



SMA Solar Technology AG – Press Release

**Research Project PV-KWK: Intelligent Energy Management and Photovoltaic Combination Systems for Electricity and Heat Coupling in the Home**

**Niestetal, December 5, 2014—SMA Solar Technology AG (SMA), Vaillant and RWTH Aachen are conducting a joint project to research the possibilities of intelligent coupling of photovoltaic systems with CHP (combined heat and power) plants and heat pump heating systems. The goal of the PV-KWK project is to develop optimized system solutions that create the most effective combination of photovoltaics and CHP plant/heat pump systems, open up synergies, and are suitable for multiple applications in buildings. Another aim is the optimization of load control for electrical appliances and the use of energy storage in pure solar systems through to intelligent incorporation of eMobility. SMA is the coordinator for this project, which runs until November 2017 and has a budget of approximately €5.5 million. The Federal Ministry of Education and Research is promoting the collaborative project with €3 million as part of the “Research and Development for Photovoltaics” funding initiative.**

“An increasing number of households and companies are taking responsibility for their electricity and heat supply into their own hands with photovoltaics and decentralized CHP plants, and are becoming more independent from rising electricity prices. The intelligent coupling of solar systems and CHP plants offers attractive and technically ambitious opportunities,” explained Roland Grebe, SMA Board Member for Technical Innovation. In order to take advantage of this, the intention is to create a modular system of coordinated energy supply and control components that can be used and combined flexibly for electricity and heat supply in buildings with interfaces to the energy market and grid management service. This process involves various heat pump and CHP technologies, the use of electrical and thermal storage and load control for electrical appliances.

The intelligent connection makes it possible for the heat pumps and CHP plants installed primarily to supply heat to the building to, for example, also take on additional tasks to compensate the fluctuating power supply from photovoltaics. Conversely, the solar system’s load control and, if necessary, also its storage, can equalize the operation of the heating components (CHP plant or heat pump), thereby relieving these aggregates, while taking into account the user’s comfort requirements. Combined systems of this kind can be operated for the purpose of individual increased self-consumption, for relief of the grid, in accordance with energy industry optimization criteria, as a “pooled virtual power plant,” or as a combination of these different approaches.



As part of this research project, SMA will expand and optimize its proven energy management solutions as well as drafting open interface standards in collaboration with its partners. Field testing will take place in single and multi-family dwellings or in commercial buildings in order to evaluate multiple pilot systems and thereby prove that the solutions are suitable for practical use.

The joint PV-KWK project sponsored by the Federal Ministry of Education and Research is intended to lay the scientific and technical foundation for innovative, manufacturer-independent system solutions for the global market and for corresponding future products for German industry. Sustainable solar systems and highly efficient heating technologies will be combined more efficiently than before and with a much greater scope in the area of energy supply. The project will contribute to the securing of Germany as a business and industrial hub, to the protection of the climate and resources and accelerating the global energy transition through the distribution of solar energy.

### **About SMA**

The SMA Group generated sales of more than €930 million in 2013 and is the global market leader for solar inverters, a key component of all PV plants. SMA offers innovative key technologies for future power supply structures. It is headquartered in Niestetal, near Kassel, Germany, and is represented in 21 countries. The Group employs more than 5,000 people worldwide. SMA's broad product portfolio includes a compatible inverter for every type of module on the market and for all plant sizes. The product range includes both inverters for grid-connected photovoltaic plants as well as off-grid and hybrid system technology. The product portfolio is supplemented by comprehensive services and operational management of utility-scale PV plants. Since 2008, the Group's parent company, SMA Solar Technology AG, has been listed on the Prime Standard of the Frankfurt Stock Exchange (S92) and also in the TecDAX index.

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