Building-integrated photovoltaic technologies and systems for large-scale market deployment

Purpose

The deployment of building-integrated photovoltaics (BIPV) is driven in the EU, amongst other factors, by the increasingly demanding legislation related to energy performance in buildings. However, several demands from the market stakeholders remain to be answered by the BIPV value chain in order to ensure the technology's successful take-off.

The objective of the PVSITES project is to drive BIPV technology to a large market deployment by demonstrating an ambitious portfolio of building-integrated solar technologies and systems, giving a forceful, reliable answer to the market requirements identified by the industrial members of the consortium in their day-to-day activity.

Funded by the European Union under the Horizon 2020 research and innovation programme, PVSITES is active from 2016 to 2019. All public results are published on the project website www.pvsites.eu, where you can also register to be informed of future activities and achievements.

Main Activities

- Analysis of the BIPV market and regulatory framework to identify appropriate collaborative business models for different BIPV products and services across market actors
- Demonstration of a wide portfolio of BIPV products in real buildings and experimental facilities throughout Europe, based on crystalline silicon and CIGS photovoltaic technologies
- Development of a new inverter technology and building energy management systems to ensure efficient and grid-friendly integration of the BIPV generation
- Development of a user-friendly, integrated software tool for the joint simulation of BIPV electricity production and building energy performance
- Life-cycle assessment of the developed products and installations
- Organization of installation courses for the developed BIPV products, guided visits at the demonstration sites and offering of online training for the BIPV software tool

Demonstration Sites

<table>
<thead>
<tr>
<th>Product(s)</th>
<th>Location</th>
<th>Manufacturer</th>
<th>Orientation</th>
<th>Surface</th>
<th>Installed Power</th>
<th>Use For Electricity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roofing shingles (CIGS on steel)</td>
<td>GrandGLise Belgium</td>
<td>Flisom</td>
<td>S</td>
<td>107 m²</td>
<td>10 kWp</td>
<td>Self-consumption + Grid</td>
</tr>
<tr>
<td>Large tiles on façade (CIGS on metal substrate)</td>
<td>Zürich Switzerland</td>
<td>Flisom</td>
<td>S-SW</td>
<td>100 m²</td>
<td>10 kWp</td>
<td>Grid</td>
</tr>
<tr>
<td>Roof tiles (CIGS on metal sheets)</td>
<td>Zürich Switzerland</td>
<td>Flisom</td>
<td>Horizontal</td>
<td>150 m²</td>
<td>15 kWp</td>
<td>Grid</td>
</tr>
<tr>
<td>Large roof membranes (Bendable CIGS)</td>
<td>Barcelona Spain</td>
<td>Flisom</td>
<td>Horizontal</td>
<td>200 m²</td>
<td>20 kWp</td>
<td>Grid</td>
</tr>
<tr>
<td>Large roofing shingles (CIGS on metal substrate)</td>
<td>Villeneuve d'Ascq France</td>
<td>Onyx Solar</td>
<td>SE + SW</td>
<td>150 m²</td>
<td>20 kWp</td>
<td>Grid</td>
</tr>
<tr>
<td>Ventilated façade (c-Si modules with hidden bus bars)</td>
<td>San Sebastian Spain</td>
<td>Onyx Solar</td>
<td>S</td>
<td>150 m²</td>
<td>10 + 10 kWp</td>
<td>Self-consumption + Grid</td>
</tr>
</tbody>
</table>

Project Partners

- Tecnalia
- CTCV
- FormatD2
- Nobatek
- Acciona Infraestructuras
- Onyx Solar
- Flisom
- Film Optics
- CAD CAMation
- BEAR-ID
- Cricursa
- R2M Solution Research to Market
- CEA
- WIP - Renewable Energies

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