## STATEMENT OF CONSIDERATIONS

REQUEST BY GRAFTECH INTERNATIONAL LTD. (GRAFTECH) FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS UNDER DOE GRANT NO. DE-FG36-07GO17012; W(A)-07-040

The Petitioner, GrafTech, has requested a waiver of domestic and foreign patent rights for all subject inventions arising from its participation under the above referenced grant entitled "Next Generation "Bipolar Plates for Automotive PEM Fuel Cells." The Petitioner will be collaborating with Ballard Power Systems, Huntsman Advanced Materials, and Case Western Reserve University, none of which is subject to this waiver request.

The objective of the grant is to develop the next-generation automotive bipolar plate based on an engineered composite of expanded graphite and resin. The new plate composite will be capable of meeting DOE plate cost and performance targets and will enable PEM fuel cell operation at temperatures up to 120 °C. Specific program objectives include 1) develop new graphite/resin composites that meet the 120 °C operating temperature; 2) demonstrate moldability of new materials to a reduced bipolar plate thickness of 1.6 mm; 3) validate performance of new plates under automotive conditions using a short cell stack; 4) show viability of $6/kW cost target through the use of low-cost materials amenable to high-volume manufacturing.

The total anticipated cost of the grant is $2,907,429 with GrafTech providing 20% cost share for its total costs for the award, including material, equipment, and labor. Specifically, the total cost share is $581,486, with GrafTech's cost share of $345,757; Huntsman's cost share of $109,521; Ballard's cost share of $74,837; and Case Western's cost share of $51,371. Furthermore, all related intellectual property and capital developed or installed prior to the start of the contract work will be available for GrafTech, as well as its collaborators on the project. This waiver is contingent upon the Petitioner maintaining, in aggregate, the above cost sharing percentage over the course of the agreement.

As noted in its waiver petition, Petitoner has invested over 15 years of research and development and over $10M in capital to develop expanded graphite flow field plates for fuel cell applications. Production facilities that are partially or completely dedicated to flow field plate production are located in Ohio, one of which involved $11 million in capital investment, and the other is a commercial-scale manufacturing facility for specialized expanded graphite-based products. Petitioner has earned over 200 patents worldwide in the field of fuel cell technology since 1990. In 1992, GrafTech began working with one of its collaborators on this award, Ballard Power Systems, to supply its GRAFCELL® expanded graphite materials for the manufacture of flow field plates for its Mark 900 Series power module. Of all the fuel cell vehicles on the road today, 75% are powered by Ballard fuel cell stacks made with GRAFCELL® materials. The Mark 902 power module, one of the Mark 900 Series, is also used to power 30 Citaro buses in 10 European cities, as well as bus demonstration programs in Australia, Beijing, and California. Ballard has also recently signed two contracts with Cellex and General Hydrogen to provide hundreds of Mark 902 stacks for use in fork lift trucks.

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 U.S. competitiveness provisions as attached to this Statement. In brief, Petitioner has agreed that products embodying intellectual property developed under this agreement shall be substantially manufactured in the United States, and that Petitioner will not license, assign, or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements.

Referring to item 10 of the waiver petition, granting this waiver is not anticipated to have any adverse impact on competition because it will not substantially change Petitioner's position in the marketplace. Further, the success of Petitioner and its partners, under this grant, can be expected to stimulate further investment and competition in this technology.

Considering the foregoing, it is believed that granting this waiver will provide Petitioner with the necessary incentive to invest its resources in commercializing the results of the grant in a manner that will make the above technology available to the public in the shortest 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.

[redacted]

Julia Cook Moody
Patent Attorney
Golden Field Office

Date: Jan 9, 2008

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 determined above, and therefore the waiver is granted. This waiver shall not apply to any modification or extension of the grant, where through such modification or extension, the purpose, scope, or cost of the grant has been substantially altered.

CONCURRENCE:

[redacted]

JoAnn Milliken, Program Manager
Hydrogen, Fuel Cells & Infrastructure Technologies
EE-2H

Date: 1-14-08

APPROVAL:

[redacted]

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

Date: 1-15-08

## 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 DOE that it is not commercially feasible to do so. In the event 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 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 any waived invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in any waived invention is suspended until approved in writing by DOE.