

HORIZON EUROPE PROGRAMME
HORIZON-CL5-2023-D3-02-11

GA No. 101147275

Silicon solar cells with Low Environmental footprint and Advanced interfaces



SiLEAN - Deliverable report

D1.2. – Data Management Plan



Funded by
the European Union

Deliverable No.	D1.2	
Related WP	WP 1	
Deliverable Title	Data Management Plan	
Deliverable Date	2024-10-31	
Deliverable Type	DMP	
Dissemination level	Sensitive – member only (SEN)	
Author(s)	Karsten Bittkau (FZJ)	2024-10-22
Checked by	Anna Molinari (UNR)	2024-10-24
Reviewed by	Project partners	
Approved by	Karsten Bittkau (FZJ) - Project Coordinator	2024-10-29
Status	Final	2024-10-22

Document History

Version	Date	Editing done by	Remarks
V1.0	22-10-2024	Karsten Bittkau (FZJ)	First draft
V1.1	24-10-2024	Anna Molinari (UNR)	Some suggestions/ corrections
V2.0	28-10-2024	Valerie Depauw (IMEC)	Some suggestions/ corrections
FINAL	30-10-2024	Karsten Bittkau (FZJ)	Final version

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.

11 Acknowledgement

The author(s) would like to thank the partners in the project for their valuable comments on previous drafts and for performing the review.

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.

Disclaimer/ Acknowledgment



Copyright ©, all rights reserved. This document or any part thereof may not be made public or disclosed, copied or otherwise reproduced or used in any form or by any means, without prior permission in writing from the SiLEAN Consortium. Neither the SiLEAN Consortium nor any of its members, their officers, employees or agents shall be liable or responsible, in negligence or otherwise, for any loss, damage or expense whatever sustained by any person as a result of the use, in any manner or form, of any knowledge, information or data contained in this document, or due to any inaccuracy, omission or error therein contained.

All Intellectual Property Rights, know-how and information provided by and/or arising from this document, such as designs, documentation, as well as preparatory material in that regard, is and shall remain the exclusive property of the SiLEAN Consortium and any of its members or its licensors. Nothing contained in this document shall give, or shall be construed as giving, any right, title, ownership, interest, license or any other right in or to any IP, know-how and information.

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101147275. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.