

Consortium



11 participants from 6 countries

SolarDesign at a glance

Project start date:	January 2013
Project duration:	36 months
Consortium:	11 participants/6 countries
Funded:	in FP7-NMP Programme
Budget:	3,712,054.93 M€
EC Funding:	2,716,423.0 M€

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“On the fly alterable thin film solar modules for design driven applications”

NMP ENERGY

Novel materials and design-based solutions for the creative industry - Energy

Grant Agreement N°: 310220
Funded by European Commission



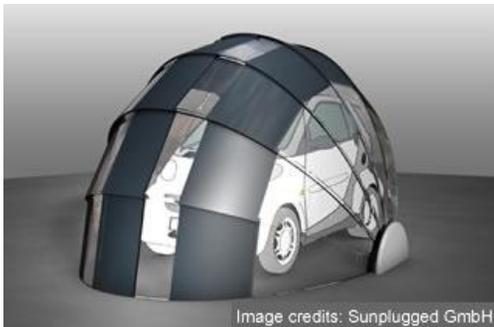
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Our Mission

Nowadays the development of photovoltaic modules is still primarily driven by the idea of economies of scales which leads to unvaried PV modules that are only good for large-area installations.

The project addresses these obstacles by the development of novel solar cell materials, manufacturing processes and supportive actions to improve communication in the design value chain.



Project Description

The vision to use Photovoltaics (PV) as a decentralized and sustainable source of energy in their products is shared by thousands of designers, architects and manufacturers world-wide.

Nowadays the development of photovoltaic modules is still primarily driven by the idea of economies of scales which leads to unvaried PV modules that are only good for large- area installations. These photovoltaic modules are not suitable for the integration into building skins, roof tiles or electric devices because of their rigidity and their electrical constraints.

The project addresses these obstacles by the **development of novel solar cell materials, manufacturing processes and supportive actions to improve communication in the design value chain by:**

- **Development of a novel monolithic interconnection process for thin-film solar cells.**
- Optimized designs of PV cells and modules for different application fields.
- Exploration of associated necessary adaptations of involved materials and process parameters.
- Demonstration of the novel PV material in design driven prototypes ranging from solar charged mobile devices, solar lighting, Building Integrated PV to full integration in smart textiles.

Objectives

1. A flexible scribing and printing technology that **allows producing** a given photovoltaic module **according to specific design requirements** “on-the-fly”.
2. **Novel materials** for the underlying flexible solar cell technology **to extend the design related degrees of freedom and to optimize the materials used for integrative solar applications.**
3. **Novel materials for satisfying design related requirements** on solar module level, focusing on **materials for the electrical conducting front grid** as well as using of **different novel encapsulants.**
4. A **methodological toolbox to provide design rules** for the best solar cell superstructure and module design layout.
5. **New design oriented applications for decentralized solar power generation** ranging from low-power demand to high power applications.
6. Apart from the research and development of the core technologies itself **monitoring and validation** will enhance performance and reliability of the solar integrated products. Since design-driven solar products are often operated in subpar angles to the sun and without any back ventilation, solar cell efficiencies will not only be optimized in respect to standard tests conditions but also to the specific conditions of solar integrated solutions.