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Advanced Energy Storage Technologies by Type, Applications & Strategic Opportunities (2011 – 2016)

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Abstracts

The market for energy storage technologies across the globe is expected to grow from $39.7 billion in 2011 to $61.9 billion by 2016 at a CAGR of 9.3% for the same period. The energy storage technologies include lead acid, NiMH, NiCD, lithium ion, flywheel, and super capacitor technologies. Secondary batteries dominate the market in terms of revenue generated among all the other technologies. Asian region leads the market; followed by North America and Europe in terms of revenue due to high production of batteries in the region by the companies such as Panasonic Corporation (Japan), BYD Motor Co. Ltd (China), Sanyo Electric Co. Ltd (Japan), Hitachi Ltd (Japan), GS Yuasa Corporation (Japan), and Furukawa Electric Co. Ltd (Japan).

Short-term energy storage technologies support power systems during fluctuations, line changes, or fault clearance. These technologies prevent collapse of power systems due to voltage instability. Instant power requirements in trains, grids, and electronic equipment are met by devices such as capacitors and flywheels.

Flywheels are mainly used in grids for their stabilization and grid operational support. The new development in flywheel technology supports UPS systems for servers and auxiliary power units for stationary use. This technology is yet to develop at a large scale in Asia owing to established battery market. Super capacitors are also known as ultra capacitors; they contain enlarged electrodes, liquid electrolyte, and a polymer membrane. These are capable of fast charging and discharging; hence used for instantaneous power supply. The efficiency levels achieved with super capacitor is close to 95%. Super capacitors are hybridized with batteries to enhance their performance.

Long-term energy storage technologies are the reserve power sources that serve power

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requirements for longer duration of time depending upon the capacity. Stationary applications such as UPS systems for networks, telecom towers, and servers; cell phones, laptops, and the other personal digital assistants require long-term energy storage technologies.

As of 2010, secondary batteries (lead acid, NiMH, NiCd, and lithium ion) constitute 98.5% of the market by revenue and are expected to remain amongst the largest segments by 2016; constituting about 98% share. Lithium ion batteries are the fastest growing technology among all the other batteries due to benefits such as high energy and power density. Lithium batteries are widely used in electronics applications and they are now also designed to be used in hybrid electric vehicles. At present, NiMH batteries are widely used in automotive applications, NiCd batteries are into their mature phase; and expected to grow with a lethargic CAGR from 2011 to 2016. They are widely used in power tools applications, and lead acid batteries are the largest segment in batteries by revenue and broadly used for starting, lighting, and ignition applications in automobiles. The battery market is regionally concentrated; i.e. the market is dominated by Asian players; mainly Japan and China. The major players in the battery market are BYD Motor Co. Ltd (China), GS Yuasa Corporation (Japan), Saft (France), Johnson Controls (U.S.), and Panasonic Corporation/Sanyo Electric Co. Ltd (Japan).

The report discusses the trends, forecasts, and applications of energy storage technologies. Certain geographic markets that are pioneers in energy storage and research activities such as Japan, China, and South Korea are analyzed in detail.

Markets covered

The energy storage technologies market is covered with respect to applications such as electronics, stationary (energy storage), and transportation, by geographies such as North America, Europe, and Asia in terms of revenue generation. The report covers trends and forecasts of aforesaid entities from 2009 to 2016 for respective geographies and applications. The major players are selected based on their present and future prospects regarding respective technologies, revenue earned, and research and development activities. Also, an in-depth competitive landscape is provided for them.

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