Press release

World premiere

White solar modules: a revolution for building integration

Neuchatel/Switzerland, 28 October 2014 — CSEM announces the world's first white solar modules. This innovative technology is particularly attractive to the building industry where solar elements can blend into a building's skin and become virtually hidden energy sources. Applications in the consumer goods sector are also expected.

Currently, the market lacks photovoltaic (PV) products specifically designed to be integrated into buildings. Most PV modules, built to maximize sunlight absorption, appear blue-black. This appearance, caused by the presence of cells and connections, is visually unaesthetic and this complicates the acceptance of PV by built-environment professionals.

For decades architects have been asking for a way to customize the color of solar elements to make them blend into a building's skin. White is a particularly interesting color as it is widely used for its elegance, versatility, and fresh look. Despite of this demand, no one was ever able to realize a truly white solar module; naturally believing that it was impossible as most of the light is reflected, contrary to the requirements of all solar panels.

CSEM has developed a new technology to make white solar modules, with no visible cells and connections, a reality. It combines a solar cell technology able to convert infrared solar light into electricity and a selective scattering filter, which scatters the whole visible spectrum while transmitting infrared light. Any solar technology based on crystalline silicon can now be used to manufacture white — and colored — modules.

The technology can be applied on top of an existing module or integrated into a new module during assembly, on flat or curved surfaces. Besides its main application in BIPV, other fields such as consumer electronics (laptops) and the car industry are expected to show significant interest.

White is cool

The fact that a white surface will reach lower temperature under the sun is an additional advantage. The visible light being reflected does not contribute to heat, thus a white solar cell is expected to work at temperatures 20-30° lower than standard PV modules. White PV modules can also contribute to increase energy savings in buildings by keeping inner spaces cooler and reducing air conditioning costs. Several US cities have started to paint roofs white for the same reason. In a near future such actions could be replaced by the installation of white solar modules.

Special thanks to the SIG renewable energies fund

CSEM wishes to thank the SIG Fund for renewable energy (NER) for its contribution to the development of this new technology. The fund finances research projects, academic studies, the development of experimental systems and the construction of prototypes for heat and electricity production using new renewable energy sources, as well projects to economize energy use.

The Geneva committee for the use of the SIG NER Fund (COGENER) was established in association with the development and sale of the *Electricité Vitale Vert* product in 2002. Its aim is to manage the Fund and select projects to finance. The committee brings together representatives from the State of Geneva, the University of Geneva, the French-speaking Federation of Consumers and SIG.

The SIG NER Fund is funded with 1ct/kWh of *Electricité Vitale Vert* for a total of up to 500,000 CHF per year.

©CSEM/2014 - World's first white PV modules presented by Prof Christophe Ballif, Vice President, and Dr Laure-Emmanuelle Perret-Aebi, Sector Head, from CSEM. Besides white, virtually any shade of color can be realized with the new technology.

Additional information

CSEM

Prof Christophe Ballif
Vice-President Photovoltaics
T. +41 32 720 54 11
M. +41 78 870 69 73
E-mail: christophe.ballif@csem.ch

Dr Laure-Emmanuelle Perret-Aebi
Sector Head, Modules & Systems, Photovoltaics
T. +41 32 720 56 43
M. +41 79 198 92 39
E-mail: laure-emmanuelle.perret-aebi@csem.ch

About CSEM

CSEM – technologies that make the difference

CSEM, founded in 1984, is a private research and development center specializing in microtechnology, nanotechnology, microelectronics, system engineering, photovoltaics and communications technologies. Over 400 highly qualified and specialized employees from various scientific and technical disciplines work for CSEM in Neuchâtel, Zurich, Muttenz, Alpnach and Landquart.

Further information is available at www.csem.ch

Follow us on:

Media contact

Sabina Müller
Strategic Communication Manager
T. +41 32 720 52 26
M. + 41 79 551 67 13
E-mail: sabina.mueller@csem.ch

Florence Amez-Droz
Corporate Communication Manager
T. +41 32 720 52 03
M. +41 79 311 51 16
E-mail: florence.amez-droz@csem.ch