

## STATEMENT OF CONSIDERATIONS

### REQUEST BY NOVOZYMES NORTH AMERICA, INC. FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN INVENTION RIGHTS UNDER DOE COOPERATIVE AGREEMENT NO. DE-FE0007741, W(A)-2012-002, CH-1645

The Petitioner, Novozymes North America (Novozymes) was awarded this cooperative agreement for the performance of work entitled, "Low-Energy Solvents for Carbon Dioxide Capture Enabled by a Combination of Enzymes and Ultrasonics". According to the response to question 2 of the waiver petition, this project encompasses a bench-scale study to validate the potential of a post-combustion carbon dioxide (CO<sub>2</sub>) capture system that integrates a low-enthalpy, aqueous potassium carbonate-based solvent with a carbonic anhydrase enzyme catalyst and an ultrasonic-enhanced regenerator in a re-circulating absorption-desorption process configuration. Novozymes is collaborating with the University of Kentucky Center for Applied Energy Research (UK-CAER), Doosan Power Systems Ltd (DPS), and the Pacific Northwest National Laboratory (PNNL). The waiver is to apply to Novozymes' 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 total estimated cost of the cooperative agreement is \$2,088,643 with DOE providing 80% of the cost, or \$1,658,619. Novozymes and its subcontractors are cost sharing the remaining 20% or \$430,024. The period of performance is from October 1, 2011 through September 30, 2014.

In its response to question 5 of the attached waiver petition, Novozymes states it is the world leader in the development and commercialization of industrial enzymes and microorganisms. It states that its biotechnology platform is based on its core competencies of genetic and biochemical diversity, microbiology, gene technology, protein chemistry, pathway engineering, strain development and improvement, product formulation, and large-scale production. Novozymes further states it maintains an extensive patent portfolio, with more than 6,500 active patents, patent applications and licensed patents. A partial listing of issued U.S. patents and pending applications is attached to the waiver petition. Novozymes' response demonstrates its technical competency in the field of industrial enzymes and microorganisms.

In its response to question 10 of the attached waiver petition, Novozymes states that grant of the waiver is not expected to harm competition. Rather, the petitioner states that the waiver grant will actually stimulate competition and improve the market in the developing area of post-combustion CO<sub>2</sub> capture. Novozymes indicates that there are numerous technological options being investigated for post-combustion CO<sub>2</sub> capture, with Novozymes' approach in the subject award being but one of many developing strategies for achieving reduced CO<sub>2</sub> emissions. Therefore the likelihood of any negative competitive effects arising from the grant of the patent waiver is minimal, as the waiver will not yield a preferred or dominant market position to Novozymes or its subcontractors. 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 resulting from waived inventions, and to submit annual reports on the utilization of a waived invention or on efforts at obtaining such utilization that are being made by the Contractor or any of its licensees or assignees

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 Novozymes 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 Novozymes 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 Novozymes 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 Novozyme'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 the waiver will provide the Petitioner with the necessary incentive to invest resources in the commercialization of the results of the agreement in a fashion which will make the agreement's benefits available to the public in the shortest practicable time. In addition, it would appear that grant of the above requested waiver would not result in an adverse effect on competition nor result in excessive market concentration. Therefore, 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, as set forth above, be granted.



Mark P. Dvorscak  
Deputy Chief Counsel  
Office of Intellectual Property Law

Date: March 21, 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:

  
Mark Ackiewicz  
Division of Advanced Energy Systems  
Office of Fossil Energy, FE-221

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

(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.