

Press Release

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Storage systems for decentrally generated solar power enter pilot production

“Dispatch Energy” begins collaboration with Fraunhofer ISE and Fraunhofer ISIT

Renewable energy and e-mobility are key areas of Fraunhofer’s energy research. Developing efficient energy storage devices is of crucial importance, both for rapidly growing national and international photovoltaics markets, as well as for solar-powered electric cars. Consequently, Fraunhofer ISE is now increasing its activities in this field, in collaboration with the Fraunhofer Institute for Silicon Technology ISIT in Itzehoe. On November 5, 2010, official celebrations at the ISIT site heralded the inauguration of close collaboration with the company “Dispatch Energy”. The Institute played host to a wide audience of representatives from science and industry who heard presentations from the Schleswig-Holstein Minister for Economic Affairs, Jost de Jager, and Dr. Georg Rosenfeld, Head of the Fraunhofer Gesellschaft Corporate Development Division, who outlined the new activities and the motivation behind them.

While Fraunhofer ISE contributes expertise in the fields of battery module and battery system construction, battery and energy management system development and integration into grid-connected and off-grid PV systems, Fraunhofer ISIT has a new pilot cell production line, which was also presented at the inaugural event. With this in mind, young company Dispatch Energy Innovations GmbH has decided to transplant its headquarters from Heidelberg to Itzehoe, in the immediate vicinity of Fraunhofer ISIT. The company’s chief research and development activities – including a small batch production line – are concentrated at the site in Schleswig-Holstein. The work of Dispatch Energy Innovations GmbH centers around

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the research, development, production and sale of electrochemical energy storage systems which exploit lithium-ion polymer technology. In order to meet the needs of the growing renewable energy market, Dispatch Energy has developed a complete battery system in collaboration with the two Fraunhofer institutes, ISE and ISIT. This system enables decentrally produced solar power to be stored temporarily and used at source – all at a much lower cost than that offered by other storage technologies currently on the market.

The first battery storage system in the Black Diamond product range was presented at the official celebrations. Designed for decentralized, building integrated PV installations, these storage systems have now been brought to the market as part of an initial expansion phase. With a capacity of five kilowatt hours, this system enables operators to use power generated by their own PV systems, even during the night. "Thanks to an extremely high cycle life, the calendrical service life of the cell technology and the refined modular system concept with its integrated battery management system, the battery bank can be used efficiently throughout the typical service life of a modern photovoltaic installation. The battery system is therefore adapted to match the guaranteed service life of the remaining components in a grid-connected PV system," states Dr. Matthias Vetter, head of the off-grid photovoltaic systems and battery system technology group at Fraunhofer ISE in Freiburg. The system is protected against overcharging and overdischarging, and has an efficiency of over 95 percent. Furthermore, its modular construction allows it to be easily connected to charge controllers and inverters readily available on the market. A wealth of configuration options allow the customer to retrieve data on the reserves of electricity currently available at any time of day or night – either via touch screen phone, laptop or smartphone.

Dispatch Energy plans to start series production of temporary energy storage systems for renewable power from mid-2011. The production process, which meets all modern industrial

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standards, will enable cell production under clean room conditions and has the capacity to be scaled up. In line with the concept developed by Fraunhofer ISE, the cells are connected to battery modules, which in turn can be connected to battery systems of varying energy content, depending on the intended application.

The company plans to employ up to 20 new staff in research, development and production in its endeavor to equip over 1,000 photovoltaic homes with battery systems each year. Production startup is officially planned for summer 2011. Until that time, selected projects will be realized at the site together with partners from industry. Mass series production with a total capacity of 250 megawatt hours is now being planned.

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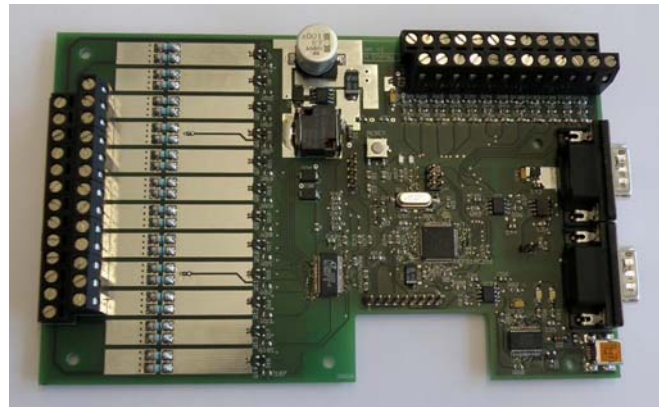
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Battery module monitoring circuit, with cell balancing as well as state of charge and aging determination using Kalman filters. ©Fraunhofer ISE

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