

DOCKETED	
Docket Number:	23-ERDD-01
Project Title:	Electric Program Investment Charge (EPIC)
TN #:	253770
Document Title:	Lawrence Berkeley National Laboratory Comments-Advancing the Environmental Sustainability of the Clean Energy Transition Enviro-
Description:	N/A
Filer:	System
Organization:	Lawrence Berkeley National Laboratory
Submitter Role:	Public Agency
Submission Date:	12/28/2023 5:12:11 PM
Docketed Date:	12/29/2023

*Comment Received From: Lawrence Berkeley National Laboratory
Submitted On: 12/28/2023
Docket Number: 23-ERDD-01*

Berkeley Lab Comments - Advancing the Environmental Sustainability of the Clean Energy Transition (Enviro-SET) (23-ERDD-01)

Please see comments attached.

Additional submitted attachment is included below.



BERKELEY LAB

Bringing Science Solutions to the World

December 28th, 2023
Jonah Steinbuck
Director of the Energy Research and Development Division
California Energy Commission
Docket Unit, MS-4
Docket No. 23-ERDD-01
715 P Street
Sacramento, California 95814

Re: Lawrence Berkeley National Laboratory Comments on CEC Staff Workshop: Funding to Advance the Environmental Sustainability of the Clean Energy Transition (Enviro-SET)

Director Jonah Steinbuck,

On Wednesday, December 13th, Commission staff hosted a staff workshop regarding Funding to Advance the Environmental Sustainability of the Clean Energy Transition (Enviro-SET). Berkeley Lab is pleased to present our comments in response to the aforementioned workshop.

Jacob Jonsson, a researcher in the Energy Technologies Area at Berkeley Lab, participated in the workshop and provided comments during the call.

Below, Berkeley Lab provides further comments regarding **Group 3 - Testing bird-friendly windows for decarbonized buildings:**

On the topic of **electricity generation vs. energy efficiency**, Berkeley Lab comments that it is important to clarify whether priority is that the product generates electricity vs. that the product is energy efficient. Further, regarding energy efficiency, it would be helpful to know the criteria (for example: better than a baseline of x, meeting an ENERGY STAR requirement, etc.)?

In the case of bird-friendly windows, clarity on product definition would be helpful. What does CEC **consider a product - the whole window or just a layer?** (for this purpose, Berkeley Lab thinks it is okay to call the vacuum glazing one layer as well, even though it is technically two layers). Berkeley Lab researchers support the idea of dual function layers, but it is not obvious that this is cost-effective when compared to having the different functionalities on different layers of the window. There are benefits to doing the energy optimization on a separate layer, e.g., a low-e coating on surface 3 can be high solar gain for cold climates or low solar gain for warm climates. Keeping that part of window design under the purview of the window manufacturer instead of requiring the bird-safe product manufacturer to sell low-e options for each climate and use case may make it easier for bird-safe products to succeed.

Anecdotally, a Berkeley Lab researcher has spoken, on multiple occasions, with vacuum insulating glazing (VIG) manufacturers about visible pillars (VIG needs these in order to prevent the glass panes from bending inwards), most recently at the VIG summit hosted at LBNL in 2023. These manufacturers have expressed that they don't mind the idea, but making invisible pillars is a much higher priority. This could change based on demand for bird glass and requirements for such a product. For the people that make transparent PV

there are those that design for it to be invisible as well, but there is a camp that makes perforated PV windows (a pattern of opaque PV on glass) that might have a good threat factor already.

Berkeley Lab researchers believe that there might be value in demonstrating that you can make an ENERGY STAR 7 (or another performance goal) performing window bird-safe with minimal changes to the design of an existing window at the ENERGY STAR performance level. Removing the need for a new product leaves "only" the barriers of (1) getting owners to buy the right windows and (2) window manufacturers providing them, which is challenging when you want to transform the market for a building component.

We recommend that CEC clarify threat factor measurement as part of the characterization. It would be helpful to understand what is expected for Threat Factor reporting based on when it is a completely new project (where tunnel testing might have to be mandatory) vs. if the project is focused on an energy efficient window incorporating an already existing product from <https://abcbirds.org/glass-collisions/products-database/>.

Berkeley Lab appreciates the opportunity to provide these comments regarding Funding to Advance the Environmental Sustainability of the Clean Energy Transition (Enviro-SET).

The following individual contributed comments: Jacob Jonsson.

Sincerely,
Alecia Ward
Leader, Program and Business Development
Energy Technologies Area
award@lbl.gov