LoLoss

Publieke samenvatting / Public summary

Aanleiding

Performing high-efficiency n-type solar cell processing, ECN and Tempress have observed: 1. Quality variations in incoming monocrystalline silicon wafers; 2. A lack of a proper characterization tool to determine the quality of incoming monocrystalline wafers; 3. Related to the above: no clear correlations between pre-process wafer parameters and solar cell performance based on currently available characterization tools; 4. Variable wafer quality after the solar cell process for neighboring wafers based on the process applied. For the (thermal) cell processing, this means there is a risk that process optimization is meaningless for certain wafer material or when certain characterization tools are used. Still, the understanding of the abovementioned observations can greatly help in process optimization and thus improved service to customers.

Doelstelling

The aim of this cooperation is to maximize the chain integrated product of wafer productivity, cell efficiency and yield for the production of high efficiency crystalline silicon solar cells.

Korte omschrijving

Co-development of three interrelated solutions allows ECN and Tempress to deliver the best integral process control solution for PV industry: 1. An improved growth process for high quality silicon ingots; 2. A characterization tool dedicated to relevant defects in high-end wafers; 3. A wafer quality optimized solar cell process. For Tempress and ECN this means a wafer quality optimized

Projectinformatie / Project information

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Algemene informatie / General information

Publicaties en materialen / Publications and attachments

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(thermal) cell processing for the entire production chain has to be determined, based on input on ingot quality (Norwegian Crystals, SINTEF) and incoming wafer characterization (Aescusoft, SINTEF). The 3-fold description of the problem, correctly implies that the solution could be in either –and not all- of these 3 aspects. On the other hand, strict wafer requirements could become more relaxed with the proper wafer processing.

Resultaat

The LOLOSS project provides solutions for optimization of wafer yield in the complete ingot to solar cell production chain of monocrystalline silicon solar cells, by co-development of a dedicated pre-process wafer characterization tool and a wafer quality optimized solar cell process. The gathered information on process dependent wafer quality will be fed back to the ingot manufacturer.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.
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