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Silicon solar cells with Low Environmental footprint and Advanced interfaces



SiLEAN - Deliverable report

D7.2 – DEC Plan



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Project Scientific Abstract

The SiLEAN project deals with the development of advanced innovations to tackle the major drawbacks of silicon heterojunction solar cell technology, namely the high energy and material demand for Si wafer manufacturing, limited current generation, and the consumption of scarce materials like silver, bismuth and indium. Within the scope of the project, we will directly grow the wafers from the gas phase with low temperature processes, apply alternative passivation concepts that show higher optical transparency, develop indium-free contact layers and apply silver and bismuth-free metallization with all-in-one cell interconnection and encapsulation. The project aims to achieve >25.5% solar cell efficiency and >23.5% module efficiency with 50% lower costs for Si wafers and contacting, as well as up to 75% lower carbon footprint. All processes applied allow upscaling to larger sizes as well as high manufacturing throughput. Eventually, the developments of SiLEAN will pave the way for a new, lean, generation of heterojunction solar cell technology that will both increment the energy conversion efficiency and unlock production at terawatt-scale.

Public summary

The SiLEAN project is focused on advancing silicon heterojunction (SHJ) solar cell technology to meet the increasing global demand for clean, affordable energy. By addressing critical challenges such as the high energy consumption and material costs of traditional silicon wafer production, SiLEAN aims to reduce greenhouse gas emissions and lower electricity costs. The project emphasizes the development of highly efficient, cost-effective PV technologies with a minimal carbon footprint.

This deliverable outlines the Dissemination, Exploitation, and Communication (DEC) Plan for the SiLEAN project, detailing the strategic actions aimed at effectively sharing, promoting, and leveraging the project's results. The primary communication goal is to engage the public and demonstrate the social and economic benefits of the SiLEAN initiative. This will be achieved through social media, the project website, electronic newsletters, and public events.

The DEC activities are designed to maximize the project's impact by conveying its innovations to targeted audiences, transferring knowledge and results, enhancing the value of EU-funded research, and facilitating project exploitation. This plan also emphasizes fostering synergies with stakeholders and sister projects in the photovoltaic sector, accelerating the dissemination of key messages and outcomes.

Additionally, the DEC plan includes the promotion of project findings through workshops, scientific publications, and events. As a dynamic document, it will be updated regularly, with UNR closely monitoring dissemination activities to ensure they align with project goals.

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Project partners:

#	Partner short name	Partner Full Name
1	FZJ	FORSCHUNGSZENTRUM JULICH GMBH
2	IMEC	INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM
3	TUD	TECHNISCHE UNIVERSITEIT DELFT
4	UNR	UNIRESEARCH BV
5	NXW	NEXWAFE GMBH
6	PVW	PV Works B.V.
7	GET	GraphEnergyTech
8	3SUN	3SUN S.R.L.

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