

## STATEMENT OF CONSIDERATIONS

### REQUEST BY CORNING INCORPORATED (CORNING) FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS UNDER DOE AWARD NO. DE-EE0005757 W(A) 2012-034

CORNING has requested a waiver of domestic and foreign patent rights for all subject inventions arising from its participation under the above-referenced award entitled "Innovative Manufacturing of Protected Lithium Electrodes for UltraHigh Energy Density Batteries." The award was made under the Innovative Manufacturing Initiative (DE-FOA-0000560). CORNING is a sub-recipient to PolyPlus Battery Company (PolyPlus), the prime recipient of the award. Johnson Controls Inc. is another sub-recipient under the award. This waiver only applies to CORNING. Johnson Controls Inc. will have to petition for a patent waiver if it wants the patent rights to subject inventions arising from its participation. The Bayh-Dole Act applies to PolyPlus so a patent waiver is not necessary for its participation.

As stated in the attached Statement of Project Objectives, the objective of the project funded by the award is to "develop the manufacturing technology to produce advanced protected lithium electrodes (PLEs) for lithium-air, lithium-water, and lithium-sulfur batteries. The energy density of these battery technologies is two to ten times higher than the competition and with volume production should lead to more than a 50% reduction in cost (relative to competing technologies)." CORNING's role is to develop the ceramic electrolytes for PolyPlus's PLE design. Currently, the availability and cost for these types of material do not support commercialization of the design. Moreover, the materials are only provided by one foreign source. CORNING is focused on improving the stability, quality and performance of ceramic electrolyte members and developing the manufacturing means to dramatically lower their cost. CORNING's success should enable PolyPlus's PLE design to become a game-changer in battery technology.

The total anticipated cost of the award is \$12,587,448. PolyPlus and its team is providing \$3,587,528 of cost share for a cost share percentage of 28.5%. The total anticipated cost of the work to be conducted by CORNING under the award is \$6,108,995. CORNING has committed to cost share greater than the statutory requirement and greater than the amount committed by PolyPlus. CORNING is providing \$3,108,995 of cost share for a cost share percentage of approximately 50% with respect to the work that it will conduct under the award. This waiver is contingent upon CORNING maintaining, in aggregate, a cost share percentage of at least 50% for the award.

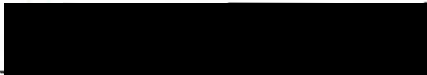
CORNING is a world leader in the development and manufacturer of specialty ceramic, glass-ceramic and glass materials. CORNING's material innovations have contributed to several transformative industries (*e.g.*, automotive emissions control, telecommunications and advanced displays). CORNING has an extensive patent portfolio including with respect to electrolyte membrane composition, fabrication and post-processing.

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

Granting this waiver is not anticipated to have any adverse impact on competition. According to the petition, lithium battery manufacturing is a competitive industry with hundreds of manufacturers in China alone. Patent filings for lithium-ion battery chemistries and cell designs number in the tens of thousands. The high energy chemistry battery design being pursued under this award represents a step change in capability compared to the current technologies but many foreign major battery producers are researching similar improvements. Therefore, it is believed that lithium battery manufacturing should remain competitive. However, the granting of the patent waiver should help CORNING protect its investment and successfully provide another competitive approach and product for the industry.

As stated in the attached Patent Waiver Recommendation, DOE's Advanced Manufacturing Office believes that CORNING has "developed a pathway for commercialization that is technically sound, commercially viable, and provides societal benefits" with respect to the likely results from the award and supports the granting of this patent waiver.

Considering the foregoing, it is believed that granting this waiver will provide CORNING with the necessary incentive to invest its resources in commercializing the results of the award 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.

  
Glen R. Drysdale  
Patent Counsel  
Golden Field Office

Date: 1/3/13

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 award, where through such modification or extension, the purpose, scope, or cost of the award has been substantially altered.

CONCURRENCE:

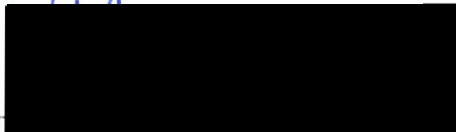


Kathleen Hogan  
Acting Program Manager  
Advanced Manufacturing Office:

Date:

2/8/13

APPROVAL:



John F. Lucas  
Assistant General Counsel for Technology  
Transfer and Intellectual Property

Date:

2/11/2013

## **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.