

Context of the project

PILATUS project aims to demonstrate 3 digitalized pilot lines for the production in Europe of silicon wafers, solar cells, and modules by 2025. PILATUS will leverage on the **back-contacted silicon heterojunction “tunnel-IBC” technology**.

The scalability of this technology will be developed, with the goal of **adding 30% to the total capacity of PV cell production in Europe** (compared to 2020). PILATUS will contribute to rebuilding a **“made in Europe”** competitive and leading-edge PV industry with the entire value chain retained in Europe and compliant with the latest environmental standards.

Full control over the PV supply chain not only will smooth the path of energy transition in Europe but it will also facilitate the knowledge about the environmental hotspots of this technology, so actions can be taken to lessen its impacts before it enters the market.

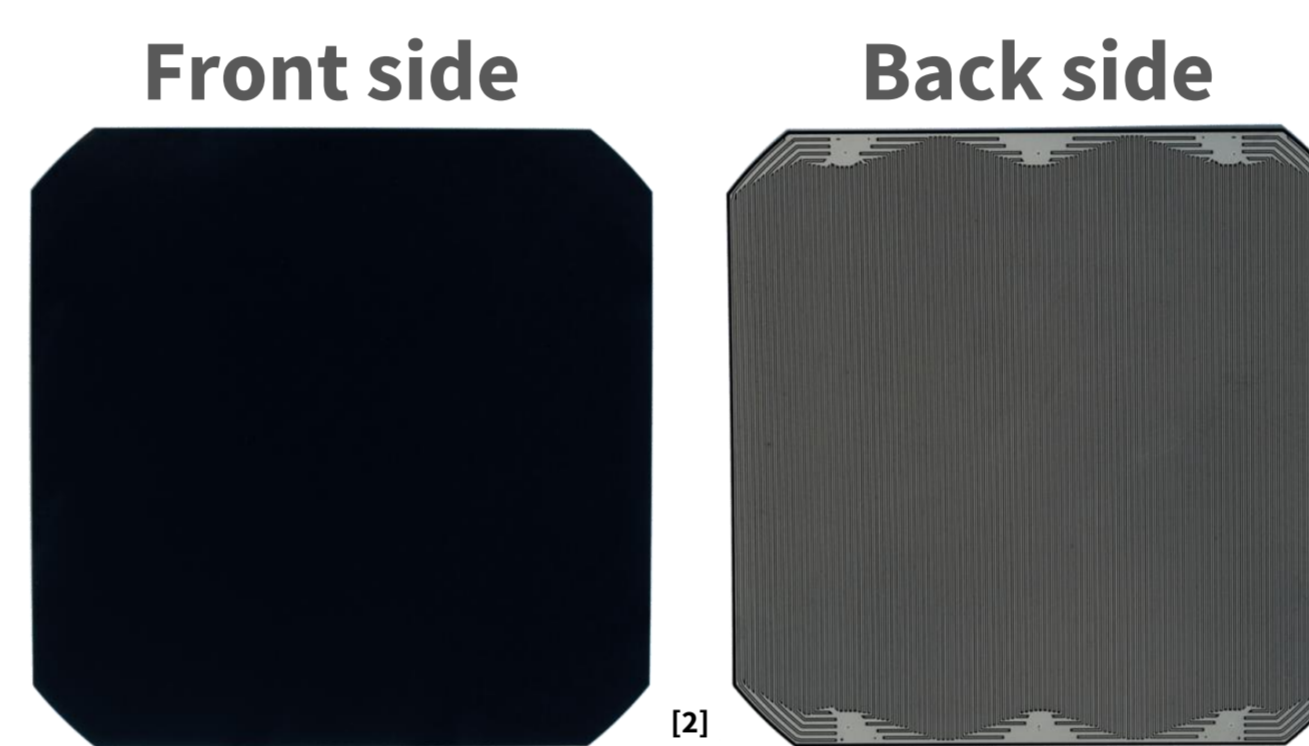


Development of 3 pilot lines

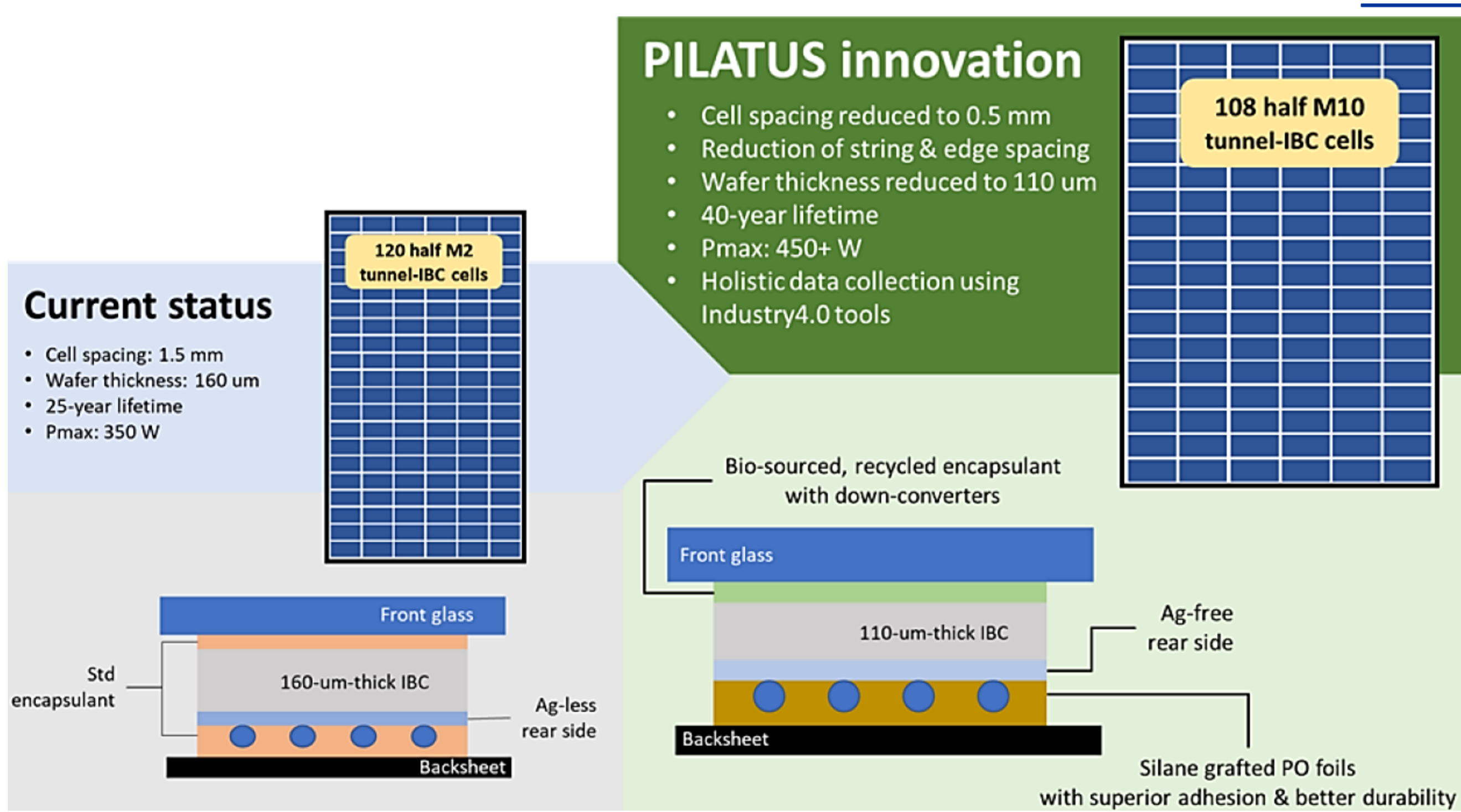
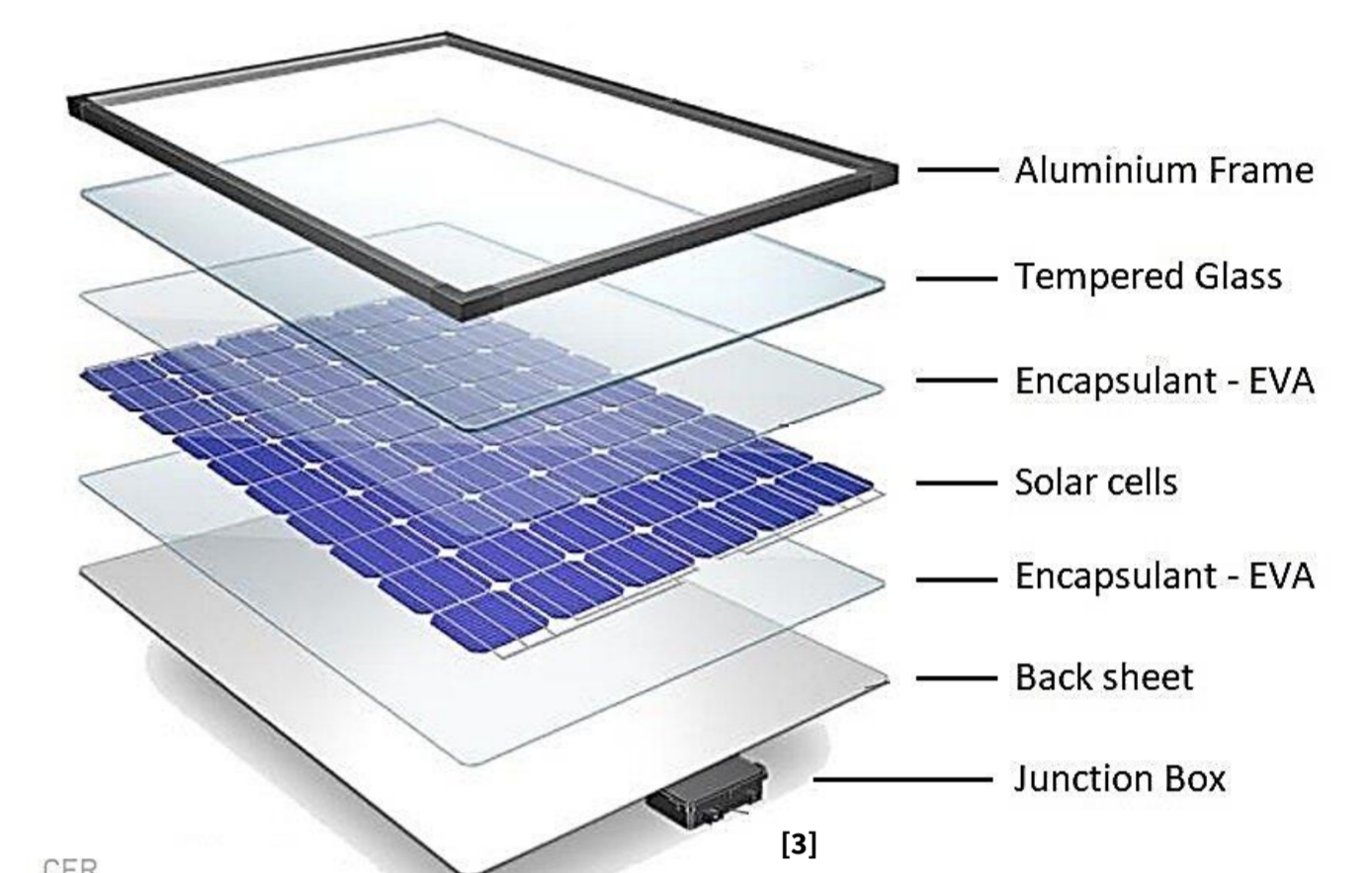
✓ **Wafer line:** capacity of 15 MW for M10 silicon wafers in Norway using polysilicon from Europe and demonstrate the feasibility of an expansion to 5 GW wafer production capacity



✓ **Cell line:** annual capacity of 190 MW



✓ **Module line:** 170 MW of annual production capacity



Sustainability, circularity & environmental impact

Objectives

- **Eco-design** of the components and system using Life Cycle Assessment
- Evaluation of the environmental footprint of the final designed solution (cradle-to-grave), through **LCA**
- Environmental assessment of different **end-of-life scenarios**
- Special attention to **toxicity** and **ecotoxicity** categories
- Assessing the contribution of the project to the **17 Sustainable Development Goals**
- **Comparison** of SHJ-IBC LCA results with some current PV technologies
- Ensuring that the technology is compliant with the latest **environmental standards**

Materials & Method

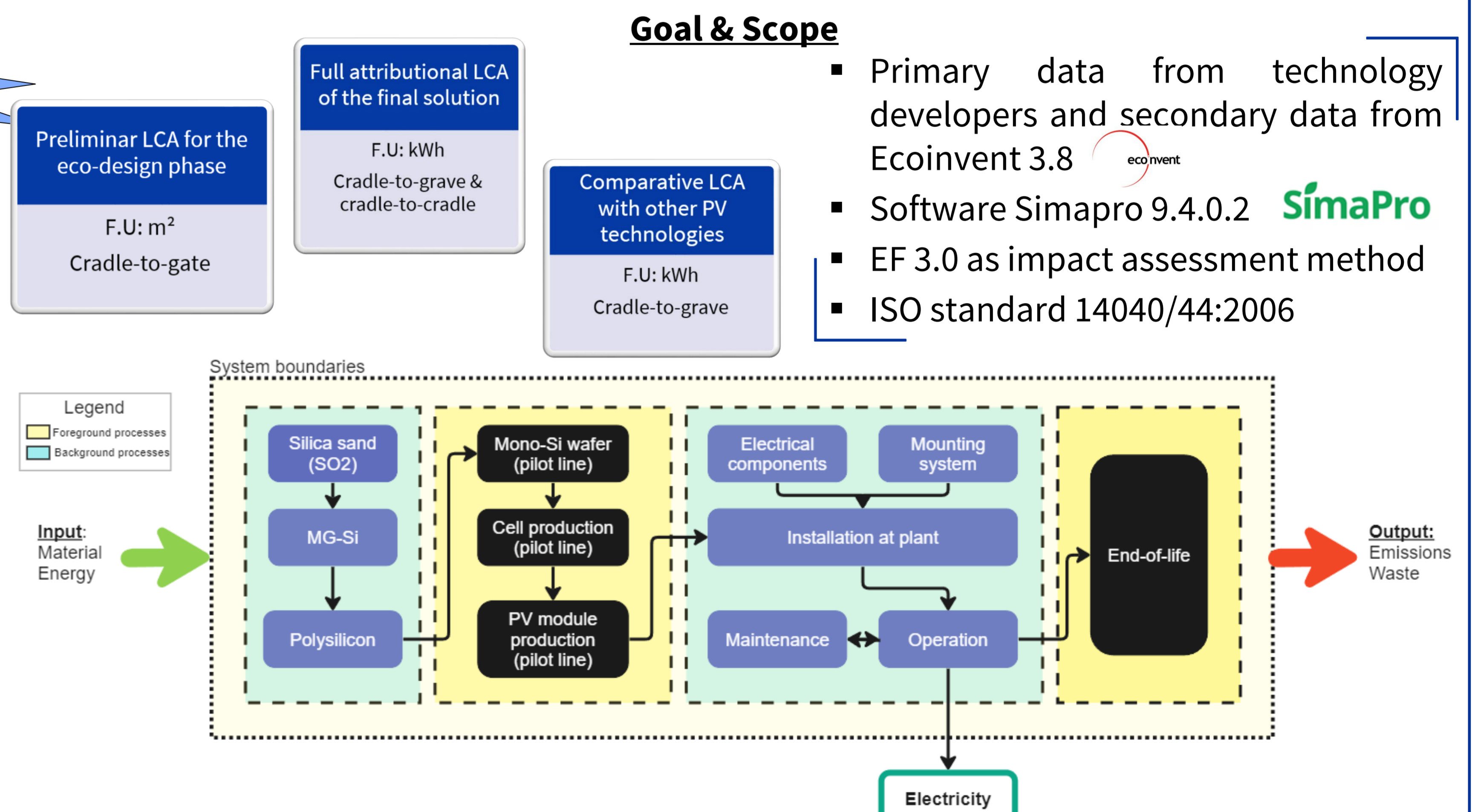
Current guidelines

- **IEA Task 12** (Methodology Guidelines on Life Cycle Assessment of Photovoltaic)
- Product Environmental Footprint Category Rules (**PEFCR**): Photovoltaic Modules Used In Photovoltaic Power Systems For Electricity Generation Time validity: 31st December 2021 (Expired)

Legislation

- Directive 2009/125/EC on Eco-design: requirements for energy-related products (very general)
- Initiative: **‘Ecodesign – European Commission to examine need for new rules on environmental impact of photovoltaics’**: ongoing work on eco-design measures for solar panels, including possible requirements on carbon footprint

Harmonization required for comparability



Project and Partnership

- ✓ **Duration:** 36 months project (November 2022 – November 2025)
- ✓ Total Budget: 13.3 M€ - EU funding: 10.16 M€ under the Horizon Europe programme

Workplan

- ✓ **WP1-** Project Management and Coordination
- ✓ **WP2-** Wafer and Cell Pilot line
- ✓ **WP3-** Module Pilot Line
- ✓ **WP4-** Metrology and Reliability of SHJ tunnel-IBC Technology
- ✓ **WP5-** Digitalisation, Automation, Industry 4.0
- ✓ **WP6-** Sustainability, circularity & environmental impact
- ✓ **WP7-** Bankability, Business Model & Roadmap towards GW-fabs
- ✓ **WP8-** Communication, Dissemination and preliminary Exploitation



More info about the project here



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References
 [1] Supply Chain, BIA, <<https://www.bia.com/eu-supply-chain-law-obliges-companies-to-operate-in-a-fair-and-sustainable-manner/>>
 [2] Industrial IBC solar cell, PV-Manufacturing.org, digital image, <<https://pv-manufacturing.org/all-back-contact-solar-cells/>>
 [3] The 6 main components used in the construction of a solar panel, Clean Energy Reviews, digital image, <<https://www.cleanenergyreviews.info/blog/solar-panel-components-construction>>