

STATEMENT OF CONSIDERATIONS

REQUEST BY GE HYDRO FRANCE (“GEHF”) FOR AN ADVANCE WAIVER OF
DOMESTIC AND FOREIGN PATENT RIGHTS UNDER THE U.S. DEPARTMENT OF
ENERGY (“DOE”) WATER POWER TECHNOLOGIES OFFICE (“WPTO”) AWARD
NUMBER DE-EE0010187
W(A)2023-006

GE Hydro France (“GEHF”), a France foreign entity, has requested a waiver of domestic and foreign patent rights for all inventions that may be or have been conceived or first actually reduced to practice by GEHF’s employees in the course of or under DOE’s WPTO Award No. DE-EE0010187 entitled “Increasing Operational Flexibility of Existing Hydropower Through Non-Intrusive Feedback Control and Hybridization” (“subject inventions”). For this award, GEHF has teamed with its affiliates including subsidiaries of the General Electric Company (“GE”): GE Global Research, GE Renewables US LLC and GE Renewable Technologies.

As set forth in GEHF’s petition for this waiver, the general objective of the project being funded by the award is to analyze and develop new or underutilized methods of providing flexibility to existing hydropower facilities. For this project, GEHF’s contributions are divided into two phases. The first phase involves GEHF’s engineers developing digital tools to analyze the current operational processes of hydroelectric facilities at several demonstration sites. During this phase, GEHF will equip the facilities with several types of sensors and digital tools to measure and capture operational data of the power plants in order to perform their analysis. The sensors will implement artificial intelligence models to help with this analysis to achieve a goal of developing a more compact and powerful monitoring system of the hydroelectric facilities. GEHF will also work to assess the feasibility of a new hybrid hydroelectric model that includes battery storage and related control systems. During the second phase of the project, GEHF will analyze the captured data in order to recommend improvements to the flexibility of existing hydroelectric facilities without performing major retrofit projects. GEHF will also develop and analyze new potential control schemes to support these improvements.

The period of performance for this project is thirty-four (34) months. The total cost of the award project is \$4,369,785 which includes \$3,000,000 in DOE funding and \$1,368,820 in cost share from all of the GE entities. For the portion of the project performed by GEHF, \$644,839 in funding will be provided by DOE and \$600,000 in funding will be provided by GEHF. Therefore, GEHF will be providing 48.2% cost share for its project portion. This waiver is contingent upon GEHF maintaining, in aggregate, at least 48.2% cost sharing percentage over the course of the award.

GE, through its many subsidiaries including GEHF, has been a developer and supplier of electric power generation, transmission and delivery products and techniques for over 100 years including gas turbines, steam turbines, generators, as well as hydropower, wind, solar and nuclear power plants. GE also provides a significant number of electric grid infrastructure and control technologies that enable operation, monitoring and diagnostics of key power industry equipment.

Over the last 100 years, GEHF has significantly invested in the development of hydro technology including hydraulic and mechanical design, control systems, and digital solutions for turbines and generators. GEHF is a supplier of electromechanical equipment and digital solutions for hydropower plants throughout the world, with a large installed base of over 400GW of turbines and generators totaling about 25% of the world's hydroelectric capacity. GEHF is headquartered in Boulogne-Billancourt, France and its Engineering and Technology Centers of Excellence are located in Grenoble, France.

GEHF research and development budgets are in the range of several millions of dollars per year and GEHF has filed numerous U.S. and foreign patents and patent applications in these technologies. Specific to this project, GEHF has extensive expertise in turbine and generator behavior, hydroelectric site tests and measurements, condition monitoring, and diagnostics of rotating machines. For the present project, GEHF will leverage two major previous projects launched in 2019 and 2020 focused on increasing the flexibility of hydropower: (1) the EU XFLEX-HYDRO project that included four demonstration sites in two countries with two customers, and (2) a project under DOE award no. DE-EE0008942, with a demonstration in High Rock, North Carolina. GEHF intends to continue investing several millions of dollars per year to further develop this hydroelectric technology to address flexibility requirements and support the hydroelectric power grid. In view of the foregoing, it is reasonable to conclude that GEHF can continue to and ultimately be successful in developing, utilizing and commercializing the technology resulting from the award.

GEHF does not anticipate that granting of this waiver would place GEHF in a preferred or dominant position in the hydroelectric power field. This is because the hydroelectric power market is currently highly competitive and includes numerous large entities such as Voith GmbH & Co. KGaA, ANDRITZ Hydro, Harbin Electric Corporation and DEC Dongfeng Electric Machinery Co., Ltd. It is expected that multiple competing approaches may be developed by these and other entities in the hydroelectric power field. The waiver will enable GEHF to utilize and further improve the technology developed under this contract both within the United States as well as globally, specifically in the area of hydroelectric digital control solutions.

This waiver shall be subject to the march-in rights and preference for U.S. industry provisions, as well as a U.S. Government license, comparable to those set out in 35 U.S.C. 202-204. Further, the waiver shall be subject to the attached U.S. Competitiveness provision paragraph (t). In brief, products embodying a waived subject invention or produced through the use of a waived subject invention will be manufactured substantially in the United States unless GEHF can show to the satisfaction of DOE that it is not commercially feasible to do so.

Considering the foregoing, it is believed that granting a waiver to possible subject inventions will provide GEHF with the necessary incentive to commercialize the results of the award in a manner that will make products that embody the subject inventions available to the public in the shortest period of 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.



Jonathan L. ("Jay") Pettit
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 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:



Jennifer Garson
Office Director
Water Power Technologies Office

Date: _____

APPROVAL:



Brian Lally
Assistant General Counsel for Technology
Transfer and Intellectual Property

Date: _____

(t) 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.