EUROPEAN COMMISSION

HORIZON 2020 PROGRAMME
TOPIC H2020-LCE-07-2016-2017
Developing the next generation technologies of renewable electricity and heating/cooling

GA No. 727523

Next – generation interdigitated back-contacted silicon heterojunction solar cells and modules by design and process innovations

NEXTBASE
THE NEXT GENERATION BASELINE

NextBase - Deliverable report

D4.4- PLATING SOLUTIONS FOR LARGE-AREA IBC-SHJ DEVICES

Deliverable No.	NextBase D4.4	
Related WP	WP4	
Deliverable Title	Plating solutions for large-area IBC-SHJ devices	
Deliverable Date	2018-09-30	
Deliverable Type	R	
Dissemination level	Confidential – member only (CO)	
Author(s)	Sven Kluska	20-09-2018
Checked by	Mathieu Boccard (EPFL) – WP leader	23-09-2018
Reviewed by (if applicable)	EB members	25-09-2018
Approved by	Kaining Ding (Jülich) – Coordinator	27-09-2018
Status	Final	

Disclaimer/ Acknowledgment

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727523. The information and views set out in this publication does not necessarily reflect the official opinion of the European Commission. Neither the European Union institutions and bodies nor any person acting on their behalf, may be held responsible for the use which may be made of the information contained therein.

Publishable summary

For collecting electrical charges generated in the solar cells towards the electrical interconnection between cells, metal has to be deposited on the wafer. For the interdigitated back contacted design used in the NextBase project, both positive and negative contacts are on the rear side of the wafer, and metal lines of alternating polarity have thus to be deposited alternatively. Electroplating is an industry demonstrated, cost-effective approach to deposit high-conductivity metal for such metallization for solar cells. Yet, the use of interdigitated back contacted design combined to the use of large-area (156 x 156 mm^2) wafer and the cost targets make this a particularly delicate task. This deliverable aims at showing a setup allowing homogeneous plating on such a large area.

It is shown that a static setup does not allow a homogeneous plating even by tuning of the various parameters. A dynamic approach was therefore chosen, and a setup using a linear stage allowing speed-controlled immersion of the wafer in the solution. A metallic brush is used to deliver the power need for plating. Using this approach, a homogeneous plating of fingers was demonstrated on a full wafer length (155 mm), validating the concept.