## STATEMENT OF CONSIDERATIONS

REQUEST BY HUNTSMAN ADVANCED MATERIALS AMERICAS, INC. (HUNTSMAN) FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS UNDER DOE GRANT NO. DE-FG36-07GO17012; W(A)-08-004

The Petitioner, Huntsman, 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 GrafTech International, Ltd., Ballard Power Systems ("Ballard"), and Case Western Reserve University. Ballard is subject to this waiver request.

GrafTech is the prime awardee under the grant, with Ballard and Huntsman as sub-awardees. Their cost shares and contributions to the grant are discussed below. When initial discussions regarding the waiver took place, it appeared that there would be issues with the U.S. Competitiveness clause, thus necessitating separate waivers for Ballard and Huntsman. However, as discussions progressed, both Ballard and Huntsman agreed to DOE's waiver terms and conditions, including U.S. Competitiveness. This agreement occurred after GrafTech's waiver was granted. Because Ballard and Huntsman agreed to all our terms and conditions, one waiver for both sub-awardees is appropriate.

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 a 20% cost share for the total costs for the award, including material, equipment, and labor. Specifically, the total cost share is $581,486[1], 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. This waiver is contingent upon the Petitioner maintaining, in aggregate, the above cost sharing percentage over the course of the agreement.

Huntsman is a leading supplier of advanced high-performance chemical materials, including composite resins and adhesives, for design, prototyping and manufacturing. More than 9,000 companies around the world use Petitioner's technologies in key markets, including coatings, construction, electronics, adhesives, power transmission and distribution, general

[1]These figures are based on the final budget and are slightly different from the petition, which was based on cost estimates.

industry, aerospace, wind energy, automotive, and sport and leisure. Huntsman has over 200 patents and patent applications on file pertaining to these technologies. Petitioner has invested in a state-of-the-art technology center in Texas, Petitioner's largest R&D facility. Huntsman will perform work on graphite/resin composites under the agreement at this center.

Ballard began working with Graftech in 1992, supplying expanded graphite materials for flow field plates. By 1996, Ballard had successfully embossed flow field channels directly into the expanded graphite. Since then, Ballard has improved the materials, such as reinforcing graphite with resin to improve its impermeability to gases and mechanical stability. Ballard has over 200 U.S. patents and approximately 70 published patent applications in this area. Ballard has also developed PEM fuel cells and has manufactured the Mark 900 Series power module. One of these, the Mk 902 stack, uses GrafTech's GRAFCELL materials exclusively for flow field plates. Of all the fuel cell vehicles on the road today, over 75 percent are powered by Ballard fuel cell stacks.

Huntsman and Ballard have 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, Huntsman and Ballard have agreed that products embodying intellectual property developed under this agreement shall be substantially manufactured in the United States, and that Huntsman and Ballard 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 is one of several major worldwide resin suppliers. Furthermore, because of the extensive research and development in the resin field worldwide, granting this waiver will not decrease competition, cause undesirable market concentration, nor place Huntsman or Ballard in a dominant market position.

Considering the foregoing, it is believed that granting this waiver will provide Huntsman and Ballard 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: 15 April 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: May 01, 2008

APPROVAL:

[redacted]

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

Date: May 6, 2008

## 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.