

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Tietronix Software Inc**STATE:** TX

**PROJECT TITLE:** Development of a tracking correction algorithm for a commercial-scale heliostat field by using the state-of-the-art non-intrusive optical measurement tool

|  |                                      |                            |                   |
|--|--------------------------------------|----------------------------|-------------------|
| <b>Funding Opportunity Announcement Number</b> | <b>Procurement Instrument Number</b> | <b>NEPA Control Number</b> | <b>CID Number</b> |
| DE-FOA-0002243                                 | DE-EE0009383                         | GFO-0009383-001            |                   |

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.)

**A11 Technical advice and assistance to organizations** Technical advice and planning assistance to international, national, state, and local organizations.

**B3.2 Aviation activities** Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Tietronix Software, Inc. to develop the techniques, algorithms, and software to enable concentrated solar power (CSP) plant operators to efficiently improve solar field performance. This would be accomplished by using a non-intrusive optical measurement method to collect data that would be used for algorithm and software development. The project would be completed over one Budget Period.

Proposed project activities would include the use of an unmanned aircraft, data collection and analysis, and software development. The prime recipient, Tietronix Software, would develop, test, and analyze the computer algorithm. NREL and Ivanpah would be subrecipients. NREL would perform initial drone testing and data would be collected from Ivanpah. There would be no changes in the use, mission, or operation of existing facilities required as part of this project and no additional permits required in order to conduct any of the work activities.

A small unmanned aircraft system (sUAS) would be flown over the three Ivanpah power plant units in California's Mojave Desert to collect images of the tower reflected on the heliostats and measure slope, canting, and tracking errors of the heliostats at varying elevation angles and temperatures. Data collection campaigns would take place at different times during the year to assess the seasonal impact on heliostat optical errors. This data would be used to develop algorithms and a software package that would support the entire set of tasks from data collection and processing to performance improvement assessments to enable plant managers to optimize solar field performance.

The recipient is responsible for ensuring that all activities involving sUAS are compliant with 14 CFR Part 107 or an applicable Certificate of Waiver or Authorization (COA). This includes, but is not limited to, aircraft requirements such as remote pilot-in-command certification, authorities and responsibilities; ensuring the sUAS is in a condition for safe operation; registration; understanding airspace classifications and requirements; and accident reporting (if applicable).

In addition to sUAS flights, the proposed project would consist of intellectual, academic, and/or analytical activities.

All project activities, aside from the sUAS flights, would be conducted from existing offices or computational facilities and use no materials beyond basic office supplies, software, and computer hardware.

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.

Include the following condition in the financial assistance agreement:

This project includes the use of small unmanned aerial systems (sUAS). The Recipient is responsible for ensuring that all activities involving sUAS are compliant with 14 CFR Part 107 or an applicable Certificate of Waiver or Authorization (COA). This includes, but is not limited to, aircraft requirements such as remote pilot-in-command certification, authorities and responsibilities; ensuring the sUAS is in a condition for safe operation; registration; understanding airspace classifications and requirements; and accident reporting (if applicable).

Notes:

Solar Energy Technologies Office  
This NEPA determination requires a tailored NEPA provision.  
Review completed by Shaina Aguilar on 3/10/2021.

## 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: 3/11/2021

## 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: \_\_\_\_\_