

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Sunvapor, Inc.**STATE:** CA**PROJECT
TITLE:** Solar Steam on Demand

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001778	DE-EE0008396	GFO-0008396-002	GO8396

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.

B5.16 Solar photovoltaic systems The installation, modification, operation, and removal of commercially available solar photovoltaic systems located on a building or other structure (such as rooftop, parking lot or facility, and mounted to signage, lighting, gates, or fences), or if located on land, generally comprising less than 10 acres within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Sunvapor, Inc. for the design, development, fabrication, and testing of a solar steam generator and latent heat energy storage system.

The project would be completed over three Budget Periods (BP). A NEPA Determination was completed for all BP1 activities in August 2018 (GFO-0008629-001; CX: A9). At that time, BP2 and BP3 activities were restricted, as they would include field testing to be performed at a then undetermined site. Site selection was to occur during BP1. Since that time, a site for field testing has been selected and all relevant information has been submitted to DOE for review. Accordingly, this NEPA Determination is applicable to all BP2 and BP3 activities.

Proposed project activities for BP2 would consist of site preparation, installation/commissioning of the solar steam generator system and initial operational testing. System installation would occur on land adjacent to an almond processing facility operated by project partner California Custom Processing (CCP). The project area would measure approximately 500' x 300'. Site preparation would be performed prior to installation of equipment and would consist of grading, pouring gravel, trenching, and laying foundations for the equipment to be installed. Trenching would be performed in order to lay electrical conduits. Approximately 0.02 acres of soil disturbance would be required for trenching. Electrical connections to an existing transformer would be established for the collector equipment. Connections may also be established to backup generators/transformers if needed. Pylon foundations would be installed to support the collector equipment. Heavy machinery (e.g. a crane or telehandler) may be used as

part of the installation process.

Once installed, the system would consist of 16 rows of solar collector arrays, with 2 arrays in each row (total of 32 arrays). Components in each array would include mirror panels, receiver tubes, spaceframes, array controller equipment, and support/connection equipment. The system would be integrated into existing steam consuming processes (e.g. almond treatment) through the existing main steam header at CCP's facility.

System commissioning would consist of equipment operational safety verification performed prior to initial operations. In BP2, initial operational testing would encompass an array-level optical assessment and an initial capacity test (e.g. performance testing). Proposed project activities for BP3 would consist of long-duration operational testing. The fully-integrated solar steam generator system would be operated over a period of approximately one year. Data would be collected from operations, which would then be used to develop a techno-economic assessment.

The proposed project area was surveyed by the California Energy Commission (CEC) Siting, Transmission, and Environmental Protection (STEP) Division. CEC STEP found evidence of recent agricultural activity, including planting, grading, and top soil removal. CEC STEP determined that the project area is not located in a protected area, nor are there any unusual circumstances that could lead to a reasonable possibility of a significant effect occurring with project implementation. CEC STEP also conducted a biological survey and found no special-status plant or wildlife species or jurisdictional wetlands. Accordingly, Sunvapor received a Categorical Exemption per the California Environmental Quality Act (CEQA) for the project. DOE has reviewed the Notice of Exemption from CEQA and agrees with CEC STEP's findings. DOE's assessment and conclusions are detailed below.

The land to be used for the project is a privately-owned lot located directly to the north of CCP's facility, in an area zoned for industrial uses. CCP has set aside and utilized the land for industrial purposes in the recent past. U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPAC) database indicates that there are several listed plant and animal species with the potential to be present in the project area. However, the land is almost completely devoid of any vegetation that would provide shelter for wildlife species. It's recent use for industrial purposes and associated land disturbance also significantly reduces the possibility of these species being present. Finally, both the CEC STEP survey and an earlier environmental survey did not document the presence of any listed species. Considering the above, DOE has determined that project activities would have no effect on listed species or designated critical habitats.

The surrounding areas include farmland and areas used for crop production. However, the plot of land to be used for the project is not designated by the U.S. Department of Agriculture as prime farmland. The land is leased by CCP and is not currently in use. No protected farmland areas would be converted as a result of the proposed project.

There are no nearby listed properties or properties with the potential for listing with the National Register of Historic Places. Accordingly, DOE has determined that the project would not have the potential to affect historic properties.

The project area is located within the Airport Influence Area of the Madera Municipal Airport. Due to the proximity of the project to the airport, Sunvapor conducted a study on potential ocular impacts of the solar steam generator system and presented its findings to the Madera County Airport Land Use Commission (ALUC) and the DOE. The analysis adhered to C.K. Ho, C. M. Ghanbari, and R.B. Diver's, "Methodology to Assess Potential Glint and Glare Hazards from Concentrating Solar Power Plants: Analytical Models and Experimental Validation." Glare and ocular impacts were assessed for incoming aircraft to Runway 30 (Runway 8/26 is no longer operational and the airport does not have an Air Traffic Control Tower). Based on this analysis, DOE concluded that the solar steam generator system would not cause glare to incoming aircraft on final approach at an intensity above a "low potential for after-image." This level of glare meets the FAA standard for no objection to construction of the project. The Madera County ALUC accepted these findings and concluded that a full ALUC hearing would not be needed for the project. The DOE also reviewed the report and does not anticipate any adverse impacts to incoming aircraft as a result of project activities.

Project work would involve the use and handling of equipment operating at high pressures and temperatures. Solar collectors would also be operated which have the potential to result in bodily injury through exposure to concentrated sunlight. In order to mitigate against these and other potential hazards, all personnel would receive appropriate training to handle the required equipment and would adhere to established corporate health and safety policies and procedures. All work would be performed within a restricted access area, clearly delineated with a security fence. Design of the thermo-hydraulic system would be performed in accordance with American Society of Mechanical Engineers (ASME) codes and standards. System installation work would be performed by personnel licensed by the

State of California Contractors State License Board (CSLB). When operated, all pressurized water used by the system would be contained within a closed piping network. Sunvapor would observe all applicable Federal, state, and local health, safety, and environmental regulations. Permits for construction would be obtained from the City of Madera Building and Fire Department. Sunvapor would secure any other required permits/authorizations prior to performing any installation work.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA Provision.

NEPA review completed by Jonathan Hartman, 11/10/2020

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: 11/12/2020

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: _____