PMC-ND
(1.08.09.13)

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

RECIPIENT: Cypress Creek Renewables, LLC **STATE:** CA

PROJECT TITLE: Capturing the full benefits of bifacial modules to achieve an LCOE of 3c/kWh through a regional optimization of the electrical architecture

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001840	DE-EE0008564	GFO-0008564-001	

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.)
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 Cypress Creek Renewables, LLC (CCR) to research the bankability of bifacial solar photovoltaic (PV) power plants by collecting performance data from bifacial and monofacial panels then using the acquired datasets to model ideal system design and architecture.

Office-based activities associated with the proposed project would include data analysis, computer modeling, outreach, and stakeholder engagement. Laboratory activities would include PV module characterization using existing mechanical, electrical, and optical testing equipment at subcontractor PV Evolution Labs (PVEL; Berkeley, CA). The proposed project would also involve field work to collect performance data. Outdoor activities would include the installation, instrumentation, and monitoring of three bifacial PV test stations. All locations for the proposed test stations have been identified at this time and are reviewed below. In addition, CCR would install performance monitoring instruments and a few commercially available reference modules at several operating utility-scale (>1 MW) PV systems. The exact number and locations of MW-scale systems to be utilized for project research have not yet been determined.

The bifacial PV test stations would each consist of 36 modules (solar panels) plus related electronics and a compact meteorological station for measuring weather conditions. Modules would be installed on ground-mounted metal racks. Additional shallow posts may be temporarily installed for fencing while the station is in use. At this time, there are no known permit requirements for the proposed activities. The Recipient would identify and obtain any necessary permits, licenses, and/or authorizations before commencing project activities at the respective test station

site.

One of the proposed test stations would be located on the campus of Jackson College (Jackson, MI). At the Jackson College Test Station Site, modules would be installed within a regularly maintained field area and occupy a relatively small footprint of cleared land within the largely developed county-owned complex. Due to previous ground disturbance and close proximity to multiple existing facilities, it is estimated that the proposed installation and short-term testing activities at this site would not have the potential to adversely impact any sensitive environmental resources.

The other two test stations would be located on undeveloped areas of privately owned land in Union County, SC ("Huntley Test Station Site") and Humboldt County, NV ("Battle Mountain Test Station Site"). The proposed Huntley Test Station Site is located along a mowed powerline right-of-way adjacent to interspersed woodlands and cleared agricultural areas. According to the U.S. Fish and Wildlife Service (USFWS) South Carolina Field Office website, there are no federally listed threatened or endangered (T&E) plant or wildlife species expected to occur in this project area. The proposed Battle Mountain Test Station Site is located along an existing right-of-way/unpaved access road in sparsely vegetated desert. According to the USFWS Nevada Fish and Wildlife Office website, there are two federally listed fish species and one plant species that are found in Humboldt County; however, due to lack of habitat none are expected to occur in this project area. If the timing of project activities at the Huntley Test Station Site and/or the Battle Mountain Test Station Site overlaps with the estimated breeding season (March 1-August 31) of various ground-nesting migratory bird species that may occur in these project areas, the Recipient would be required by DOE to utilize a qualified biologist to survey the project area no more than 7-10 days prior to the start of work, in order to determine if migratory birds are present and nesting at the project site(s). If migratory birds are present and nesting in the project area(s), the Recipient would be required to inform the DOE Project Officer and contact the nearest USFWS Ecological Services Field Office and/or USFWS Regional Migratory Bird Management Office for guidance on appropriate next steps to avoid and minimize impacts to (and take of) migratory birds associated with the proposed project activities. Due to the aforementioned siting factors and survey requirement in conjunction with the small (less than one acre) project footprint located on or immediately adjacent to previously disturbed tracts of land, DOE has determined the proposed activities at the Huntley Test Station Site and the Battle Mountain Test Station Site would have no effect on federally protected T&E or migratory bird species.

If the Recipient or other project participants encounter cultural or archaeological artifacts during the course of project activities at the Battle Mountain Test Station, all activities would immediately cease in the vicinity of the discovery. The Recipient would notify the DOE Project Officer of the discovery within forty-eight hours of the discovery. Project activities in the vicinity of the discovery would cease until an evaluation of the discovery is completed by the appropriate officials and the DOE Contracting Officer provides written authorization to resume the activities. If the Recipient seeks to relocate the affected work to another nearby site, the Recipient would first obtain written authorization from the DOE Contracting Officer.

Field work at MW-scale solar sites would consist of equipping PV modules and strings with a relatively small device to measure current and voltage without impacting the operation of the system. Project work would not affect the use or mission of selected sites. Instrumentation would not involve any new construction, ground-breaking activities, or physical modifications to existing structures. No additional permits would be necessary to simply instrument and monitor these systems. Given the negligible physical/operational footprint of proposed activities, no impacts to sensitive resources are expected at this type of purpose-built PV site regardless of specific location.

Project activities involving MW-scale solar systems would be located at existing commercial facilities as well as one or more new utility-scale PV sites slated for completion during the proposed project. The new sites would be developed as regular course of business for CCR; construction and operation of utility-scale systems are outside the scope of this award. Further, the proposed project would be conducted for research and information dissemination purposes having independent utility. While knowledge gained from the proposed data collection and processing efforts may help inform ongoing or future external projects carried out by the Recipient, any such commercial development is not contingent upon DOE action regarding this award. Therefore, project activities involving the instrumentation and monitoring of commercial systems are not considered connected actions to the design, financing, construction, and/or operation of planned utility-scale facilities.

No hazardous materials would be used by the proposed project. The Recipient would follow applicable vendor safety plans during the installation of heavy racking equipment required for the PV test stations. Industry best management practices and appropriate control technologies would be incorporated during installation and testing activities. The project would employ properly trained installer technicians provided with Personal Protective Equipment (PPE). No materials would be disposed of at the conclusion of the proposed project. All PV modules, racking, and accessory

equipment would either remain in place for potential future data collection or be sent to a laboratory for detailed additional study.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assisstance agreement:

Installation of the Huntley Test Station and the Battle Mountain Test Station shall occur outside of the estimated migratory bird breeding season (March 1st to August 31st) unless surveys for migratory bird nests are completed prior to installation of these two bifacial test stations. If installation(s) must occur during the migratory bird nesting season, the Recipient must utilize a qualified biologist to survey the project area(s) during the nesting season (but prior to any project activities) to determine if migratory birds are present and nesting at the project site(s). These bird surveys should occur no more than 7-10 days prior to when work actually begins on the project site(s). If no migratory birds are found nesting at the project site(s) immediately prior to the time of installation, then proceed with your project activities as planned. If migratory birds are present and nesting in the project area(s), the Recipient should inform the DOE Project Officer and contact the nearest USFWS Ecological Services Field Office and/or USFWS Regional Migratory Bird Management Office for guidance on appropriate next steps to avoid and minimize impacts to (and take of) migratory birds associated with the proposed project activities.

If the Recipient or other project participants encounter cultural or archaeological artifacts during the course of project activities at the Battle Mountain Test Station, all activities must immediately cease in the vicinity of the discovery. The Recipient must notify the DOE Project Officer of the discovery within forty-eight hours of the discovery. Project activities in the vicinity of the discovery must cease until an evaluation of the discovery is completed by the appropriate officials and the DOE Contracting Officer provides written authorization to resume the activities. If the Recipient seeks to relocate the affected work to another nearby site, the recipient must first obtain written authorization from the DOE Contracting Officer.

Notes:

Solar Energy Technologies Office
This NEPA determination requires a tailored NEPA Provision.
NEPA review completed by Whitney Doss, 1/22/2019

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: Kristin Kerwin Date: 1/24/2019

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

- [x] 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: _____ Date: _____

Field Office Manager