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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

D3.6- Selection of the most suitable approach(es) for structuring passivating contact layers in IBC cells.

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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



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Publishable summary

Several methods have been explored for the structuring of passivating contact layers for the use in production of IBC structures with passivating contacts. The methods can be unique for the use in one single process flow or suitable for several different approaches. The tool setups explored for this purpose by the involved partners are lasers (ablation / crystallization and doping), masked plasma immersion ion implantation (PIII) and hard mask PECVD deposition. All of the methods have shown their potential for further development and the first solar cells have been produced with mixed results (with efficiencies > 23%) and some more and some less promising process routes have been identified. Yet, none of the chosen approaches has been fully disqualified for further studies.