International Energy Agency
Photovoltaic Power Systems Programme

Building integrated PV

17.1 IEA PVPS TASK 15 Definition Workshop Follow Up

Introduction and Minutes Expert workshop 23th of September 2014

Main building VU, Agora 3 - Boelelaan 1105, 1081 HV Amsterdam

Michiel Ritzen

Heerlen, 24.10.2014

Minutes Expert workshop

1. Introduction

At the 43rd PVPS ExCo meeting in Aachen, the draft paper for Task 15 BIPV has been approved and the task organizer has been assigned to organize an expert workshop to develop the work plan for Task 15.

In the period May 2014 – Augustus 2014 approximately 200 stakeholders in the BIPV community (experts, producers, architects, engineers, project managers, etc.) have been identified worldwide and invited for the Task 15 BIPV expert workshop, to be held in Amsterdam during the PVSEC.

At the workshop, 47 members of the worldwide BIPV community were present. The workshop took place during the PVSEC outside the conference venue (participants were therefor not obliged to pay an entrance fee to the conference).

During the workshop, general presentations were held covering the participation in a Task (ExCo Alternate), the Task in general (Task Organizer) and the different subtasks (invited speakers). After the introduction, the separate subtasks were discussed in smaller groups, contributing to the two main aims of the workshop:

1. Defining the contribution of the different experts, stakeholders and countries.
2. Defining the research topics and issues to be addressed in the Task.

These two aims have been reached due to the large number of participants and their very active contribution before, during and after the expert workshop.

The outcomes of the workshop have resulted in the Task Work plan, which will be presented at the 44th PVPS ExCo meeting in Kyoto, November 2014.

2. Present:

The List of participants and pictures of the Workshop are on the final pages of these notes.

3. Welcome & General presentation of task 15

Welcome by Otto Bernsen, ExCo Alternate NL of PVPS (presentation attached). Introduction of the task and relation with other tasks such as PVPS tasks 7, 10, 9, 1, 12, 13 and 14. Explanation of the different roles participants can take up within Task 15 (observer, active member or subtaskleader) and how this should be arranged with the Exco of the participating country and Task Organizer.
In order to present the workplan for Task 15 at the IEA PVPS task meeting in Kyoto all documents should be finalized by the 3th week of October.

Tilmann Kuhn comments that a new task is being set up on solar heating and cooling in multifunctional facades. Is fits well within the plans of Task 15 and cooperation is recommended. This is also the case for SHC Task 41.
Michiel will contact operating agents of these Tasks.

General presentation by Michiel Ritzen
General introduction of Task 15 and status of the subtasks (presentation attached). Michiel welcomes the 45 participants from 13 countries. Goal of today's workshop is to further specify the subtasks in the concept draft paper and find participants who are willing to participate in task 15 as subtaskleader and/or member. The workplan will be finalized during the PVPS meetings in Kyoto, held late November 2014.

Comment: The scope of task 15 focuses on both existing and new buildings.

Gaetan Masson points out that at this moment there is no reliable data about BIPV installations and the market share over recent years. It would be good if Task 15 would also do a market inventory in order to get accurate data. Task 1 can help with this. It is recommended not to use any old data in the work plan.

4. Presentations Subtasks

All subtasks are being presented.
Subtask A BIPV database 2.0 by Tjerk Reijenga - BEAR-id architects

- Database of current projects and BIPV products
- Do's and Don'ts on BIPV. Learn from previous projects. Provide input for task B and E
- Goal is not to get all projects but to get all relevant information of a project to reach the goal of T15.
- Make us of databases of task 7, Task 10, www.bipv.ch and other existing databases

Subtask B Economic transition towards sound business models by Boukje Huijben - TU/e

- Mapping of BIPV business models
- Analysis of market support mechanisms and market regulations affecting BM innovation opportunities
- Economic feasibility study of BIPV products
- Guidelines for entrepreneurs and policy makers.

Subtask C International framework for BIPV specifications by Tilmann Kuhn - Fraunhofer;

- Define BIPV-systems
- Provide an overview on international regulations, standards and requirements with relevance for BIPV products.
- Create a common understanding on BIPV evaluation
- Harmonize standardization activities worldwide

Subtask D Environmental assessment issues by Michiel Ritzen - Zuyd University

- Identification of BIPV related environmental benefits worldwide (embodied energy, embodied land, material depletion)

- BIPV focused methodology for environmental assessment
- BIPV assessment 'plug-in' for generic assessment tools
- BIPV 'worldwide map' of efficiency related to integration

Subtask E Demonstration projects by Zeger Vroon – Zuyd University
- Comparable BIPV project monitoring worldwide, database sharing
- Realization of identical demonstration projects worldwide
- Demonstrate on scale of 1 house, from prototype to market introduction.

Subtask F is not being presented at this point. Ideas for this subtask depend on the other subtasks and will follow later.

Comments:
- *In which task will the market research on BIPV take place? STB*
- *St B: Peter Kovacs: How can you measure the impact of different business models? Boukje Huijben: In America there is a database to compare business models, this is possible.*
- *St B: Task 13 also focuses on business models, collaboration is recommended.*
- *St B: Financial and insurance companies should also participate in subtask B*
- *St C: The subtask might be too ambitious. There are too many regulations worldwide. Any database will be outdated very quickly.*
- *There are several different definitions of BIPV. Creating one final definition is not possible. But it is essential to get a clear framework of BIPV applications. In order to analyze the BIPV market and to consent on how to provide and compare data.*
- *Gaetan Masson: Segmentation is extremely important. Define clear market segments.*
- *St D: The Sophia project clearly links with this subtask. It should be included.*
- *St E: There is al lot of overlap between subtask A, B and E in the content, not in the process. It is risky to want to demonstrate finding of other subtasks in St E.*
- *St E: Focus on the dissemination instead of demonstration.*

5. Presentation Horizon2020 calls

Presentation of upcoming interesting H2020 calls for Task15 by Martje van Horrik – Zuyd University
- EE2-2015 Buildings design for new highly energy performing buildings
- EE14-2014/2015 Removing market barriers to the uptake of efficient heating and cooling solutions
- EE19-2014/2015 Improving the financeability and attractiveness of sustainable energy investments
- LCE3-2014/2015 Demonstration of renewable electricity and heating/cooling technologies.

6. Discussions subtasks

Outcomes:

Subtask A BIPV database 2.0 – subtask & discussion leader Tjerk Reijenga

Definition of BIPV:

A.1 Collection of existing definitions

A.2 Evaluation + new framework definition

Database projects

A.3 Project (selection) criteria, definition goals
Aesthetics, lessons learned(failures, energy output) , details of building + process, demonstration of design variety options, retrofit and new buildings, motivation (green issues, solar energy production, legislation)

A.4 Questionnaire for project analyses

Input: Existing databases & all participating countries in Task15 deliver material.
Target audience: Architects, home owners, housing companies
Deliverables: +/- 40 projects presented in Book/website/database/movie?

Comments:

- *The segmentation / definition of the framework is essential within Task 15. This topic will be discussed further with the subtask leaders*
- *The focus of the database should match the scope of task 1: from prototype to market real projects. Not landmark projects.*

Subtask B Economic transition towards sound business models – subtask leader?? discussion leader Boukje Huijgen & Sharon Dolmans

B.1 Market overview and BIPV market segmentation
B.2 Inventory existing businessmodels BIPV (PVPS, SEAC, etc)
B.3 Interviews stakeholders
Value proposition, value system, descision making, expectations, barriers.
B.4 Development feasible businessmodels
B.5 Case studies existing projects

Input: Previous tasks, focus on industrial involvement,
Target audience: (BI)PV manufacturers, building companies, installation companies, end customer, governmental agencies.
Deliverables: reports/website?

Comments:

- *The plan is very academic. At this moment the products are not covering the market needs. So practical /empirical research is necessary.*
- *5 experts participated in the discussion. Input from other parties is more than welcome.*
- *The added value of BIPV should result from this Subtask*

Subtask C International framework of BIPV specifications – subtask & discussion leader Tilmann Kuhn

C.1 BIPV needs & functions analysis.
C.2 BIPV requirements overview
Deliverables Top-down: report on requirements. Bottom-up: collect and describe BIPV components that do have a general approval as building product in a certain country / region.
C.3 Multifunctional BIPV evaluation.
- identify groups of applications/solutions
- define evaluation schemes for the groups of applications
- specify test and calculation methods for the different groups.
C.4 Suggest topics for exchange between different standardization activities on international level.

Input: Regulations per country, etc.
Target audience: (BI)PV manufacturers, building companies, installation companies, governmental agencies.
Regional scope: Worldwide, at least all participating countries.

Comments:

- Developing of methods for multifunctional BIPV evaluation is not part of subtask C. However if someone is working on this it can be implemented in the task.

Subtask D – Environmental assessment issues - subtask leader Jerome Payet, discussion leader Michiel Ritzen

D.1 Identification of BIPV related environmental benefits worldwide
D.2 BIPV focused methodology for environmental assessment
Product category rules, environmental data needed, framework for EPD
D.3 BIPV environmental assessment test cases
D.4 BIPV environmental assessment plug-in for building assessment tools

Input: Connect with task 12
Target audience: (BI)PV manufacturers, governmental agencies.
General outcome: guidelines for assessments.

Subtask E – Demonstration projects – subtask leader tbd Discussion leader Zeger Vroon

E.1 Inventory of existing test sites
Make universal, combine data, round robin test.
E.2 Inventory of test site needed
E.2 Expand test sites to other climate regions
Testing of 3 different systems on different locations

Input: Input from companies is missing in definition of this subtask.
Target audience: (BI)PV manufacturers, building companies, installation companies, end customer, governmental agencies, Architects.
General outcome: Proof of performance, integration.
Demonstrate: Cost down, diversity of products.

Comments:

- What do you want to gain from this demonstration?
- Is this a way of demonstrating the business models?
- What do you expect to get from the cross section analyses.
- The target audience is missing in this subtask at the moment. Why not let them participate?
- This subtask will probably start later. There are companies that already showed interest to participate in this subtask.

Subtask F - Dissemination – subtask leader tbd Discussion leader Michiel Ritzen

From the plenary discussion it can be concluded that there is a need for a separate dissemination subtask. The goal of this Subtask is to reach a significant audience with different levels of (PV) expertise. As all experts in the audience are PV experts and not communication experts, a communicational expert is needed.
General outcome: youtube (low level expertise); book (medium level expertise); cases study database (all levels experts); MOOCS serie (students).

7. Closing

Michiel Ritzen thanks everyone for their participation. All the documents will be send around by email. Gaetan Masson will create a T15 portal on the PVPS website for further communication. To all active experts an invitation will be send after the workplan presentation during WCPEC for a next meeting.

Next steps to the workplan:

1. All experts should fill in the excel contribution matrix in man-months for the whole project period (all) 14 Oct 2014
2. Subtasks leadership B, E and F (Task Organizer) 14 Oct 2014
3. Define workplan subtasks (Subtaskleaders, experts) 20 Oct 2014
4. Send workplan to PVPS committee (Task Organizer) 20 October 2014
5. Present final workplan at PVPS meeting in Kyoto 18-24 November 2014

List of participants

Australia	Mark Snow	m.snow@unsw.edu.au
Austria	Hubert Fechner	hubert.fechner@technikum-wien.at
	Gabriele Eder	Gabriele.EDER@ofi.at
	Gerald Steinmauer	steinmaurer.gerald@asic.at
	Karl Berger	Karl.berger@ait.ac.at
Belgium	Gaëtan Masson	g.masson@iea-pvps.org
Denmark	Peter Ahm	ahm@paenergy.dk
France	Anjali Shanker	a.shanker@ied-sa.fr
	Yvonnick Durand	Yvonnick.durand@ademe.fr
	Emmanuel Dufrasnes	emmanuel.dufrasnes@strasbourg.archi.fr
	Jerome Payet	jerome.payet@cycleco.eu
	Silvia Puddu	s.puddu@ied-sa.fr
	Renaud Vignal	renaud.vignal@arcelormittal.com
	Olivier Flechon	olivier.flechon@cea.fr
	Françoise Burgun	Francoise.BURGUN@cea.fr
Germany	Tilmann Kuhn	tilmann.kuhn@ise.fraunhofer.de
	Wendelin Sprenger	wendelin.sprenger@ise.fraunhofer.de
	Ingo Hagemann	ingo@architekturbuero-hagemann.de
	Claudio Ferrara	Claudio.ferrara@ise.fraunhofer.de
Italy	Francesca Tilli	Francesca.tilli@gse.it
	Silke Krawietz	seta@gmx.net
	Alessandra Scognamiglio	alessandra.scognamiglio@enea.it
	Laura Maturi	laura.maturi@eurac.edu
	Nebojsa Jakica	nebojsa.jakica@polimi.it
Japan	Hiroko saito	h.saito@pvtec.or.jp
	Masa Ishimura	ishimuramsn@nedo.go.jp
Korea	Jung-hyuk Ahn	jhan@eagon.com
	Jae-yong Eom	jyum@eagon.com
Lithuania	Juras Ulbikas	juras.ulbikas@protechnology.lt
		ulbikas@europarama.lt
The Netherlands	Boukje Huijben	J.C.C.M.Huijben@tue.nl
	Chris geurts	chris.geurts@tno.nl
	Erik Lysen	erik.lysen@kpn.nl
	Gerard de Leede	gleede@heijmans.nl
	Mark Meijer	mark@energyindeed.com
	Martje van Horrik	martje.vanhorrik@zuyd.nl
	Michiel Ritzen	michiel.ritzen@zuyd.nl
	Menno van den Donker	vandendonker@seac.cc
	Otto Bernsen	otto.bernsen@rvo.nl
	Sharon Dolmans	s.a.m.dolmans@tue.nl
	Tjerk Reijenga	ttjerk@gmail.com / tjerk@bear-id.com
	Zeger Vroon	zeger.vroon@zuyd.nl
Norway	Sean Erik Foss	Sean.Erik.Foss@ife.no
Sweden	David Larsson	david.larsson@directenergy.se
	Peter Kovacs	peter.kovacs@sp.se
	Bengt Stridh	bengt.stridh@se.abb.com
Switserland	Christof Erban	christof.erban@meyerburger.com
	Francesco Frontini	francesco.frontini@supsi.ch
	Thomas Meier	tmeier@essencedirect.ch

Pictures of the workshop