STATEMENT OF CONSIDERATIONS

Request by Alstom Power, Inc. for Identified Waiver of Domestic and Foreign Invention Rights in inventions S-127,557, S-127,558 and S-127,559 made under DOE Contract No. DE-FC26-01NT41223 W(I) 2011-011, W(I) 2011-012, W(I) 2011-013 CH-1642, 1643, 1644

The Petitioner, Alstom Power, Inc. (Alstom) was awarded a cooperative agreement with DOE for the performance of work entitled, "Circulating Moving Bed Combustion Proof of Concept - Phase 2". The objective of the work was to identify the technical, design, and performance challenges that need to be met to make a commercial Circulating Moving Bed (CMB) system. Further details of the project are described in response to question 3 of the waiver petition.

The subject inventions for which Alstom is requesting title are described below:

1. "MBHE Active Grid Solids Distributor" - DOE Case No: S-127,557
The proposed invention describes a grouping of Ash Control Valves (ACVs) for solids flow control and an operating method to both control the solids flow rate and solids flow distribution through a Moving Bed Heat Exchanger (MBHE). The MBHE includes an ACV to control the solids flow through the MBHE. The MBHE is being developed as a replacement for a Circulating Fluidized Bed (CFB) Fluidized Bed Heat Exchanger (FBHE).

2. "MBHE Ash flow Control Valve" - DOE Case No: S-127,558
The proposed invention describes an ash control valve (ACV) that was developed by Alstom and tested in multiple test campaigns in Alstom's 3 MWth Multi-use Test Facility (MTF). Key features of this device include that it can control the solids flow through the ACV with no moving parts, can use low pressure control and transport air from the Primary Air (PA) fan, Secondary Air (SA) fan, or blowers, and can accommodate and pass the occasional piece of oversize rubble through the ACV.

3. "MBHE Distribution Orifice Plate" - DOE Case No: S-127,559
The ash flow distribution through the Moving Bed Heat Exchanger (MBHE) is critical to the MBHE design. Solids flow mal-distribution can lead to poor heat transfer performance, ineffective surface utilization, and possibly steam temperature imbalances. The original MBHE design used mass flow hoppers with 70° angles to ensure uniform solids flow throughout the MBHE. This approach required a very tall MBHE. An alternative but more complex option is to use a large number of ash control valves (ACVs) and hoppers at the MBHE bottom. The Distribution Orifice Plate was therefore developed to reduce the MBHE height requirements needed to ensure uniform solids distribution. It uses a multiple orifice plate design and requires a 35 to 40° hopper slope with less elevation requirement. This design results in a 70 to 75% height reduction of the distributor as compared to using mass flow hoppers. The orifice plates can be made of either high alloy steel or refractory tiles.

The work under this agreement took place from April 1, 2003 through June 30, 2010. The total amount of the contract was $7,795,014, with DOE contributing $4,704,018 or 60% of the budget. Alstom provided the remaining 40% cost-share or $3,090,996.

In its response to questions 5, 7 and 9 of the attached waiver petition, Alstom has described its technical competence in the field of power generation, as well as its financial and technological investment made in this field. It designs, builds, and services technologically advanced products and systems for the world's energy and transport infrastructure. It is one of the world's leading power generation equipment suppliers, providing a full scope of supply including gas turbines, steam turbines, boilers, pollution control, hydropower, wind power, solar power, and related equipment and services. Alstom has filed and owns a number of patents associated with Circulating Fluidized Bed (CFB) technology, many of which are listed in response to question 4. Alstom provided a 41% cost-share for this program, and has spent about $10 million over the past 15 years of internal funding related to oxy combustion technology. It is motivated to promote the further developments of these inventions because of this previous investment, as well as continued efforts to be made in terms of time and money. This demonstrates Alstom's commitment to the technology, and its intent to further develop and exploit the inventions' potential.

In its response to question 10 of the attached waiver petition, Alstom states that there a variety of fuels such as natural gas, oil, or coal, and that there is competition between products and services for power generating equipment firing the same type of fossil fuel. Alstom states that CFB coal power will face competition not only from other coal-fired technologies but also from a portfolio of pre-combustion and post-combustion carbon capture systems. There are also several U.S. companies having extensive U.S. marketing organizations as well as extensive engineering and research and development organizations. Therefore grant of the waiver will have a positive effect on competition and market concentration.

Alstom has agreed to accept the terms of the Large-Business, Confirmatory license, including the Government license, march-in rights and preference for U.S. industry set forth in 35 USC § 202, 203, and 204.

Upon evaluation of the waiver petition, in view of all the objectives and consideration set forth in 10 CFR 784, all of which have been considered, it is recommended that the requested waiver be granted.

[redacted]

Mark P. Dvorscak
Deputy Chief Counsel
Office of Intellectual Property Law
Date: December 15, 2011

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, 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.

CONCURRENCE:

[redacted]

Regis Conrad, FE-224
Office of Fossil Energy

APPROVAL:

[redacted]

John T. Lucas, GC-62
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.