

## STATEMENT OF CONSIDERATIONS

### REQUEST BY PRAXAIR INC. FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN INVENTION RIGHTS UNDER DOE COOPERATIVE AGREEMENT NO. DE-FC26-07NT43088, W(A)-2010-049; CH-1576

The Petitioner, Praxair, Inc. (Praxair) was awarded a cooperative agreement from the Department of Energy for the performance of work entitled, "OTM Based Oxy-Combustion for CO<sub>2</sub> Capture from Coal Power Plants." The purpose of the cooperative agreement is to develop an optimum process configuration for integrating oxygen transport membranes (OTMs) in a coal power plant with CO<sub>2</sub> capture. The OTM technology replaces conventional cryogenic air separation technology for oxygen supply in coal gasification or oxy-combustion processes and has the potential to significantly reduce the costs associated with CO<sub>2</sub> capture from coal power plants. Further details of the projects objectives are provided in response to question 2 of the waiver petition. This waiver is for inventions of Praxair and its subcontractors.

The total estimated cost of the cooperative agreement is \$8,358,445, with Praxair providing \$2,925,456 or 35%, while the remaining cost share of 65%, or \$5,432,989, will be provided by DOE. The period of performance is from April 1, 2007 through December 31, 2010.

In its response to questions 4 and 5 of the attached waiver petition, Praxair has described its technical competence in the field of oxygen transport technology. Praxair states that it is one of the world's largest suppliers of industrial gases in North and South America and the second largest world wide. It is one of the world's largest suppliers of merchant CO<sub>2</sub> and a technical leader in CO<sub>2</sub> purification. Praxair states it has successfully developed and commercialized a variety of oxygen enriched combustion systems for a broad range of industrial furnaces. Further, Praxair has a portfolio of over 2600 granted patents and over 1900 pending patents. It has provided a representative sample of its patents related to OTM technology in Appendix A to the petition. Praxair's response demonstrates its technical competency in the field of hydrogen purification.

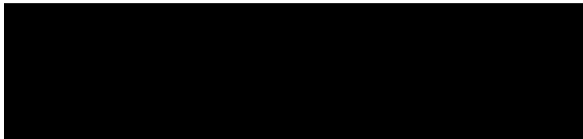
In its response to questions 9 and 10 of the attached waiver petition, Praxair states that grant of the waiver will provide a competitive alternative to the four major worldwide industrial gas suppliers. Each firm has development programs in oxygen and combustion technologies. Praxair states grant of the waiver will increase its incentive to rapidly commercialize the technology to benefit the U.S. economy and create another oxygen supply alternative in the market place, thereby increasing competition. Grant of the waiver will have a positive effect on competition and market concentration.

The subject cooperative agreement will be modified to add the Patent Rights--Waiver clause in conformance with 10 CFR 784.12, wherein Praxair has agreed to the provisions of 35 U.S.C §§ 202, 203, and 204. This waiver clause will also include a paragraph entitled U.S. Competitiveness, in which Praxair agrees to substantial U. S. manufacture of subject inventions (attached hereto). Additionally, Praxair agrees not to transfer subject inventions to any other entity unless that other entity agrees to these same requirements. Praxair has also agreed to provide annual reports on the utilization of subject inventions and to submit copies of issued patents on subject inventions.

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<sup>1</sup> Praxair timely submitted this petition on May 3, 2007, but it was directed to the incorrect DOE office, and not forwarded to the correct office for processing. Upon recent inquiries, the error was discovered and the petition has been re-submitted on August 30, 2010.

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 cooperative agreement in a fashion which will make the cooperative 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.

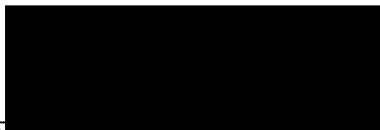


Mark P. Dvorscak  
Deputy Chief Counsel  
Intellectual Property Law Division

Date: December 7, 2010

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

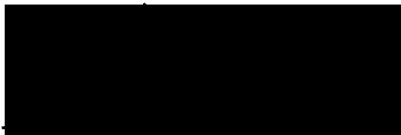
CONCURRENCE:



Peter Rozelle  
Division of Clean Coal Energy Research  
Office of Fossil Energy, FE-221

Date: 16 Dec 10

APPROVAL:



John J. Lucas, Acting  
Assistant General Counsel  
for Technology Transfer and  
Intellectual Property, GC-62

Date: 12/22/2010

(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.