

Memorandum

To: Chair David Hochschild
Vice-Chair Siva Gunda
Commissioner Kourtney Vaccaro
Commissioner Patty Monahan
Commissioner Andrew McAllister

Date: December 19, 2022

From: Justin Scaccianoce

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Subject: **PROJECT SUMMARIES AND CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ANALYSIS FOR PROPOSED PROTOTYPE SMALL GRANT AWARDS UNDER THE CALIFORNIA SUSTAINABLE ENERGY ENTREPRENEUR DEVELOPMENT (CALSEED) INITIATIVE, AGREEMENT NO. 300-15-007**

New Energy Nexus dba California Clean Energy Fund or CalCEF Ventures (CalCEF) is the administrator of the Energy Commission's CalSEED Initiative under Agreement No. 300-15-007. The CalSEED Initiative awards small grants and provides access to business and technical services for entrepreneurs seeking to develop a technical feasibility case for their technologies.

CalCEF held a Business Plan Competition in November 2022, in which four former Concept Award winners from Solicitation 20-01 competed for an additional "Prototype Award". The two highest scoring projects are being proposed to receive \$450,000 Prototype Award follow-on grants at the Jan. 25, 2023 Energy Commission Business Meeting.

I am a Utilities Engineer in the Energy Research and Development Division of the California Energy Commission. I have reviewed the CEQA compliance forms submitted by each applicant. Below is my CEQA analysis for each proposed project:

Prototype Awards

1. PROJECT TITLE: CONCENTRATING SOLAR THERMAL COLLECTOR WITH BUILT-IN STORAGE

Applicant: Planet A Energy, Inc.

Principal Investigator: Brad Hines

Vendors: TBD

Project Summary: The goal of this project is to advance an innovative, long-duration storage technology that concentrates solar energy and uses patented optical 'light pipes' to transfer the heat to a bed of low-cost black sand. By combining collection and storage into a single system, this new solar technology could reduce the system complexity and cost of long-duration storage and offer months of stored energy at a 30% higher efficiency than molten salt and a third of the cost of incumbent technologies. During the CalSEED agreement, the team will build a prototype that integrates all component technologies into a complete system, develop performance models for the system, and convert key prototype component designs into production-intent designs.

CEQA Exemption Status: 14 CCR 15303 “Small Structures”, 14 CCR 15306 “Data Collection, 14 CCR 15311 “Accessory Structures”

Reason Why Project is Exempt: This project is exempt under CEQA because it involves the temporary placement of a small accessory structure at an existing facility. This test setup is the size of a small storage container, has no intake or exhaust (its only input is sunlight and its only output is warm air), is portable, and can easily be disassembled back into its constituent components – steel, sand, acrylic, and aluminum – that can be recycled. The testbed will be assembled in a corner of an existing gated and walled parking lot, set away from and not visible to the street, in a site that is zoned for commercial manufacturing. The project will collect solar heat and store it temporarily in a bed of sand. Once the sand cools, it returns to its original benign state. The project will not result in any odors or noise in excess of permitted levels and there is no hazardous waste involved in the project

The project will not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies; does not involve any cumulative impacts of successive projects of the same type in the same place that might be considered significant; does not involve unusual circumstances that might have a significant effect on the environment; will not result in damage to scenic resources within a highway officially designated as a state scenic highway; the project site is not included on any list compiled pursuant to Government Code section 65962.5; and the project will not cause a substantial adverse change in the significance of a historical resource. Therefore, none of the exceptions to categorical exemptions listed in CEQA Guidelines section 15300.2 apply to this project, and this project will not have a significant effect on the environment.

2. PROJECT TITLE: ACOUSTIC WAVE INDUCED ELECTROLYTE MOTION TO OVERCOME DIFFUSION-LIMITED CHARGE PERFORMANCES AND SAFETY IN LITHIUM BATTERIES

Applicant: Sonocharge LLC

Principal Investigator: An Huang

Vendors: TBD

Project Summary: This project will continue the development of a novel, mechanical wave-driven acoustic device that would significantly improve the charging performance, capacity, longevity, and safety of lithium metal batteries (LMB). The Li-ion concentration gradient and slow Li-ion diffusion in the electrolyte of a battery is the major limiting factor that inhibits the development of a fast-charging battery. Generating acoustic streaming in the electrolyte with a surface acoustic wave (SAW) device reduces the thickness of the depletion layer and generates homogeneous mixing across the battery, preventing dendrites, adverse heating, and electrolyte breakdown. During the CalSEED agreement, the team will design and fabricate SAW devices that can fit into a LMB and then analyze the SAW’s effects on the performance of those batteries.

CEQA Exemption Status: 14 CCR 15306 “Data Collection”, 14 CCR 15301 “Existing Facilities”

Reason Why Project is Exempt: This project is exempt under CEQA because project activities are limited to the fabrication and testing of prototype lithium batteries in an existing

laboratory. The project will not require any modifications to the laboratory and involves negligible or no expansion of existing or former use of the site. Any waste generated from this project will be properly disposed of, collected by a chemical waste management company, and in full compliance with environmental health and safety guidelines. Project activities will be in full compliance with applicable city and state codes.

The project will not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies; does not involve any cumulative impacts of successive projects of the same type in the same place that might be considered significant; does not involve unusual circumstances that might have a significant effect on the environment; will not result in damage to scenic resources within a highway officially designated as a state scenic highway; the project site is not included on any list compiled pursuant to Government Code section 65962.5; and the project will not cause a substantial adverse change in the significance of a historical resource. Therefore, none of the exceptions to categorical exemptions listed in CEQA Guidelines section 15300.2 apply to this project, and this project will not have a significant effect on the environment.

STATE OF CALIFORNIA
STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

CALIFORNIA CLEAN ENERGY FUND DBA CALCEF VENTURES

WHEREAS, pursuant to Public Resources Code section 25710 et seq. the State Energy Resources Conservation and Development Commission (“CEC”) is authorized to establish and administer the Electric Program Investment Charge (“EPIC”) Program; and

WHEREAS, the CEC has recognized that California’s electricity ratepayers benefit from energy research, development and demonstration (“RD&D”) activities conducted by individuals, small businesses, academics and small non-profit institutions; and

WHEREAS, the CEC has created the California Sustainable Energy Entrepreneur Development (“CalSEED”) Initiative within the EPIC Program to provide funding for the aforementioned public interest RD&D activities; and

WHEREAS, New Energy Nexus dba California Clean Energy Fund or CalCEF Ventures (“CalCEF”) is the administrator of the CalSEED Initiative under CEC Agreement Number 300-15-007 and is responsible for soliciting grant applications, recommending grant awards to the CEC, and managing approved grant projects; and

WHEREAS, CalCEF, in compliance with its duties under Agreement Number 300-15-007, in November 2022 held a Business Plan Competition, a competitive solicitation, and received four applications, and as a result has proposed to CEC small grant projects for funding; and

WHEREAS, CEC staff has reviewed the projects CalCEF has proposed, and recommends the following two small grant projects for funding:

1. \$450,000 is being requested for the “Concentrating Solar Thermal Collector with Built-In Storage” project with Planet A Energy, Inc., a project to advance an innovative, long-duration storage technology that concentrates solar energy and uses patented optical ‘light pipes’ to transfer the heat to a bed of low-cost black sand; and
2. \$450,000 is being requested for the “Acoustic Wave Induced Electrolyte Motion to Overcome Diffusion-Limited Charge Performances and Safety in Lithium Batteries” project with Sonocharge LLC, a project to continue the development of a novel, mechanical wave-driven acoustic device that would

significantly improve the charging performance, capacity, longevity, and safety of lithium metal batteries; and

WHEREAS, CEC staff has reviewed the two projects and determined that each project is exempt from the California Environmental Quality Act, as described in CEC staff's "Project Summaries and California Environmental Quality Act (CEQA) Analysis For Proposed Prototype Small Grant Awards Under the California Sustainable Energy Entrepreneur Development (CalSEED) Initiative, Agreement No. 300-15-007" Memorandum ("Memorandum") dated December 19, 2022, a document that is included in the backup materials to this Business Meeting item.

THEREFORE, BE IT RESOLVED, that the CEC adopts CEC staff's CEQA findings contained in the Memorandum for the two projects; and

FURTHER BE IT RESOLVED, that the CEC approves the two projects for a total of \$900,000; and

FURTHER BE IT RESOLVED, that the CEC directs CalCEF to execute grant agreements with the approved awardees pursuant to the requirements of Agreement Number 300-15-007.

CERTIFICATION

The undersigned Secretariat to the CEC does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the CEC held on 01 25, 2023.

AYE:
NAY:
ABSENT:
ABSTAIN:

Dated:

Liza Lopez
Secretariat