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Silicon solar cells with Low Environmental footprint and Advanced interfaces

SiLEAN - Deliverable report

D1.2. – Data Management 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 will generate relevant amount of data related to the development of advanced silicon heterojunction solar cells and modules. This includes deposition process parameters, material properties, solar cell and module design, and characterization of devices (both experimental and theoretical). Furthermore, LCA analysis will also deliver set of data.

The Data Management Plan (DMP) presents the strategy for the data collection and generation processes during the project, including storage and management procedures, ensuring accessibility, usability, and interoperability for project partners. Additionally, it considers possible data security concerns. The DMP is in line with the template provided by the European Commission and will undergo regular updates and revisions to report the data evolutions and updated details on linked management strategies. This will ensure its currency and relevance throughout the project's duration.

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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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