

# PV ERA NET

## A PROGRAMMERS' APPROACH TO STRENGTHEN EUROPE'S POSITION IN PV RESEARCH AND TECHNOLOGY

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### ABSTRACT

Including 19 institutions from 13 states, PV ERA NET aims at promoting cooperation and coherence of national and regional funding programmes in the field of PV RTD in order to strengthen the European PV RTD landscape. The project's overall objective shall be achieved by a three-step approach ranging from structured information exchange over the assessment of good practices in programming towards common strategies and joint activities. First results are based on programme reports providing great wealth of information and insight into programme contents, approaches and contexts. Further results consist of tools for structured and sustainable information exchange on programmes and programming.

ing number of European nations and regions have included PV RTD into their different frameworks for research and innovation funding and thereby generated an active and strong RTD community in this sector. In recent years, the public funding on national level summed up to approximately 75% of the whole European PV RTD spend [1]. However, national efforts from the European point of view are still relatively fragmented in the way that they often lack transnational coherence in terms of mutual knowledge, topics, approaches and cooperation. The overall strategic objective of PV ERA NET is thus to strengthen coherence and cooperation of PV RTD programming on the transnational level in order to create a durable impact on innovation strength and economic growth in the European PV sector.

### INTRODUCTION

#### State of the Art

Solar photovoltaic electricity research and technical development (PV RTD) has a solid basis within Europe's high tech landscape, facing a rapidly growing market with fast innovation cycles as they are typical for relatively young high technologies. Since the late 1980ies, a grow-

#### Project Framework

PV ERA NET, in full: "Networking and Integration of National and Regional Programmes in the Field of Photovoltaic (PV) Solar Energy Research and Technological Development (RTD) in the European Research Area (ERA)" is a 4-year project within EU 6th Framework Programme (FP6). As an ERA NET coordination action it is located within the EU FP6 cross-section activity "Strengthening the European Research Area". It addresses coordi-

nators and managers of PV programmes or more general funding frameworks – often related to renewable energies - comprising PV within their thematic framework. Consequently, PV ERA NET partners consist of ministries and programme management agencies responsible for developing, carrying out and monitoring those programmes.

PV ERA NET started in October 2004 with 17 participants from 11 countries, comprising more than 20 national and two regional PV RTD programmes (or parts of programmes) and thus covering a major part of PV programming activities within Europe. Another two states joined the consortium by early 2006.

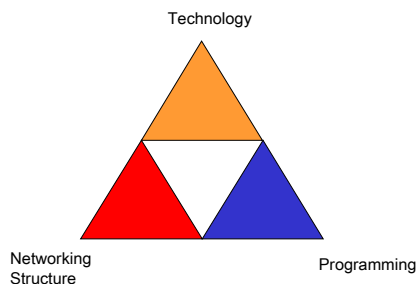


Figure 1: PV ERA NET activity field

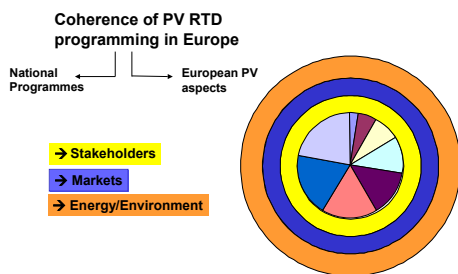


Figure 2: PV ERA NET general objectives

## OBJECTIVES

### General objectives

The overall strategic objective of PV ERA NET is to strengthen Europe's position and competitiveness in PV technology by improving the coherence of PV RTD programming efforts within the European Research Area.

PV ERA NET is situated in a context that can be described by a triangle with the corner points: PV RTD technology, funding programmes, i.e. RTD support and finally the networking structure to be achieved [Fig. 1]. Those corner points represent at the same time the activity range in which PV ERA NET operates.

In view of the above-mentioned fragmentation of PV RTD efforts in Europe, PV ERA NET is meant to provide

structures for increased coordination and cooperation with a long-term perspective and a durable structuring effect for PV research programmes. The goal is to enhance coherence, i.e. to close gaps and to form a common basis for PV RTD programming in order to achieve more general benefits for European PV stakeholders and markets as well as from the cross-sectional viewpoint of contributing to a world-wide sustainable energy supply structure [Fig. 2]. The national and regional programmes, represented by the circle sectors, are meant to grow together in their context of PV RTD stakeholders, supporting markets and contributing to overall energy and climate policy goals.

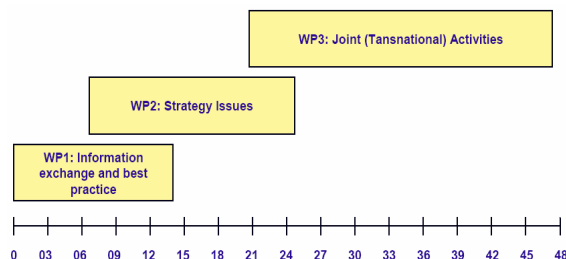


Fig. 3: The set-up of the work packages of PV ERA NET reflects the stepping-up of the levels of coordination and cooperation. The scale at the bottom indicates the project duration in months (since Oct 2004).

### Project objectives

The general project goals related to these overall strategic objectives are:

1. Enhanced and sustained coordination, cooperation and coherence of photovoltaic RTD programming activities. The development of efficient information structures is as well part of this as the identification of common strategy issues.
2. Improvement and corroboration of the structure and effectiveness of photovoltaic RTD activities. Examples for key issues are: setting standards for good practices in transnational programming cooperation, mobilisation of resources with respect to different programming aspects and encouraging technology transfer.
3. Development of common transnational activities in photovoltaic RTD programming.

## APPROACH AND ACTIVITIES

The general project objectives shall be reached by means of a three-step approach consisting of:

1. Structured information exchange and development of sustainable dissemination strategies.
2. Identification of complementarities, gaps and opportunities as well as barriers and solutions regarding the cooperation between different PV RTD programmes in order to assess suitable strategies for sustained coordination and cooperation.
3. Development of a strategy plan and implementation of joint activities and approaches.

The overall structure is translated into a variety of planned networking activities as explained below. With regard to all activities, an emphasis shall be put on the creation of a durable structuring effect, reaching out beyond the time and framework of the project itself.

### Information exchange

The main activities within this first step are to develop tools for the improved information exchange on PV RTD programmes and to elaborate on good practice [7] models for programming. The partners developed structures for gathering information about contents, approaches and context of the participating programmes and by this build the basis for sustainable future cooperation. After setting standards for the description of the programmes, information is summed up in a programme survey report [2, 3] and in a PV RTD community report [4] in order to enable the partners to gain mutual knowledge about each other's activity fields and to learn from each other. The project activities include dissemination practices such as a website presentation [5], public reports and others [6].

### Strategy development

On the basis of the overview gained, an analysis of gaps and opportunities leads to first ideas on structure and topics for transnational PV RTD programme cooperation. Possible issues will be for instance formal aspects as common evaluation systems, IPR arrangements and dissemination strategies as well as general PV topics and technological questions. The results will be summed up in a strategy report showing the key issues for future joint activities.

### Joint activities

The concluding step of PV ERA NET will be the development of a joint action plan, respectively a common work programme for implementing the cooperation mechanisms identified in the two foregoing work packages. It shall be followed by the launch of joint transnational activities on programming level based on the opportunities identified. Possible activities comprise dissemination strategies as well as cooperation in the field of reviews and evaluation procedures or training activities. Additionally, within the given legal and technological framework there will be an approach towards common transnational programme activities, e.g. joint calls and the outline of a joint programming structure suitable for a sustained cooperation.

## RESULTS

The first step in the project towards transnational cooperation is information exchange. Presentations, questionnaires, reports, peer reviews and workshops have been means to learning from other's programmes.

Each country reported on its programme(s) with respect to contents, approach, context and international

orientation (see box on the right). In a first major step, comprehensive information has been made available by describing some 25 (sub-) programmes dealing with PV RTD. A common standard set-up of the country reports on PV RTD programmes was adopted:

1. Programme Contents
  - Key Features
  - Objectives
  - Priorities
  - Budgets and Spends
  - Overview over Projects
  - Other PV RTD Activities
2. Programme Approach
  - General Strategy on the Programme Level
  - Assessment & Evaluation of the Programme
  - Funding
  - Procedure from Proposal to Project
  - Dissemination and Communication
  - Technology Transfer
  - Good Practice
  - Lessons Learnt
3. Programme Context
  - Community
  - Interaction and Stakeholder Involvement
  - Framework and Environment
4. International Orientation
  - Current Transnational Activities
  - Future Transnational Activities & Opportunities
  - Barriers and Gaps

### Initial findings

The structure of the country reports allows for finding the relevant information with respect to key features of the various programmes and look up interesting ways of programme design and management [2 - 4]. For the latter, an overview "Important Elements for PV RTD Programming" collects good examples of programming practices [7].

Some very general observations [2, 6] can be made by looking at the different programmes with respect to future transnational PV RTD activities:

- i) The programmes involved cover a large share of public spend on PV RTD. Around 50 MEUR p.a. are assessed. On a very general level, it can be stated that PV RTD funding is becoming more important.
- ii) Looking at priorities, the programmes' spend indicates that more than half of the funding is oriented towards cell and module technology and a fourth goes into building integration. The priorities can vary significantly both between the countries and within the country over time.
- iii) Most states and programmes do not have a budget specified for PV.

- iv) Programme context: Only a few programmes are specifically dedicated to PV. PV is mostly embedded in larger RTD programmes: renewable energy, energy, technology, RTD and / or general programme.
- v) Programme extent: Most programmes involved do not cover all PV RTD activities in a country. In most states, there is (often much) more PV RTD done and more public spend on PV RTD than is assessed (with)in the programmes.
- vi) Context and extent both reflect different policies in the states. There are different strategies for PV RTD, sometimes there is no clear strategy specified for PV. This has consequences on how focused and comprehensive a programme is with respect to PV RTD.
- vii) The scope of the programmes with respect to PV depends on the (diverse) policies and strategies. Programmes can cover all or parts of the development chain from basic R&D to demonstration, or parts of the development chain can be found in different (sub) programmes.

### Networking and scope

PV presents major opportunities and challenges. On the international level, PV is seen as a priority issue, which is reflected in FP6 research, the European PV Technology Platform [8] recently established and the IEA-PVPS programme [9]. The international context and some of the national expectations indicate a great potential for increasing the cooperation and coordination level between RTD programmes. ERA NET aims at networking and mutual opening with the great diversity of how research is organised in the different states. Common scope has become clear for different transnational activities, e.g. (tools for) direct information exchange between programmers, common expertise and evaluators' pool, specific technical R&D topics.

### CONCLUSION

The PV ERA NET project assembles a major part of European PV RTD support programme owners and managers from 13 European states which have formulated an initiative towards improved cooperation and coordination on programming level as their common objective. Various project activities ranging from structured information exchange over common strategy and best practices development towards joint transnational activities will be imple-

mented in order to enhance coherence within the PV RTD programming sector on European level. First results are detailed overviews over activities and procedures in the over 20 participating national and regional programmes, a structure for sustained information exchange and a first insight into barriers and opportunities for a future cooperation.

PV ERA NET thus serves as a nucleus for improved cooperation and coordination in PV RTD strategy development in the European Research Area. By this, it shall contribute to establish a strong European Research Area and to create a durable structuring effect of the European PV landscape in terms of coherence, innovation and economic growth.

### ACKNOWLEDGEMENT

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