Pearl
PERC meets self-aligned selective emitter technologies based on inkjet printing and silver less plating

Project duration: from 01.2018 to 09.2020
Report submitted: 02.2020

Publishable Summary

The project focus is set on the exploitation of selective emitter's potential in passivated emitter and rear contact (PERC) silicon solar cells. Compared to PERC solar cells with a homogeneous emitter, those with selective emitter predict a significant increase in conversion efficiency of at least 1.0% absolute and, in consequence, would drastically increase the yield of PV systems, decrease the levelized cost of electricity, and the total cost of ownership. Therefore, Fraunhofer ISE, Meyer Burger, RENA, and Sun Chemical mix together their complementary competences in the fields of solar cell processing, machine engineering, and material synthesis in order to evaluate self-aligned process techniques based on the steadily advancing inkjet and plating technology, whereby low Ag consumption is aimed at. The techniques of interest will be applied, validated and demonstrated in the PV-TEC or comparable on pilot-line scale. The high innovation of the addressed technologies, the potential of selective emitters in PERC solar cells also with regard to low-cost PV-manufacturing, as well as the technology readiness level – which ranges between TRL4 and 6 – lead to the conclusion that the project's outcome will provide a competitive solar cell technology for the PV-market with a high potential of being quickly transferred into PV-fabs, which would be connected to a high benefit for all involved European stake- and shareholders.

Project consortium

Coordinator and all contact details:

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Participating countries and financing:

Country	**Number of organisations involved**	**Project costs in EUR**	**Public funding in EUR**
Germany	1	518'980	415'132
United Kingdom	1	369'729	184'865
The Netherlands	1	140'000	70'000
Total	*3*	*1'028'709*	*669'997*

Funding agencies involved and contracts

Funding Agency	Contract N° and Title
Project Management Jülich (PtJ)	020ESOLARERANET5-25
Technology Strategy Board (TSB)/ Innovate UK	File Ref.: 620138
Rijksdienst voor Ondernemend Nederland (RVO)	TESOL17005