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Silicon solar cells with Low Environmental footprint and Advanced interfaces



SiLEAN - Deliverable report

D1.3 - Quality Assurance and Risk Management



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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

To achieve the objectives of SiLEAN and meet the established targets for key performance indicators regarding resources, quality, and project impact, it is crucial to implement management tools and procedures that facilitate effective and organised collaboration. This document outlines the introduction of quality management and risk management procedures to uphold the highest standards of the SiLEAN project outcomes.

The processes and procedures detailed here will assist in identifying risks and developing contingency plans (risk mitigation strategies), as well as outlining the protocols for risk management.

Adhering to these procedures and protocols will enable the timely identification of risks and the formulation of appropriate mitigation strategies. The Executive Board will oversee this execution throughout the project duration. Risks and their mitigation measures will be recorded in the Risk Management table, which the project management team will continuously update. These updates will be documented in a “living document” that will remain accessible to all SiLEAN partners on the project’s SharePoint.

This deliverable reports on the SiLEAN plan to ensure project quality & risk management, incl. review protocol and criteria, and completed risk analysis.

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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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