



EU Project SPEED supports innovation in new power electronic technologies for energy applications.

Joint press release from the partners of research project "SPEED": INAEL Electrical Systems, ABB Schweiz AG, CSIC - CNM, ENEL DISTRIBUZIONE S.P.A., UNIVERSITY BREMEN, UNIVERSITY DE OVIEDO, NORSTEL AB, ASCATRON AB THE UNIVERSITY OF NOTTINGHAM, INFINEON TECHNOLOGIES AG (Germany, Austria), Technische Universität München, Fraunhofer, CESKE VYSOKE UCENI TECHNICKE V PRAZE, Gottfried Wilhelm Leibniz Universität Hannover, ANNEALSYS SAS, INGETEAM POWER TECHNOLOGY SA

Highly efficient power electronics (PE) applied in power generation, transmission, and distribution is a key element for the ambitious goals of renewable energy penetration in Europe. A new generation of power electronic devices will greatly improve the energy efficiency, increase power quality, and enable continuous voltage regulation, reactive power compensation and automated distribution. New power electronics devices will result in a better integration of distributed energy resources like local energy storage, photovoltaic generation, and plug-in electric vehicles.

The research on new generations of high-power semiconductor devices, highly efficient and able to operate at high voltages (even above 10kV), is crucial for reducing the cost of power electronics in grid related applications, hence enabling a breakthrough in the way we generate and distribute energy.

It's been known for some time that the material properties of silicon carbide (SiC) are superior to those of silicon (Si) for these applications. The development of SiC power electronic devices with suitable characteristics will lead to new applications and markets in power generation and distribution and will insure that EU industry remains at the forefront of the fast developments in the field.

SPEED Project pools seventeen manufacturers and researchers from nine European countries, who will work together for three years, with a common goal: the development of the next generation of power semiconductors based on SiC with specific applications in wind converters and the new generation of Solid State Transformers (SSTs).

Funded by European Commission, Project SPEED aims at a breakthrough in SiC technology along the whole supply chain:

- Growth of SiC substrates and epitaxial-layers.
- Fabrication of power devices in the 1.7/>10kV range.
- Packaging and reliability testing.
- SiC-based highly efficient power conversion cells.
- Real-life applications and field-tests in close cooperation with two market-leading manufacturers of high-voltage (HV) devices.