

HORIZON EUROPE PROGRAMME

TOPIC HORIZON-CL5-2021-D3-03

Demonstration pilot lines for alternative and innovative PV technologies

(Novel c-Si tandem, thin film tandem, bifacial, CPV, etc.)

GA No. 101084046

**Digitalised pilot lines for silicon heterojunction tunnel
interdigitated back contact solar cells and modules**



PILATUS

PILATUS - Deliverable report

<<Deliverable 2.1 Cell Line Specification>>



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Project summary

The local manufacturing of photovoltaic (PV) materials and components, like silicon wafers, solar cells and modules, is key for the development of the industry in Europe. The EU-funded PILATUS project will demonstrate three digitalised pilot lines by 2025 and reinforce the ‘made in Europe’ innovative PV products with competitive edge. It will leverage on the patented tunnel interdigitated back-contacted silicon heterojunction ‘tunnel-IBC’ technology and establish cell pilot line with a production capacity of 190MW/year and module pilot line with a production capacity of 170MW/year. The project also aims to establish a silicon wafer production capacity of 15 MW for M10 size wafers with the feasibility of potential expansion capacity of 5 GW in Norway using polysilicon produced in Europe. PILATUS will also prove a reduced environmental footprint compared to current technologies by demonstrating modules made from recycled materials, eco-design practices to facilitate the dismantling of PV panels, and manufacturing plants compliant with environmental standards.

Publishable summary

D2.1 is a confidential deliverable report related to WP2 of the PILATUS-project and delivers the first full picture of the planned cell line cell pilot line for Silicon Heterojunction tunnel-Interdigitated Back-Contact technology (SHJ-IBC technology) as a general guidance. An integrated cell line is based on the balancing of all individual pieces of equipment in order to achieve maximum efficiency in terms of an optimized production flow, since all machines are connected to each other fully automatically. Cycle times and uptimes must be coordinated to avoid idle time of individual machines and to avoid bottlenecks. In addition to the equipment specifications, measuring and reject stations must also be defined in a line specification in order to reject defective semi-finished products (breakage, process defects) in good time. Based on this overall view, important framework conditions are created for the design of the new machines to be constructed and for facility planning. Due to the complexity, this cell line specification is a guideline for the overall consideration of the project and has to be updated in details during the project.