

STATEMENT OF CONSIDERATIONS

REQUEST BY GENERAL ELECTRIC GLOBAL RESEARCH, INC (GE) FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS UNDER DOE AWARD NO. DE-EE0005344; W(A) 2011-072

GE 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 cooperative agreement entitled “Module Embedded Microinverter Smart Grid Ready Residential Solar Electric System.”

The cooperative agreement was made under the Solar Energy Grid Integration Systems – Advanced Concepts (SEGIS-AC) Funding Opportunity Announcement (DE-FOA-0000479). The objectives of SEGIS-AC are to support the development and demonstration of technologies in power electronics that reduce the overall PV system costs, allow high penetrations of solar technologies onto the grid (*e.g.*, reactive power, energy storage, advanced functionalities), and enhance the performance, reliability, and safety of the PV system.

As set forth in the Statement of Project Objectives, the objective of the project being funded by the cooperative agreement is to develop and demonstrate power electronics technologies that address current limitations in conventional microinverter systems. The proposed technologies include: an innovative power inverter topology that provides state-of-the-art efficiency, 20+ year reliability, and support for bi-directional power flow (future reactive power) without added cost; integration of microinverter and PV module that (a) accentuates dual use of the module metal frame as a large area heat spreader reducing operating temperature and heat sink cost and (b) eliminates redundant wiring and connector; and centralization of a subset of micro-inverter smart grid and safety functions into an intelligent back-feed capable circuit breaker that can protect the dedicated PV circuit and provide failsafe anti-islanding protection.

The total anticipated cost of the cooperative agreement is \$2,901,820 with GE providing \$842,216 as cost share for a cost share percentage of approximately 29%. This waiver is contingent upon GE maintaining, in aggregate, a cost share percentage of 29% or more over the course of the cooperative agreement.

According to GE, it has the ability and experience to successfully employ a full range of skills and facilities as required for this project including world class facilities suited for power electronics device characterization, circuit benchmarking, and electric system prototyping. As examples, GE “has a world class, Smart Grid Laboratory that serves as a working environment for developing technologies for Smart Grid. This laboratory is highly reconfigurable, and serves to aid in the development of advanced functionality. The RTDS hardware in the loop testing equipment in the laboratory will be utilized for the microinverter testing and the pilot demonstration. GE Industrial Solution (GEIS) Plano, Texas plant has leading edge laboratories and equipment for power electronics reliability, EMI and qualifications testing.”

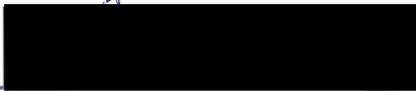
GE currently manufactures solar inverters and has relationships with vendors and suppliers in the field. It is investing over \$800,000 on base line system with sourced inverter on

AC-module, \$250,000 on microinverter reliability and circuit development, and \$200,000 on grid support functions for residential solar inverter. In 2011, GE acquired Lineage Power Holdings, Inc., the leading global provider of high-efficiency power conversion infrastructure technology and services. Also, in 2011, GE announced its plan to build a \$300 million thin-film solar plant in the U.S.

The 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, GE has agreed to the U.S. competitiveness provision as attached to this Statement. In brief, GE has agreed that products embodying any waived invention or made through the use of any waived invention shall be substantially manufactured (*i.e.*, at least a majority of the product) in the United States, and that GE 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, in granting this waiver, GE does not believe that this waiver will give GE a dominant position in this field. The market is competitive, with multiple suppliers and several competing approaches that can be used to achieve the same objectives. This waiver should not impact the ability of the other suppliers to offer their competing approaches or technologies.

Considering the foregoing, it is believed that granting this waiver will provide GE with the necessary incentive to invest its resources in commercializing the results of the cooperative agreement 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: 9/13/12

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 cooperative agreement, where through such modification or extension, the purpose, scope, or cost of the cooperative agreement has been substantially altered.

CONCURRENCE:

APPROVAL:



Ramamoorthy Ramesh
Program Manager
Solar Energy Technology

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

Date: 5-10-12

Date: 9-24-2012

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. Contractor's commitment to manufacture in the United States as set forth in this provision shall be met if the majority (*i.e.*, at least 51%) of each product embodying or produced through the use of any waived invention is manufactured in the United States.