

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



RECIPIENT: GreenBlu, Inc. doing business as Tidal Metals

STATE: NJ

PROJECT TITLE : Reaching pipe parity for desalinated seawater through the valorization of magnesium

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
Solar Desal Prize		GFO-SolarDesalPrize-005	

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.)

B1.31 Installation or relocation of machinery and equipment

Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts.

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 authorize the administration of the fourth and final phase (Test Contest) of Round 2 of a prize competition (The American-Made Challenge: Solar Desalination, or Prize) to accelerate technology innovation through the design, development, and demonstration of desalination systems that use solar thermal energy to produce clean water from very high-salinity water. The Prize would be administered by the Solar Energy Technologies Office (SETO) in partnership with the National Renewable Energy Lab (NREL).

The Prize is a four-contest program designed to accelerate the commercial development of thermal desalination systems powered by low-cost solar-thermal energy. The contests provide innovators a pathway from initial concept to technical design to prototype to field-tested systems. Each successive phase of the competition would be more challenging than the last, with larger prizes and fewer competitors advancing.

Round 2 of the Solar Desal Prize was launched in April of 2021. GreenBlu, Inc., doing business as Tidal Metals (hereafter GreenBlu), was one of six semifinalists to compete in the third phase (Design Contest) and has been selected as a finalist to compete in the Test Contest, after which a Grand Prize Winner (or Winners) would be determined. During the Test Contest, GreenBlu would bring their design to fruition by fabricating and testing a solar thermal powered crystallizer. This NEPA Determination (ND) is applicable only to GreenBlu's proposed Test Contest work. This ND does not apply to actions undertaken using any potential Grand Prize funds awarded to the recipient or to any of the other Design or Test Contest competitors reviewed in existing NEPA Determinations for this Prize (GFO-SolarDesalPrize-001, CXs A9, B3.6, 10/13/2021; GFO-SolarDesalPrize-002, CXs A9, B3.6, B5.1, 3/20/2023; GFO-SolarDesalPrize-003, CXs A9, B3.6, B5.1, 4/17/2023; and GFO-SolarDesalPrize-004, CXs A9, B3.6, B5.16, 5/9/2024).

Test Contest activities proposed by GreenBlu include the design, fabrication, and demonstration of a solar thermal powered crystallizer. The process evaporates, crystallizes, and extracts pure salts from brines, and would be tested using seawater. Water and salt samples would be collected and analyzed.

Design, fabrication, and assembly of the system would occur at the Smith Laboratory in Hamilton, New Jersey. Temporary installation and demonstration would occur at the Ohmsett National Oil Spill Response Research and Renewable Energy Test Facility in Leonardo, New Jersey. The Ohmsett Facility is a federal research facility sponsored by the Bureau of Safety and Environmental Enforcement of the Department of the Interior and managed by Applied Research Associates, Inc. Solar thermal collection tubes would be temporarily installed in a previously disturbed grass field adjacent to a parking lot within the Ohmsett site, in an area estimated at 5000 square feet. Testing of the system would be performed using seawater in Ohmsett's existing 10 million liter tank. All water and salts not collected as samples would be returned to the same tank.

Other than the installation of the solar collection tubes, all project activities would be completed in existing, purpose-built facilities. No new permits or licenses would be needed to perform project activities. Potential hazards include the handling of metals and solvents. Award recipients would adhere to established health and safety policies and procedures when performing project work, and would observe all applicable federal, state, and local health, safety, and environmental regulations.

DOE has considered the scale, duration, and nature of proposed activities to determine potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources which would be considered significant or require DOE to consult with other agencies or stakeholders.

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 final NEPA determination.

Notes:

Solar Energy Technologies Office
NEPA review completed by Andrew McClellan, 9/25/2024

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.

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:  **Electronically Signed By: Andrew Montano**
NEPA Compliance Officer

Date: 10/4/2024

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: _____