

# Press Release

3rd August 2009



ZENERGY POWER

Zenergy Power plc  
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Zenergy Power plc ('Zenergy' or the 'Group')

## Coil Delivery for Superconducting Renewable Energy Generator

Zenergy Power (AIM:ZEN.L), the superconductor energy technology company, is pleased to announce that it has successfully produced the first complete set of superconducting coils required for the construction of a full-scale superconducting electricity generator. This achievement has particular significance in not only demonstrating Zenergy Power's ability to scale production with a high degree of consistency, uniformity, quality and reliability; but also in enabling the completion of construction work on what is to be the world's first superconducting hydropower generator. The groundbreaking machine is a 1.7MW hydro power generator, which will be installed into the commercial hydro power station of E.ON Wasserkraft GmbH ('E.ON') in the early part of 2010. Once installed, the superconducting generator will be responsible for the supply of electricity to over 3,000 homes in the local area.

The timely and efficient production of the complete set of superconducting coils represents a significant technical milestone and the management of Zenergy Power is pleased to report that all 28 full-scale electromagnetic coils required for the generator were manufactured with throughput and production yields matching their highest expectations. Following the completion of extensive testing, the Group has now shipped the set of superconducting coils to its collaborative development partner (and project leader responsible for overall generator design), Converteam UK Ltd who will begin the final construction work on the full-scale machine. Accordingly, Zenergy Power is pleased to note that the ongoing collaborative project (initiated in late 2006 by the European Commission to accelerate the deployment of a superconducting hydropower generator) has now progressed through research and development to the final stages of physical assembly taking place at the world class manufacturing facilities of Converteam in the UK.

### Background

The groundbreaking project (named 'Hydrogenie') was originally part funded by the European Commission to bring about the installation of a 1.25MW superconducting generator into E.ON's commercial hydro power plant located in Bavaria, South-East Germany. As announced on 24 January 2008, E.ON subsequently requested an upgrade of the generator – on fully commercial terms to be borne by the utility – to an increased electrical capacity of 1.7MW. It is anticipated that E.ON will achieve a significant increase in electrical output at its existing hydropower station as a result of the 36% increased capacity of the high efficiency superconducting machine.

These improvements in electrical performance not only underline the commercial attractiveness of superconducting generators, but also the incredible electrical properties of superconductor materials. In this application, the use of

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superconductors in place of traditional copper components results in enabling the emergence of a revolutionary class of generators that are significantly smaller than conventional copper-based machines and also capable of delivering conversion efficiencies of greater than 98%.

## **Development of low-cost 2nd Generation Superconducting Wire (,2G')**

As the development project of the world's first superconducting hydroelectric power generator progresses into its final stages of assembly, the Board notes the increasing importance that is now conferred upon the Group's development of proprietary low-cost production techniques for the mass manufacture of 2G superconducting wire. As previously announced, it is the intention of Zenergy Power to use its own supply of low-cost superconducting wire in the mass manufacture of renewable energy generators so as to complement their technical superiority with unbeatable economic value.

Since the beginning of this year, the Group has increasingly focused its resources on both improving the quality and consistency of its 2G wire, as well as deepening its working relationships with Honeywell and ThyssenKrupp VDM in order to qualify them as industrial scale suppliers of base materials.

As a result of this, the Group is pleased to report that the development of its 'all-chemical' production techniques continues well and is on schedule to support the anticipated large-scale production of superconducting generators.

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## **About Zenergy Power**

Zenergy Power is a superconductor energy technology company, quoted on the AIM market of the London Stock Exchange and comprising three operating subsidiaries located in Germany, USA and Australia. The Group's commercial focus is the innovation and manufacture of clean energy superconductor solutions that are capable of delivering huge efficiency and cost improvements to the generation, distribution and consumption of electrical energy.

Today, the Group's groundbreaking superconductive solutions are already delivering energy savings to industrial users of electrical energy and providing cutting-edge protection from electrical power surges to the United States electricity grid. Looking to the near future, the Group is currently developing a range of highly energy efficient superconductor components for a new class of electricity generator capable of delivering significant cost savings to the renewable energy industry. These cost savings will enable renewable energy to more effectively compete with traditional thermal power generation; leading to a greater reduction in carbon emissions and a more sustainable economic future.

In 2007, Zenergy Power became the first company in the world to complete a commercial sale of an industrial scale superconductor application and has subsequently developed products capable of addressing several multi-billion dollar global markets. Following this in the first quarter of 2009, the Group proudly became the first company to install and operate a superconductor smart grid device, capable of significantly reducing the damaging effects of large-scale power surges, into the United States electricity grid. In line with this leading industry position, Zenergy Power is also manufacturing core components for what is due to be the world's first superconductor electricity generator which is due for installation into E.ON AG's commercial hydro power station in early 2010.

## **About Hydrogenie**

Project Hydrogenie is part funded by the European 6th Framework programme and was established in 2006. Convertteam UK Ltd (Electromagnetic and mechanical Machine design, cryogenic integration and machine build) are the project leaders along with the collaborative contributions of leading technology experts including Stirling Cryogenics & Refrigeration B.V. (providing maintenance free refrigeration), KEMA Nederland B.V. (grid stability analysis and materials qualification), Politechnika Slaska (electrical engineering consultancy and components qualification) Vector Fields Ltd. (finite element modelling software) and E.ON (definition of performance requirements and end-user).

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## **About superconductivity**

Superconductive materials are capable of conducting electricity without any resistance and were first discovered in 1911 in what was to prove to be one of the most significant scientific breakthroughs of the 20th Century.

## **Superconductors enable:**

- Energy intensive industrial applications capable of reducing energy consumption by 50%
- The protection of national power grids from blackouts
- The production of revolutionary light-weight, efficient 10MW class renewable wind generators capable of reducing the cost of offshore wind power by 25%
- The production of a new class of compact and efficient hydro generators capable of significantly increasing electrical power output from existing and new hydro dam structures

## **About Converteam**

Converteam Group is a world leader in power conversion engineering. Building on over a century of experience, it is firmly placed at the leading edge of technology and innovation with a global reputation for excellence in the conversion of electrical energy. Converteam develops and provides solutions built around three core components: rotating machines, drives and process automation. Serving specialized sectors as well as its core markets in Marine Offshore, Oil & Gas and Offshore, Energy and Industry, its 5,300 staff members provide power conversion solutions worldwide. At year-end 2008, Converteam sales totalled €1,099,000,000.

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