

Memorandum

To: Chair David Hochschild
Vice-Chair Janea A. Scott
Commissioner Karen Douglas
Commissioner Patty Monahan
Commissioner Andrew McAllister

Date: January 10, 2020

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

The California Clean Energy Fund (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 to entrepreneurs seeking to develop a technical feasibility case for their technologies.

In August 2019, CalSEED held the second Prototype Award Business Plan Competition to determine which eligible CalSEED Concept Award winners have the greatest technical and commercial potential to merit Prototype Award funding. The Prototype Award Business Plan Competition resulted in six projects being proposed for prototype awards. The proposed awardees are: Stasis Group, Inc., Empow Lighting, LLC, Maxout Renewables, Inc., InPipe Energy, Inc., GenH, Inc., and Skycool Systems, Inc. These awards will provide follow-on funding of \$450,000 per project to the most successful of the entrepreneurs and researchers whose energy innovations show significant potential impact and commercial potential.

I am an Associate Energy Specialist in the Energy Research and Development Division of the California Energy Commission. I have reviewed the CEQA compliance forms submitted by each proposed awardee. It is my opinion that each of the prototype awards proposed for funding are exempt under CEQA. The reasons for my conclusion are as follows.

1. PROJECT TITLE: DUCTED PHASE CHANGE MATERIAL COOLING

Applicant: Stasis Group, Inc.

Principal Investigator: Rob Mortin

Project Summary: The goal of this project is to continue the development and data verification of field demonstrations for a unique ducted thermal energy storage system that reduces peak demand (kW) and related energy consumption (kWh) for CA commercial buildings. This technology is a first-of-its-kind thermal storage system designed to allow business owners to respond to pricing signals in today's commercial electric rate plans and makes use of the unique characteristics of Phase Change Materials to achieve 5-year

payback and significant Greenhouse gas emissions reductions. During the Prototype Award project, Stasis Group will continue lab testing to finalize a prototype full-scale product designed for a 4 to 5 ton ducted HVAC systems. Stasis Group will also deploy the technology in at least 2 field installations in cooperation with business owners to demonstrate real-world electric cost savings and collect data that can facilitate future steps toward commercialization of the Stasis Thermal Energy Storage System product.

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

Reason Why Project is Exempt: This project is exempt from CEQA because the project activities consist of basic data collection and will be entirely confined to existing indoor laboratory space and up to three existing buildings, with no disruption to the outside environment. No hazardous materials will be produced in the course of this project and no extra vehicle traffic will be created and the project will not generate any noise or odors in excess of permitted levels. The project will result in negligible or no expansion of an existing use of the laboratory facility and the commercial buildings. The project will, therefore, result in no significant impact on the environment.

2. Project Title: LED Lighting Film for Low-Cost Retrofits of Fluorescent Lights

Applicant: Empow Lighting, LLC.

Principal Investigator: Nick Masalitin

Project Summary: The goal of this project is to demonstrate a full-scale prototype for a drop-in LED retrofit solution for linear fluorescent fixtures that will enhance their energy efficiency, light quality, and aesthetics while improving occupant's comfort and well-being. Empow will develop and demonstrate a full-scale working prototype of thin sheet-form LED retrofit for standard-size lighting fixtures, as well as evaluate its performance. Empow will design and fabricate full-scale working prototypes, test technology performance using both in-house and independent (third-party) measurements, and demonstrate retrofitting a standard-size linear fluorescent troffer using the thin-sheet LED lighting panel.

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

Reason Why Project is Exempt: This project is exempt under CEQA because project activities will be limited to research and data collection to analyze the power consumption and luminaire level efficiency of a thin sheet-form LED retrofit for lighting fixtures. This project involves no construction activities, no hazardous waste materials and the project will not generate any noise or odors in excess of permitted levels. Project activities will take place in an existing laboratory facility and involve negligible or no expansion of an existing use of the facility. This project will, therefore, result in no significant impact on the environment.

3. PROJECT TITLE: MAXOUT POLYVERTER

Applicant: Maxout Renewables, Inc.

Principal Investigator: Eric Cummings

Project Summary: The goal of this project is to continue developing a multimode all-in-one solar inverter called the Polyverter. The Polyverter includes patented technologies that create an ultra-reliable, multimode, all-in-one inverter with integrated per-panel optimization, battery storage, and emergency back-up capability. During the Prototype Award project, Maxout Renewables will finish the prototype design, manufacture multiple prototype units for testing and demonstration, conduct field-testing, and conduct preliminary certification testing.

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

Reason Why Project is Exempt: This project is exempt under CEQA because project activities will be limited to development, manufacturing, and testing of an innovative prototype solar inverter. All preliminary testing will be conducted at an existing laboratory facility and field testing will be performed at an existing field site with an existing solar photovoltaic (PV) array and involve negligible or no expansion of existing use of the facility. No substantial modifications to the field site or existing solar PV array are needed for testing. The project involves no construction activities and is not expected to generate noise, odors, or hazardous materials. The project will, therefore, result in no significant impact on the environment.

4. Project Title: In-PRV (Pressure Recovery Valve) Renewable Energy Generation System

Applicant: InPipe Energy, Inc.

Principal Investigator: Gregg Semler

Project Summary: The goal of this project is to demonstrate a first-of-its-kind digitally enabled control valve that converts running water to electricity in existing and new pressurized water pipelines. InPipe Energy has developed the In-PRVTM, which uses proprietary software, sensors and mostly off the shelf components commonly deployed in water systems, such as microturbines, control valves, and piping. It accurately controls pressure and produces a consistent, predictable and reliable source of renewable energy, leveraging existing water pipeline infrastructure without affecting operations. During the project, InPipe Energy will complete a field installation and demonstration of an In-PRVTM in a California based water agency.

CEQA Exemption Status: 14 CCR 15301 “Existing Facilities”; 14 CCR 15306 “Basic Data Collection”, 14 CCR 15328 “Small Hydroelectric Projects at Existing Facilities”

Reason Why Project is Exempt:

This project is exempt under CEQA because the project activities are limited to the demonstration and testing of an innovative digitally-enabled control valve that converts running water to electricity. The technology will be installed on an existing pipeline at an existing dechlorination facility and will then be tested to assess energy generation/savings. Slight modifications to the existing pipeline will be made including adding a valve by-pass that utilizes the existing footprint of the municipal infrastructure. The capacity of the generating facility is under 5 MW and does not change the flow regime in a water pipeline.

There will be no impact on the surrounding micro-environment. All preliminary testing will be conducted at an existing laboratory space. Testing is not expected to generate noise, odors, or hazardous materials. Field testing at a private test site will not require any new construction. The project involves negligible or no expansion of an existing use of any of the facilities. The project will, therefore, result in no significant impact on the environment.

5. PROJECT TITLE: THE MOBILE ENVELOPE DAM ELECTRIFICATION SYSTEM (MEDES)

Applicant: GenH, Inc.

Principal Investigator: Rick Theder

Project Summary: The goal of this project is to develop a first-of-its-kind, rapidly deployable, fully modular system (Adaptive Hydro™) to electrify non-powered dams and canal heads without construction or investment in any fixed infrastructure. The system is siphon based and conveys upstream water up-and-over the dam to turbines downstream. GenH will electrify two dams in the Coachella and Imperial valley canal/conduit systems.

CEQA Exemption Status: 14 CCR 15301 “Existing Facilities”; 14 CCR 15306 “Basic Data Collection”; 14 CCR 15311 “Minor Structures”; 14 CCR 15328 “Small Hydroelectric Projects at Existing Facilities”

Reason Why Project is Exempt:

This project is exempt under CEQA because project activities are limited to the deployment and testing of mobile hydro electrification equipment at existing manmade canal dams. The project involves no construction (including no digging), no hazardous materials and no obstruction of existing wildlife passage. Each dam will be equipped with around ten 2.5kW modules that will convey water up and over the dam to a turbine module downstream. The system does not have any permanent fixtures and is designed to be deployed without construction. The project involves negligible or no expansion of an existing use of the dams/facilities. The project will, therefore, result in no significant impact on the environment.

6. Project Title: SkyCool Panels

Applicant: SkyCool Systems, Inc.

Principal Investigator: Eli Goldstein

Project Summary: The goal of this project is to demonstrate the cooling capacity of multiple panels connected to a data center with zero water consumption while only using the electricity required to run the pump; additional technology development will be required to create a fully functional system to demonstrate the reliability and the energy savings for a modular data center application. The cooling panels are mounted on rooftops using the same racking as is done with commercial solar. The panels are silent and do not consume any electricity; the system itself has a small water pump which requires minimal electricity when compared to traditional HVAC systems. During the project, SkyCool Systems will continue modeling efforts to determine the optimum surface area, orientation, and integration with a modular data center, develop a design and then deploy a test system to demonstrate the cooling performance of the panels.

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

Reason Why Project is Exempt:

This project is exempt under CEQA because project activities are limited to the demonstration and testing of rooftop cooling panels on existing buildings that will improve the efficiency of the cooling and refrigeration systems at the buildings. The panels will be mounted on rooftops using racking similar to commercial solar photovoltaic panels. The panels will first be tested at an existing commercial office building and then at an existing modular data center. The panels will be paired with HVAC and refrigeration systems at the sites which may require minor modifications such as wiring installations. The new equipment will help improve the efficiency of the facilities and reduce electricity consumption and greenhouse gas emissions. These installations will be minor alterations to the existing equipment and structures, with negligible or no expansion of an existing use. For these reasons, the project will not have a significant effect on the environment.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: 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, the California Clean Energy Fund ("CalCEF") is the administrator of the CalSEED Initiative under Agreement Number 300-15-007 and is responsible for soliciting grant applications, recommending grant awards to the CEC, and managing authorized grant projects; and

WHEREAS, CalCEF, in compliance with its duties under Agreement Number 300-15-007, has completed a Prototype Award Business Plan Competition, a competitive solicitation open to eligible CalSEED Concept Award winners, and has requested a total of \$2,700,000 for the following six small grant projects:

1. \$450,000 is being requested for the "Ducted Phase Change Material Cooling" project with Stasis Group, Inc, a project to reduce energy consumption and peak demand for cooling in commercial buildings by integrating a ducted Thermal Energy Storage System into HVAC systems, using Phase Change Materials in an active air stream with instrumentation and controls.
2. \$450,000 is being requested for the "LED Lighting Film for Low-Cost Retrofits of Fluorescent Lights" project with Empow Lighting, LLC, a project to demonstrate a full-scale prototype for a drop-in LED retrofit solution for linear

fluorescent fixtures that will enhance their energy efficiency, light quality, and aesthetics without requiring re-wiring or training.

3. \$450,000 is being requested for the “Maxout Polyverter” project with Maxout Renewables, Inc., a project to continue development on an all-in-one solar inverter that includes patented technologies that create an ultra-reliable inverter that combines per-panel optimization, battery storage, and emergency back-up capability at one third the cost of current competitors.
4. \$450,000 is being requested for the “In-PRV (Pressure Recovery Valve) Renewable Energy Generation System” project with InPipe Energy, Inc., a project to demonstrate a first-of-its-kind digitally enabled water pipe control valve that converts running water to electricity in pressurized water pipelines to accurately control pressure and produce a consistent, predictable and reliable source of renewable energy by leveraging existing water pipeline infrastructure without affecting operations.
5. \$450,000 is being requested for the “Mobile Envelope Dam Electrification System (MEDES)” project with GenH, Inc., a project to develop a first-of-its-kind, rapidly deployable, fully modular system that electrifies non-powered dams and canal heads without construction or investment in any fixed infrastructure.
6. \$450,000 is being requested for the “SkyCool Panels” project with SkyCool Systems, Inc., a project to reduce energy and water use in data center cooling systems with a patented multilayer optical film panel that radiates heat to the sky without water consumption only using the electricity required to run a pump; and

WHEREAS, CEC staff has reviewed the six proposed projects and determined that categorical exemptions apply to each project, as described in the “Project Summaries and California Environmental Quality Act (“CEQA”) Compliance Analysis For Proposed Small Grant Awards Under the California Sustainable Energy Entrepreneur Development Initiative, Agreement No. 300-15-007” Memorandum (“Memorandum”) dated January 13, 2020, 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 six proposed projects; and

FURTHER BE IT RESOLVED, that the CEC approves the six proposed projects for a total of \$2,700,000; and

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

FURTHER BE IT RESOLVED, that the Executive Director or his/her designee shall execute the same on behalf of the CEC.

CERTIFICATION

The undersigned Secretariat to the Commission 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 January 22, 2020.

AYE:

NAY:

ABSENT:

ABSTAIN:

Cody Goldthrite
Secretariat