

INNOVATION IN SOLAR BUILDING SKINS & ENERGY EFFICIENCY TOWARDS SUSTAINABLE CITIES

BERLIN, 19th - 20th MARCH 2018



CONFERENCE DESCRIPTION, DATE & LOCATION:

The conference organized in Berlin on March 19th and 20th, 2018 was part of a series of European conferences and workshops in the field of Energy Efficiency in buildings and cities with a focus on innovation in solar building skins / building integrated Photovoltaics (BIPV), as well as related to areas such as smart grid, storage of renewable energies in buildings/cities, e-mobility and Internet of Things (IoT), etc. The event was held at Radisson Blue Hotel, Berlin.

The German event was organized by **Helmholtz Zentrum Berlin (HZB)**, together with **SETA Network, London** and in collaboration with the BIPV group of the **European Technology & Innovation Platform Photovoltaics (ETIP PV)**, supported by national industries, stakeholders and associations.



Document:
Summary German BIPV-workshop

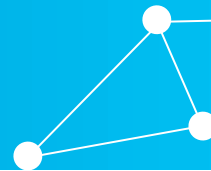
Date:
26-08-2018

Authors:
R. Schlatmann, S. Krawietz

EVENTS in Brussels | Berlin | Madrid | Paris | Amsterdam

Supporters of the German event





MONDAY, 19th MARCH 2018

14.00 – 15.30 Part 1: Contextual Introductions

- Welcome by **Rutger Schlatmann**, Helmholtz Zentrum Berlin, Institute PVcomB, Director
- **Claude Turmes**, Member of the European Parliament / Eufores, President
From near-zero energy buildings to „positive energy“ buildings
- **Thorsten Herdan**, Federal Ministry for Economic Affairs and Energy (BMWi), Director-General
Efficiency and Renewables – the twins for zero emission buildings
- **Frank Heinlein**, Werner Sobek Group, Director Business Communication
Sustainability in the Built Environment - Towards an Integrated Approach
- **Silke Krawietz**, ETIP PV, BIPV Group leader / SETA Network, CEO
Smart Cities: Potential for Energy Efficiency and BIPV Innovation

15.20 – 15.30 Q & A session

15.30 – 15.45 Coffee Break

15.45 – 17.40 Part 2: Metropolitan Solutions Sector (Buildings + Cities)

Overview of status/wishes/strategy of the local/national building sector

- **Hille Bekic**, Berlin Chamber of Architects, Executive Board member
- **Oliver Rapf**, Building Performance Institute (BPIE), Brussels Director,
The future role of buildings in urban systems
- **Carolien Gehrels**, Arcadis, European Director Big Urban Clients, The Netherlands / Germany
Solar Energy in cities: reinventing public private partnership
- **Nicolò Guariento**, ARUP Berlin, Building Envelope Design, Associate
Design Drivers for Building Integrated PVs

Panel discussion with Stakeholders and Investors

Scaling up innovation in Metropolitan Solutions, moderated by Oliver Rapf

- **Hille Bekic**, **Carolien Gehrels**, **Nicolò Guariento**, as well as:
- **Christine Lemaitre**, DGNB - German Sustainable Building Council, CEO
- **Martin Bornholt**, DENEFF e.V., Germany Industry Initiative for Energy Efficiency, CEO
- **Franz Karg**, Triumph Science and Technology (Avancis), Chief Technology Manager
- **Frank Heinlein**, Werner Sobek Group, Director Business Communication
- **Silke Krawietz**, ETIP PV, BIPV Group leader / SETA Network, CEO

17.40 – 17.50 Q & A session

17.50 – 18.00 Closing remarks

18.00 – 19.00 Reception and Buffet

20th MARCH 2018

09.00 – 09.10 Introduction

09.10 – 09.30 **Agustín Escardino Malva, European Commission, DG Research & Innovation, New and Renewable Energy Sources, Deputy Head of Unit (cancelled)**
EU innovative financial instruments supporting clean energy innovation

09.30 – 10.30 **Part 3: Specific developments, products & innovation**

- **Franz Karg, Triumph Science and Technology (Avancis), Chief Technology Manager**
Variability, Aesthetics and Safety: Making PV a Real Option for Building Facades
- **Reiner Mack, ONYX Solar Germany, Managing Director**
Unlimited - Photovoltaic Glass for Building Intergration
- **Christoph Schmidt, NICE Solar Energy**
Next generation BIPV
- **Rutger Schlatmann, HZB/PVcomB**
BIPV R&D in national labs

10.30 – 10.45 Coffee Break

10.45 – 12.15 **Part 4: Parallel working groups**

12.30 – 13.00 **Part 5: Reporting to full audience (working group chairs)**

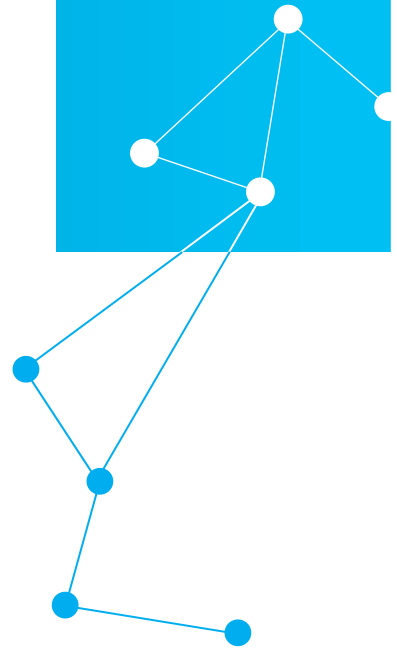
13.00 – 13.30 **Part 6: Concluding remarks and Actions (Silke Krawietz, Rutger Schlatmann)**

13.30 – 14.30 Lunch



ATTENDANCE

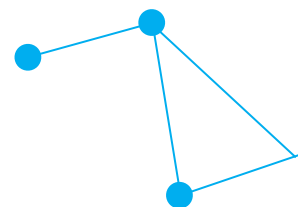
The workshop was attended by about 80 persons which were coming from the different parts of the value chain of the photovoltaic and building industries. It included investors, architects, building developers, PV-installers, researchers, funding agency representatives, public policy and ministerial representatives on different levels (regional, national, European). Key issue was to stimulate the collaboration among the various stakeholders of the building design and construction process and specialized PV/BIPV industry.





CONFERENCE SUMMARY IN KEY POINTS

- **Legislation, regulation** (including issues like insurance, or 'solar as a service' solutions) and **availability of financial tools** are of key importance.
- **Simplification and standardized Plug'n'Play solutions for BIPV elements and applications** are important to reduce cost/time of installations (simple mounting concepts for less trained installation teams, maintenance and recycling concepts ...).
- **Information, education and knowledge exchange** are very important to make existing solutions visible and convince architects, real estate companies, investors and the general public of the opportunities offered by BIPV.
- **Business models for investors and building industry required to stimulate the BIPV market**
- **Long-term reliability** of BIPV products needs to be established and has to match "lifetime" of construction elements (30 years +).
- **Monitoring and sharing of real existing project data** is required for more **transparency** in the whole community. Real data convinces all stakeholders more than lighthouse projects.
- Development of circular, **sustainable** product solutions
- **Collaboration** between stakeholders needs to be strengthened and should be strongly **stimulated on the pre-competitive R&D&D level**



DISCUSSION IN DIFFERENT WORKING GROUPS

A market pull approach was central to the workshops to answer the following key questions:

- **What innovation**, be it *aesthetical, technological, legislative, financial or otherwise*, is required by the building industry stakeholders (developers, planners, architects, owners etc.) to enable massive-scale deployment of solar building skins / BIPV?
- **What is required to stimulate innovation** among investors, building industry and PV industry through an interdisciplinary collaboration?

As part of the German BIPV-workshop 3 Working groups were formed

The three groups formed had both a chairperson to lead the discussions and a rapporteur to provide a written summary of the Working Group discussion to the BIPV-workshop responsible, R. Schlatmann/S. Krawietz. The next table shows the working groups, Chairperson and Rapporteur for each of them.

Working Group on	Chairperson	Rapporteur
New Buildings	Nicolò Guariento/Gregor Kassl ARUP	Markus Sauerborn, HZB
Financial Mechanisms / Existing Building Stock	Christine Lemaitre, DGNB	Klaus Jäger, HZB
Technological Needs and Opportunities	Sebastian Lange, Allianz BIPV	Iver Laueremann/ Björn Rau, HZB

MAIN CONCLUSIONS/ RECOMMENDATIONS RESULTING FROM THE DIFFERENT WORKING GROUPS

More extensive notes are available.

Working Group on	Recommendations	Missing points
New Buildings	<ul style="list-style-type: none"> • From investor point of view financial decision to include BIPV is not easily taken • Business models for the building industry and investors to include BIPV into energy efficient building concepts • Barriers on the 'Motorway to BIPV' should be removed • Make additional planning steps for BIPV part of the normal remuneration scheme for architects • Provide feedback to architects on the actual performance of the installations they have planned • Develop plug-and-play BIPV installations 	<ul style="list-style-type: none"> • Clear legal framework to allow investors to quantify the effect of BIPV on running costs of a building (including e.g. the question of insurance of the PV installation - part of the building?) • Legal framework should also enable assessment of the long-term value of the asset • Scientifically sound data monitoring of existing BIPV installations during full lifetime
Financial Mechanisms / Existing Building Stock	<ul style="list-style-type: none"> • Simplify BIPV installations, building companies are often small, their workers not always highly educated • Make a sustainability scale to enable to reap the value of building with BIPV / increase the cost of non-sustainable solutions (Eco-label type?) • Increase the level of education of the general public for energy efficient buildings and the opportunities of solar building skins / BIPV 	<ul style="list-style-type: none"> • Financial return of BIPV installations by higher rent difficult to achieve for investors, in non-prime locations • Providing 'solar as a service' • More effective marketing to sell solar as a lifestyle
Technological Needs and Opportunities	<ul style="list-style-type: none"> • Focus on Energy yield, Cost, Safety, Reliability, Visual Appearance • Quantify Energy pay back time for BIPV products • Develop pre-fabricated facade elements • Improve ease of exchange of PV elements • Focus more on safety during use (e.g. fire concepts) AND installation • Develop mass market, rather than one-off showcase 	<ul style="list-style-type: none"> • Clear guidelines for certification of BIPV products • Standardization and regulations that can function as guideline for developers and building planners • BIPV planning software that incorporates standardized PV elements and system components



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