

**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION**



RECIPIENT: GE Vernova Operations LLC DBA GE Vernova Advanced Research Center

STATE: NY

PROJECT TITLE: Development of advanced casting cell and digital foundry to enable cost-effective domestic manufacturing of large clean energy castings

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0003023	DE-EE0011051	GFO-0011051-001	GO11051

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

A9 Information gathering, analysis, and dissemination	Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)
B3.6 Small-scale research and development, laboratory operations, and pilot projects	Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to General Electric's Vernova Advanced Research Center (GE) to research, develop, optimize and validate a novel manufacturing process for fabricating large castings for wind and hydro applications.

The effort would be limited to intellectual and laboratory-scale activities. Qualification, cost analysis, technical consulting and mechanical testing of hub casting would occur at the GE Renewable Onshore Wind's Clinton Test Facility in Clinton, South Carolina. General engineering work, including the production of coupons and mock-up for the manufacturing process development, final step development of runner manufacturing and controls, machining, grinding, welding, post-welding heat treatment, blank assembly, non-destructive testing would occur at GE's Renewables Hydroelectric Power industrial site in Sorel-Tracy, Quebec, Canada and the GE Vernova facility in Grenoble, France. General engineering work and program management would occur at GE's Renewables Hydroelectric Power facility in Brossard, Quebec, Canada. Engineering and manufacturing work leading to the creation of a large 3D sand printer would occur at Voxeljet AG's industrial facility in Friedberg, Germany. The 3D printing of smaller-scale sand molds for optimization and validation would occur at Voxeljet AG – America's industrial facility in Canton, Michigan. The casting process development for the printing molds and mold testing would occur at the Hodge Foundry in Greenville, Pennsylvania. Workforce curriculum development and program management would occur at Clemson University's Center for Workforce Development in Clemson, South Carolina. Printer process monitoring hardware and software development would occur at Oak Ridge National Laboratory in Knoxville, Tennessee.

The project would involve use and handling of chemicals during mold printing, and other hazards during metal casting, mechanical and electrical hazards. Existing corporate health and safety policies and procedures would be followed, including employee training, proper protective equipment, engineering controls, monitoring, and internal assessments.

Minor emissions would occur due to forklifts and employee vehicles. Emissions during castings process from binder burnout would also occur as well as dust during welding process of the sectored castings. These would be captured by proper ventilation and filtration before exhausting to environment.

All tasks within Budget Period 1 would occur within known facilities. All project work slated to occur at known facilities

would be performed at the purpose-built facilities described above, with no modification of the existing facilities, ground disturbances, changes in use of facilities or outdoor equipment installations. No additional permits, licenses, or authorizations would be required for these efforts. DOE does not anticipate any impacts to resources of concern due to the proposed award activities.

Activities under Budget Periods 2 and 3 would either occur within currently unknown facilities or have been put on hold until the 3D sand printer operating location becomes known. These activities would require further NEPA review once the locations become identified, and thus, are not included in this NEPA Determination.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

NEPA PROVISION

DOE has made a conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

Budget Period 1

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

Budget Periods 2 and 3

Notes:

Advanced Materials and Manufacturing Technologies Office
NEPA review completed by Chris Akios, 08/29/2024

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

DOE has determined that work to be carried out outside of the United States, its territories and possessions is exempt from further review pursuant to Section 5.1.1 of the DOE Final Guidelines for Implementation of Executive Order 12114; "Environmental Effects Abroad of Major Federal Actions."

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



NEPA Compliance Officer

Date: 8/29/2024

FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required
- Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____

Field Office Manager

Date: _____