

Berlin compressed air energy storage

RWE, General Electric (GE), Z?ublin, and DLR agree on Cooperation in the Development of Compressed Air Energy Storage

"The massive and deliberate expansion of wind power requires smart solutions to ensure a non-stop continuous electricity supply. By means of the ADELE project, we take the lead to rapidly develop an efficient storage option", said Dr. Juergen Grossmann, Chief Executive Officer of RWE AG. A well-balanced energy mix where all energy sources contribute their unique strengths will be a guarantor -- also in the future -- of environmentally friendly, safe and efficient electricity supply. In this context, innovations such as ADELE will help to optimize the coexistence and smooth interaction of the individual energy sources.

By means of a feasibility study, the project partners laid the foundations for this development program that starts now. The aim is to install an initial demonstration plant, which shall start its operation in 2013; it will have a storage capacity of one billion watt-hours (GWh) and generate electrical power of up to 200 megawatt. That way ADELE will be able to provide backup capacity within a very short time and replace forty state-of-the-art wind turbines for a period of five hours. The German Federal Ministry of Economics is willing to offer state funding, which underlines the special importance of this project. Altogether, the project members will contribute an amount of EUR 10 million.

"We will support this project through innovative compressors and air turbines. This equipment ensures that compressed air energy storage power stations are extremely reliable and can be operated with outstanding performance. Last but not least, the leading edge technology of these key components is the result of our continuous investments in research & development activities both at our technology locations in Germany and worldwide. In this connection, our European research center based in Garching nearby Munich holds a key position", stated Georg Knoth, GE's CEO & Regional Executive for the German-speaking region.

To implement this project, not only advanced turbo machines but also an innovative high-temperature thermal energy storage concept has been required. The realization of this key component is supported by Zueblin as well as by DLR by dividing the corresponding workload.

"The development of a powerful heat accumulator featuring a very high internal pressure and an operating temperature of more than 600 degree Celsius confronts us with completely new challenges with respect to the design of the pressure chamber and the development of suitable storage materials. Such a task can only be solved by a break-through innovation because the thermal energy storage will be subject to stresses resulting from the cyclic temperature and pressure loads, which are much higher than usual", explained Joern Beckmann, Chief Executive Officer of Zueblin.

Prof. Dr. Johann-Dietrich Woerner, Chairman of the Board of DLR, added: "Within the framework of the

ADELE project, we will develop solutions for the conception, design, layout, and dimensioning of storage equipment and high-temperature insulation, which are core components and of decisive importance for the performance and cost efficiency of the overall structure."

Suitable locations for compressed-air storage power plants are, in particular, regions with adequate geological salt structures, which can then be used to build underground caverns for the absorption of large quantities of compressed air. In addition, such salt structures should be close to wind turbines.

Concerning the selection of the location, Erdgasspeicher Kalle GmbH, a subsidiary of the RWE group, will contribute its know-how for the planning, installation, and operation of underground storage facilities.

Please click here for an animated picture and video statement.

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