

## **Cost-effective, flexible solar panels on the roll**

A European research and industry consortium is pushing high efficiency, flexible solar panels closer to mass production.

Some stores sell bags covered with a flexible solar panel enabling the owner to charge a mobile phone on a sunny day. A new flexible solar panel technology that may deliver three times more power at a lower price is on its way to the market and will eventually also land on roofs, building facades, cars, and electronics. Solar panels are becoming light weight, rollable and affordable.

The European science and industry project consortium, called R2R-CIGS, has been established to reduce costs of high efficiency solar panels, thanks to a combination of manufacturing technologies. R2R-CIGS derives its name from the so-called Roll-to-Roll high volume manufacturing method and from the high efficiency CIGS material coating that converts sunlight into electricity. CIGS thin-film solar panels are manufactured by depositing a stack of extremely thin layers of material onto rolls of plastic foil. "Because the production uses continuous rolls, it is much more cost-effective than the batch manufacturing used to make conventional solar panels" says project leader Pieter Bolt of Dutch research organisation TNO.

"CIGS photovoltaic technology with roll-to-roll manufacturing processes requires less energy and material to produce high performance, light weight and flexible solar panels. They also open innovative applications, designs and improved integration into the built environment" says Prof. Ayodhya N. Tiwari, head of the Photovoltaics Laboratory at the Empa Materials Science and Technology Centre, Switzerland.

During its three-and-a-half years, the R2R-CIGS project will take CIGS flexible solar panel technologies out of the laboratory with the development of machines and processes suitable for the installation of an industry-level manufacturing line. With a total budget of €9.6 million, R2R-CIGS is partly funded up to €7.0 million by the European Commission's Seventh Framework Programme (FP7). The project aims to raise the competitiveness of European renewable energy technologies, manufacturing systems and products.

R2R-CIGS consortium partners:

TNO (Netherlands)

EMPA (Switzerland)

Manz CIGS Technology GmbH (Germany)

Flisom AG (Switzerland)

ZSW (Germany)

Isovoltaic AG (Austria)

Centre for Process Innovation Ltd (UK)

Beneq Oy (Finland)

SoLayTec BV (Netherlands)

Mondragon Assembly S. Coop (Spain)

For more information about this project, visit [www.r2r-cigs.eu](http://www.r2r-cigs.eu)