.1 Market Trends

- 6.2.2 Market Forecast
- 6.3 Transport
 - 6.3.1 Market Trends
 - 6.3.2 Market Forecast
- 6.4 Data Centers
 - 6.4.1 Market Trends
 - 6.4.2 Market Forecast
- 6.5 Others
 - 6.5.1 Market Trends
 - 6.5.2 Market Forecast

7 MARKET BREAKUP BY REGION

- 7.1 North America
 - 7.1.1 United States
 - 7.1.1.1 Market Trends
 - 7.1.1.2 Market Forecast
 - 7.1.2 Canada
 - 7.1.2.1 Market Trends
 - 7.1.2.2 Market Forecast
- 7.2 Asia-Pacific
 - 7.2.1 China
 - 7.2.1.1 Market Trends
 - 7.2.1.2 Market Forecast
 - 7.2.2 Japan
 - 7.2.2.1 Market Trends
 - 7.2.2.2 Market Forecast
 - 7.2.3 India
 - 7.2.3.1 Market Trends
 - 7.2.3.2 Market Forecast
 - 7.2.4 South Korea
 - 7.2.4.1 Market Trends
 - 7.2.4.2 Market Forecast
 - 7.2.5 Australia
 - 7.2.5.1 Market Trends
 - 7.2.5.2 Market Forecast
 - 7.2.6 Indonesia
 - 7.2.6.1 Market Trends
 - 7.2.6.2 Market Forecast

- 7.2.7 Others
 - 7.2.7.1 Market Trends
 - 7.2.7.2 Market Forecast
- 7.3 Europe
 - 7.3.1 Germany
 - 7.3.1.1 Market Trends
 - 7.3.1.2 Market Forecast
 - 7.3.2 France
 - 7.3.2.1 Market Trends
 - 7.3.2.2 Market Forecast
 - 7.3.3 United Kingdom
 - 7.3.3.1 Market Trends
 - 7.3.3.2 Market Forecast
 - 7.3.4 Italy
 - 7.3.4.1 Market Trends
 - 7.3.4.2 Market Forecast
 - 7.3.5 Spain
 - 7.3.5.1 Market Trends
 - 7.3.5.2 Market Forecast
 - 7.3.6 Russia
 - 7.3.6.1 Market Trends
 - 7.3.6.2 Market Forecast
 - 7.3.7 Others
 - 7.3.7.1 Market Trends
 - 7.3.7.2 Market Forecast
- 7.4 Latin America
 - 7.4.1 Brazil
 - 7.4.1.1 Market Trends
 - 7.4.1.2 Market Forecast
 - 7.4.2 Mexico
 - 7.4.2.1 Market Trends
 - 7.4.2.2 Market Forecast
 - 7.4.3 Others
 - 7.4.3.1 Market Trends
 - 7.4.3.2 Market Forecast
- 7.5 Middle East and Africa
 - 7.5.1 Market Trends
 - 7.5.2 Market Breakup by Country
 - 7.5.3 Market Forecast

8 SWOT ANALYSIS

- 8.1 Overview
- 8.2 Strengths
- 8.3 Weaknesses
- 8.4 Opportunities
- 8.5 Threats

9 VALUE CHAIN ANALYSIS

10 PORTERS FIVE FORCES ANALYSIS

- 10.1 Overview
- 10.2 Bargaining Power of Buyers
- 10.3 Bargaining Power of Suppliers
- 10.4 Degree of Competition
- 10.5 Threat of New Entrants
- 10.6 Threat of Substitutes

11 PRICE ANALYSIS

12 COMPETITIVE LANDSCAPE

- 12.1 Market Structure
- 12.2 Key Players
- 12.3 Profiles of Key Players
 - 12.3.1 ABB Ltd
 - 12.3.1.1 Company Overview
 - 12.3.1.2 Product Portfolio
 - 12.3.1.3 Financials
 - 12.3.1.4 SWOT Analysis
 - 12.3.2 Adaptive Balancing Power GmbH
 - 12.3.2.1 Company Overview
 - 12.3.2.2 Product Portfolio
 - 12.3.2.3 Financials
 - 12.3.3 Amber Kinetics Inc.

- 12.3.3.1 Company Overview
- 12.3.3.2 Product Portfolio
- 12.3.4 Beacon Power LLC
 - 12.3.4.1 Company Overview
 - 12.3.4.2 Product Portfolio
- 12.3.5 Calnetix Technologies LLC
 - 12.3.5.1 Company Overview
 - 12.3.5.2 Product Portfolio
- 12.3.6 Energiestro
 - 12.3.6.1 Company Overview
 - 12.3.6.2 Product Portfolio
- 12.3.7 Langley Holdings plc
 - 12.3.7.1 Company Overview
 - 12.3.7.2 Product Portfolio
 - 12.3.7.3 Financials
- 12.3.8 Oxta Energy
 - 12.3.8.1 Company Overview
 - 12.3.8.2 Product Portfolio
- 12.3.9 Phillips Service Industries Inc.
 - 12.3.9.1 Company Overview
 - 12.3.9.2 Product Portfolio
- 12.3.10 Schwungrad Energie Limited
 - 12.3.10.1 Company Overview
 - 12.3.10.2 Product Portfolio
- 12.3.11 Siemens Aktiengesellschaft
 - 12.3.11.1 Company Overview
 - 12.3.11.2 Product Portfolio
 - 12.3.11.3 Financials
 - 12.3.11.4 SWOT Analysis
- 12.3.12 Stornetic GmbH
 - 12.3.12.1 Company Overview
 - 12.3.12.2 Product Portfolio
- 12.3.13 Teraloop Oy
 - 12.3.13.1 Company Overview
 - 12.3.13.2 Product Portfolio

List Of Tables

LIST OF TABLES

Table 1: Global: Flywheel Energy Storage Market: Key Industry Highlights, 2022 and 2028

Table 2: Global: Flywheel Energy Storage Market Forecast: Breakup by Application (in Million US\$), 2023-2028

Table 3: Global: Flywheel Energy Storage Market Forecast: Breakup by Region (in Million US\$), 2023-2028

Table 4: Global: Flywheel Energy Storage Market: Competitive Structure

Table 5: Global: Flywheel Energy Storage Market: Key Players

List Of Figures

LIST OF FIGURES

Figure 1: Global: Flywheel Energy Storage Market: Major Drivers and Challenges

Figure 2: Global: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017-2022

Figure 3: Global: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 4: Global: Flywheel Energy Storage Market: Breakup by Application (in %), 2022

Figure 5: Global: Flywheel Energy Storage Market: Breakup by Region (in %), 2022

Figure 6: Global: Flywheel Energy Storage (Uninterruptible Power Supply) Market: Sales Value (in Million US\$), 2017 & 2022

Figure 7: Global: Flywheel Energy Storage (Uninterruptible Power Supply) Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 8: Global: Flywheel Energy Storage (Distributed Energy Generation) Market: Sales Value (in Million US\$), 2017 & 2022

Figure 9: Global: Flywheel Energy Storage (Distributed Energy Generation) Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 10: Global: Flywheel Energy Storage (Transport) Market: Sales Value (in Million US\$), 2017 & 2022

Figure 11: Global: Flywheel Energy Storage (Transport) Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 12: Global: Flywheel Energy Storage (Data Centers) Market: Sales Value (in Million US\$), 2017 & 2022

Figure 13: Global: Flywheel Energy Storage (Data Centers) Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 14: Global: Flywheel Energy Storage (Other Applications) Market: Sales Value (in Million US\$), 2017 & 2022

Figure 15: Global: Flywheel Energy Storage (Other Applications) Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 16: North America: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 17: North America: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 18: United States: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 19: United States: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 20: Canada: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 21: Canada: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 22: Asia-Pacific: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 23: Asia-Pacific: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 24: China: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 25: China: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 26: Japan: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 27: Japan: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 28: India: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 29: India: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 30: South Korea: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 31: South Korea: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 32: Australia: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 33: Australia: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 34: Indonesia: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 35: Indonesia: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 36: Others: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 37: Others: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 38: Europe: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 39: Europe: Flywheel Energy Storage Market Forecast: Sales Value (in Million

US\$), 2023-2028

Figure 40: Germany: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 41: Germany: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 42: France: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 43: France: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 44: United Kingdom: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 45: United Kingdom: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 46: Italy: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 47: Italy: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 48: Spain: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 49: Spain: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 50: Russia: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 51: Russia: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 52: Others: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 53: Others: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 54: Latin America: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 55: Latin America: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 56: Brazil: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 57: Brazil: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 58: Mexico: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 59: Mexico: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 60: Others: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 61: Others: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 62: Middle East and Africa: Flywheel Energy Storage Market: Sales Value (in Million US\$), 2017 & 2022

Figure 63: Middle East and Africa: Flywheel Energy Storage Market: Breakup by Country (in %), 2022

Figure 64: Middle East and Africa: Flywheel Energy Storage Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 65: Global: Flywheel Energy Storage Industry: SWOT Analysis

Figure 66: Global: Flywheel Energy Storage Industry: Value Chain Analysis

Figure 67: Global: Flywheel Energy Storage Industry: Porter's Five Forces Analysis

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