

Batteries and Supercapacitors for the Smart Grid - 2013

Description: Energy storage is a vital component of the Smart Grids that are currently being built around the world. These grids are designed to improve the reliability of electricity transmission and distribution, facilitate the integration of renewable energy generators, and allow long-distance trading of electricity supplies. All of these functions require the grid to offer buffers where electricity can be stored locally.

However, for the most part the technologies up to this task have not been available. To the extent that grids have incorporated storage it has either been through the use of conventional batteries originally targeted towards the automotive industry and which are not optimal for grid storage or through major engineering projects such as compressed air storage which are impossible to replicate generally.

As a result of all this, NanoMarkets believes there are exciting opportunities for manufacturers of batteries and supercapacitors that target emerging applications in the Smart Grid. In 2009, NanoMarkets was one of the first industry analyst firms to identify and quantify these opportunities in a groundbreaking technology. With almost four years of product development and grid deployment behind us, NanoMarkets is releasing this report, which is designed to show where money will be made in grid batteries and supercaps over the next eight years.

While we believe that this report will become required reading for battery and supercapacitor firms, this report also spells out the potential for materials companies and specialty chemical firms who NanoMarkets believes will find considerable new business potential supplying advanced materials – especially nanomaterials - for newer forms of grid storage. In addition, NanoMarkets believes that this report will be of considerable use to utilities and other firms directly involved in the Smart Grid business, since it will show them how the next-generation of batteries and supercaps for Smart Grids will help to enable Smart Grid deployment.

This new report from NanoMarkets reviews the latest applications for grid storage and shows where money can be made in the near-to-medium term future by supplying the batteries and supercapacitors that will meet the coming storage requirements of the grid.

This report provides granular eight-year forecasts of chemical batteries and supercapacitors in both volume shipments and market value, with breakouts by technology type, application, and regions supplied. In addition, this report provides detailed assessments of the strategies being utilized by leading firms active in this space.

Contents:

- Executive Summary
 - E.1 The need for storage in the smart grid
 - E.2 Smart grid-related opportunities for battery and supercapacitor makers
 - E.3 Smart grid storage-related opportunities for materials makers
 - E.4 Key firms to watch in grid energy storage
 - E.5 Summary of eight-year forecasts

- Chapter one: Introduction
 - 1.1 Background to this report
 - 1.1.1 Current grid storage landscape
 - 1.1.2 Near-term applications for chemical-based grid storage
 - 1.1.3 Future opportunities for battery and supercapacitor based grid storage
 - 1.1.4 The billion dollar question; Does China aggressively adopt grid storage?
 - 1.2 Objective and scope of this report
 - 1.3 Methodology of this report
 - 1.4 Plan of this report

- Chapter Two: Materials and Technology for Grid storage
 - 2.1 Traditional grid storage solutions
 - 2.1.1 Lead acid and advanced lead acid batteries

- 2.1.2 Metal hydride batteries
- 2.1.3 Sodium sulfur batteries
- 2.2 Advanced battery solutions
 - 2.2.1 Vanadium and other redox flow batteries
 - 2.2.2 Zinc bromine and other hybrid flow batteries
 - 2.2.3 Lithium Ion batteries
 - 2.2.4 Sodium metal halide batteries
 - 2.2.5 Liquid metal batteries
 - 2.2.6 Ultra batteries
 - 2.2.7 Chemical battery materials roadmap
- 2.3 Supercapacitors for grid storage applications
 - 2.3.1 Current supercapacitor technology and applications
 - 2.3.2 Expanded role for supercapacitors in grid storage applications
 - 2.3.3 Supercapacitor materials roadmap
- 2.4 Key points in this chapter

Chapter Three: Eight-Year Forecasts of Smart Grid Storage Markets

- 3.1 Key drivers for storage in the smart grid
 - 3.1.1 Clean power mandates that create grid storage opportunities
 - 3.1.2 Impact of China's grid strategy on grid storage demand
- 3.2 Forecasting methodology
 - 3.2.1 Data sources
 - 3.2.2 Roadmap for smart grid storage
 - 3.2.3 Notes on electrical pricing
- 3.3 Eight-year forecasts of chemical batteries for grid storage
 - 3.3.1 Forecast of grid-storage batteries in the Americas by technology (MWh/\$ millions)
 - 3.3.2 Forecast of grid-storage batteries in Europe by technology (MWh/\$ millions)
 - 3.3.3 Forecast of grid-storage batteries in Middle East/Africa by technology (MWh/\$ millions)
 - 3.3.4 Forecast of grid-storage batteries in non-Japan Asia by technology (MWh/\$ millions)
 - 3.3.5 Forecast of grid-storage batteries in Japan by technology (MWh/\$ millions)
- 3.4 Eight-year forecasts of grid-storage supercapacitors
 - 3.3.1 Forecast of grid-storage supercapacitors in the Americas by technology (MWh/\$ millions)
 - 3.3.2 Forecast of grid-storage supercapacitors in Europe by technology (MWh/\$ millions)
 - 3.3.3 Forecast of grid-storage supercapacitors in Middle East/Africa by technology (MWh/\$ millions)
 - 3.3.4 Forecast of grid-storage supercapacitors in non-Japan Asia by technology (MWh/\$ millions)
 - 3.3.5 Forecast of grid-storage supercapacitors in Japan by technology (MWh/\$ millions)
- 3.4 Summary of eight-year forecasts
 - 3.4.1 Summary by region
 - 3.4.2 Summary by storage technology
- 3.5 Differences from previous forecasts

Chapter Four: Company Profiles

- 4.1 Advanced Lead-Acid Companies
 - 4.1.1 Axion Power International
 - 4.1.2 C&D Technologies
 - 4.1.3 EnerSys
 - 4.1.4 Firefly Energy
 - 4.1.5 Exide Technologies
 - 4.1.5 Ultralife Batteries
- 4.2 Advanced lithium ion battery companies
 - 4.2.1 A123 Systems .
 - 4.2.2 Altair Nanotechnologies
 - 4.2.3 Boston Power
 - 4.2.4 Hitachi Maxell
 - 4.2.5 Johnson Controls/Saft Advanced Power Solutions
 - 4.2.6 Kyushu Electric Power and Mitsubishi Heavy Industries
 - 4.2.7 Nexeon
 - 4.2.8 The Saft Group
 - 4.2.7 Sanyo/Panasonic
 - 4.2.8 Valence Technologies
- 4.3 Sodium sulfur battery companies
 - 4.3.1 GeoBattery
 - 4.3.2 NGK insulators Ltd/Tokyo Electric Power (TEPCO)

- 4.4 Sodium metal halide batteries
 - 4.4.1 Fiamm Sonik
 - 4.4.2 General Electric
- 4.5 Zinc bromide battery companies
 - 4.5.1 Premium Power Corp
 - 4.5.2 ZBB Energy
- 4.6 Vanadium redox-based battery companies
 - 4.6.1 Cellennium Limited
 - 4.6.2 Cellstrom GmbH
 - 4.6.3 Deeya Energy
 - 4.6.4 Prudent Energy.
 - 4.6.5 REDT
 - 4.6.6 Sumitomo Electric Industries
 - 4.6.7 V-Fuel Pty Ltd.
- 4.7 Other battery companies
 - 4.7.1 Cobasys (Metal Hydride)
 - 4.7.2 Liquid Metal Battery Corporation
 - 4.7.3 ReVolt (Zinc Air)
 - 4.7.4 Aquion (sodium ion/water electrolyte)
- 4.8 Chinese battery companies
 - 4.8.1 Advanced battery
 - 4.8.2 China BAK
 - 4.8.3 China Ritar Power
 - 4.8.4 Highpower International
 - 4.8.5 New Energy Systems
- 4.9 Supercapacitor companies
 - 4.9.1 EPCOS
 - 4.9.2 Maxwell Technologies
 - 4.9.3 NEC/Tokin
 - 4.9.4 Nesscap
 - 4.9.5 Siemens

Ordering: Order Online - <http://www.researchandmarkets.com/reports/2365624/>

Order by Fax - using the form below

Order by Post - print the order form below and send to

Research and Markets,
Guinness Centre,
Taylors Lane,
Dublin 8,
Ireland.

Fax Order Form

To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit

<http://www.researchandmarkets.com/contact/>

Order Information

Please verify that the product information is correct and select the format(s) you require.

Product Name: Batteries and Supercapacitors for the Smart Grid - 2013
Web Address: <http://www.researchandmarkets.com/reports/2365624/>
Office Code: OC8DIRPRLTSSUX

Product Formats

Please select the product formats and quantity you require:

	Quantity	
Electronic (PDF) - Single User:	<input type="checkbox"/>	€2,171
Electronic (PDF) - 1 - 5 Users:	<input type="checkbox"/>	€2,559
Electronic (PDF) - 1 - 10 Users:	<input type="checkbox"/>	€3,103
Electronic (PDF) - Enterprisewide:	<input type="checkbox"/>	€3,491

Contact Information

Please enter all the information below in **BLOCK CAPITALS**

Title: Mr Mrs Dr Miss Ms Prof

First Name: _____ Last Name: _____

Email Address: * _____

Job Title: _____

Organisation: _____

Address: _____

City: _____

Postal / Zip Code: _____

Country: _____

Phone Number: _____

Fax Number: _____

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)

Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

Pay by credit card:

American Express

Diners Club

Master Card

Visa

Cardholder's Name _____

Cardholder's Signature _____

Expiry Date _____ | _____

Card Number _____

CVV Number _____

Issue Date _____ | _____

(for Diners Club only)

Pay by check:

Please post the check, accompanied by this form, to:

Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

Pay by wire transfer:

Please transfer funds to:

Account number	833 130 83
Sort code	98-53-30
Swift code	ULSBIE2D
IBAN number	IE78ULSB98533083313083
Bank Address	Ulster Bank, 27-35 Main Street, Blackrock, Co. Dublin, Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: _____

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at <http://www.researchandmarkets.com/info/terms.asp>

Please fax this form to:
(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World