

SOLNOWAT Project

Abstract

The SOLNOWAT project aims to develop a **dry process alternative** for the solar Photovoltaic cell industry. This innovation will allow for the reduction in the very high water consumption and Global Warming Potential emissions of the current manufacturing process while meeting all industrial production requirements. Novel technical solutions will be developed, including:

- A novel atmospheric pressure, Silicon wafer texturing process based on thermally activated Fluorine.
- A novel mass spectrometric process monitoring solution.
- An innovative in-process non-contact Si wafer handling solution.
- A complete PV solar cell manufacturing process incorporating all these developments.
- This project will clearly outline the environmental impact, cost and solar cell conversion

SOLNOWAT will clearly outline the environmental efficiency improvements associated with the new manufacturing process and will include dissemination to cell manufacturers. It will add significant value for the SMEs partners involve, by the development of new manufacturing equipment for PV production.

The overall SOLNOWAT benefits can be summarized as followed:

- Dramatic reduction of water usage*
- Very low environmental impact processing *
- Advance process control, real time monitoring* for highest precursor utilization
- High-throughput, high-yield, integrated industrial processing (inline)
- PV solar cell devices with increased conversion efficiency*
- Enabling thin Si wafer processing* and surface decoupling (single sided).
- Smaller footprint manufacturing equipment
- Low manufacturing cost of ownership
- Reviewed by a panel of cell manufacturers

Most of these benefits are fundamental criteria outlined by the European Photovoltaic Technology Platform in its Strategic Research Agenda for Photovoltaic Solar Energy Technology, in order to meet the sector's ambitions for technology implementation and industry competitiveness.