

## STATEMENT OF CONSIDERATIONS

REQUEST BY DELPHI AUTOMOTIVE SYSTEMS, LLC (DELPHI) FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS UNDER DOE AWARD NO. DE-EE0005342; W(A) 2011-064

DELPHI 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 "Cascaded Micro Inverter System for Reduced Costs."

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 is 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, build and test a modular 9 kW 11-level cascaded three-phase inverter building block for photovoltaic applications. The system will be designed to utilize photovoltaic panels and will supply power to the electric grid at 480VAC, 60 Hz. Target efficiency is 99% and target cost is \$0.10/Watt. Additionally, the inverters will have overload protection for individual cascade sections as well as a self-configuration algorithm to bypass fault conditions. With the proposed topology, one centralized controller will monitor and control each of the cascade sections, reducing costs associated with extra control boards. The project will demonstrate that additional power capability can be added in 9 kW increments. Reactive power control will be demonstrated with the proposed system."

The total anticipated cost of the cooperative agreement is \$3,192,261 with DELPHI, providing \$1,292,262 as cost share for a cost share percentage of 40%. This waiver is contingent upon DELPHI maintaining, in aggregate, a cost share percentage of 40% or more over the course of the cooperative agreement.

According to DELPHI, it "has over 20 years of experience developing and producing electronics for electric and hybrid vehicles, including inverters, converters, controllers, energy storage systems and battery management systems. Delphi has over 100 patents in power electronics areas and employs over 300 people working on technology development, product development and verification and testing for power electronics. Automotive inverters under development at Delphi for high volume production are already below \$0.10/W with high reliability and long life under extreme operating conditions." DELPHI believes this experience, competence, and resources will extend to the project being funded by the cooperative agreement.

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, DELPHI has agreed to the U.S. competitiveness provisions as attached to this Statement. In brief, DELPHI 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 DELPHI 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, DELPHI does not believe that this waiver will give DELPHI a dominant position in this field. Rather DELPHI believes a waiver is necessary in order to make it competitive in this new market.

Considering the foregoing, it is believed that granting this waiver will provide DELPHI 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

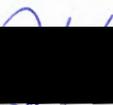
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Based upon the foregoing Statement of Considerations and representations in the attached waiver petition, it is determined that the interests of the United States and the general public will best be served by a waiver of patent rights of the scope 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:

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.