

# CAES Compressed Air Energy Storage Worldwide

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## Abstracts

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The global market for compressed air energy storage (CAES) sits at a turning point. Since its introduction as a utility scale electricity storage technology in the 1970s, low energy prices and a proliferation of cheap natural gas fired peaking power plants slackened demand for energy storage, and CAES never got off the ground. Over the following decades, only two plants were built, one in the US, and one in Germany. And although these facilities provided effective energy storage capacity at reasonable cost, the need for utility scale energy storage was insufficient to kick start the CAES market.

Recent trends, however, threaten to invigorate the CAES market. Global concerns about climate change, environmental pollution, and energy security have generated a strong, bullish market for renewable energy production. Wind and solar markets, in particular, have seen tremendous gains over the last five years. But wind and solar resources are highly variable in nature. Solar technologies can only provide generation capacity when the sun is shining, and wind turbines can only produce electricity when there is sufficient wind available. Often, sun and wind availability does not align with consumer electricity demand. Therefore, in order to effectively meet demand for renewable electricity, as is now mandated by many government institutions around the globe, renewable energy storage is needed. Also, current grid management issues, including congestion along regional power grids, aging (and very costly) transmission infrastructure, and power supply trends are drawing together to make favorable conditions for CAES as solution for peak power supply and grid management.

CAES components also have the advantage of being, for the most part, readily available and mature. Gas turbines, air compressors, recuperators, injection and extraction wells, and other CAES components represent mature technologies that already operate under streamlined economies of scale. Other, more experimental

storage technologies, such as fuel cells, flywheels, or massive batteries, are not close to reaching cost parity with CAES installations. In sum, these trends act as drivers in support of a developing and persistent CAES market. Viable CAES markets will re-emerge in the near term, gaining stability as the technology gains traction, and additional projects come on line, through 2014.

*CAES Compressed Air Energy Storage Worldwide* contains comprehensive data on the global market for CAES technologies, including historic (2004-2009) and forecast (2010-2014) market size data, broken down in terms of CAES components - including the CAES compression subsystem, storage subsystem, and the expansion/generation subsystem. The report identifies key trends affecting the marketplace, along with trends driving growth, and also profiles major technology providers, and end user characteristics.

## **Report Methodology**

The information in *CAES Compressed Air Energy Storage Worldwide* is based on data from the U.S. Department of Energy, Energy Information Administration, European Commission, Princeton University, American Wind Energy Association, U.S. national laboratories, the California Energy Commission, U.S. and global energy research institutions, utilities, CAES manufacturers, CAES engineers, along with information from trade associations, business journals, company literature and websites, Securities and Exchange Commission reportings, and research services such as Simmons Market Research Bureau.

## **What You'll Get in This Report**

*CAES Compressed Air Energy Storage Worldwide* makes important predictions and recommendations regarding the future of this market, and pinpoints ways current and prospective players can capitalize on current trends and spearhead new ones. No other market research report provides both the comprehensive analysis and extensive data that *CAES Compressed Air Energy Storage Worldwide* offers. Plus, you'll benefit from extensive data, presented in easy-to-read and practical charts, tables and graphs.

## **How You'll Benefit from This Report**

If your company is already doing business in the CAES technologies and services market, or is considering making the leap, you will find this report invaluable, as it provides a comprehensive package of information and insight not offered in any other

single source. You will gain a thorough understanding of the current market for CAES technologies, as well as projected markets and trends through 2014.

This report will help:

**Marketing managers** identify market opportunities and develop targeted promotion plans for CAES technologies and services.

**Research and development professionals** stay on top of competitor initiatives and explore demand for CAES technologies and services.

**Advertising agencies** working with clients in the energy storage and renewable energy industries to understand the market for CAES, the application of CAES technologies, and the CAES procurement process, to develop messages and images that compel consumers to invest in CAES.

**Business development executives** understand the dynamics of the market and identify possible partnerships.

**Information and research center librarians** provide market researchers, brand and product managers and other colleagues with the vital information they need to do their jobs more effectively.

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