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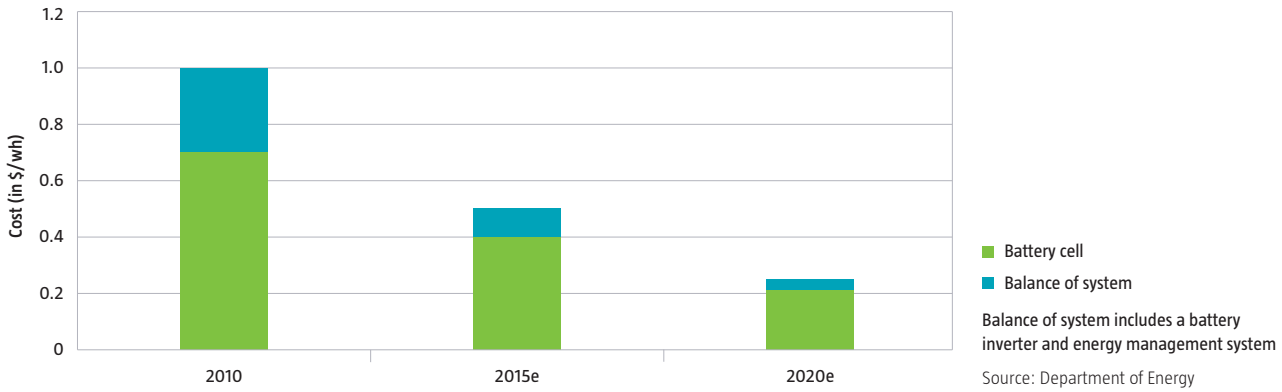
Sustainability Investing

Growth opportunities in store for lithium-ion batteries

Cost of lithium-ion batteries expected to decline



Balance of system includes a battery inverter and energy management system

Source: Department of Energy

Energy storage key to power expansion of renewables

Growth in renewable energy sources such as solar and wind, which are volatile and intermittent, is putting pressure on the grid and reducing its stability and reliability. This stress can be alleviated by storing excess electricity in times of peak generation (mid-day for solar, at night for wind), and discharging it when demand is strong. Therefore energy storage is increasingly becoming a requirement for the continued rapid growth of renewable energy, and the larger the share of renewables on the grid, the more critical energy storage becomes.

Adoption of stationary energy storage is still in its early stages, but the combination of an aging and over-burdened electricity infrastructure, growth in renewable energy, and regulation-driven requirements for grid safety and stability will drive growth over the next few decades. The annual market for stationary energy storage is expected to exceed USD 20 billion by 2020.

Several types of storage technology are being developed, including lithium-ion, lead-acid and redox-flow batteries, as well as large-scale solutions such as pumped hydro and compressed air storage. Due to the wide variety of applications with different requirements, no single storage technology is expected to dominate the market; rather, different technologies will dominate specific segments.

Lithium-ion batteries are an attractive solution for the residential and small commercial markets due to their high energy density – making them smaller and lighter – their long life, their low environmental impact, and their ease of installation and maintenance. The high cost of lithium-ion batteries – currently 2 to 4 times more expensive than lead acid batteries – has slowed their adoption. However, technological advances are expected to increase battery life, improve performance and lower the cost of materials. Combined with economies of scale as the industry expands, the cost of lithium-ion batteries is expected to lead to a 30–50% decline by 2020.

Companies that are at the forefront of development in lithium-ion batteries include Samsung SDI, a leader in lithium-ion batteries for consumer electronics, and Saft, a provider of a wide range of advanced batteries and systems.

"Over the next 20 years the energy storage market is expected to experience significant growth, with cumulative market potential of over USD 500 billion."

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