

STATEMENT OF CONSIDERATIONS

REQUEST BY COMBUSTION ENGINEERING, INC. FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN INVENTION RIGHTS UNDER DOE COOPERATIVE AGREEMENT NO. DE-FC26-00FT40754; W(A)-00-007, CH-1027

The Petitioner, Combustion Engineering, Inc. (C-E), was awarded this cooperative agreement for the performance of work entitled, "Ultra Low Nox Integrated System for Nox Emission Control from Coal-Fired Boilers". The purpose of the cooperative agreement is to address present and anticipated domestic Nox emissions control legislation. Specifically, C-E will build on its field-proven TFS 2000J low Nox firing system to achieve furnace outlet Nox emission at or below 0.15 lb/MMBtu for existing tangentially fired boilers firing a wide range of coals. Target Nox emissions will be obtained without increasing the level of unburned carbon in the fly ash through advances in firing technology including in-furnace, combustion process modifications including advanced overfire air systems, low Nox coal nozzle tips, and transport air to fuel ratio/burner near field stoichiometry control. In addition, an advanced, neural net based control system will be employed to assist in achieving and maintaining target Nox emissions over the range of boiler operation and load. The advanced control system will employ new sensor technology including on-line carbon-in-ash analysis and coal mass flow measurement in order to expand the range of system optimization variables. A detailed description of the anticipated work is provided in response to question 2 of the waiver petition.

The total estimated cost of the cooperative agreement is about \$2,431,440, with the DOE share being \$1,945,000. Cost sharing of the project for C-E is \$486,440, or about 20%. The planned performance period is January 20, 2000 through October 20, 2001, twenty-one (21) months.

In its response to questions 4 and 5 of the attached waiver petition, C-E has shown significant technical competence in the design, manufacture, and construction of low NOx tangential firing systems (TFS) for application to coal fired utility boilers. C-E has over twenty-five years of experience in the design, manufacture, and construction of low NOx tangential firing systems. It has retrofit 150 low NOx TFS representing a total of 47,993 MWe of installed capacity. C-E has performed extensive basic and applied research into the mechanisms underlying the formation of NOx that resulted in the development of C-E's Concentric Firing System, or CFSTM technology. This CFS technology was patented in 1979. Improvements to this system have been developed throughout the 1980s and 1990s, resulting in a significant patent portfolio that is listed in Table B of the waiver petition. C-E has also published numerous papers, listed in Table C. C-E's response fully demonstrates its technical competence in Ultra Low Nox systems.

In its response to question 9, C-E indicates that grant of the waiver will sustain the existing competitive environment characterized by a group of non-dominating companies competing on the basis of technological advances and cost reduction. C-E defines the market as the providers of power generating equipment fired by a variety of fuels including natural gas, coal, or oil. Any gain in the strength of C-E's proprietary position in the market will offset by its need to compete with the technology advances of the several other firms having similar U.S. market and engineering presence. Therefore 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. This waiver clause will also include a paragraph entitled U.S. Competitiveness, in which C-E agrees to substantial U. S. manufacture of subject inventions (attached hereto). Additionally, C-E agrees not to transfer subject inventions to any other entity unless that other entity agrees to these same requirements. The petitioner has further agreed to modification of the data clause of the subject cooperative agreement (48 C.F.R. 952.227-14) by adding paragraph (k), Alternative VI, concerning contractor licensing of data.

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.

[REDACTED]
Mark P. Dvorscak
Assistant Chief Counsel
Office of Intellectual Property Law

Date: Oct 23 2000

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 and consent to assignment of the scope described above, and therefore the waiver is granted. This waiver shall not apply to any modification or extension of this agreement, where through such modification or extension, the purpose, scope, or cost of the agreement is substantially altered.

CONC [REDACTED]

George Rudins, PE-20
Deputy Assistant Secretary
for Coal and Power Systems

Date: 12/20/00

[REDACTED]
Paul A. Gottlieb
Assistant General Counsel
for Technology Transfer and
Intellectual Property

Date: 12-27-00

(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.