

PMC-ND

(1.08.09.13)

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



RECIPIENT: Quidnet Energy

STATE: TX

PROJECT  
TITLE: Geomechanical Pumped Storage

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0001836	DE-EE0008780	GFO-0008780-002	GO8780

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 Quidnet Energy to design, fabricate, and test an injector-generator system for a novel geomechanical pumped storage (GMS) application. The injector-generator system would be designed to pump water into a storage well and generate electricity from the pumped water, in a manner similar to traditional hydro pumped storage systems. A prototype device, the Injector-Generator (INGEN), would be fabricated and assessed for durability/performance. Testing of the INGEN device would be performed in a laboratory setting.

DOE completed one previous NEPA determination for this project. (GFO-0008780.001; CX A9, B3.6; 07/29/2019). Since that determination Quidnet has proposed some minor modifications to their project. These include reducing the size of the injector-generator system. Fabrication of the proposed system was reviewed in the prior NEPA review. This reduction in size does not change any work location or type and thus is covered by the previous NEPA review. Quidnet also would add additional laboratory testing of the device in a new subtask 5.1. This NEPA review covers that proposed testing.

Proposed testing would include bench scale laboratory testing of rotary valve port seals. Testing would be completed by project partner Mechanical Solutions. Testing would occur at Mechanical Solution's laboratory facility in Albany, New York, and would be the type of testing that commonly occurs at that facility.

All project activities would be performed in existing, purpose-built facilities. No physical modifications to existing facilities, ground disturbing activities, or changes to the use, mission or operation of existing facilities would be required to complete project activities. No additional permits or authorizations would be required. Risks associated with the handling of laboratory equipment and materials would be mitigated through adherence to established health and safety policies and procedures. Quidnet and its project partners would observe all applicable health, safety, and environmental regulations.

**NEPA PROVISION**

DOE has made a final NEPA determination.

Notes:

Water Power Technologies Office

This NEPA determination does not require a tailored NEPA provision.

Review completed by Roak Parker, 03/30/2021

**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: \_\_\_\_\_

  
NEPA Compliance Officer

Date: 3/30/2021**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: \_\_\_\_\_