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Increase the competitiveness of the EU PV manufacturing industry

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High-performance low-cost modules with excellent environmental profiles for a competitive EU PV manufacturing industry



HighLite- Deliverable report

D7.3- Pathways to maximize module efficiency and energy yield to achieve project goals

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About HighLite

The HighLite project aims to substantially improve the competitiveness of the EU PV manufacturing industry by developing knowledge-based manufacturing solutions for high-performance low-cost modules with excellent environmental profiles (low CO₂ footprint, enhanced durability, improved recyclability). In HighLite, a unique consortium of experienced industrial actors and leading institutes will work collectively to develop, optimize, and bring to high technology readiness levels (TRL 6-7) innovative solutions at both cell and module levels.

HighLite consortium members



Document information

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Dissemination level²

PU	Public	
CO	Confidential, only for members of the consortium (including the Commission Services)	X

¹ Deliverable Type

Please indicate the type of the deliverable using one of the following codes:

R Document, report

DEM Demonstrator, pilot, prototype

DEC Websites, patent filings, videos, etc.

OTHER

ETHICS Ethics requirement

ORDP Open Research Data Pilot

DATA data sets, microdata, etc.

² Dissemination level

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EU-RES Classified Information: RESTREINT UE (Commission Decision 2005/444/EC)

EU-CON Classified Information: CONFIDENTIEL UE (Commission Decision 2005/444/EC)

EU-SEC Classified Information: SECRET UE (Commission Decision 2005/444/EC)

Publishable summary

The D7.3 deliverable report **Pathways to maximize module efficiency and energy yield to achieve project goals** is a confidential deliverable report that contains the pathways to maximize module efficiency and energy yield to achieve project goals.

The cell to module (CTM) simulations presented in this deliverable were performed with F-ISE's smartCalc.CTM tool and show that **all modules are capable of meeting the efficiency goals** of 22%, 21%, and 20% for BAPV, BIPV and VIPV modules, respectively. In some cases, minor realistic optimization of module design is required to reach the anticipated goals.

CTM_{power} goal of 105% is achievable for all BAPV modules proposed in HighLite with slight improvement of light harvesting.

The HighLite project modules are based on cells with low power temperature coefficients, and will use anti-reflective top cover with low angular response factor wherever possible. The series resistance will be minimized to boost overall energy production. Low shunt resistance values will be avoided by cut edge passivation. All **these measures will ensure high energy yield and high energy production** of the modules.

The pathways and measures that ensure fulfilment of the project goals will be used by the consortium members in other work packages to produce the modules simulated in this deliverable.