

## EERA Joint Programme Photovoltaic Solar Energy

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<b>Number participants and associates:</b>	43 from 18 European Countries

### Why a Joint Programme on Photovoltaic Solar Energy?

PV technology holds the potential to significantly contribute to Europe's 2020 and 2050 goals for greenhouse gas emissions and renewable energy. The European Photovoltaic Industry Association (EPIA) has published "SET for 2020", which has been developed as a vision and roadmap for ambitious deployment in Europe in the period 2010-2020 and beyond. This report quantifies how the application of PV in Europe may be accelerated if R&D efforts are intensified and a number of other measures are taken. Depending on the scenario, the contributions of PV to the total European electricity production can be 4% to 10% in 2020.

### Vision and objectives of JP PV

The EERA Joint Programme on Photovoltaic Solar Energy will contribute to these goals and to developments beyond 2020 through Europe-wide programming and aligning of R&D activities in member states. The objective of the Joint Programme is to accelerate the development of Photovoltaic Solar Energy to an energy technology that can be implemented at a very large scale through Joint Programming activities by key research institutes in Europe. The SEI needs developments regarding reduction of electricity generation costs as well as integration into the electricity infrastructure. The EERA Joint Programme focuses primarily on cost reduction of PV systems, through enhancement of performance, development of low-cost, high-throughput manufacturing processes, and improvement of lifetime and reliability of PV systems and components.

### Visit the webpage:

[www.eera-set.eu](http://www.eera-set.eu)

## Joint Programme Photovoltaic Solar Energy Sub-Programmes

### SP 1 – Silicon Technology

The central aim is to maintain and secure the competitiveness of the EU industry in the field of c-Si PV through research, development and innovation. In this period a close link with the industry will be more important than ever. The goals of the work programme of the EERA JP PV sub-programme on Si Technology are in line with the goals defined in the SET Plan - Declaration on Strategic Targets in the context of an Initiative for Global Leadership in Photovoltaics (PV) and its implementation plan. The main drivers for c-Si technology research are cost reduction and performance enhancement throughout the product lifetime.

### SP 2 – Thin-film inorganic photovoltaics

The goal is well described by the roadmap for photovoltaic technologies developed in the Strategic Research Agenda of the PV-Technology Platform: *“Strategic goals are a further dramatic reduction of turn-key system prices, the development of a broad portfolio of options and technologies rather than a limited set, and the development of next generation thin film technologies.”*

### SP 3 – Hybrid and organic photovoltaics

According to the Strategic Research Agenda in terms of the industrial manufacturing aspects the long term target of HOPV constitutes >10% efficiency module with production cost of 0.3 €/W for BIPV and large-scale power generation. EERA PV sub-programme 3 will work towards achieving this target with efficiencies >20% instead (due to recent advances in the field).

### SP 4 – Concentrated photovoltaics

The main objective of any PV technology is the reduction of the levelized electricity costs, with the challenging target of approaching 5 ¢cent/kWh in the next decade. For the case of CPV, reducing LCOE is achieved by combing ultra-high efficient solar cells with optical concentration. So a focus on both of these two elements, on the one hand the solar cells, and on the other the means to concentrate the sun light on the devices, hold the key to reach the objective.

### SP 5 – PV systems

The main objective is to collect existing national roadmaps, strategies, ongoing activities and key results related to PV systems, in order to identify the future needs for research in Europe and potential fields of activities for the EERA PV partners.

### SP 6 – PV durability and reliability

The vision is to provide the insights and tools required for predicting and guaranteeing life-time energy yield of PV Systems over a 40 year period in all relevant operating environments. This includes understanding stresses, also in relation to the location of the installation, identify relevant failure modes, predictive testing and modelling, life-time prediction, life-time energy yield prediction as well as associated metrology.

### SP 7 – Research infrastructures, mobility and training

This subprogram will contribute to tackling research fragmentation, with a global approach covering all aspects of the value chain: from raw materials to solar modules and the various applications and systems.