PROJECT ACHIEVEMENTS

BIPV boost

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817991

The main objective

of BIPVBOOST project is to bring down the cost of multifunctional building-integrated photovoltaic (BIPV) systems, limiting the additional cost with respect to traditional, non-PV, construction solutions and non-integrated PV modules, through an effective implementation of short and medium-term cost reduction roadmaps addressing the whole BIPV value chain and demonstration of the contribution of the technology towards mass realization of nearly Zero Energy Buildings (nZEBs).

IMPLEMENTATION OF COST REDUCTION ROADMAP AT MANUFACTURING LEVEL

ONYX – MASS

- ONYX has succeeded in developing new highly flexible tabber/welding machine for back-contact, which will be improved as BIPV b-c cell-based project increase. The cost of back contact BIPV modules has been reduced by about 21.7%. Applying this contraction to the current price of €350/m^2, the measures and process implemented in the project would imply a BIPV cost of €273.8/m^2, achieving the project objectives. Throughput: 180 cell/h in the demonstration carried out during the project.
- Results of the economic assessment performed by ONYX of the BIPV pilot line developed by MASS, show a cost reduction of 16.6% in the production of glass-glass BIPV modules. This represents a cost of 214 €/m^2 for the glass-glass c-Si module reference case studied in the project.

IMPLEMENTATION OF COST REDUCTION ROADMAP AT MODULE LEVEL

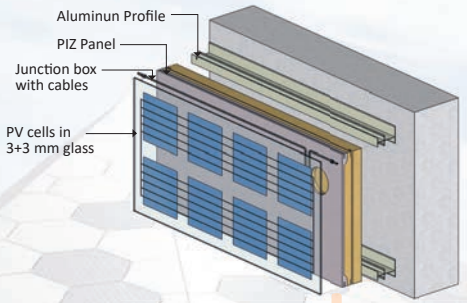
ONYX

- The a-Si stripped prototypes developed achieve the economic and performance objectives of this technology. The final cost of the module, with the partial striped pattern was estimated at €235.38/m2, meeting cost parity with conventional digital printed glass, whose average price is around €230/m^2.
- The calculated cost of the XL module developed (2000 mm x 1000 mm) with bifacial cells is €453/m^2 compared to ~€350/m^2 on average. This difference between bifacial photovoltaic balustrades and non-photovoltaic balustrades of €103/m^2 meets the objective set in the project Grant Agreement.

COST REDUCTION IN THE BUILDING SKIN SOLUTION: PIZ- SCHWEIZER-TULIPPS

PIZ

- 29% reduction in e-PIZ production cost.



SCHWEIZER

- Structured information about the BIPV roof system for all relevant stakeholders on one website.
- Improved planning options with proof of structural analysis, detailed reports, and parts lists.
- Standard flashing system for polygonal layouts of the PV module array.
- Mounting gauge to simplify and speed up roof installation.

TULIPPS

- 50% cost reduction for the façade mounting system (i.e. substructure) for BIPV modules compared to 2018.
- Production time per module has been reduced by 75%. This reduction has been thanks to the increase in the productivity of the assembly system factory by optimizing the design of the assembly system

COST REDUCTION IN LOGISTICS

ONYX

- Overall cost reductions in packaging are in the range of 34.5% - 62%, depending on the BIPV module format, preserving safety in transportation and handling. As a consequence, the impact of transport costs (packaging and logistics) in the module is reduced from an initial 6.1% to 2.32% - 4%, depending on the BIPV module, meeting the established objectives.

DIGITALIZED PROCESS TO SUPPORT COST REDUCTION ALONG THE VALUE CHAIN

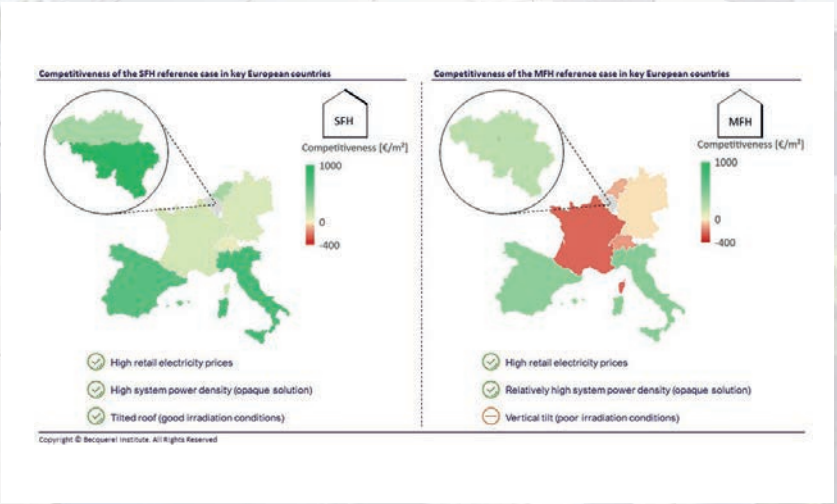
ENERBIM

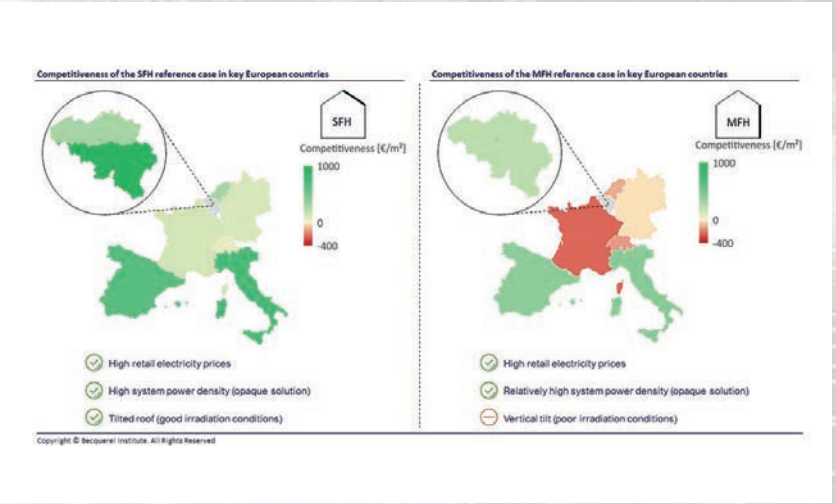
- Time savings from conceptual design to technical design (traditionally time-consuming phases with many variants and unnecessary round-trips between stakeholders) transferring this time to enrich collaboration and decision support, mitigating the risk of making mistakes and adding value to the chosen BIPV solutions.

BIPV COST COMPETITIVENESS AND FUTURE DEVELOPMENTS IN EUROPE

Becquerel Institute

- On roofs, residential BIPV systems show very competitive results, while when installed on facades the results are more mixed, as the configuration is non optimal
- The office building BIPV reference case suffers from a combination of unfavorable factors, including high cost and a low power density





BECQUEREL INSTITUTE

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