

## STATEMENT OF CONSIDERATIONS

### REQUEST BY GENERAL ELECTRIC GLOBAL RESEARCH CENTER FOR AN ADVANCE WAIVER OF PATENT RIGHTS TO INVENTIONS MADE UNDER COOPERATIVE AGREEMENT DE-FE0005859; W(A)-2012-015 ; CH-1654

General Electric Global Research Center (GE-GRC or GE), requests an advance waiver of domestic and foreign patent rights for all subject inventions made under the above cooperative agreement for work entitled, "Modeling Creep Fatigue Environment Interactions in Steam Turbine Rotor Materials for Advanced Ultra Supercritical Coal Power Plants". Under this agreement, GE will model creep-fatigue-environment interactions in steam turbine rotor materials for advanced ultra supercritical (A-USC) coal power plants, to develop and demonstrate computational algorithms for alloy property predictions, and to determine and model key mechanisms that contribute to the damages caused by creep-fatigue-environment interactions. The technology developed in this project is expected to enable more accurate prediction of long service life of advanced alloys for A-USC power plants, and provide faster and more effective materials design, development, and implementation than current state of the art computational and experimental methods. The waiver is to apply to GE's and its subcontractors' employee subject inventions, except inventions made by subcontractors eligible to retain title to inventions pursuant to P.L. 96-517 as amended.

The work under this subcontract is expected to take place from January 21, 2011 through January 20, 2014 at a total cost of \$1,499,928. GE-GRC will provide 20% cost share or \$729,988. DOE will provide the remaining 80% or \$1,199,940.

In response to questions 4 and 5 of its waiver petition, GE-GRC states it has a long history and knowledge base in the areas of computational materials science and engineering and turbine rotor lifing methodology. GE states it also has developed core computing method, algorithm, and software/code in these areas. Some examples of software include Finite-Element Modeling (FEM) based fatigue crack growth routines to determine the amount of crack growth along a crack front, Enhanced FEM-based fatigue crack growth routine to take into account oxidation at the crack tip, FEM-based stress-strain model routine to take into account microstructure, and Phase Field based crack model routine at the grain structure level. GE additionally states it is at the forefront of the A-USC steam turbine technologies. GE-GRC has demonstrated its technical competency in the field of computational materials science.

In response to question 10 of its waiver petition, GE-GRC states that the broad market for A-USC steam turbine technologies is highly competitive. There are several competing technologies under development in Europe, Japan, and China. GE states that intellectual property is a catalyst for improved competition and development. Therefore grant of the waiver will have a positive effect on competition and market concentration.

This advance waiver of the Government's rights in inventions is subject to the usual advance patent waiver licensing provisions, and the government license, march-in rights, and preference for U.S. industry provisions set out in 35 U.S.C. 202-204. The contractor agrees to submit copies of issued U.S. patents and to the attached revised paragraph (h) to submit annual reports every 12 months (or such longer period as may be specified by the Patent Counsel) from the date of the contract on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the Contractor and any of its licensee or assignees. The Contractor agrees to submit the

annual reports for (10) ten years following the completion of the project period or until the patent is allowed to lapse or expire, whichever comes first. If sold or transferred this reporting obligation will pass on to the buyer or transferee for completion of the ten year period of time.

The advance patent waiver also includes the attached U.S. Competitiveness clause (paragraph t) which requires products embodying any waived invention or produced through the use of any waived invention be manufactured substantially in the United States unless the participant can show to the satisfaction of DOE that it is not commercially feasible to do so. The contractor further agrees to make the above condition binding on any assignee, licensee or other entity 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 the waived invention is suspended until approved in writing by DOE.

In view of the cost sharing and other equities between GE and its subcontractors, it is anticipated that the parties will develop an appropriate allocation of patent rights among the participants to facilitate the expeditious development of the technology forming the subject matter of the agreement. Accordingly, DOE will waive title to all subject inventions made by GE's employees and its subcontractors' employees, regardless of tier, except inventions made by subcontractors eligible to retain title pursuant to P.L. 96-517, as amended, or National Laboratories, to GE or its subcontractors, as mutually agreed by the parties. Except as otherwise approved in writing by DOE Patent Counsel, a party's acceptance of a subcontract under this agreement, at any tier, shall constitute GE's certification that it has provided that party with a copy of this Statement of Considerations and that party's notice to DOE that it accepts the terms and conditions of this advance waiver. Furthermore, a subcontractor has the right to request a waiver from DOE in its own right, rather than having to pass through the contractor to acquire title to subject inventions. Additionally, subcontractors who receive title under this waiver shall notify DOE Patent Counsel in writing of such disposition of patent rights.

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

  
  
Mark P. Dvorscak  
Deputy Chief Counsel  
Intellectual Property Law Division

Date: April 17, 2012

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 described

above, and therefore the waiver is granted. This waiver will 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:

  
Regis Conrad  
Office of Fossil Energy  
FE-224

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

Date: 2 May 12

Date: 5/10/2012

(t) 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 the DOE that it is not commercially feasible to do so. In the event the 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 agrees that it will not license, assign or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements. Should the Contractor or other such entity receiving rights in the invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in the waived invention is suspended until approved in writing by the DOE.

(h) Reporting on utilization of subject inventions.

The Contractor agrees to submit annual reports every 12 months (or such longer period as may be specified by the Patent Counsel) from the date of the contract on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the Contractor and any of its licensee or assignees. Such reports may include information regarding the status of development, date of first commercial sale or use, gross royalties received by the Contractor, and such other data and information as DOE may reasonably specify. However, DOE agrees to permit periodic discussions with the Contractor, on the possibility of alternative report contents or reporting schedules which the DOE deems sufficient to provide the necessary information on utilization of the subject inventions. The Contractor also agrees to provide additional reports as may be requested by DOE in connection with any march-in proceedings undertaken by DOE in accordance with paragraph (j) of this clause. To the extent data or information supplied under this paragraph is considered by the Contractor, its licensee or assignee to be privileged and confidential and is so marked, DOE agrees that, to the extent permitted by law, it shall not disclose such information to persons outside the Government. The Contractor agrees to submit the annual reports for (10) ten years following the completion of the project period or until the patent is allowed to lapse or expire, whichever comes first. If sold or transferred this reporting obligation will pass on to the buyer or transferee for completion of the ten year period of time.