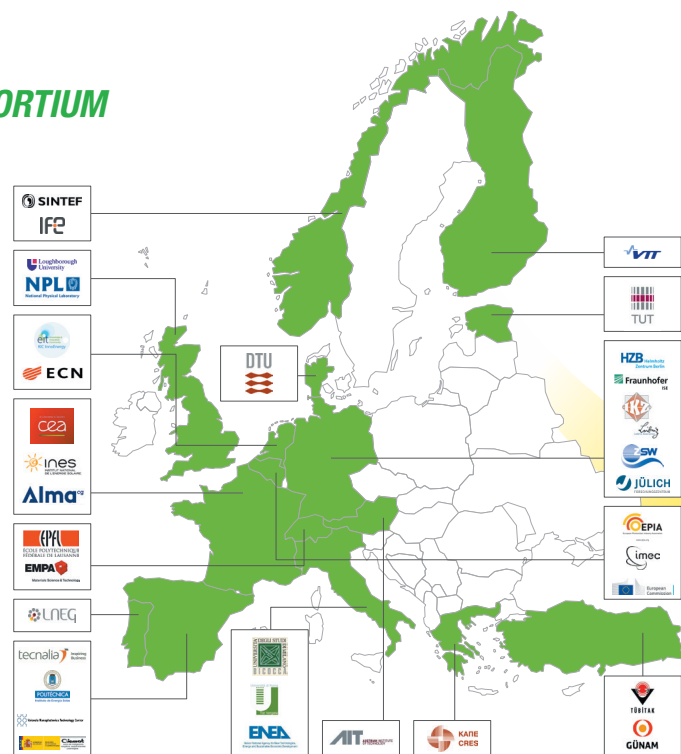


CONSORTIUM



The CHEETAH consortium is composed of 34 partners from 16 European countries (Netherlands, France, Estonia, Spain, Germany, Italy, Switzerland, Greece, Portugal, Turkey, Belgium, Austria, Denmark, Finland, UK and Norway). The partnership gathers partners having scientific excellence and complementarity in all important domains of the PV field (silicon, thin-films, organic PV, novel technologies).

ACKNOWLEDGMENT

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Cost-reduction through material optimisation and
Higher EnErgy output of solAr pHotovoltaic modules
joining Europe's Research and Development efforts
in support of its PV industry

TODAY'S CHALLENGES IN PV

Photovoltaics (PV) is one of the most promising renewable energy technologies for Europe. In fact, PV is now, after hydro and wind power, the third most important renewable energy source in terms of global installed capacity. PV can significantly contribute in achieving the EU's 20-20-20 climate change objectives, as well as to the longer term goal of reducing greenhouse gas emissions by 80-95%, as targeted in the European Energy Roadmap 2050.

In that purpose, the European Commission has challenged the PV industry to set new, ambitious targets for 2020 as part of the Commission's Strategic Energy Technology (SET) – Plan. For this purpose the Solar Europe Industrial Initiative (SEII) and the European Energy Research Alliance Photovoltaics Joint Research Programme (EE-RA-PV) were launched in 2010.

The CHEETAH project is directly linked to the EERA-PV Joint Research Program, which aims to

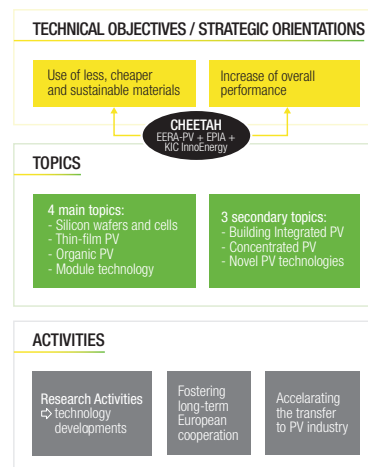
increase the effectiveness and efficiency of PV R&D through alignment and joint programming of R&D of its member institutes, and to contribute to the R&D-needs of the Solar Europe Industry Initiative.

CHEETAH R&D will specifically support Pillar A (performance enhancement & energy cost reduction) of the SEII Implementation Plan (<http://www.eupvplatform.org/>)

OBJECTIVES

The CHEETAH objectives are threefold:

- Developing new concepts and technologies for wafer-based crystalline silicon PV (modules with ultrathin cells), thin-film PV (advanced light management) and organic PV (very low-cost barriers), resulting in (strongly) reduced cost of environmentally benign/abundant/non-toxic materials and increased module performance.
- Fostering long-term European cooperation in the PV R&D sector, by sharing knowledge, organizing workshops, exchange and training researchers inside and outside Europe, efficient use of infrastructures, promoting best practices and standards
> Integrating and Joint Support Activities
- Accelerating the implementation of innovative technologies in the PV industry, by a strong involvement of EPIA and EIT-KIC InnoEnergy in this program
> Joint Support Activities.



WORKPLAN

Coordination activities

Fostering the use of existing facilities and expertise

- Identify currently running technical-scientific needs
- Taking profit from the strength owned by each CHEETAH partner

Mobility, education and International Cooperation Activities

- Coordinate the R&D efforts on an international level
- Increase level of awareness of scientists for better implementation of PV projects

Dissemination, internal and external communication

- Provide information to all partners about scientific platforms to present results
- Ensure that community is informed about project results

Acceleration of innovations' implementation

- Boost and efficiently enhance the transfer of knowledge to the industry sector and to important PV market stakeholders and decision makers

Joint research activities

Ultrathin wafer development

- Produce ultrathin wafers of below 50 micron thickness
- Suitable for solar cell efficiencies >20%

Cell processing of ultrathin wafers

- Develop process for solar cells with 23.5% efficiency, 2 gram Si/Wp and <0.3€/Wp

Module development for ultrathin x-Si cells and thin-films

- Demonstrate 22% efficiency for ultra-thin x-Si wafer-based modules
- Development of new interconnections schemes and encapsulations for thin-film modules

Advanced light management for thin-film PV

- Implementation of novel 3D architectures into the process chain of thin-film solar cells
- Cost reduction per Wp by 20%

Very low-cost OPV

- Development of an encapsulation-less organic solar cell
- Screening of materials and layers combinations for enhanced stability
- Platform for an encapsulated long-lived organic solar cell

