

STATEMENT OF CONSIDERATIONS

REQUEST FOR ADVANCE WAIVER OF PATENT RIGHTS BY CUMMINS, INC. AND HYDROGENICS CORPORATION UNDER DOE AWARD NO. DE-EE0009247; W(A) 2021-003

CUMMINS and HYDROGENICS have requested a waiver of patent rights of the United States of America for all subject inventions arising from their participation under the above referenced award entitled “Cummins PEM Fuel Cell System for Heavy Duty Applications”. HYDROGENICS is a sub-awardee to CUMMINS under the award. CUMMINS acquired a majority ownership interest in HYDROGENICS in 2019. This waiver applies to subject inventions made by CUMMINS and HYDROGENICS.

The award project is to develop a new modular polymer electrolyte membrane (PEM) fuel cell stack to power heavy duty (HD) applications. To reach the technology goals for the fuel cell stack, the project will focus on (1) developing a durable membrane electrode assembly (MEA) that can operate at high temperatures and a high volume manufacturing process with increased utilization of platinum group metals (PGM) catalysts to reduce cost; (2) improving the bipolar plates (BPP) design for improved gas distribution and cooling capability, reduction of ohmic resistance, and accommodating high speed and high volume production; and (3) improving the stack design and selection of balance of plant (BOP) components, including the electric air compressor to handle higher air pressure and higher operating temperatures.

The total anticipated cost of the award is \$3,750,000, including \$750,000 or 20% of cost share. The anticipated cost for CUMMINS activities under the award is \$2,579,691 including \$515,938 in cost share and \$300,000 to the Argonne National Laboratory, another partner on the project. The anticipated cost for HYDROGENICS activities under the award is \$1,170,309, including \$234,062 cost share. The period of performance for the award is three years. The patent waiver is conditioned on CUMMINS and HYDROGENICS providing at least 20% cost share.

Founded in 1919, CUMMINS is a U.S.-based company, a major U.S. exporter and a global manufacturing leader. It has 19 manufacturing plants in the U.S. CUMMINS and its distributors have tens of thousands of employees in the U.S. It manufactures a full range of on-highway and off-highway engines, electrical power generation products, fuel systems, filters and exhaust systems and components. When deciding where to build one of its newest engines, the QSK95, it decided to make it in the U.S., in Seymour, Indiana, where it has invested more than \$350 million over the last 10 years. It is committed to constructing a state-of-the-art fuel cell testing lab at its Technical Center in Columbus, Indiana. In September 2019, CUMMINS acquired a majority ownership interest in HYDROGENICS, which provided CUMMINS with PEM, alkaline fuel cells, and electrolyzers used to generate hydrogen. HYDROGENICS sells commercial products around the world. Together, CUMMINS and HYDROGENICS are


investing heavily in new stack technology and hold more than 200 patents in the PEM hydrogen space with over 50 pending patent applications.

If successful, the award project will develop a PEM fuel cell stack suitable for heavy duty applications. The intent is to incorporate the PEM fuel cell stacks into powertrains for vehicles. CUMMINS has agreed that any powertrains that incorporate any waived invention under the award, including the PEM fuel cell stacks, for sale in the U.S., Canada or Mexico will be manufactured in the U.S. While HYDROGENICS intends to utilize its existing manufacturing facility in Canada to assemble the PEM fuel cell stack, HYDROGENICS has agreed to only sell the PEM fuel cell stacks to CUMMINS or another party who agrees that any powertrain or vehicle that incorporates a fuel cell stack intended for the U.S., Canada or Mexico market will be manufactured substantially in the U.S. CUMMINS has also committed to establishing a fuel cell testing laboratory in the U.S.

The foregoing commitments are captured in the attached U.S. Competitiveness provision, paragraph (t) which will be part of the terms and conditions of the patent waiver. In addition to the U.S. Competitiveness provision, the patent 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.

Referring to item 10 of the waiver petition, CUMMINS and HYDROGENICS do not believe the waiver would place them in a dominant position due to competing technologies being developed by different companies.

Considering the foregoing, it is believed that awarding this waiver will provide CUMMINS and HYDROGENICS with the necessary incentive to invest their 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.



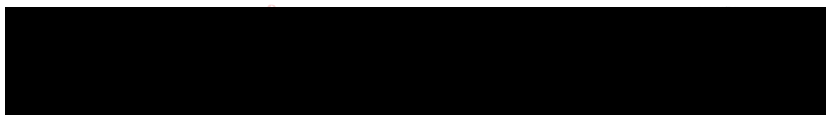
Glen Drysdale
Patent Attorney
Golden Field Office

Date: _____

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 be best 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:

APPROVAL:



Dr. Sunita Satyapal
Director
Hydrogen and Fuel Cell Technologies
Office (HFTO)

Brian Lally
Assistant General Counsel for Technology
Transfer and Intellectual Property

Date: _____

Date: 7.21.21 _____

(t) U.S. COMPETITIVENESS

CUMMINS agrees that, for powertrain sales within the United States, Mexico or Canada, any products embodying any waived invention or produced through the use of any waived invention will be incorporated into a powertrain that is manufactured substantially in the United States, unless CUMMINS 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., recoument of the Government's investment, etc. CUMMINS 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 CUMMINS 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.

In addition to the above, CUMMINS agrees to establish a fuel cell testing laboratory in the United States capable of testing systems from MEA component level up to 3kW short stacks.

HYDROGENICS agrees that, for vehicles that will be sold in the United States, Canada or Mexico, any products embodying any waived invention or produced through the use of any waived invention will be, (i) sold to CUMMINS for incorporation in powertrains that are manufactured by CUMMINS substantially in the United States, or (ii) sold to a customer that agrees that either the powertrains or vehicles that will incorporate such products will be substantially manufactured in the United States, unless HYDROGENICS 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., recoument of the Government's investment, etc. HYDROGENICS 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 HYDROGENICS 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.