

STATEMENT OF CONSIDERATIONS

PETITION FOR ADVANCE WAIVER OF PATENT RIGHTS BY LINDE LLC. ("LINDE"), IN PERFORMANCE OF SUBCONTRACT 2000141256 TO GAS TECHNOLOGY INSTITUTE (GTI) UNDER THE AGREEMENT NO. DE-FE0009448, ORIGINALLY AWARDED TO PRATT & WHITNEY; W(A)2016-008; CH-1766

The Petitioner, LINDE, has requested a waiver of domestic and certain foreign patent rights for all subject inventions that may be conceived or first actually reduced to practice by LINDE arising from its participation under the above referenced agreement entitled "ADVANCED OXY-COMBUSTION TECHNOLOGY DEVELOPMENT AND SCALE UP FOR NEW AND EXISTING COAL-FIRED POWER PLANTS." The period of performance for this award is July 1, 2014 through March 31, 2017.

The objective of the project is to conduct the testing required to mature the Oxygen-fired Pressurized Fluidized Bed Combustor (Oxy-PFBC) technology to Technology Readiness Level (TRL) 6, and to plan a commercial scale demonstration of a Oxy-PFBC plant. This Oxy-PFBC is anticipated to provide power production with CO₂ capture greater than 90%, with an increase in production cost of less than 35%. The work completed within this award is to provide validation data from which a GO/NO GO decision can be made for implementing the technology on a commercial scale.

The total cost of the award is approximately \$19 million with the prime contractor providing \$7,136,882 (about 37%) cost sharing. Petitioner is projected to receive \$1,425,298 of the total award. This waiver is contingent upon the prime contractor and Petitioner maintaining, in aggregate, the above cost sharing percentages over the course of the cooperative agreement.

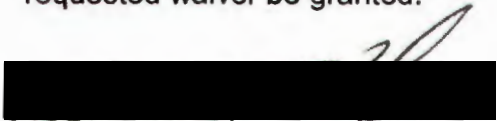
As noted in its waiver petition, Petitioner is a gases and engineering organization with global reach. In particular, LINDE has expertise in design, engineering, construction, and commissioning of commercial gas plans for the production and handling of both combustible and noncombustible gases. Linde has previously participated in several pilot demonstrations for CO₂ capture using pre-combustion, oxy-fuel combustion, and post combustion capture. Considering Petitioner's technical expertise and significant investment in this technology, it is reasonable to conclude that Petitioner will continue to develop and ultimately commercialize the technology and products which may arise from this cooperative agreement.


Petitioner has agreed that this 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, Petitioner has agreed to the attached U.S. Competitiveness provision paragraph (t). In brief, Petitioner has agreed that products embodying a waived invention or produced through the use of a waived invention will be manufactured substantially in the United States unless the Petitioner can show to the satisfaction of the DOE that is not commercially feasible to do so. Additionally, Petitioner has agreed to submit annual reports on the utilization of a

subject invention or on efforts at obtaining such utilization made by Petitioner and any licensees or assignees.

Referring to item 10 of the waiver petition, granting this waiver is not anticipated to have any adverse impact on competition. Oxy-fuel combustion systems are currently researched by several direct competitors who are already applying the technology in the marketplace. Additionally, there are multiple technology alternatives to the focus of this award including chemical looping combustion.

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 cooperative agreement in a fashion which will make the above 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 784, all of which have been considered, it is recommended that the requested waiver be granted.


Jacob A. Heafner
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DOE Chicago Office


Michael J. Doherty
Acting Deputy Chief Counsel
Intellectual Property Law Division
DOE Chicago Office

Date: September 7, 2016

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 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:



Dr. Darren J. Moller
Director
Office of Advanced Fossil Technology
Systems, FE-22

Date: 3/17/17

APPROVAL:



Brian Lally
Assistant General Counsel for Technology
Transfer and Intellectual Property, GC-62

Date: 4/3/17

(f)(7)(iii) A copy of each patent issued by the U.S. Patent and Trademark Office on subject inventions.

(h) Reporting on utilization of subject inventions.

The Contractor agrees to submit annual reports 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 licensees or assignees. Such reports shall 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. 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.

(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.

WAIVER ACTION - ABSTRACT
W(A)-2016-008

<u>REQUESTOR</u>	<u>CONTRACT SCOPE</u>	<u>RATIONALE FOR DECISION</u>
LINDE LLC	Conduct testing required to mature the Oxygen-fired Pressurized Fluidized Bed Combustor (Oxy-PFBC) technology to Technology Readiness Level 6 and to plan a commercial scale demonstration of the combustion plant.	LINDE LLC has extensive experience in the research, design, and manufacture of gas combustable and noncombustible gas systems and granting of this waiver will not have an adverse impact on competition