

ImpAct - BiPV

Newsletter

Innovative Design for Improved Application of Glass BiPVs on Buildings

ENTERPRISES/0618/0052

IMPACT-BiPV completed this month

Impact-BiPV will be officially completed by the end of this month. Aiming to develop a complete glass BiPV system abiding to all building regulations to be installed in commercial buildings, this innovative project has dealt with all the challenges facing the development, integration, and installation of a BiPV system in a demo site selected by the partnership.

The Impact-BiPV project, which is co-financed by the European Regional Development Fund and the Republic of Cyprus through the Research and Innovation Foundation, kicked-off back in May 2019 by a consortium of three partners from Cyprus k-Energy, Deloitte's Innovation and Entrepreneurship Centre and the Research Centre for Sustainable Energy (FOSS) of the University of Cyprus.



European Union
European Regional
Development Fund



Republic of Cyprus



Structural Funds
of the European Union in Cyprus



RESEARCH AND
INNOVATION
FOUNDATION

The Project ImpAct-BIPV ENTERPRISES/0618/0052 is co-financed by the European Regional Development Fund and the Republic of Cyprus through the Research and Innovation Foundation.

Aims of the Project

- To achieve the **development** and **testing** of a cost-effective solution for a **building-integrated photovoltaic (BIPV) system** for façade and window applications in Cyprus.
- To contribute to the creation of the **technical skills** required in the local industry to grow and sustain this new market in Cyprus, at the same time to attract the interest from other local building professionals in **energy efficiency**.
- To achieve a new way of thinking for Cypriot enterprises in which **SMEs** start contributing actively in local research and also creating collaborations between them, thus gaining important knowhow in **new technologies** and new methods of implementation.

Start date: 15 May 2019

End date: 15 May 2022

Partners



Deloitte.



The future of solar energy in Cyprus

Impact-BiPV project participated actively in the webinar organised on 20th April 2022 by the International Solar Society (ISES-CY) on the future of solar energy in Cyprus, with a presentation on the “Development of a cost-effective solution for a BiPV system for façade and window application in Cyprus” delivered by k-Energy. All the partners attended the webinar and participated in the discussion.



Final Event

On the 6th of May 2022, the ImpAct-BiPV consortium organized successfully the final event of the project, entitled “The transition towards nearly Zero-Energy Buildings (nZEBs)”. The aim of the event was to present the results of ImpAct-BiPV project, which is coming to an end in May 2022, while at the same time inform and discuss issues around energy efficiency, photovoltaics, deep renovation and rehabilitation of buildings using innovative technologies and nZEBs related issues.



Project outputs and results

Report for BIPV potential in buildings in Cyprus

In the context of the project, a report was produced analysing the penetration of BIPV technologies in new and existing buildings in Cyprus. According to the research and analysis conducted, many buildings in Cyprus are residential with a large portion of them being apartment blocks or multi – storey buildings. In addition, the current trend in the building sector in Cyprus favours the construction of luxury multi-storey buildings. Thus, to transform them into NZEBs all available surfaces should be utilised including rooftops, façades, balconies etc. Due to the NZEB directive towards on – site renewable energy sources and the limited available space on rooftops, the implementation of BIPVs becomes an attractive solution for new and existing multi – storey buildings. Moreover, it is also an attractive solution for single or duplex family houses that would like to combine PV modules with the architectural elements on their buildings.

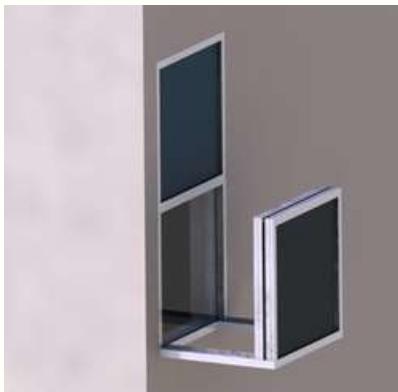


Review of technical solutions/products available on the market

Through the project, we reviewed the technical solutions and respective products available on the market, and presented a wide range of BIPV technologies, including real–case applications. Both crystalline silicon and thin–film technologies are utilized for BIPV applications. Although crystalline silicon PV is the most common material for rooftops and skylights, thin film is preferred for curtain walls and rainscreen façades due to their uniform appearance and performance in shaded environments. In addition, for many projects a short payback period has been predicted, indicating that BIPV technologies can be a viable solution towards NZEBs. Nonetheless, considerations such as shading from surroundings and thermal insulation should also be reviewed during the design process.

BIPV solution design

Moreover, another report was produced which constitutes a comprehensive review of the two BIPV applications that we are developing in ImpAct-BiPV project: the PV window and the PV balcony. The review is focusing on the selected pilot site that is going to accommodate the designed BIPV solutions and on the products' specifications. It aimed at determining the PV Glass and the aluminium frame that is used for this project to design a product that has the dual functionality of generating electricity and serving as a building component, which is common to almost all existing definitions.



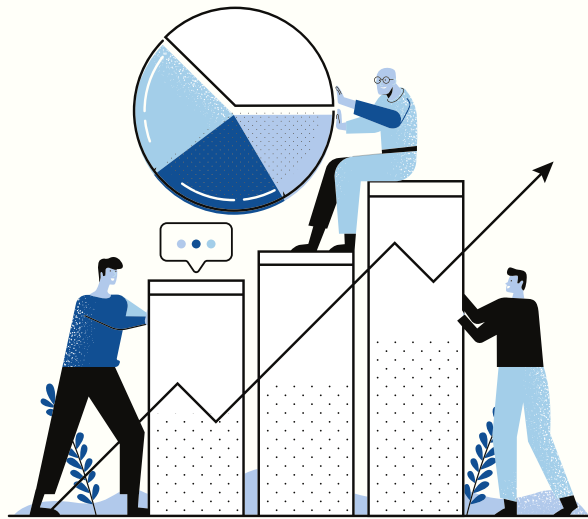
BIPV glazing system developed

This report aimed to present the development of the final product, hence the assembly of the module within the aluminium frame. In addition, the BIPV solution was installed on the selected site, in order to design the final product that has the dual functionality of generating electricity and serving as a building component, which is common to almost all existing definitions.



Cost-Benefit Analysis

In addition to the demonstration aspects, the financial dimension of the BIPV solution is investigated based on the capital expenditure and the operating costs, taking into consideration all the qualitative and quantitative benefits of the solution. The main pillars of the cost-benefit analysis are the project characterization, costs and benefits estimation and comparison between the costs and benefits between alternative solutions.



Consortium Meetings

During the implementation of the lifecycle of the project, partners had the chance to meet physically several times. Later, due to the COVID-19 restrictions they held regular online meetings to coordinate for the implementation of project deliverables.



ImpAct BiPV

PARTNERS



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