Superconducting Magnetic Energy Storage (SMES) Systems - Global Strategic Business Report

Description: The report provides separate comprehensive analytics for the US, Canada, Japan, Europe, Asia-Pacific, and Rest of World. Annual estimates and forecasts are provided for the period 2016 through 2024. Also, a five-year historic analysis is provided for these markets.

This report analyzes the worldwide markets for Superconducting Magnetic Energy Storage (SMES) Systems in US$ Thousand. Market data and analytics are derived from primary and secondary research.

Company profiles are primarily based on public domain information including company URLs.

The report profiles 22 companies including many key and niche players such as:

- ABB, Inc.
- American Superconductor Corporation
- ASG Superconductors SpA
- Babcock Noell GmbH
- Bruker Energy & Supercon Technologies

Contents:

I. INTRODUCTION, METHODOLOGY & PRODUCT DEFINITIONS

Study Reliability and Reporting Limitations
Disclaimers
Data Interpretation & Reporting Level
Quantitative Techniques & Analytics
Product Definition and Scope of Study

II. EXECUTIVE SUMMARY

1. INDUSTRY OVERVIEW
Why Energy Storage?
SMES: A Promising Energy Storage Technology
Asia-Pacific Spearheads Growth in the Global SMES Systems Market
How Significant is SMES for Power Utilities?
Effect of Energy Storage System Integration in Power Grid at Different Levels
Focus on Green Energy Storage Bodes Well for SMES Systems
Development of Superconducting Materials: Essential for Market's Progress
R&D Efforts Focused on Addressing Cost Issues & Storage Capacity in SMES Systems
Rapid Charging & Discharging and Minimal Energy Losses: Major Advantages
Growing Need to Develop SMES Systems with Larger Power Storage Capacities
Growing Deployment of Smart Grids
An Opportunity for SMES Systems Market
High Cost: A Major Obstacle to Adoption in Large-Scale Applications
Challenges Faced in Deployment of SMES Systems
Competitive Landscape

2. MARKET TRENDS & ISSUES
Focus on Sustainable Power Sourcing Enhances Significance of Energy Storage
Table 1: Targets for Electricity Production from Renewable Energy Sources in Select Countries
Table 2: Top Producers of Electricity from Renewable Sources
Percentage of Electricity Production from Renewable Energy Sources by Country (includes corresponding Graph/Chart)
Why Energy Storage Can Be a Game Changer for Renewable Energy?
Focus on Energy Efficiency to Drive Prospects for Energy Storage
Rising Renewable Energy Consumption to Drive Energy Storage Market
Table 3: World Cumulative Installed Capacity of Wind Power in GW for the Years 2016, 2018 & 2020 (includes corresponding Graph/Chart)
Table 4: World Cumulative Installed Capacity of Solar Power in GW for the Years 2010, 2012, 2014 & 2026 (includes corresponding Graph/Chart)
Assessing the Significance of Storage Technologies in Distributed Generation
The Business Case for Installing Energy Storage Systems in DERs
Microgrids
Driving Energy Storage in the Future
Table 5: A Glance at Largest Power Blackouts/Outages Worldwide
New Projects & Government Mandates to Stimulate Energy Storage Market
Table 6: Energy Storage Projects Worldwide
Breakdown of Total Number and Rated Power of Projects (MW) by Technology Type (includes corresponding Graph/Chart)
Table 7: Energy Storage Projects in Select Countries
Breakdown by Number and Rated Power of Projects (MW) (includes corresponding Graph/Chart)
Incentives & Standards: Key to Promoting Energy Storage Technologies

3. ENERGY STORAGE SYSTEMS
AN OVERVIEW
Power Grid: From Generation to Distribution
World Electricity Generation & Demand: A Review
Table 8: Worldwide Net Electricity Generation: Breakdown by Fuel Source in Trillion kWh and %Share for the Years 2012, 2020, 2030 & 2040 (includes corresponding Graph/Chart)
Table 9: Top Electricity Consumers Worldwide
Ranked by Electricity Consumed in TWh for the Year 2015 (includes corresponding Graph/Chart)
Table 10: Leading Power Consuming Countries Worldwide: Ranked by Per Capita Electricity Consumption in kWh (includes corresponding Graph/Chart)
Introduction to Grid Energy Storage
Table 11: Grid-Connected Energy Storage Worldwide
Percentage Breakdown of Installed Capacity by Energy Storage Technology for 2016 (includes corresponding Graph/Chart)
Types of Energy Storage Systems
A Comparative Review of Energy Storage Devices
Characteristics of Energy Storage Technologies
Applications of Various Energy Storage Technologies
Super Capacitor Energy Storage (SCES)
Compressed Air Energy Storage System (CAES)
Flywheel Energy Storage System (FESS)
Pumped Hydro Energy Storage Systems (PHESS)
Battery Energy Storage Systems (BESS)
Major Functions of Energy Storage Technologies

4. PRODUCT OVERVIEW
Superconducting Magnetic Energy Storage (SMES) System: An Introduction
Components of SMES System
Block Diagram of SMES System
Representation of a Superconducting Magnetic Energy Storage (SMES) System
Superconducting Coil
High-Temperature Vs Low-Temperature Superconductors
Why HTSC System Costs More?
Cryogenic Refrigerator
Power Conversion System
Control System
Operation of SMES
Performance Capabilities of SMES
Solenoid Vs Toroid
A Glance at Major Applications of SMES Systems
Power System Applications of SMES Technology
Cost Components of SMES System
Advantages of SMES Vs Other Systems for Energy Storage
System Stability
Power Quality
Load leveling
Drawbacks of SMES
Economic Viability of SMES Systems
Current Efforts in SMES Space
U.S. Department of Energy (DOE)'s ARPA-E Program
Use of SMES Technology in Defense & Space Applications

5. RECENT INDUSTRY ACTIVITY
Rolls Royce Develops SMES Device
BEST Acquires Oxford Instruments Superconducting Wire
SuperPower Establishes Testing Systems for 2G High Temperature Superconductors
Superconductor Technologies Develops Conductus® Superconducting Wire
SuperPower Unveils Range of HTS Products
Bruker Launches Ascend™ Aeon 600 MHz and Ascend™ Aeon 700 MHz Superconducting Magnet Systems
SuperPower in Collaboration with Program Partners Make Headway in SMES Projects
Fujikura Develops Largest Yttrium-based HTS Magnet

6. FOCUS ON SELECT PLAYERS
ABB, Inc. (USA)
American Superconductor Corporation (USA)
ASG Superconductors SpA (Italy)
Columbus Superconductors SpA (Italy)
Babcock Noell GmbH (Germany)
Beijing Innopower Superconductor Cable Co., Ltd (China)
Bruker Energy & Supercon Technologies (USA)
Fujikura Ltd. (Japan)
Hyper Tech Research, Inc. (USA)
Luvata U.K. Ltd (UK)
Nexans SA (France)
Southwire Company, LLC (USA)
Sumitomo Electric Industries, Ltd (Japan)
Superconductor Technologies, Inc. (USA)
SuperPower, Inc. (USA)
SuNam Co., Ltd. (South Korea)

7. GLOBAL MARKET PERSPECTIVE
Table 12: World Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems by Geographic Region
US, Canada, Japan, Europe, Asia-Pacific (excluding Japan) and Rest of World Markets Independently Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 13: World Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems by Geographic Region
US, Canada, Japan, Europe, Asia-Pacific (excluding Japan) and Rest of World Markets Independently Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)
Table 14: World 14-Year Perspective for Superconducting Magnetic Energy Storage (SMES) Systems by Geographic Region
Percentage Breakdown of Dollar Sales for US, Canada, Japan, Europe, Asia-Pacific (excluding Japan) and Rest of World Markets for Years 2011, 2017 & 2024 (includes corresponding Graph/Chart)

III. MARKET
1. THE UNITED STATES
A. Market Analysis
Outlook
Power Grid Woes Turn Focus onto Storage Technologies
Limitations of Power Grid Necessitate Use of Energy Storage Devices
Table 15: Energy Storage Projects in the US (2016): Percentage Breakdown of Number of Projects and Rate Power by Type of Technology (includes corresponding Graph/Chart)
Rising Number of Energy Storage Projects
Opportunity for SMES Systems
Legislations Encourage Energy Storage Market
Increasing Investments in Energy Storage Solutions
Strategic Corporate Developments

Key Players
B. Market Analytics
Table 16: US Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 17: US Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)

2. CANADA
Market Analysis
Table 18: Canadian Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 19: Canadian Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)

3. JAPAN
A. Market Analysis
Outlook
Strategic Corporate Development
Key Players
B. Market Analytics
Table 20: Japanese Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 21: Japanese Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)

4. EUROPE
A. Market Analysis
Market Overview
Energy Storage in the EU
Energy Associations Draw Up Roadmap for Developing Energy Storage Technologies
B. Market Analytics
Table 22: European Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems by Geographic Region
France, Germany, Italy, UK and Rest of Europe Markets Independently Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 23: European Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems by Geographic Region
France, Germany, Italy, UK and Rest of Europe Markets Independently Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)
Table 24: European 14-Year Perspective for Superconducting Magnetic Energy Storage (SMES) Systems by Geographic Region
Percentage Breakdown of Dollar Sales for France, Germany, Italy, UK and Rest of Europe Markets for Years 2011, 2017 & 2024 (includes corresponding Graph/Chart)

4a. FRANCE
A. Market Analysis
Outlook
Nexans SA
A Major Player
B. Market Analytics
Table 25: French Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 26: French Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)
4b. GERMANY
A. Market Analysis
Outlook
Table 27: Power Generation Mix in Germany (2016): Percentage Breakdown of Power Production by Energy Source (includes corresponding Graph/Chart)
Strategic Corporate Development
Babcock Noell GmbH
A Key Player
B. Market Analytics
Table 28: German Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 29: German Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)

4c. ITALY
A. Market Analysis
Outlook
Key Players
B. Market Analytics
Table 30: Italian Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 31: Italian Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)

4d. THE UNITED KINGDOM
A. Market Analysis
Outlook
Strategic Corporate Development
Luvata U.K. Ltd
A Key Player
B. Market Analytics
Table 32: UK Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 33: UK Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)

4e. REST OF EUROPE
Market Analysis
Table 34: Rest of Europe Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 35: Rest of Europe Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)

5. ASIA-PACIFIC
A. Market Analysis
Outlook
Asia: Active Proponent of Energy Storage Technologies
Table 36: Asian Market for Energy Storage Systems by Technology (2016E): Percentage Share Breakdown of Value Sales for Advanced Batteries, Pumped Hydro, and Others (includes corresponding Graph/Chart)
Growth Drivers of Energy Storage Technologies in Asia
China: Government Support Driving Growth in the Field of Superconductivity
South Korea
Korea Looks to Renewables to Meet Rising Power Demands
Government Promotes Energy Storage Technologies
Key Players
B. Market Analytics
Table 37: Asia-Pacific Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 38: Asia-Pacific Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)

6. REST OF WORLD
Market Analysis
Table 39: Rest of World Recent Past, Current & Future Analysis for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2016 through 2024 (includes corresponding Graph/Chart)
Table 40: Rest of World Historic Review for Superconducting Magnetic Energy Storage (SMES) Systems Market Analyzed with Annual Sales Figures in US$ Thousand for Years 2011 through 2015 (includes corresponding Graph/Chart)

IV. COMPETITIVE LANDSCAPE

Total Companies Profiled: 22 (including Divisions/Subsidiaries 26)

- The United States (10)
- Japan (6)
- Europe (7)

- France (2)
- Germany (1)
- The United Kingdom (1)
- Italy (2)
- Rest of Europe (1)

- Asia-Pacific (Excluding Japan) (3)

Ordering:
Order Online - [http://www.researchandmarkets.com/reports/2692233/](http://www.researchandmarkets.com/reports/2692233/)
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: Superconducting Magnetic Energy Storage (SMES) Systems - Global Strategic Business Report
Web Address: http://www.researchandmarkets.com/reports/2692233/
Office Code: SC

Product Formats
Please select the product formats and quantity you require:

<table>
<thead>
<tr>
<th>Format</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic (PDF) - Single User:</td>
<td></td>
<td>USD 4950</td>
</tr>
<tr>
<td>Electronic (PDF) - 1 - 5 Users:</td>
<td></td>
<td>USD 6930</td>
</tr>
<tr>
<td>Electronic (PDF) - 1 - 10 Users:</td>
<td></td>
<td>USD 9405</td>
</tr>
<tr>
<td>Electronic (PDF) - 1 - 15 Users:</td>
<td></td>
<td>USD 11880</td>
</tr>
</tbody>
</table>

* The price quoted above is only valid for 30 days. Please submit your order within that time frame to avail of this price as all prices are subject to change.

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: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ 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: Bank details will be provided on the invoice which you will receive after you place your order with us.

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