U. S. DEPARTMENT OF ENERGY
OFFICE OF SCIENCE

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)
ENVIRONMENTAL EVALUATION NOTIFICATION FORM

Solicitation/Award No. (if applicable): N/A
Organization Name: Lawrence Berkeley National Laboratory (LBNL), Berkeley, California
Title of Proposed Project/Research: UC use of DOE infrastructure and UC's Subsequent Construction and Operation of the Solar Energy Research Center (SERC) Building
Total DOE Funding/Total Project Funding: $0 / $54.4M

I. **Project Description (use additional pages as necessary):**

A. Proposed Project/Action (delineate Federally funded/Non-Federally funded portions)

The Department of Energy (DOE) proposes to allow the University of California (UC) to use the existing DOE owned LBNL site infrastructure (i.e. roads, utilities, security, life safety, emergency response) for UC's SERC Project. As further described below, the Project consists of the construction of a building (the SERC building) and subsequent operations in that building. Allowing UC to use DOE owned infrastructure would facilitate UC's construction and operation of the SERC building that could potentially be used to support future DOE funded research. UC has obtained non-federal funding and would secure necessary approvals for the construction of the SERC building.

The proposed UC SERC project would include construction of a three-story approximately 40,000 gross-square-foot building; reconfiguration of an existing service road, parking spaces, and environmental remediation facilities; and other utility improvements that serve the proposed building. Approximately 60 people would occupy the building.

Any soil contamination encounters during construction activities would be remediated to the levels specified in the DOE/EA -1527, *Environmental Assessment and Corrective Measures Study Report for Remediating Contamination at LBNL Regulated under Resource Conservation and Recovery Act (EA/CMS)*. Similarly, any new groundwater contamination encountered during construction would be addressed in accordance with the goals indentified in the EA/CMS.

Once operational, the proposed UC SERC building may become available to host federally funded research and activities.

Operations in the proposed UC SERC building could include LBNL's solar energy related research programs and co-location and consolidation of related existing research. The ongoing existing research programs are focused on:

Nanoscale Photovoltaic and Electrochemical Systems Research. This research would develop high-efficiency, discrete, individual nano-scale photovoltaic and electrochemical systems using abundant elements with emphasis on materials that can be incorporated into the synthesis of complete solar fuel generators. These systems would use feedstocks of water and atmospheric carbon dioxide (CO_2). New chemical processes, including complex new catalysts that may mimic those in nature, would be developed. This research would address major scientific barriers in solar fuel generation.

Synthesis of Complete Solar Fuel Generators. This research would be directed towards new solar fuel generators that incorporate the photovoltaics and electrochemical processes described above and that transform water and carbon dioxide to produce fuels with high energy density and virtually no constraint on abundance.

B. Would the project proceed without Federal funding? Yes ☒ No ☐

If "yes", describe the impact to the scope: Project design and building construction are not federally funded and would proceed. Future operations may be federally funded if DOE were to lease and/or support research in the building.

II. **Description of Affected Environment where the building would be built:**

The proposed UC SERC building would be centrally located on the LBNL site at the current location of Buildings 25A, 44, 44A, and 44B. These buildings currently house a total of 17 employees. Building 25A is currently used as the Energy and Environmental Technology Division shop and lab, Building 44 is used for storage, and trailers 44A and 44B are used as offices. The existing buildings are expected to be decontaminated and demolished as part of the approved Old Town Demolition and Environmental Restoration project prior to commencement of construction of the SERC project. The project site is located east of Building 5, south of McMillan Road, west of the Health Center (Building 26), and north of Building 25 and a 0.25-acre redwood grove. Surrounding research facilities include the Advanced Light Source, which is a national user facility that generates intense light for scientific and technological research, and the proposed General Purpose Laboratory (GPL), which would be built at the site of Building 25/25B under the Seismic Phase 2 project. Other buildings in the general vicinity of the proposed SERC project, specifically Buildings 4, 5, 14, 16, 40, 41, and 52, are planned to be demolished under the Old Town Demolition and Environmental Restoration project. None of these building are eligible for listing on the National Register of Historic Places.

The project site is approximately 1.5 acres and would be vacant following demolition of Buildings 25A, 44, 44A, and 44B under the Old Town Demolition and Environmental Restoration project. The site has been heavily disturbed by construction and uses associated with the existing buildings.

DTSC issued a Hazardous Waste Facility Permit to LBNL in May 1993. As a part of the permit, DTSC required LBNL to follow the Resource Conservation and Recovery Act (RCRA) process to investigate and clean-up all historical releases of hazardous chemicals. LBNL completed the investigation, determined the extent of soil and groundwater contamination, and proposed remedial measures to DTSC. On August 31, 2005, DTSC approved the LBNL Corrective Measure Study Report and Remedy Selection, thereby establishing the clean-up standards for soil and groundwater. The accessible parts of the project site were included in the RCRA process, and the groundwater plumes in this area are covered by the LBNL Corrective Measure Study Report and Remedy Selection.

III. **Preliminary Questions regarding the proposed action and the construction and operation of the UC SERC building:**

		Yes	No
A.	Is the DOE-funded work entirely a "paper study"? The DOE undertaking is a paper study however this evaluation and notification is for both the DOE undertaking and the connected activity of UC's construction and operation of the SERC Building.	☒	☐
B.	Would the work to be performed take place outside existing buildings?	☒	☐
	And:		
1.	Threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health?	☐	☒
2.	Require the siting, construction or major expansion of waste treatment, storage, or disposal facilities?	☐	☒
3.	Disturb hazardous substances, pollutants, or contaminants preexisting in the environment? The construction of the building may encounter subsurface contamination.	☒	☐
4.	Adversely affect environmentally-sensitive resources identified in Section IV.A.?	☐	☒
5.	Be connected to another existing/proposed activity that could potentially create a cumulatively significant impact?	☐	☒
6.	Have an inherent possibility for high consequence impacts to human health or the environment (e.g., Biosafety Level 3-4 laboratories, activities involving high levels of radiation)?	☐	☒

If "No" to Question III.B. and ALL six subsequent questions, ensure the descriptions in Sections I and II reflect this and go directly to Section V.

IV. Potential Environmental Effects:

Attach/insert an explanation for each "Yes" response.

A. Sensitive Resources: Would the proposed action and the construction and operation of the UC SERC buildingresult in changes and/or disturbances to any of the following resources?

		Yes	No
1.	Threatened/Endangered Species and/or Critical Habitats?	☐	☒
2.	Other Protected Species (e.g., Burros, Migratory Birds)?	☐	☒
3.	Sensitive Environments (e.g., Tundra/Coral Reefs/Rain Forests)?	☐	☒
4.	Archaeological/Historic Resources?	☐	☒
5.	Important Farmland?	☐	☒
6.	Non-Attainment Areas for Ambient Air Quality Standards? LBNL is in the Bay Area Air Quality Basin, which is in federal non-attainment for Ozone and state non-attainment for ozone, PM10, and PM2.5. However, operational impacts would be well below significance thresholds and would not be cumulatively considerable contributions. Construction impacts would be sufficiently mitigated by adherence to Bay Area Air Quality Management District construction practices.	☒	☐
7.	Class I Air Quality Control Region?	☐	☒
8.	Special Sources of Groundwater (e.g. Sole Source Aquifer)?	☐	☒
9.	Navigable Air Space?	☐	☒
10.	Coastal Zones?	☐	☒
11.	Areas with Special National Designation (e.g. National Forests, Parks, Trails)?	☐	☒
12.	Floodplains and Wetlands?	☐	☒

B. Regulated Substances/Activities: Would the proposed action and the construction and operation of the UC SERC building involve any of the following regulated items or activities?

		Yes	No
13.	Natural Resource Damage Assessments?	☐	☒
14.	Exotic Organisms?	☐	☒
15.	Noxious Weeds?	☐	☒
16.	Excavation (indicate if greater than one acre)? The building excavation is approximately ¾ acre. Total site clearing for building, utilities, parking and roadway is anticipated to be approximately 1.5 acres. The project would take place mainly on an existing paved area, but utility extensions may also include a small area of surrounding undeveloped land. This site is serviced by stormwater collection systems and does not drain into wetlands. A Storm Water Pollution Prevention Plan would be developed and employed. Post-project operations would result in stormwater run-off that is approximately the same as pre-project drainage patterns.	☒	☐
		Yes	No
17.	Dredge or Fill (under Clean Water Act, Section 404, indicate if greater than ten acres)?	☐	☒
18.	Noise (in excess of regulations)?	☐	☒
19.	Asbestos Removal?	☐	☒
20.	PCB's?	☐	☒
21.	Import, Manufacture, or Processing of Toxic Substances?	☐	☒
22.	Chemical Storage/Use? Hazardous materials, including solvents, organic compounds , and reagents would be used in research activities in laboratory scale quantities (i.e., easily and safely manipulated by one person). Researcher-prepared solutions would be in diluted form to serve experimental purposes and maximize safety considerations. Following LBNL policy, all nanomaterials would be handled as hazardous materials.	☒	☐

23.	Pesticide Use?	☐	☒
24.	Hazardous, Toxic, or Criteria Pollutant Air Emissions? Construction and grading activities would result in standard construction-related emissions of criteria pollutants (particulate matter associated with earth movement; oxides of Nitrogen and reactive organic gasses associated with equipment engines and diesel exhaust (toxic air contaminant) associated with equipment engines). By following BAAQMD best management practices, these levels are expected to be less than significant. By following all applicable federal, state, and LBNL practices for handling chemicals and nanomaterials, and by using fume hoods, HVAC systems, and HEPA filtration chemical and nanomaterial emissions would also be expected to be less than significant. Operation of the project would result in relatively low levels of air emissions of laboratory chemicals. LBNL practices for handling nanomaterials in combination with HEPA filtration have been demonstrated to be effective in controlling airborne releases and personnel exposures to nanomaterials.	☒	☐
25.	Liquid Effluents? Waste effluent would be approximately 2,820 gallons per day.	☒	☐
26.	Underground Injection?	☐	☒
27.	Hazardous Waste? Any hazardous waste generated at SERC would be characterized and accumulated in accordance with California hazardous waste regulations and LBNL policy. Waste would be aggregated for shipment with other Lab wastes at the Hazardous Waste Handling Facility (a RCRA permitted facility), and shipped for treatment and disposal in compliance with all California hazardous waste regulations and Department of Transportation regulations.	☒	☐
28.	Underground Storage Tanks? Fuel Storage tanks for the back-up generators would be above ground.	☐	☒
29.	Radioactive Mixed Waste?	☐	☒
30.	Radioactive Waste?	☐	☒
31.	Radiation Exposure?	☐	☒
32.	Surface Water Protection?	☐	☒
33.	Pollution Prevention Act?	☐	☒
34.	Ozone Depleting Substances?	☐	☒
35.	Off-Road Vehicles?	☐	☒
36.	Biosafety Level 3-4 Laboratory?	☐	☒

C.

Other Relevant Information: Would the proposed action and the construction and operation of the UC SERC building involve the following?

		Yes	No
37.	Potential Violation of Environment, Safety, or Health Regulations/Permits?	☐	☒
38.	Siting/Construction/Major Modification of Waste Recovery, or Waste Treatment, Storage, or Disposal Facilities?	☐	☒
39.	Disturbance of Pre-existing Contamination? Although not known at this time, it is possible that excavation could result in the disturbance of pre-existing contamination in project site soils and groundwater. Site cleanup standards and methods would be consistent with DOE/EA -1527, *Environmental Assessment and Corrective Measures Study Report for Remediating Contamination at LBNL Regulated under Resource Conservation and Recovery Act (EA/CMS)* dated September 2005.	☒	☐
40.	New or Modified Federal/State Permits?	☐	☒
41	Public Controversy? Carbon Nanotubes would not be produced or used at SERC	☐	☒
42.	Environmental Justice?	☐	☒
43.	Action/Involvement of Another Federal Agency (e.g. license, funding, approval)?	☐	☒

44.	Action of a State Agency in a State with NEPA-type law? The California Environmental Quality Review Act (CEQA) does apply. An Environmental Impact Report (EIR) pursuant to the CEQA is expected to be completed and considered for certification in January 2011. A construction permit from the Regional Water Quality Control Board is likely to be submitted.	☒	☐
45.	Public Utilities/Services? Minor amounts of water and electricity would be consumed during construction and use of the building	☒	☐
46.	Depletion of a Non-Renewable Resource?	☐	☒
47.	Extraordinary Circumstances?	☐	☒
48.	Connected Actions? UC's proposed undertaking of the construction and operation of the SERC building is the connected action. The NEPA review has evaluated the impacts from the DOE action and the connected UC action.	☒	☐
49.	Exclusively Bench-top Research?	☐	☒
50.	Only a Laboratory Setting? The SERC building would be located within LBNL and would operate under the existing LBNL permits.	☒	☐

V. **M & O Contractor Organization Concurrence:**

B. Concurrence (Name and Title): Jeff Philliber, LBNL Environmental Planner

Signature: /s/ Date: 1-20-11

e-mail: JGPhilliber@lbl.gov :

Remainder to be completed by SC

VI. **SC Concurrence/Recommendation/Determination:**

A. SC BSO Federal Project Director: Christopher Amaden

Signature: /s/ Date: 18 Jan 2011

e-mail: Christopher.Amaden@bso.science.doe.gov

B. SC NEPA BSO Review:

Is the project/activity appropriate for a determination or a recommendation to the Head of the Field Organization by the NEPA Compliance Officer (NCO) under Subpart D of the DOE NEPA Regulations?

Yes ☒ No ☐

Specific classes of action from Appendices A-D to Subpart D (10 CFR 1021): A7, B1.15, and B3.6

Name and Title: Kim Abbott BSO NEPA Program Manager

Signature: /s/ Date: 1/18/2011

e-mail: kim.abbott@bso.science.doe.gov

C. SC ISC Counsel (if necessary):

Name and Title: Patrick Burke,
Assistant Chief Counsel, CH-OCC

Signature: /s/ Date: 1-18-11

D. SC ISC Field Office NEPA Compliance Officer:

The preceding pages are a record of documentation required under DOE Final NEPA Regulation, 10 CFR 1021.400.

☐ Action may be categorically excluded from further NEPA review. I have determined that the proposed action meets the requirements for Categorical Exclusion referenced above.

☐ Action requires approval by Head of the Field Organization. Recommend preparation of an Environmental Assessment.

☐ Action requires approval by Head of the Field Organization or a Secretarial Officer. Recommend preparation of an Environmental Impact Statement.

Comments/Limitations if necessary:

Print Name Gary S. Hartman

Title DOE NEPA Compliance Officer

Signature Date:

LB-ER-10-06
SC NEPA Tracking Number

Signature: /s/ Date: 1-18-11

D. SC ISC Field Office NEPA Compliance Officer:

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Comments/Limitations if necessary:

Print Name Gary S. Hartman

Title DOE NEPA Compliance Officer

Signature /s/ Date: 1/20/2011