NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Application of Vacancy Injection Gettering to Improve Efficiency of Solar Cells Produced by Millinet Solar

Cooperative Research and Development Final Report

CRADA Number: CRD-10-417

NREL Technical Contact: Bhushan Sopori

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In accordance with Requirements set forth in Article XI.A(3) of the CRADA document, this document is the final CRADA report, including a list of Subject Inventions, to be forwarded to the Office of Science and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

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CRADA Title: Application of Vacancy Injection Gettering to Improve Efficiency of Solar Cells Produced by Millinet Solar

Parties to the Agreement: Millinet Solar Co., Ltd.

Joint Work Statement Funding Table showing DOE commitment:

Estimated Costs	NREL Shared Resources
Year 1	$ 100,000.00
Year 2	$ 00.00
Year 3	$ 00.00
TOTALS	$ 100,000.00

Abstract of CRADA work:

NREL will apply vacancy injection gettering (VIG) to Millinet solar cells and evaluate the performance improvement produced by this process step. The VIG will be done in conjunction with the formation of a back, Al-alloyed, contact. Millinet Solar will provide NREL with cells having AR coating on the front side and screen-printed Al on the backside, which will be processed in the NREL's optical furnace to perform simultaneous VIG and back contact alloying with deep BSF. These cells will be sent back to Millinet solar for a screen-printed front/side contact mask, followed by a second firing at NREL. Detailed analyses will be performed to determine improvements due to BSF and VIG.

Summary of Research Results:

NREL used vacancy injection gettering (VIG) to evaluate a new two-step gettering process for improving performance of multicrystalline silicon solar cells. Solar cells, after various fabrication steps, were provided by Millinet. The VIG was performed in NREL's optical cavity and the cells were sent back to Millinet solar for a screen-printed front/side contact mask, followed by a second firing at NREL. Detailed analyses showed that VIG was successful. The full advantage of VIG requires some changes in the fabrication schedule of the cells.

Subject Inventions listing:

None

Report Date: 6/18/12 **Responsible Technical Contact at Alliance/NREL:** Bhushan Sopori

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