

## Statement of Considerations

### REQUEST BY WESTINGHOUSE ELECTRIC CORPORATION FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN RIGHTS IN SUBJECT INVENTIONS MADE IN THE COURSE OF OR UNDER DEPARTMENT OF ENERGY COOPERATIVE AGREEMENT NO. DE-FC26-97FT34139; DOE WAIVER DOCKET W(A)-97-007 [CH0918]

The Westinghouse Electric Corporation has made a timely request for an advance waiver of worldwide rights in Subject Inventions made in the course of or under Department of Energy (DOE) Cooperative Agreement No. DE-FC26-97FT34139. The goal of this project is to continue development of the tubular solid oxide fuel cell (SOFC) technology and address the key barrier issues to its commercialization. In addition, Westinghouse will operate prototype megawatt class combined cycle (Solid Oxide Fuel Cell/Gas Turbine) power systems which are expected to have efficiencies over 70%. The work is sponsored by the Office of Fossil Energy.

If this waiver request is granted, Westinghouse intends to grant rights in Subject Inventions made under Task 8.6 of the cooperative agreement that are related to the "balance of plant" to Southern California Edison Company (SCE), an American utility, in recognition of SCE's willingness to provide \$8,000,000 in cost sharing to the project. The "balance of plant" is defined as technologies exclusive of the solid oxide fuel cell, specifically the gas turbine generator, the control system, the electrical systems, the fuel supply system and other components and systems such as startup heaters and heat exchangers.

The cooperative agreement was awarded in August 1997. The total value of the cooperative agreement is \$198.4 million, to be carried out over 5 budget periods extending over 5 years. This value is an update to the projections in Westinghouse's response to question 4 in the attached copy of its petition for waiver. The DOE will cost share about \$82.9 million or 41.8% and Westinghouse will cost share about \$115.5 million or 58.2%, with funding for each budget period contingent upon DOE approval of a continuation proposal to be submitted by Westinghouse.

Westinghouse Electric Corporation is technically competent in the field of technology of the subject cooperative agreement. According to its response to questions 5 and 6 of the waiver petition, Westinghouse is a major national and international supplier of power generation equipment. It has manufacturing, sales, distribution, and service skills and organizations needed for commercialization of a full line of fuel cell products and related equipment, for central station, industrial cogeneration and other size systems. Westinghouse has constructed the SOFC Pilot Manufacturing Facility, at an investment of \$13,000,000 of its own money, which is capable of producing 20,000 cells per year or 4 Mwe. Further, Westinghouse plans to start construction of a commercial manufacturing facility in 1999 and to begin producing SOFC's in 2001. Therefore,

Westinghouse's experience, expertise and commitment will contribute substantially to commercialization of the inventions made under the cooperative agreement.

Westinghouse began research and development of SOFC's in 1958. Over the past thirty nine years, Westinghouse has invested a great deal of resources, and has developed considerable expertise (see the list of technical papers and presentations by Westinghouse in Attachment A to the waiver petition) and a strong patent position in the SOFC area (see the list of Westinghouse-owned patents in Attachment B to the waiver petition). Westinghouse has developed extensive manufacturing and operating data bases from single cell and generator tests, including: 69,000 hours (7.6 years) of continuous single cell testing of two SOFCs; over 7000 hours and over 6000 hours of operation on two 20 kWe generators; and over 13,000 hours and 5500 hours of operation on two 25 kWe generators. The research and development efforts have resulted in significant improvements in the technology along with significant reductions in SOFC cost due to increase in cell size and development of advanced cell fabrication techniques.

The U.S. government has provided funding for the Westinghouse SOFC development effort for most of the past thirty five years, beginning with a contract awarded in 1962 by the Office of Coal Research, U.S. Department of the Interior. DOE funding of the technology began in 1976 and continues to the present time. Westinghouse was granted patent waivers under earlier DOE awards (DE-AC02-80ET17089 based on a 22% cost share and a commitment to spend further money to commercialize the technology, and DE-FC21-91MC28055 based on a 48% cost share). Thus, grant of the present waiver request is consistent with prior action by DOE in granting waivers of domestic and foreign patent rights to Westinghouse, while taking into consideration Westinghouse's 58.6% cost share under the subject cooperative agreement, and the fact that Westinghouse is capable of manufacturing SOFC's in the United States and marketing the technology in domestic and foreign markets. Further, grant of the requested waiver should serve as encouragement to other DOE awardees that significant cost sharing will be recognized as an acceptable consideration for granting greater rights in Subject Inventions.

Westinghouse has approved the Patent Rights - Waiver terms and conditions, including march-in rights, the granting of licenses to background patents necessary for practicing subject inventions, retention by the government of a license, preference for U.S. industry, and U.S. Competitiveness clauses. The U.S. Competitiveness provision approved by Westinghouse is provided in Attachment A to this Statement of Considerations. Also, should there be a change in Westinghouse ownership amounting to a controlling interest, the waiver, assignment, license or other transfer of rights in waived inventions will be suspended until approved by DOE. Since the requested waiver was not approved prior to award, the standard DOE Patent Rights - Acquisition by the Government clause was incorporated into the cooperative agreement. Upon approval of this waiver request, that clause will be replaced by the Patent Rights - Waiver clause as a no-cost modification to the cooperative agreement.

The cooperative agreement also contains a provision requiring Westinghouse to obtain adequate recognition of the United States support for the technology -- patented or unpatented --

developed or utilized under this cooperative agreement in any contracts, licenses, or other agreements which involve the transfer to foreign entities of the fuel cell technology developed in whole or in part at Government expense.

The Westinghouse Electric Corporation has announced its intentions to split into two separate corporations. However, these plans have yet to be approved and implemented. This subject was explored with the petitioner with the result that DOE cannot be sure at this time which corporation will retain ownership of any waived Subject Inventions under the cooperative agreement. Thus, a further condition of the grant of this waiver is that exclusive rights--but not necessarily title--to any such waived Subject Inventions must remain with the entity that will continue the SOFC development and commercialization work.

Granting of the waiver should not have any adverse effect on competition or market concentration since there are several fuel cell technology options, this being one of many previously or yet-to-be developed in the marketplace. Grant of the waiver will enhance markets by providing added incentive for Westinghouse to vigorously develop the technology and to pursue identifiable markets. The waiver will allow Westinghouse to be in a favorable competitive position to acquire a significant market share in the face of vigorous Japanese government-sponsored support of SOFC development. In addition to the Japanese, there are other SOFC developers in the U.S. and Europe who will compete with Westinghouse for market share.

While Westinghouse desires a degree of exclusivity as an incentive to bring subject inventions to the public benefit, Westinghouse has a generally accepted and long standing corporate policy to license its technology on fair and reasonable terms to responsible parties. Thus, it is not Westinghouse's intention to exclude others from the field, but the degree of exclusivity requested will protect the risk capital needed to bring technology represented by the subject inventions to the public. Westinghouse is not attempting to preclude others from entering the field, and is prepared to include an equitable licensing program for U.S. patents for subject inventions for use in the United States as part of its established licensing activities.

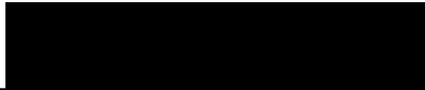
In view of the acceptable level of cost sharing by Westinghouse and the objectives and considerations set forth in 10 CFR 784, all of which have been considered, it is recommended that the requested waiver for worldwide rights be granted.



Lisa A. Jarr  
Patent Attorney

Based on the foregoing Statement of Considerations and the representations in the attached Waiver Petition, it is determined that the interest of the United States and the general public will best be served by a waiver of U.S. and foreign patent rights, and therefore, the waiver is granted. This waiver shall not apply to a modification or extension of the cost-shared cooperative agreement where, through such a modification or extension, the purpose, scope or cost of the cooperative agreement has been substantially altered.

CONCURRENCE:



George Rudins  
Deputy Assistant Secretary  
Office of Coal and Power Systems

Date: 10/6/97

APPROVAL:



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

Date: 10-9-97

***WAIVER ACTION - ABSTRACT***

**W(I)-97-007 (CH-0918)**

**REQUESTOR**

Westinghouse Electric  
Corporation  
DE-FC26-97FT34139

**CONTRACT SCOPE OF WORK**

Continue development of the tubular  
solid oxide fuel cell technology

**RATIONALE FOR DECISION**

58.6% Cost Share

**DISPOSITION**

Granted

Attachment A

U.S. COMPETITIVENESS PROVISION

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 DOE that it is not commercially feasible to do so. The Contractor further agrees to make the above condition binding on any assignee or licensee or any entity otherwise acquiring rights to any waived invention, including subsequent assignees or licensees. 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.