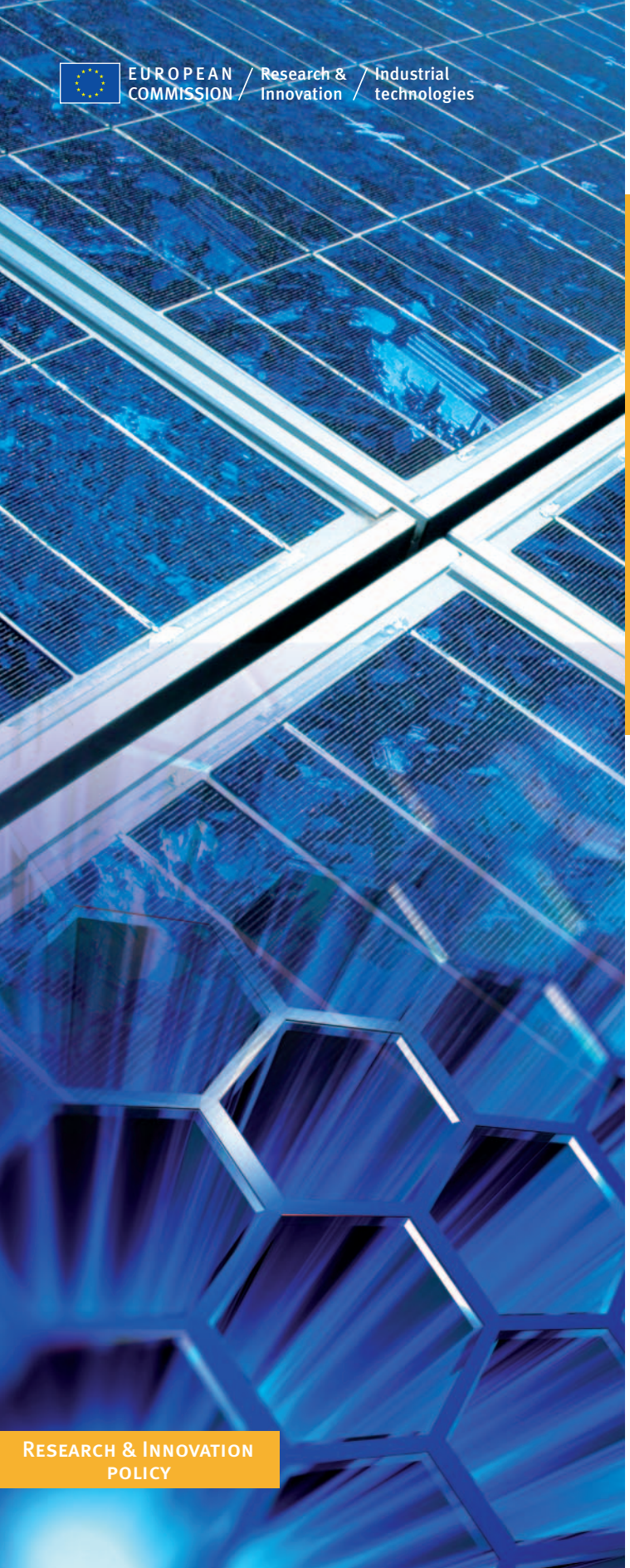

Photovoltaics and nanotechnology: from innovation to industry

The European Photovoltaics Clusters

RESEARCH & INNOVATION POLICY

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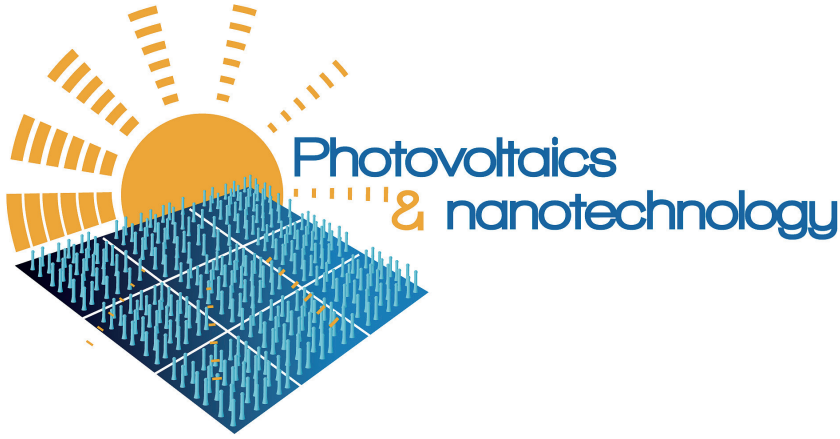
The European Photovoltaics Clusters

Edited by

Sophia Fantechi, Ph.D.



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My thanks must go to the many project Coordinators and project Partners who have actively participated in this Workshop, allowing me to set up a high level scientific programme, and who have made it a real success with their constructive discussions and their creative and valuable scientific input. I thank them all for so enthusiastically providing positive feedback to me during and after the Workshop and for their continuing interest. In particular, thanks and encouragement go to those who have taken the initiative to prepare the second European Photovoltaics Clusters Workshop, dedicated to nanotechnology innovation for photovoltaics, and who therefore confirm their intention to contribute to the long-lasting objectives of the clustering activities I have launched with the first Workshop.
As Editor of this publication, I must express my gratitude to Dr Iain Weir (Optimat Ltd, UK), Project Technical Advisor for the nanotechnology photovoltaics projects supported by the NMP Programme, for his advice and his input to this publication, in particular for his analytical and in-depth consideration of the entire portfolio of photovoltaics projects.
Last but not least, special thanks of course go to the SNAPSUN NMP project and to INES (Institut National de l'Energie Solaire, France) for professionally hosting the first European Photovoltaics Clusters Workshop. In particular, I wish to acknowledge the contribution of Dr Bertrand Fillon, CTO of CEA/LITEN (Laboratory of Innovation for New Energy Technologies and Nanomaterials, French Atomic Energy and Alternative Energies Commission) for his active involvement in chairing the Workshop, his input to this publication and his recommendations for future activities. I thank also Dr Simon Perraud (CEA/LITEN), co-ordinator of SNAPSUN, for his participation in the Workshop and for the implementation of my initiative to set up a European Photovoltaics Clusters Website, which I hope will be maintained to become an important tool to follow-up and optimise clustering activities in the photovoltaics domain.

Sophia Fantechi, Ph.D.
Editor
European Commission
Directorate-General for Research and Innovation

January 2011

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PVTRIN

Training of Photovoltaic Installers

Grant agreement	**n° IEE/09/928/SI2.558379**
Programme	**CIP-IEE**
Duration	**01/01/2011 to 31/08/2014**
Co-ordinator	**Technical University of Crete, Greece**
Contact	**Theocharis TSOUTSOS** **theocharis.tsoutsos@enveng.tuc.gr** **tel: +30 28210 37825** **http://www.pvtrin.eu**
Project cost Funding	**EUR 0.90 million** **EUR 0.67 million**

Objectives

The project intends to support the market by overcoming the barrier of the lack of skilled installers of small scale RES systems by developing training courses and a transparent certification scheme for PV installers, in line with the requirements of the RES Directive (2009/28/EC). This will eventually create a more qualified PV installation workforce. The increased confidence of potential PV owners will lead to market growth.

Description of the work

Despite the several benefits related to the photovoltaic (PV) technology, the PV industry is dealing with a number of obstacles. One of the main barriers to market penetration, mainly in Eastern and Southern Europe, is the lack of skilled workforce for PV installation and maintenance. There are not enough trained installers to implement a large deployment of this technology. Furthermore, interested parties eventually seek/demand acknowledged standards, skills certification and quality assurance throughout the development of a PV application (design, installation, and maintenance). The PVTRIN project aims to address this issue in six countries (SP, GR, CY, BG, RO, and HR), by developing a training scheme for technicians/electricians that will focus on installation and maintenance of PV/BIPV systems in buildings. The goal is to configure a competent PV installers' workforce using common – multinational – accepted criteria and standards, to encourage a greater number of technicians to advance their professional skills and knowledge, to ensure the quality of PV/BIPV installations and to defend PV technology's credibility from poor demonstrations.

The duration of the action is 36 months, comprise the following phases:

- Market mapping in participating countries – Comparative analysis of industry/market needs and perspectives on PV/BIPV installation and maintenance through Europe.
- Definition of professional frameworks for PV installers and development of an appropriate common training methodology, taking into account essential national adaptations.
- Development of the training material for installers and trainers: trainers' guides, trainee's handbooks, technical documentation, troubleshooting and best-practice guides and training and assessment tools.
- Development of a certification scheme in order to accredit the training course for installers and to provide common quality standards within EU countries.
- Implementation of pilot training courses in 6 participating countries and a review of the training and accreditation processes.
- Auditing and evaluation of project's activities and outcomes.
- Dissemination activities and networking throughout Europe.
- Establishment of a mechanism to facilitate transferability, replication and exploitation of projects deliverables.

Expected results

- An operational certification scheme for installers of PV systems.
- Common acknowledged quality standards, professional frameworks and a training methodology, taking into account essential national adaptations.
- Practical training materials/tools for installers and installers' trainers.
- A Quality Management Manual.

- Eight pilot training courses implemented (1 in each country – excluding UK/Belgium – 2 in Romania and Greece), with at least 160 participants; 120 certified.
- A pool of skilled, certified PV installers, in participating countries and a database of certified installers.
- Certification of six training providers.
- Web portal offering access to a wide range of information on installation best practice and troubleshooting, available technologies, legislative and financing issues, etc.
- Increased awareness of the benefits of engaging certified installers.
- 10 000 technicians informed on PV installation.
- A roadmap for the implementation of the small scale PV installer's certification scheme across Europe.
- Over 100 000 EU citizens informed, through mass media, on the PVTRIN training and certification scheme.

Further research needs

The longer term objectives of the project are to:

- Accomplish the acknowledgement and/or adoption of developed certification scheme(s) in EU countries.
- Provide professional benefits to trained technicians/installers, through the improvement of their technical skills/knowledge on PV/BIPV installations and their certification/accreditation.
- Promote quality criteria for PV installations, in order to increase the credibility of PV/BIPV installation and maintenance and to raise developers, planners and potential users confidence.
- Boost PV/BIPV installations in participating countries.

Partners

	Beneficiary name	Country	Role
1	Technical University of Crete, Department of Environmental Engineering	Greece	Project Coordinator Academic and Research Institute.
2	Fundación Tecnalia Research & Innovation	Spain	Technology innovator – Specialists in Technical education.
3	Sofia Energy Centre	Bulgaria	Energy Agency.
4	Energy Institute Hrvoje Požar	Hungary	Research Institute.
5	Agency of Brasov for The Management of Energy and Environment	Romania	Energy Agency.
6	Technical Chamber of Greece – Section of Western Crete	Greece	Professional chamber including engineers, installers and contractors.
7	European Photovoltaic Industry Association (EPIA)	Belgium	Professional (PV industry) association.
8	Scientific and Technical Chamber of Cyprus	Cyprus	Professional chamber including engineers and installers.
9	Building Research Establishment Ltd	United Kingdom	Research, consultancy, training, testing and certification organisation.