

PMC-ND
(1.08.09.13)

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



RECIPIENT:Crystal Solar

STATE: CA

PROJECT TITLE : High Volume manufacturing of monocrystalline Si Solar wafers by epitaxial growth

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001018	DE-EE0006809	GFO-0006809-001	

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 federal funding to Crystal Solar to demonstrate a high-throughput, chemical vapor deposition reactor for the growth of epitaxial silicon (Epi Reactor) for generating high-quality, mono-crystalline Silicon wafers for solar cell manufacturing.

The proposed activities associated with this project would consist of the design, development and functional testing of two Epi reactors: one that can produce 24 wafers per batch and one that can produce 48 wafers per batch. All associated activities would take place at Crystal Solar's industrial facility in Santa Clara, CA. Functional testing activities would include leak checks, heat up tests, temperature monitoring & mapping, software controls testing, robot transfer tests and interlock/alarm testing of PLC and would be carried out at a facility designed for semiconductor manufacturing; therefore, no modifications or new permits, additional licenses and/or authorizations would be necessary.

This project would require the use of industrial chemicals/gases such as the following: Nitrogen--2.7 million cubic feet/month, Hydrogen--300,000 cubic feet/month, Trichloro Silane--550 pounds/month, H₂ (Phosphine mix 100 parts per million)--200 cubic feet/year and H₂ (Diborane mix 100 parts per million)--200 cubic feet/year. Environmental protocols are in place to ensure that all handling, storage, and disposal of these chemicals/gases are per Federal, State & Local environmental guidelines. All project-specific waste would be made part of the existing wastewater stream, which is routed to an existing Acid Waste Neutralization station prior to discharge. There would be no project specific emissions and process chemical and gas fumes would be exhausted to appropriate scrubbers for treatment prior to final release to the atmosphere.

Based on review of the project information and the above analysis, DOE has determined the proposed project would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined that this project is consistent with actions outlined in DOE categorical exclusions A9 "Information gathering, analysis, and dissemination" and B3.6 "Small-scale research and development, laboratory operations, and pilot projects" and is therefore 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 you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

Solar Energy Technologies Office
This NEPA determination does not require a tailored NEPA provision.
Review completed by Rebecca McCord, 10/14/2014

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____
NEPA Compliance Officer

Date: 10/16/2014

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: _____
Field Office Manager

Date: _____