Supercapacitor Technologies and Markets 2016-2026

Description: Supercapacitors are an emerging energy storage technology that will take a key role in the future of energy systems. Whilst lithium-ion batteries are increasingly capturing the market of other battery technologies, they will never be able to compete with supercapacitor technology in terms of power and number of cycles.

This technology will supplement and, in some cases, replace the role of incumbent energy storage technologies such as lithium-ion batteries, addressing the weakest points of battery technologies such as low power, limited number of cycles and low performance at low temperatures. Batteries and supercapacitors combined offer the best solution for many energy systems from the automotive sector to grid energy storage, allowing batteries not only to perform better but also to extend their lifetime whilst reducing both CAPEX and OPEX.

With steady progress, supercapacitors are getting traction in these mainstream application markets such as the automotive and rail sectors and opening new possibilities in emerging sectors such as grid energy storage.

Energy systems at all levels are increasingly becoming systems of variable power demand, this is true at all levels, from consumer electronic to electricity grids. Indeed, new electronic devices, from smart phones to sensors have variable power demands because they have increasingly different functions with different power requirements. Consumers are begging for a fast charging solution for their electronic devices. As electricity grids integrate more intermittent renewable energy sources the need for high power energy storage becomes more evident.

Finally batteries, rely on chemical reactions that make them respond slowly at low temperatures or not respond at all. Therefore in many cases batteries will not satisfy fully the power requirements of all these applications in future energy systems, if they do they will do it by oversizing their capacity at an extra cost and/or exposing batteries to high power demands which will eventually reduce their lifetime.

It is for all these reasons that a new market for high power energy storage is being open. It is in this sector where supercapacitors have a key role.

The author estimates that the high-power energy storage market is expected to grow almost ten-fold to $2 billion a year by 2026 up from about $240 million currently, Supercapacitors could capture about $800 million to $1 billion of that potential market opportunity.

The supercapacitor industry is carving its place in the future of energy systems. Manufacturers based in the USA, Asia and recently Europe are set to address market needs in the automotive sector, aerospace, public transport and rail and the future smart grids and many more.

This report provides a ten year forecast for supercapacitors in the context of the highly complex dynamics of the emergence of energy storage as a key enabling technology in the 21st century and the deep structural changes of the energy sector. We provide an update of the most recent trends in the supercapacitor industry, providing also an overview of the recent commercial developments of the key supercapacitor manufacturers and the developments in both supercapacitor and hybrid supercapacitor technologies.

Important recent market trends included in this report are:

- The role of supercapacitor technologies in the future of sustainable energy systems from electric vehicles to renewable energy and electricity grids.
- The current state of the industry in terms of market growth and recent commercial developments.
- The state of the supercapacitor market in China and how the current policy changes are affecting the industry.
- The potential role of Chinese supercapacitor manufacturers in the future competitive landscape of the sector.
- The emerging new players in Europe.
- The new opportunities for growth inside and outside China.
Important recent technology trends included in this report:

- The role of aqueous electrolyte based supercapacitor technology and the implications for the sector.
- How supercapacitor products are improving performance reaching in order to comply with end user requirements.
- Competitor technologies for supercapacitor in different sectors.

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