

## **PV me Organic PhotoVoltaic Systems Integrated in Manufactured Building Elements**

*Project duration: from 01.2016 to 06.2018  
Final report submitted: 09.2018*

### **Publishable Summary**

The *PV me* project delivered two types of power producing building elements. For the first building element (BE), based on steel substrates, Hoesch Bausysteme integrated Heliatek OPV modules into their steel façade elements (curtain walls). Akzo Nobel developed an outdoor/scratch resistant coating to protect the flexible Heliatek modules.

The second type of BE is glass based, on which AGC laminated flexible Heliatek OPV modules. Further integration into a glass based BE was carried out by SAPA.

The organic solar film of the building elements emphasizes the aesthetics of the product without compromising other functions of the construction elements such as thermal insulation and water barrier. Power converters of Heliox and all other electronic components are integrated in the BE frame to facilitate quick installation and to ensure robust electrical contacts.

The BIPV products comply to the relevant building codes and safety norms. The BE's are installed on a highly visible location for demonstration purposes and at the same time monitored by Engie. Within the consortium the three knowledge institutes and Solliance partners, Holst Centre, imec, and ECN, contributed to process development, system design, correlation of indoor and outdoor data and determination of annual yields of the developed building elements.

#### **Main objectives**

The project ran for 30 months, including 3 months of monitoring, with the following main objectives:

- A building with both glass and steel based building elements, containing fully integrated, aesthetically pleasing, state-of-the-art, opaque OPV modules, including micro-converters on building element level, to assure optimal power output on system (building) level.
- Determine annual yield and stability of grid connected organic BIPV under real life conditions.
- Correlate outdoor measurements with accelerated lifetime tests under indoor conditions.

#### **Main Results**

1. Development of a steel based façade with integrated organic PV modules
2. Development of a glass based façade with integrated organic PV modules
3. A hard coat was developed which can be roll-to-roll coated on top barrier foils
4. A microinverter specifically suitable for the OPV modules was realized

5. Both glass and steel based façades were successfully realized and installed at an Engie building in Zwijndrecht (B).
6. The stability of the modules has been assessed using indoor and outdoor measurements. Possibly failure mechanisms have been identified.



## Project consortium

Coordinator and contact details:

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Participating countries and financing:

Country	Number of organisations involved	Project costs in EUR	Public funding in EUR
The Netherlands	4	981'654	574'830
Germany	2	815'232	422'324
Belgium - Wallonia	1	345'526	138'210
Belgium - Flanders	3	337'978	118'292
<i>Total</i>	<i>10</i>	<i>2'480'390</i>	<i>1'253'656</i>

## Funding agencies involved and contracts

Funding Agency	Contract N° and Title
RVO	TEZ0214011, Besluit tot verlening subsidie, Organic PhotoVoltaic systems integrated in Manufactured Building elements
PTJ - BMWi	Dorothea Brockmann  Projektträger Jülich Erneuerbare Energien Photovoltaik und Solarthermie (EEN 1)  Forschungszentrum Jülich GmbH 52425 Jülich  d.brockmann@fz-juelich.de www.fz-juelich.de/ptj
VLAIO (form. IWT)	140475, Organic PhotoVoltaic systems integrated in Manufactured Building elements
SPW	N°1410166 PVme

*\*These dates are in process of being corrected (to: 01 01 2016 – 30 06 2018)*