

Global Energy Storage System (ESS) Market: Analysis By Technology (Pumped Hydro, Electrochemical Storage, Thermal Storage and Electromechanical Storage), By End User (Utilities, Residential and Non Residential), By Region Size & Forecast with Impact Analysis of COVID-19 and Forecast up to 2028

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Abstracts

A technique or group of technologies that stores and releases energy on demand is referred to as an energy storage system (ESS). ESS is critical to the effective and dependable control of energy in a variety of applications, ranging from small-scale home installations to large-scale grid systems. Energy storage systems are becoming increasingly important as renewable energy sources such as solar and wind power are integrated into the grid. In 2022, the global energy storage system market was valued at US\$219.90 billion, and is probable to reach US\$355.40 billion by 2028.

The market's expansion may be ascribed to rising demand for energy storage and transportation, which is being fueled by the global adoption of renewable energy, and soaring expenditures in grids are expected to drive market growth in the coming years. Furthermore, the rapidly expanding demand for energy around the world is expected to drive further expansion in the global energy storage system market in the future. The global energy storage system market value is projected to grow at a CAGR of 8.33%, during the forecast period of 2023-2028.

Market Segmentation Analysis:

By Installations: The report includes the global cumulative energy storage system market by installations. Growing demand for efficient and competitive energy resources

is likely to propel market installations growth over the coming years. In addition, changing consumer lifestyle and a rising number of power outages are projected to propel utilization in the residential sector. Of the additional capacity estimated to be installed, more than half is expected to be devoted to energy-shifting applications consisting of utility-scale energy storage solutions to perform arbitrages and provide capacity to meet demand peaks.

By Technology: According to the report, the global energy storage system market is segmented into four technology: Pumped Hydro, Electrochemical Storage, Thermal Storage and Electromechanical Storage. Pumped Hydro segment acquired majority of share in the market in 2022 as there are ongoing investments in North America and Asia Pacific to modernize energy infrastructure and boost on-grid capacity are projected to benefit the pumped hydro market. Whereas, the Electromechanical Storage segment has the fastest CAGR as the growing demand for dependable and efficient energy storage systems has prompted the use of electromechanical energy storage system.

By Ends User: According to the report, the global energy storage system market is bifurcated into three end users: Utilities, Non Residential and Residential. Utilities segment acquired majority of share in the market in 2022, due to increased investment in utility size power plants. In addition, the utilities industry is growing due to an increase in construction projects such as decentralized renewable power plants, rural electrification projects, and commercial buildings. Whereas, Non Residential segment is expected to have the highest CAGR in the future as the commercial and industrial (C&I) sector is using renewable energy sources like solar and wind power more and more to power their own buildings. So, the C&I sector is likely to use energy storage systems more and more to increase the amount of renewable energy it uses.

By Region: The report provides insight into the energy storage system market based on the geographical operations, namely North America, Europe, Asia Pacific, and Rest of the World. Asia Pacific energy storage system market enjoyed the highest market share in 2022, primarily can be traced mostly to the region's rapidly expanding demand for energy as a result of rapid urbanization. Further, the rapid growth in industrialization in the countries such as India, China, Korea, and so on is also accelerating energy consumption on a huge level that is also projected to contribute to the market growth in the region. Rapid urbanization and population increase are also taking place in the developing countries, increasing the demand for power. India plans to have 275 GW of total wind and solar capacity, as well as 72 GW of hydroelectricity and 15 GW of nuclear power, by 2027. Also, the global cumulative ESS market installations is segmented by region (The US, Germany, UK, China and Rest of the World). China and the US

became the largest markets, accounting for over half of the global installation in 2022.

Global Energy Storage System Market Dynamics:

Growth Drivers: With reference to renewable energy sources, energy storage systems are complementary to solar and wind energy production as they help address the issue of weather intermittency, which is a major problem in renewables at both the local and grid levels. Therefore, an increase in demand for sustainable energy sources would probably trigger higher demand for energy storage system. Further, the market is expected to increase due to rising demand for electric vehicles, upsurge in investments in renewable energy, mounting home improvement, higher energy costs, surge in the demand for batteries, etc.

Challenges: The supply chain for energy storage systems involves various components, raw materials, manufacturing processes, and global logistics. Energy relies on a large number of outsourced components which allows it to focus more on the value-added activities such as design and engineering. The other challenge that energy storage system market faces is safety risks associated with lack of proper infrastructure, etc.

Trends: A major trend gaining pace in energy storage system market is Thermal Energy Storage (TES). Thermal energy storage entails storing and releasing thermal energy for later use, allowing energy consumption to be shifted to more efficient or cost-effective time periods. TES systems are critical in the integration of renewable energy sources into the grid. Because renewable energy generation, such as solar and wind, is intermittent and weather dependent, TES assists in overcoming the fluctuation and mismatch between energy supply and demand. More trends in the market are believed to augment the growth of energy storage system market during the forecasted period include, government initiatives, technology advancements, sustainability, etc.

Impact Analysis of COVID-19 and Way Forward:

The global spread of coronavirus and the ensuing lockdown in several countries have had a severe influence on the global energy storage systems business. This has affected the supply chain, slowing automobile production around the world.

Manufacturers in the global energy storage market are recovering from losses caused by disrupted ecosystems and a reduction in the installation of battery energy storage systems worldwide. Following a successful business recovery, players in the global energy storage systems market are focusing on boosting production capacity in order to reap revenue gains. The increasing production of electric vehicles will play a significant

role in the growth of the global energy storage systems market in the future years.

Competitive Landscape and Recent Developments:

Global energy storage system market is fragmented, with just a few players of varying sizes depending on their positioning along the value chain. Tesla, Pylon and BYD are among the top three residential ESS solution suppliers globally. Key players of global energy storage system market are:

Toshiba Corporation
ABB Group
Siemens AG
SolarEdge Technologies, Inc.
Hitachi, Ltd.
Electrovaya Inc.
NextEra Energy, Inc.
The AES Corporation
Vistra Corp.
BYD Co. Ltd.
Alpha ESS
Sungrow Power Supply Co., Ltd.
Convergent Energy and Power Inc

The key players are constantly investing in strategic initiatives, such as new product launches, introducing their products to emerging markets and more, to maintain a competitive edge in this market. For instance, in February 2022, the partnership between FIMER and Vega Solar supplied 14 PVS-100 inverters, a three-phase string solution, to Albania. The PVS-100/120-TL is a cloud-connected three-phase string inverter by FIMER designed for cost-effective decentralized solar systems on both ground and rooftops. Also, in May 2022, Salient Energy, a company developing proprietary zinc-ion batteries as an alternative to lithium-ion batteries in residential energy storage, announced that it had formalized a partnership with Horton World Solutions (HWS), a sustainable homebuilder whose proprietary composite framing system enables best-in-class energy efficiency and construction time.

Contents

1. EXECUTIVE SUMMARY

2. INTRODUCTION

2.1 Energy Storage System (ESS): An Overview

2.1.1 Key ESS Components

2.2 Energy Storage System Segmentation: An Overview

2.2.1 Energy Storage System Segmentation

3. GLOBAL MARKET ANALYSIS

3.1 Global Energy Storage System Market: An Analysis

3.1.1 Global Energy Storage System Market: An Overview

3.1.2 Global Energy Storage System Market by Value

3.1.3 Global Energy Storage System Market by Technology (Pumped Hydro, Electrochemical Storage, Thermal Storage and Electromechanical Storage)

3.1.4 Global Energy Storage System Market by End User (Utilities, Non Residential and Residential)

3.1.5 Global Energy Storage System Market by Region (Asia Pacific, North America, Europe and Rest of the World)

3.2 Global Cumulative Energy Storage System Market: Installation Analysis

3.2.1 Global Cumulative Energy Storage System Market by Installations: An Overview

3.2.2 Global Cumulative Energy Storage System Market by Installations

3.2.3 Global Cumulative Energy Storage System Market Installations by Region (The US, China, Germany, UK and Rest of the World)

3.3 Global Energy Storage System Market: Technology Analysis

3.3.1 Global Energy Storage System Market by Technology: An Overview

3.3.2 Global Pumped Hydro Energy Storage System Market by Value

3.3.3 Global Electrochemical Energy Storage System Market by Value

3.3.4 Global Thermal Energy Storage System Market by Value

3.3.5 Global Electromechanical Energy Storage System Market by Value

3.4 Global Energy Storage System Market: End User Analysis

3.4.1 Global Energy Storage System Market by End User: An Overview

3.4.2 Global Utilities Energy Storage System Market by Value

3.4.3 Global Non Residential Energy Storage System Market by Value

3.4.4 Global Residential Energy Storage System Market by Value

4. REGIONAL MARKET ANALYSIS

4.1 Asia Pacific Energy Storage System Market: An Analysis

4.1.1 Asia Pacific Energy Storage System Market: An Overview

4.1.2 Asia Pacific Energy Storage System Market by Value

4.1.3 Asia Pacific Energy Storage System Market by Region (China, India, Japan, South Korea and Rest of Asia Pacific)

4.1.4 China Energy Storage System Market by Value

4.1.5 China Cumulative Energy Storage System Market by Installations

4.1.6 India Energy Storage System Market by Value

4.1.7 Japan Energy Storage System Market by Value

4.1.8 South Korea Energy Storage System Market by Value

4.1.9 Rest of Asia Pacific Energy Storage System Market by Value

4.2 North America Energy Storage System Market: An Analysis

4.2.1 North America Energy Storage System Market: An Overview

4.2.2 North America Energy Storage System Market by Value

4.2.3 North America Energy Storage System Market by Region (The US, Canada and Mexico)

4.2.4 The US Energy Storage System Market by Value

4.2.5 The US Cumulative Energy Storage System Market by Installations

4.2.6 Canada Energy Storage System Market by Value

4.2.7 Mexico Energy Storage System Market by Value

4.3 Europe Energy Storage System Market: An Analysis

4.3.1 Europe Energy Storage System Market: An Overview

4.3.2 Europe Energy Storage System Market by Value

4.3.3 Europe Energy Storage System Market by Region (Germany, UK, Italy and Rest of Europe)

4.3.4 Germany Energy Storage System Market by Value

4.3.5 Germany Cumulative Energy Storage System Market by Installations

4.3.6 UK Energy Storage System Market by Value

4.3.7 UK Cumulative Energy Storage System Market by Installations

4.3.8 Italy Energy Storage System Market by Value

4.3.9 Rest of Europe Energy Storage System Market by Value

4.4 Rest of the World Energy Storage System Market: An Analysis

4.4.1 Rest of the World Energy Storage System Market: An Overview

4.4.2 Rest of the World Energy Storage System Market by Value

4.4.3 Rest of the World Cumulative Energy Storage System Market by Installations

5. IMPACT OF COVID-19

5.1 Impact of COVID-19

5.1.1 Impact of COVID-19 on Energy Storage System Market

5.1.2 Post COVID-19 Impact

6. MARKET DYNAMICS

6.1 Growth Drivers

6.1.1 Growing Demand for Renewable Energy

6.1.2 Rising Demand for Electric Vehicles

6.1.3 Upsurge in Investments in Energy Sector

6.1.4 Mounting Home Improvement

6.1.5 Higher Energy Costs

6.2 Challenges

6.2.1 Potential Disruptions in the Supply Chain

6.2.2 Lack of Proper Infrastructure

6.2.3 Entry Barrier

6.3 Market Trends

6.3.1 Thermal Energy Storage (TES)

6.3.2 Government Initiatives

6.3.3 Technology Advancements

6.3.4 Sustainability

7. COMPETITIVE LANDSCAPE

7.1 Global Energy Storage System Market Players: Vertical Integration Comparison

7.2 Global Residential ESS Shipments Players by Market Share

7.3 Global Energy Storage Market Players: Battery Delivery Comparison

7.4 Global Energy Storage System Market Players: Product Offerings

7.5 Global ESS and PCS Market Players: Supplier Comparison

8. COMPANY PROFILES

8.1 Toshiba Corporation

8.1.1 Business Overview

8.1.2 Operating Segments

8.1.3 Business Strategy

8.2 ABB Group

8.2.1 Business Overview

- 8.2.2 Operating Businesses Areas
- 8.2.3 Business Strategy
- 8.3 Siemens AG
 - 8.3.1 Business Overview
 - 8.3.2 Operating Segments
 - 8.3.3 Business Strategy
- 8.4 SolarEdge Technologies, Inc.
 - 8.4.1 Business Overview
 - 8.4.2 Operating Segments
 - 8.4.3 Business Strategy
- 8.5 Hitachi, Ltd.
 - 8.5.1 Business Overview
 - 8.5.2 Operating Segments
 - 8.5.3 Business Strategy
- 8.6 Electrovaya Inc.
 - 8.6.1 Business Overview
 - 8.6.2 Operating Segments
 - 8.6.3 Business Strategy
- 8.7 NextEra Energy, Inc.
 - 8.7.1 Business Overview
 - 8.7.2 Operating Segments
 - 8.7.3 Business Strategy
- 8.8 The AES Corporation
 - 8.8.1 Business Overview
 - 8.8.2 Operating Segments
 - 8.8.3 Business Strategy
- 8.9 Vistra Corp.
 - 8.9.1 Business Overview
 - 8.9.2 Operating Segments
 - 8.9.3 Business Strategy
- 8.10 BYD Co. Ltd.
 - 8.10.1 Business Overview
 - 8.10.2 Business Strategy
- 8.11 Alpha ESS
 - 8.11.1 Business Overview
 - 8.11.2 Business Strategy
- 8.12 Sungrow Power Supply Co., Ltd.
 - 8.12.1 Business Overview
 - 8.12.2 Business Strategy

8.13 Convergent Energy and Power Inc.

8.13.1 Business Overview

8.13.2 Business Strategy

List Of Figures

LIST OF FIGURES

Figure 1: Key ESS Components

Figure 2: Energy Storage System Segmentation

Figure 3: Global Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 4: Global Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 5: Global Energy Storage System Market by Technology; 2022 (Percentage, %)

Figure 6: Global Energy Storage System Market by End User; 2022 (Percentage, %)

Figure 7: Global Energy Storage System Market by Region; 2022 (Percentage, %)

Figure 8: Global Cumulative Energy Storage System Market by Installations; 2020-2022 (Giga Watt)

Figure 9: Global Cumulative Energy Storage System Market by Installations; 2023-2028 (Giga Watt)

Figure 10: Global Cumulative Energy Storage System Market Installations by Region; 2022 (Percentage, %)

Figure 11: Global Pumped Hydro Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 12: Global Pumped Hydro Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 13: Global Electrochemical Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 14: Global Electrochemical Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 15: Global Thermal Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 16: Global Thermal Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 17: Global Electromechanical Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 18: Global Electromechanical Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 19: Global Utilities Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 20: Global Utilities Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 21: Global Non Residential Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 22: Global Non Residential Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 23: Global Residential Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 24: Global Residential Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 25: Asia Pacific Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 26: Asia Pacific Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 27: Asia Pacific Energy Storage System Market by Region; 2022 (Percentage, %)

Figure 28: China Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 29: China Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 30: China Cumulative Energy Storage System Market by Installations; 2020-2022 (Giga Watt)

Figure 31: China Cumulative Energy Storage System Market by Installations; 2023-2028 (Giga Watt)

Figure 32: India Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 33: India Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 34: Japan Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 35: Japan Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 36: South Korea Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 37: South Korea Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 38: Rest of Asia Pacific Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 39: Rest of Asia Pacific Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 40: North America Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 41: North America Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 42: North America Energy Storage System Market by Region; 2022 (Percentage, %)

Figure 43: The US Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 44: The US Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 45: The US Cumulative Energy Storage System Market by Installations;

2020-2022 (Giga Watt)

Figure 46: The US Cumulative Energy Storage System Market by Installations;

2023-2028 (Giga Watt)

Figure 47: Canada Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 48: Canada Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 49: Mexico Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 50: Mexico Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 51: Europe Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 52: Europe Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 53: Europe Energy Storage System Market by Region; 2022 (Percentage, %)

Figure 54: Germany Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 55: Germany Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 56: Germany Cumulative Energy Storage System Market by Installations;

2020-2022 (Giga Watt)

Figure 57: Germany Cumulative Energy Storage System Market by Installations;

2023-2028 (Giga Watt)

Figure 58: UK Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 59: UK Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 60: UK Cumulative Energy Storage System Market by Installations; 2020-2022 (Giga Watt)

Figure 61: UK Cumulative Energy Storage System Market by Installations; 2023-2028 (Giga Watt)

Figure 62: Italy Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 63: Italy Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 64: Rest of Europe Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 65: Rest of Europe Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 66: Rest of the World Energy Storage System Market by Value; 2018-2022 (US\$ Billion)

Figure 67: Rest of the World Energy Storage System Market by Value; 2023-2028 (US\$ Billion)

Figure 68: Rest of the World Cumulative Energy Storage System Market by Installations; 2020-2022 (Giga Watt)

Figure 69: Rest of the World Cumulative Energy Storage System Market by Installations; 2023-2028 (Giga Watt)

Figure 70: Global Energy Supply by Sources; 2020-2050 (Terawatt-hour, TWH)

Figure 71: Europe Pure Electric Vehicles Market Share; 2021, 2025 and 2030 (Percentage, %)

Figure 72: Global Investments in the Energy Sector; US\$ Billion (2021-2025)

Figure 73: Global Home Improvement Market; 2020-2027 (US\$ Billion)

Figure 74: Global Residential ESS Shipments Players by Market Share; 2022 (Percentage, %)

Figure 75: Toshiba corporation Net Sales by Segment; 2022 (Percentage, %)

Figure 76: ABB Group Revenues by Business Areas; 2022 (Percentage, %)

Figure 77: Siemens AG Revenue by Segments; 2022 (Percentage, %)

Figure 78: SolarEdge Technologies, Inc. Revenue by Segment; 2022 (Percentage, %)

Figure 79: Hitachi, Ltd. Revenue by Segments; 2022 (Percentage, %)

Figure 80: ElectroVaya Inc. Revenue by Segment; 2022 (Percentage, %)

Figure 81: NextEra Energy, Inc. Revenue by Segment; 2022 (Percentage, %)

Figure 82: The AES Corporation Revenue by Segment; 2022 (Percentage, %)

Figure 83: Vistra Corp. Revenue by Segments; 2022 (Percentage, %)

Table 1: Global Energy Storage Market Players: Battery Delivery Comparison (2022)

Table 2: Global Energy Storage System Market Players: Product Offerings

Table 3: Global ESS and PCS Market Players: Supplier Comparison

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Product name: Global Energy Storage System (ESS) Market: Analysis By Technology (Pumped Hydro, Electrochemical Storage, Thermal Storage and Electromechanical Storage), By End User (Utilities, Residential and Non Residential), By Region Size & Forecast with Impact Analysis of COVID-19 and Forecast up to 2028

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