PMC-ND

(1.08.09.13)

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

RECIPIENT: SkyFuel **STATE:** CO

PROJECT TITLE: SkyTrough Vacuum Membrane: An Extreme Low-Cost Solar Thermal Collector for Desalination

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001778	DE-EE0008393	GFO-0008393-001	

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), 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 SkyFuel to design, develop, and fabricate a novel parabolic trough solar thermal collector that would function as a heat source for water desalination. Field testing would be conducted on a small-scale prototype to validate its performance. The project would be divided into two Budget Periods, with a Go/No-Go Decision point between each.

Proposed project activities would include conceptual design work, computer and solid modeling, development of component specifications, techno-economic analysis, performance testing of component samples, and prototype assembly and validation. SkyFuel would carry out research, design and administrative tasks at its office complex in Lakewood, CO. Assembly of parabolic trough components and durability/performance tests would be carried out at SkyFuel's manufacturing and test center in Golden, CO. Additional performance testing would be conducted at SkyFuel's outdoor test facility in Arvada, CO. Computer modeling, component testing and accelerated life testing would also be performed at the National Renewable Energy Laboratory (NREL) in Golden, CO.

All fabrication and testing activities would be carried out at existing purpose-built facilities. No change in the use, mission, or operation of existing facilities would result from any of the proposed project activities. SkyFuel's outdoor test facility in Arvada is currently used as a demonstration facility for parabolic troughs. The site is located on previously disturbed land. No physical modifications would be made to the area other than the installation of an additional parabolic trough test module. No additional permits, licenses, or authorization would be required to perform the project activities under this award.

At the Arvada site, approximately 150 gallons of distilled water would be used as a heat transfer fluid in the prototype solar collector. This water would be used in a closed-loop fluid system. At the Golden site, approximately three gallons of acrylic-based coating would be deposited on mirror films for testing. Coating would be performed under fume hoods and would result in minimal emissions. The project could potentially also use a hydraulic power supply to track the movement of the sun, which may use synthetic hydraulic fluid. Any hazards associated with the handling of these fluids or the performance of any other work activity would be mitigated through adherence to corporate health and safety policies and procedures, including employee training, the use of proper protective equipment, engineering controls, monitoring, and internal assessments.

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Based on the review of the proposal, DOE has determined the proposal fits within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. This proposal is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Insert the following language in the award:

You are required to:
Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Note to Specialist :

Solar Energy Technologies Office
This NEPA determination requires a tailored NEPA Provision.
NEPA review completed by Jonathan Hartman, 07/27/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By Kristin Kerwin Date: 8/2/2018

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- ☐ Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- ☐ Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

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

Field Office Manager's Signature: _____ Date: _____

Field Office Manager