

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** The University of Central Florida Board of Trustees**STATE:** FL

PROJECT TITLE: Quantifying and Valuing Fundamental Characteristics and Benefits of Floating Photovoltaic (FPV) Systems

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001840	DE-EE0008746	GFO-0008746-001	

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.)

B3.16 Research activities in aquatic environments Small-scale, temporary surveying, site characterization, and research activities in aquatic environments, limited to: (a) Acquisition of rights-of-way, easements, and temporary use permits; (b) Installation, operation, and removal of passive scientific measurement devices, including, but not limited to, antennae, tide gauges, flow testing equipment for existing wells, weighted hydrophones, salinity measurement devices, and water quality measurement devices; (c) Natural resource inventories, data and sample collection, environmental monitoring, and basic and applied research, excluding (1) large-scale vibratory coring techniques and (2) seismic activities other than passive techniques; and (d) Surveying and mapping. These activities would be conducted in accordance with, where applicable, an approved spill prevention, control, and response plan and would incorporate appropriate control technologies and best management practices. None of the activities listed above would occur within the boundary of an established marine sanctuary or wildlife refuge, a governmentally proposed marine sanctuary or wildlife refuge, or a governmentally recognized area of high biological sensitivity, unless authorized by the agency responsible for such refuge, sanctuary, or area (or after consultation with the responsible agency, if no authorization is required). If the proposed activities would occur outside such refuge, sanctuary, or area and if the activities would have the potential to cause impacts within such refuge, sanctuary, or area, then the responsible agency shall be consulted in order to determine whether authorization is required and whether such activities would have the potential to cause significant impacts on such refuge, sanctuary, or area. Areas of high biological sensitivity include, but are not limited to, areas of known ecological importance, whale and marine mammal mating and calving/pupping areas, and fish and invertebrate spawning and nursery areas recognized as being limited or unique and vulnerable to perturbation; these areas can occur in bays, estuaries, near shore, and far offshore, and may vary seasonally. No permanent facilities or devices would be constructed or installed. Covered actions do not include drilling of resource exploration or extraction wells.

B5.15 Small-scale renewable energy research and development and pilot projects Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located 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 funding to University of Central Florida (UCF) to undertake controlled research into floating photovoltaics (FPV). UCF would seek to assess the performance

capabilities of FPV technologies, potential environmental impacts of the technologies, and collect data for use in the subsequent development of research protocols. Monitoring and field surveys would be performed at four existing FPV sites and four existing land-based photovoltaics (LPV) control sites in Florida, Colorado, and California. The project would be completed over two Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP.

Proposed project activities would focus on system performance (FPV vs. LPV systems), water quality, and biodiversity data collection and analysis. Data and analysis tasks would be performed over two 12-month periods (BP1 and BP2), with development of data collection plans and installation activities being performed in BP1 and decommissioning activities being performed in BP2.

BP1 would consist of the following:

Task 1: Collect data to investigate performance differences between FPV systems and LPV systems – This task would include site audits to review system operations and system condition, equipment installation, and data transmission, storage, analysis, and reporting. Equipment would include sensor packages (e.g. temperature probes, digital weather sensors, infrared radiometer) and data-logging infrastructure. All equipment used for FPV/LPV system monitoring would require very minor installation work and would not require any modifications to existing facilities, ground disturbing activities, or changes to the use, mission, or operation of existing facilities.

Task 2: Collect data to investigate the impact of FPV on water quality – This task would include site surveys to assess hydro-ecological conditions, development of a water quality study plan, deployment of hydrological sondes, and data transmission, storage, analysis, and reporting. Sondes deployment would be performed using handheld sonde devices. These would be submerged and retrieved three times daily, over a four-day period each season during both BPs at the FPV sites. Each deployment, sondes would be retrieved the same day that they are submerged in the water.

Task 3.0: Collect data to investigate the impact of FPV on biodiversity – This task would consist of site surveys to assess ecological/biological sites, development of a biological methodological study plan, field observations and recordings of biological data (e.g. water birds, vegetation, historical climate, land cover), aquatic invertebrate sampling, and data collection, transmission, storage, analysis, and reporting.

Aquatic invertebrate sampling would be performed using a dip-netting survey technique. A dip net would be used for sampling, consisting of a fine mesh canvas material, sewn in a cone-shape, where the 'mouth' of the cone is stretched tight across a rigid frame (e.g., 30 x 30 cm). For sampling, the frame would be held by hand and vertically 'swept' at a predetermined position in the water continuously for a finite period of time (approximately five minutes per sample). The dip net would then be removed and specimens would be collected by inverting the base of the cone into a vial (e.g., 3 ml) containing water or ethanol. Samples would then be analyzed at the laboratories of UCF's project partners, University of California, Davis.

Sampling would target aquatic invertebrates (e.g., damselfly nymphs, dragonfly nymphs, amphipods, snails, midges). However, nymphs and juveniles of other taxonomic groups of similar size may also be sampled as bycatch. At the locations where sampling would be performed, the U.S. Fish and Wildlife Service (USFWS) lists a number of Endangered Species Act (ESA) listed threatened/ endangered species as potentially being present. The majority of these species are birds, mammals, reptiles, or flowering plants that would not be affected by sampling in the water and/or would have no potential to be at the specific site listed (e.g. Green Sea Turtle).

There are however, four species which reside in freshwater habitats either fully or during part of their life-cycle. Each of these species are addressed here:

First, the Delta Smelt (*Hypomesus transpacificus*) is listed as having the potential to be located at a sampling location in Oakville, CA (Niente Winery). However, this species is endemic only to the San Francisco Bay and the Sacramento-San Joaquin Delta. The Oakville site is far north of either San Francisco Bay or the Sacramento-San Joaquin Delta. Additionally, the delta smelt range begins south of the Napa River, which is east of the Oakville site.

Second, the California Freshwater Shrimp (*Syncaris pacifica*) is listed as having the potential to be located at sampling locations in Oakville, CA (Niente Winery) and Windsor, CA (water treatment plant). There is no critical habitat designated for the California Freshwater Shrimp. However, the species is restricted to perennial lowland streams (i.e., lotic systems). Neither of the two sampling locations represent this type of ecosystem. The Oakville site is a shallow, lentic irrigation pond and the Windsor site is a shallow, lentic wastewater treatment pond. Neither of these locations are penetrated by lowland stream flows.

Third, the California red-legged frog (*Rana draytonii*) is listed as having the potential to be located at sampling locations in Oakville, CA (Niente Winery) and Windsor, CA (water treatment plant). However, this species is restricted to only a few drainages in the Sierra Nevada Foothills, outside of either location. Additionally, optimal habitats for the species consist of deep pools with dense stands of overhanging willows and intermixed cattail fringe. This is not representative of either sampling location, as both sites are shallow ponds unobstructed by overhanging trees.

Finally, the Adult California Tiger Salamander (*Ambystoma californiense*) is listed as having the potential to be located at the sampling location at Windsor, CA (water treatment plant). Adults are restricted to terrestrial systems of grasslands and low foothills, though breeding occurs in aquatic ecosystems. However, breeding and larvae development occurs in vernal pools (i.e., seasonal pools of water allowed to go dry during part of the year). The Windsor site is not a vernal pool, but is instead a water treatment facility where water is present year-round. In addition, the water treatment pond does not include emergent vegetation usually required by the salamander in its post-larval. Adults travel between 10-130 m to breeding ponds and the barriers/obstructions near the sampling site would make this trek inviable.

Because each of the species listed above is either found outside of the site locations in which sampling would be performed, or requires a habitat/ecosystem not represented by the sites in question, DOE has determined that the project would have “no effect” on the ESA listed species in the action area.

BP2 activities would continue the work performed under BP1. Each task would mirror the previous BP’s activities. So, Task 4 would continue the data collection for FPV/LPV performance analysis, Task 5 would continue water quality data collection/analysis, and Task 6 would continue biological data collection/analysis. Additionally, equipment would be decommissioned as part of each task, if it is decided that the equipment would not be used further at each site.

All project work would be overseen by UCF. Established health and safety protocols would be adhered to at all times. These would include performing personnel training, the use of floatation devices when working in aquatic environments, and working in two-person teams with safety watch rules in effect. Network connections would only be accessed at each site under the direction and supervision of qualified personnel. UCF and its project partners would adhere to all relevant Federal, state, and local health, safety, and environmental regulations.

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.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA Provision.

NEPA review completed by Jonathan Hartman, 08/27/2019

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:  _____ Date: 9/9/2019
NEPA Compliance Officer

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: _____ Date: _____
Field Office Manager