

Press release

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European consortium to boost solar electricity technology

(Subtitle) EU supports development of cheaper and more efficient solar modules.

A leading consortium¹ of nine companies, three universities and four research institutes will develop innovative manufacturing technology for crystalline silicon solar modules. The development will be carried out under the name CRYSTALCLEAR, as one of the first Integrated Projects, co-financed by the European Community through the thematic priority "Sustainable Energy Systems" of Sixth Framework Programme for Research. The consortium represents the vast majority of important stakeholders in this technology area. CRYSTALCLEAR is dedicated to modules, which form the heart of any solar energy system and typically account for 60% of the turn-key price of roof-top installations. The project is targeted to enable a price reduction of such grid-connected systems to a level of 3 Euro per watt-peak or even less, which roughly corresponds to electricity generation costs of 0.15 to 0.30 Euro/kWh, depending on location. This is an improvement of 50% compared to the present situation.

CRYSTALCLEAR will run five years and has a total budget of 28 million Euro. The EC contribution is 16 million Euro, while the consortium partners add 12 million to this. Some fifty researchers can now join forces to keep Europe on the map in this highly competitive field, which rapidly grows into a major economic sector and is expected to make a substantial contribution to the future energy production.

With a market share of over 90% and growth figures of 30-50% per year, crystalline silicon technology is the workhorse of the global development in photovoltaic solar energy (PV, or solar electricity). Although crystalline silicon solar modules already have a good track record and have come down in price for decades, they still show large potential for further improvement. This is especially true for the manufacturing cost, but also for the performance, the overall environmental profile and the applicability.

The CRYSTALCLEAR partners have the ambition and the confidence that Europe will be a key actor in the global transition towards a sustainable energy supply, in which solar energy will undoubtedly play a vital role. Since the consortium addresses issues in the entire value chain, from silicon feedstock all the way to module recycling, CRYSTALCLEAR is a true *Integrated* Project. Using this approach the European PV industry should be able to cope in an efficient and comprehensive way with the strong competition from Japan. The quality of present EU-based manufacturing as well as the excellent knowledge base place Europe in a unique starting position in this field.

CRYSTALCLEAR aims at a reduction of module manufacturing costs by 60% to 1 Euro per watt-peak. Today one square meter of this kind of module represents approximately 120 watt-peak. By taking into account the necessary difference between manufacturing cost and selling price and adding the price of other system components and installation, this leads to the aforementioned 3 Euro per watt-peak for a turn-key installation. The consortium further wants to achieve a shortening of the energy pay-back time from 4 to 2 years and a module efficiency improvement from 12 to 16%, the latter corresponding to 160 watt-peak power per square meter. To achieve these very ambitious goals, the consumption of expensive high-quality materials will need to be reduced substantially and solar cells should be developed into advanced, yet well-producible devices. Finally, module materials and design have to be innovated to enable high-throughput, fully automated production.

The results of CRYSTALCLEAR will bring PV technology to maturity and will facilitate strong penetration into the markets of sustainable electricity production.

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¹ **Companies:** BP Solar (ES), Deutsche Cell (DE), Deutsche Solar (DE), Isofoton S.A. (ES), Photowatt (FR), REC (No), Scanwafer (No), Shell Solar (DE), RWE Schott Solar (DE); **universities:** Utrecht (NL), Konstanz (DE), UPM-IES (ES), **research institutes:** CNRS PHASE (FR), ECN (NL, project co-ordinator), Fraunhofer-ISE (DE), IMEC (BE).