Research Project Aims to Increase Solar Power Use and Deliver "Energy for a Green Society"

The partners in a publicly-funded European research project today announced details of the multinational/multidisciplinary program, ‘Energy for a Green Society’ (ERG). This three-year ENIAC JU project aims to achieve substantial advances in the solar-energy supply chain, from sustainable harvesting to smart distribution. These advances include pushing solar-cell efficiency towards 25% and reducing power conversion losses by 20%.

The need for exponential growth in solar-energy production, as required by Europe’s 2020 climate targets and general energy policies, creates formidable technological challenges. The ERG program aims to address these requirements by improving the efficiency of solar cells, devising innovative harvesting techniques, reducing power-conversion losses, and enhancing energy-management strategies.

In the first stage, European researchers will focus on the design and development of innovative solar cells, exploring novel architectures, approaches and materials. One of the program’s objectives is to demonstrate commercially viable applications of printable dye-sensitized solar cells that represent a promising low-cost alternative to silicon solutions.

In a simultaneously running task, the project partners will seek ways to optimize the use of energy generated by the photovoltaic systems, concentrating on power-management electronics for silicon-cell panels and micro-electro-mechanical systems for concentrated photovoltaic cells. The partners will explore techniques that track the maximum power point to boost output from solar arrays and improve power-conversion efficiency at the module and segment levels.

ERG will also generate behavioral models for individual components of the smart grid that enable the development of optimal energy-dispatching and battery-charging algorithms based on inputs from wireless sensor nodes distributed across the network. Devising innovative solutions that optimize local smart grids in terms of power management and co-generation, power consumption and overall efficiency, with real-time energy metering and billing control is also in the project plan.

“The ERG initiative will contribute to the establishment of a solid electronics design base for Europe and create a set of technology standards for the solar energy sector”, said ERG project coordinator Dr. Francesco Gennaro, who is also a Staff Engineer for STMicroelectronics. “ERG’s goal is to achieve significant efficiency improvements along the whole supply chain from PV panels to grid connection and make them available to all partners.”

The ‘Energy for a Green Society’ project is organized into a number of work packages, spanning a total duration of 36 months. The total cost of the project is €25.7 million, partially funded through a combination of European and national grants, under the rule of ENIAC JU 2010. The participating countries are Italy, Belgium, Germany, Spain, Ireland, The Netherlands, Slovak Republic and United Kingdom.

For more information, please go to http://www.eniac-erg.org/ [1]

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