

STATEMENT OF CONSIDERATIONS

REQUEST BY VARIAN SEMICONDUCTOR EQUIPMENT ASSOCIATES, INC. ("VSEA")
FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS UNDER
DOE AWARD NO. DE-EE0004737; W(A) 2011-027

VSEA has requested a waiver of domestic and foreign patent rights of the United States of America in all subject inventions arising from its participation under the above referenced grant entitled "Reduced Cost and Manufacturing Complexity of High Efficiency IBC Solar Cells Using Ion Implantation and In Situ Patterning." The grant was awarded under the DE-FOA-0000234 High Impact Supply Chain Research and Development for PV Technologies and Systems Funding Opportunity Announcement. VSEA is performing all the work under the grant without the use of any sub-awardees.

The purpose of the work funded by the grant is to provide a cross-cutting patterning module that will reduce the cost per watt of PV systems from a predicted baseline value of \$2.54 per watt in 2015 to an improved value of \$2.21 per watt in 2015. To achieve this impact, VSEA will develop a patterning and alignment module that meets the requirements for interdigitated back contact (IBC) cell manufacturing and is integrated into an existing VSEA ion implanter. This product is expected to reduce the cost of manufacturing IBC cells from \$1.85 per wafer to \$1.33 per wafer by replacing the diffusion and patterning processes with in situ patterned ion implantation, thereby reducing the number of manufacturing steps from 26 to 16.

The total anticipated cost of the grant for the three phases is \$17,862,682. The total dollar amount from the Department of Energy is \$4,800,000 for the three phases of the grant. The total cost share amount from VSEA is \$13,062,682, resulting in a 73.1% total cost share, for the grant. Specifically, VSEA is committed to a 46.4% cost share for phase I, a 66.4% cost share for phase II, and an 84.2% cost share for phase III. This waiver is contingent upon VSEA maintaining approximately (or greater) the foregoing cost share by phase.

The period of performance for the grant is April 1, 2011 through March 31, 2014.

According to VSEA (see attached petition), it "has developed extensive technical competence related to ion implantation, workpiece processing, and machine manufacturing over the past thirty years." Its ion implantation systems implant more than 5 million semiconductor wafers each day, which is more than all of its competitors combined. More specific to the solar industry, it has developed, manufactured and sold tools for solar implantation to customers in the United States, Korea, Taiwan, China and Europe. VSEA was the first to produce an ion implanter for solar cells used in commercial manufacturing. VSEA holds 240 issued U.S. patents and has 249 pending U.S. patent applications. More specific to the solar industry, VSEA has filed over 40 U.S. patent applications related to solar cell implantation. Since 2008, VSEA has invested over \$23 million on research and development efforts related to technologies that form the basis of the work under this grant.

VSEA has agreed that this waiver shall be subject to the march-in and preference for U.S.

industry provisions, as well as the U.S. Government license, comparable to those set out in 35 U.S.C. 202-204. Further, VSEA has agreed to the U.S. competitiveness provisions as attached to this Statement. In brief, VSEA has agreed that products embodying any waived invention or made through the use of any waived invention shall be substantially manufactured in the United States, and that VSEA will not license, assign, or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements.

Referring to item 10 of the waiver petition, VSEA does not believe that the granting of this waiver will place VSEA in a dominant position due to the number of competing technologies. VSEA "submits that competition in the solar cell manufacturing equipment market will be increased if [VSEA] is able to fully protect any innovations under this [grant] because solar cell manufacturers will have more options to use when manufacturing IBC solar cells."

Considering the foregoing, it is believed that granting this waiver will provide VSEA with the necessary incentive to invest its resources in commercializing the results of the grant in a manner that will make the above technology available to the public in the shortest time. Therefore, upon evaluation of the waiver petition and in view of the objectives and considerations set forth in 10 CFR 784, all of which have been considered, it is recommended that the requested waiver be approved.



Glen R. Drysdale
Patent Attorney
Golden Field Office

Date: 5/11/11

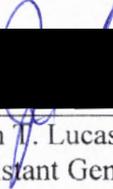
Based upon the foregoing Statement of Considerations and representations in the attached waiver petition, it is determined that the interests of the United States and the general public will best be served by a waiver of patent rights of the scope determined above, and therefore the waiver is approved. This waiver shall not apply to any modification or extension of the grant, where through such modification or extension, the purpose, scope, or cost of the grant has been substantially altered.

CONCURRENCE:

APPROVAL:



Ramamoorthy Ramesh
Program Manager
Solar Energy Technologies



John T. Lucas
Assistant General Counsel for Technology
Transfer and Intellectual Property

Date: 2/15/12

Date: 2/22/2012

U.S. COMPETITIVENESS

The Contractor agrees that any products embodying any waived invention or produced through the use of any waived invention will be manufactured substantially in the United States, unless the Contractor can show to the satisfaction of DOE that it is not commercially feasible to do so. In the event DOE agrees to foreign manufacture, there will be a requirement that the Government's support of the technology be recognized in some appropriate manner, *e.g.*, recoupment of the Government's investment, etc. The Contractor further agrees to make the above condition binding on any assignee or licensee or any entity otherwise acquiring rights to any waived invention, including subsequent assignees or licensees. Should the Contractor or other such entity receiving rights in any waived invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in any waived invention is suspended until approved in writing by DOE.