The CONSTRUCT-PV main objective is to develop and demonstrate customizable, efficient and low cost BIPV for opaque surfaces of buildings, both roofs and facades, exploiting the most promising PV technologies, i.e. Metal Wrap Through and Hetero-Junction technology.

The BIPV generates noticeable environmental benefits compared to the conventional product, in more than half indicators (8 on 15 impact categories), including the most important ones, i.e. the Primary Energy Demand and the Global Warming Potential. The use phase, thanks to the electrical energy production is able to counterbalance, and in many cases overcome, the impacts generated by the other life cycle phases, providing a benefit, a so-called “avoided impact”.

In some categories, the BIPV impacts are higher because of its different composition than the conventional product. The environmental (in terms of kg of CO$_2$ eq.) and energetic (in terms of MJ) payback period have been estimated, in both cases, equal to 1 year.

The investment costs of the equipment (CAPEX) and the operative costs (OPEX) for the raw materials, utilities, personnel, equipment maintenance and waste treatment have been taken into account. The manufacturing cost of the BIPV is 7 times higher than those of the conventional product. This is due to the fact that the BIPV is composed by two components, a bituminous base and a PV module, and that the BIPV necessary for covering 1 m$^2$ of roof weights almost 3 times the conventional product, composed by, practically, only the bituminous base.

From the end user point of view, the economic advantages permitted by the BIPV are significant. The savings due to the production of the electrical energy generated by the BIPV during the life span of 25 years (850 €/m$^2$) are able to counterbalance the costs of the installation, installation and maintenance (400 €/m$^2$).

Furthermore, the payback period has been estimated equal to 10 years, that means that the end user achieves a significant money saving for the other 15 years.

Project Details
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