The visions from the European Photovoltaic Technology Platform

Silke Krawietz and Jef Poortmans
on behalf of the Steering Committee

'**Reaching out for opportunities in BIPV – technology and industry developments**

EU PVTP Parallel event
EU PVSEC 2015, Hamburg

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EU PVTP ad hoc Working Group

BIPV

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Jef Poortmans, Co-Chair BIPV group / EU PVTP

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Structure of the BIPV group

BIPV group and objectives

- The aim of the workgroup is **to define more clearly status, needs and benefits of BIPV** and to translate these into well-defined R&D-objectives.
- BIPV offers numerous **new opportunities** for a European-based industry and service deployment, supported by the ambitious targets of the European Union **in relation to the energy efficiency of buildings**.

  Collaboration with the building industry is essential.
- Multidisciplinary composition of the various **subgroups**:

1) **Regulatory EU framework, specifications and Building codes**
2) **Cost targets and competitiveness**
3) **Design & Innovation / R&D Challenges**

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Where sustainability meets aesthetics

Energy efficiency in buildings and Building-Integrated Photovoltaics (BIPV)

One-day conference
8 July 2015 • Royal Institute of British Architects, London

Why the London Conference?

- Energy Union and SET Plan: Energy Efficiency and Renewable Energy are core issues
- European regulations for Nearly Zero Energy Buildings (NZEB) and future Plus Energy Buildings (PEB)
- BIPV is an important element in combination with energy efficiency in buildings
- BIPV offers great opportunities for design and innovation
- Explore the needs and visions of architects, building industry, developers and designers in collaboration with the PV and BIPV industry

Results of the BIPV event in London

Important outcomes of the London event:

- **Presentation of the various point of views of BIPV and construction industry**, including architects, engineers and developers, as well as new BIPV technology approaches from leading research institutes

- Close collaboration with the **ECTP (European Construction Technology Platform)** and the **Smart Grid Platform** are crucial

- **Interdisciplinary exchange and collaboration** in the field of:
  - Energy efficiency in buildings
  - The integration of renewable energies, in particular integration of photovoltaics into buildings, cities and the smart grid in order to ensure energy security and sustainability in the building and construction sector.

- **Preparation of MoU** among the ETPs

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Results of the BIPV event in London

Results of the interdisciplinary discussion

- Estimated share of onsite RES in NZEB (30% in N-Europe up to 90% in S-Europe)
- **Business and technology opportunities for BIPV in Europe – innovation and competitiveness in the PV sector** (creation of jobs and reaching the climate goals)
- Challenges in the R&D for BIPV, examples in the various presentations
- Importance of integration of PV into the building skin from the early design phases
- Keywords for improving the present BIPV situation are achieving **flexibility, color and consistency**. The flexibility is of importance on different levels. Flexibility has to be present in terms of **color, shape and aesthetics** of the PV-modules as well as on the electrical level.

=> **Preparation of a Position Paper**

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Preliminary prioritization of R&D&D subjects

	Design of the building	Choice of BIPV building components	Manufacturing of PV building components	Integration in the building skin	Operation and maintenance	Deconstruction and recycling
High	Education Early inclusion Design tools Benefits quantification Stable and clear regulation	Color tunability Dimensional tunability Cost versus standardization	Performance Freeform module technology Standards for testing and certifying BIPV building components	Education and training of construction workers on PV modules Defining integration structures	High durability for standard PV and building code conditions Clarity safety Clarity O&M instructions Self cleaning BIPV systems	Avoidance of toxic materials in BIPV modules Optimize recycling process for BIPV elements
Medium	Removal of administrative barriers Effect of orientation, slope	Performance for low illumination conditions and high temperature Adapted convertors	Short lead times to deliver BIPV-elements More insurance options of BIPV products	Not yet discussed		Definition of local recycling centers close to end-users

Reaching out for opportunities in BIPV – technology and industry developments

Parallel event organized by the European Photovoltaic Technology Platform

Hamburg, Germany, 15th September 2015
• CCH Congress Center Hamburg •

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Objectives of the parallel event 'Reaching out for opportunities in BIPV'

Objective:

Interdisciplinary discussion with the PV and BIPV industry, architects and representatives from the construction industry to compare their **needs**.

Key question: how can the PV-companies develop BIPV-products satisfying the needs and expectations of the building industry and the architects and at which cost.

Panel discussion: interdisciplinary approach with stakeholders, focusing on future business models for the BIPV value chain, in order to strengthen the innovation and competiveness of Europe

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Reaching out for opportunities in BIPV – technology and industry developments

Session 1:

BIPV: Expectations and visions from Architects and Building industry

Keynotes from European Commission, building sector, and building management sector representatives

Session 2:

Research, development and demonstration of innovative BIPV products

Presentation of research institutes and industry respresentatives of innovative BIPV approaches and advanced material research for BIPV products

Session 3:

Mobilize investment for innovative and competitive BIPV products manufactured in Europe for Nearly Zero Energy Buildings and Positive Energy Buildings

Interdisciplinary **panel discussion**

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Panel discussion 'Reaching out for opportunities in BIPV' the future energy plus buildings'

Panel discussion:

Mobilize investment for innovative and competitive BIPV products manufactured in Europe for Nearly Zero Energy Buildings and Positive Energy Buildings

Topics to be discussed:

- **Ideas for innovation by architects and building industry: approach to BIPV future**
- **Financing Investment in Competitiveness: perspective of European Commission**
- **for PV and building components industry**
- **What are the key challenges of innovation in the field of energy efficiency and BIPV?**
- **How to increase European Competitiveness?**
- **Is a European BIPV Roadmap possible? BIPV in relation to plus energy house buildings**

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Thank you for your attention

Enjoy the Workshop!