

**STATEMENT OF CONSIDERATIONS**

REQUEST FOR ADVANCE WAIVER OF PATENT RIGHTS BY MITSUBISHI HEAVY INDUSTRIES AMERICA, INC., UNDER SUBTASK 2.4 OF DOE AWARD NO. DE-FE0024233; W(A)-2017-008, CH-1786

Petitioner, Mitsubishi Heavy Industries America, Inc. (Petitioner), a Delaware Corporation and a wholly owned subsidiary of Mitsubishi Heavy Industries, Ltd. of Japan (Parent Organization), has requested a waiver of: (a) domestic and foreign patent rights for all subject inventions conceived solely by Petitioner and (b) Petitioner's undivided interest, based on its employee's contributions, to joint domestic and foreign patent rights for all subject inventions conceived, arising under the above referenced Subtask.

The University of North Dakota, Energy & Environmental Research Center (EERC), is the Awardee under Cooperative Agreement DE-FE0024233 while the Petitioner is a subcontractor under that Cooperative Agreement. The objective of the Cooperative Agreement is to overcome the barriers to implementing post-combustion coal (PC) capture. Parent Organization asserts it has proprietary, pre-existing technologies including Kansai-Mitsubishi Carbon Dioxide Recovery Process (KM CDMR Process<sup>TM</sup>), the Amine Emission Reduction Unit (AERU) which is part of the KM CDMR Process<sup>TM</sup>, the proprietary KS-1<sup>TM</sup> process, and proprietary solvent(s) termed Advanced Solvent (all referred to as the Technology). Petitioner has been granted a license in the Technology with the authority to further develop and sublicense the Technology in the United States. Additionally, Petitioner's know-how in using the Technology in the removal and purification of CO<sub>2</sub> from combustion exhaust gases. In particular, EERC will use portions of the Technology at its test facility in Grand Forks, North Dakota and at Minnkota Power Cooperative Milton R. Young coal-fired power station to test the Technology on lignite and other low-rank coals. The effects of aerosols formed from lignite combustion on solvent emissions will be evaluated, as will the effectiveness of the AERU as an emission mitigation strategy.

The total anticipated cost of the award is \$4,970,277 including DOE's contribution of \$2,500,000 and the non-federal contribution of \$2,470,277, or fifty percent (50%) of the total award. Petitioner is contributing \$188,090, or twenty one percent (21%), of its share of the award of \$888,090 (which includes the \$700,000 portion of the award allocated to Petitioner and Petitioner's contribution of \$188,090). The period of performance is from 1 September 2017 to 31 August 2018. Petitioner is not making any financial contribution to the subtask, but is providing an in-kind contribution which includes contributions through costs for providing labor and direct costs include supplies and travel.

Referring to items 5-9 of the waiver petition, Petitioner is the world leader in flu gas CO<sub>2</sub> capture technology stemming from more than 26 years of extensive research and development. Additionally, Petitioner has expended approximately \$70 million in the development of the Technology in addition to having tested and developed the Technology at various facilities around the world, including the Nanko Power Station in Japan, the Massushima Coal-Fired




Power Station in Japan and Alabama Power's Plant Barry. Accordingly, Petitioner has significant experience in developing technology within this field and will continue to further develop the contracted work.

Petitioner has agreed that this waiver will be subject to the march-in and preference for U.S. industry provisions, as well as the U.S. Government license, set out in 35 U.S.C. 202-204. Further, Petitioner has agreed to the attached U.S. Competitiveness provision (paragraph (t)). The Petitioner further has agreed to the attached revised paragraph (h) to submit annual reports on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by Petitioner and any of its licensee or assignees. If sold or transferred this reporting obligation will pass on to the buyer or transferee.

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 it is not commercially feasible to do so. Petitioner has further agreed to make the above conditions binding on any assignee or licensee or any entity otherwise acquiring rights in the waived inventions, including subsequent assignees and licensees. Should Petitioner or other such entity receiving rights in a waived invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in the waived inventions is suspended until approved in writing by DOE.

Referring to item 10 of the waiver petition, granting this waiver will not have an adverse impact on competition, and will in fact increase the options for the electric utility industry in choosing CO<sub>2</sub> capture technologies. Several competitors have their own proprietary CO<sub>2</sub> capture process designs. Thus, granting this Petition will not hinder competition in the field.

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 agreement in a fashion which will make the 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.

  
Timothy L. Harney  
Patent Attorney  
Intellectual Property Law Division  
DOE ISC-CH

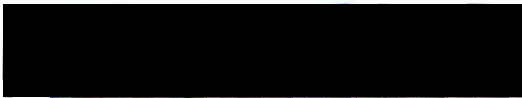
Date: 6/28/2018

  
Michael J. Dobbs  
Deputy Chief Counsel  
Intellectual Property Law Division  
DOE ISC-CH

Date: 6/29/2018

Based upon the foregoing Statement of Considerations and representations in the attached waiver petition, it is determined that the interests of the U.S. 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 will not apply to any modification or extension of the award, where through such modification or extension, the purpose, scope or cost of the award has been substantially altered.

## CONCURRENCE:



John Litynski  
Carbon Capture Program Manager, FE-223

Date: \_\_\_\_\_

7/23/2018

## APPROVAL:



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

Date: \_\_\_\_\_

8/1/18