



CPSC
California Product
Stewardship Councilsm

Submission Summary Slide

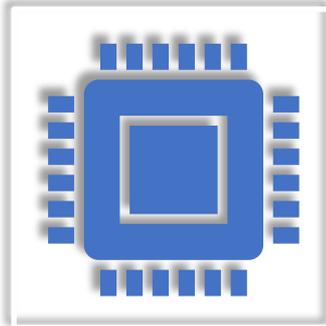
Project Name: CPSC's Solar Reuse Hub



Solar Reuse Hub: Opportunity



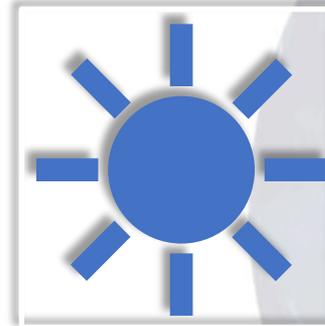
Objectives of Proposed Solar Reuse Hub



1) Formalize partnerships with certified handlers and facilities, as well as reuse organizations to promote solar panel reuse;



2) Partner with cities/counties and community groups to promote CPSC's Solar Reuse Hub;



3) To partner with interested cities/counties and the California Conservation Corps to organize reuse training and collection; and



4) Review current end-of-life management processes and analyze data on solar panels

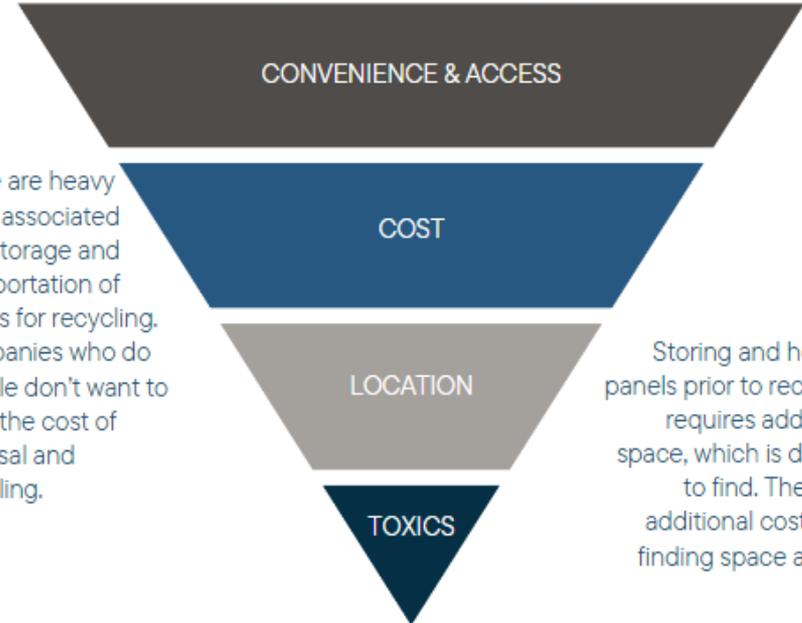
Solar Reuse Hub: Opportunity



Challenges & Need for Reuse

- Premature retirement of solar panels before their designated end-of-life. Early retired solar panels may still have 70%-90% of their original capacity. CPSC found in their research the average age of most retired panels is 9.1 years, far below the suggested retirement age.
- **Reuse is preferred over recycling for working panels as it promotes source reduction, material efficiency and greater equity.**

Top Reported Issue: Finding a person or facility that will accept solar panels for reuse or recycling.



There are heavy costs associated with storage and transportation of panels for recycling. Companies who do recycle don't want to incur the cost of disposal and recycling.

Storing and holding panels prior to recycling requires additional space, which is difficult to find. There are additional costs with finding space as well.

Toxicity of the materials in panels is a concern for handlers and recyclers.

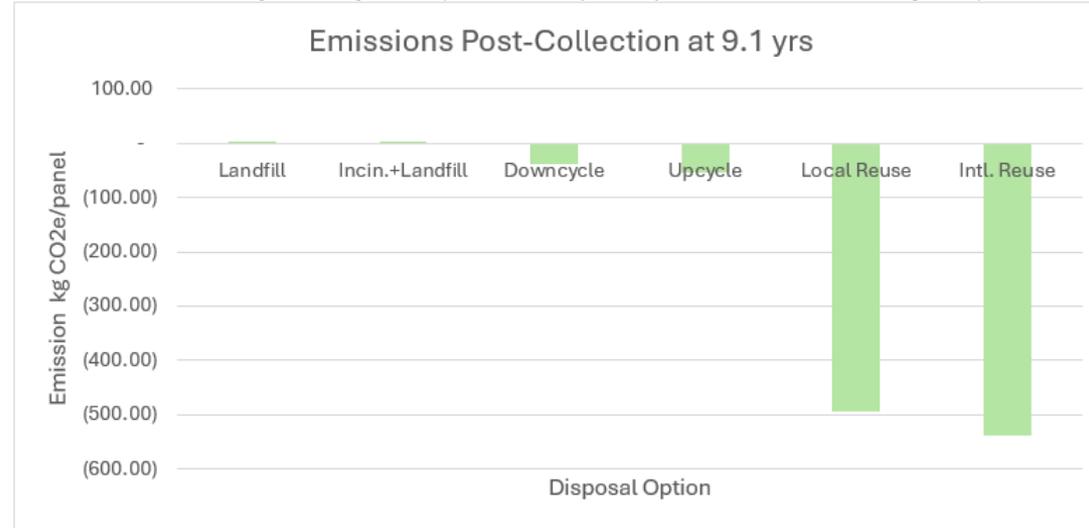
Solar Reuse Hub: Research



Expected and Proven Impacts

- Extension of product life cycles and reduction in greenhouse gas emissions through avoided virgin material extraction and manufacturing processes – CPSC’s GHG models prove that solar reuse extended product life and reduces greenhouse gas emissions by -10.0 MTCO₂e
- CPSC partnered with the Lawrence Berkeley National Laboratory and Eco-Catalyst, an expert in GHG models to further their research.
- Job creation in the collection, repair, and reuse sector – CPSC’s job models prove that solar reuse will expand the job market by 129 in the state of California.

Performance of Disposal Options (emissions/panel post collection at 9.1 years)



The above chart highlights the emissions saved by Downcycling, Upcycling and Re-use options after collection of panels at 9.1 years. Landfill options have small positive emissions, but too small to be visible in the chart.

Solar Reuse Hub: Innovation



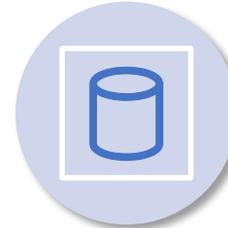
Forming partnerships
with Cities/Counties
and Local Groups



Hosting educational
campaigns to
communities in partner
cities/counties



Affordable green energy
access to impacted
communities



Ongoing GHG and job
creation model
calculations

Solar Reuse Hub: Team Members



**Livia
Keene**

Associate I
Moderates and
manages solar
collection, reuse, and
education



**Ryan
Klein**

Associate I
Reviews documents
and supports outreach
efforts

Senior Associate
Provides technical
expertise and identifies
partnerships



**Yalin
Li**

Senior Associate
Provides technical
expertise and identifies
partnerships



**Doug
Kobold**

Executive Director
Provides strategic
technical and policy
guidance, and
regulatory challenges



**Joanne
Brasch**

Director of Advocacy and
Outreach
Oversees entire project,
manages team coordination
and stakeholders

CPSC's Experience in Solar Panel Recovery



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CPSC led the first-in-the-state CalRecycle funded solar recovery pilots and partners with cities and counties to expand circular solar energy systems with a goal to reduce the cost-burden on local governments and rate payers through producer engagement.



In Phase 1, CPSC utilized their ongoing project in Marin County to boost their ongoing collection and reuse events, becoming experts in solar reuse.



CPSC launched a solar reuse hub in Phase 1.
Check out CPSC's Solar Panel hub and other initiatives

<https://www.calpsc.org/cpsc-solarstewardship>



CPSC is working on similar reuse and repair Hubs in California for textiles and clothing. Similarly, collaborating with repair clinics, creative redesigns, and developing standards for innovative reuse applications.



Pictured: Janette Freeman from Fab Tech presenting at the inaugural Solar Panel Reuse Training.

CPSC's Solar Panel Pilots



- CPSC has completed pilot projects in **Butte County** and the **City of Santa Monica** on solar panel reuse. In an ongoing project, CPSC is partnering with the **County of Marin**.
- CPSC collaborates with local partners, such as the **California Conservation Corps** and **California Electronic Asset Recovery (CEAR)**, and other recyclers to develop a recycling plan as well as long-term solutions.

SOLAR REUSE TRAINING
HANDS ON ACTIVITIES WITH WORKING PANELS

Open to everyone!
\$100 (includes certificate)
*scholarships available

Apply today:
[surveymonkey.com/r/reusetraining](https://www.surveymonkey.com/r/reusetraining)

Developed by CPSC California Product Stewardship Council

Funded by CALIFORNIA CONSERVATION CORPS

ZERO WASTE MARIN

MADE WITH RECYCLED MATERIALS

A QR code is located on the right side of the poster.

ATTENTION MARIN COUNTY RESIDENTS:

Solar Panel Recycling

Have unwanted solar panels?
Schedule a FREE pick-up for your unwanted solar panels
September 23 - October 23.

<https://www.surveymonkey.com/r/MarinSolarCollection36223>

ZERO WASTE MARIN

CPSC California Product Stewardship Council

The poster features a background image of solar panels on a roof under a blue sky with clouds.



Solar Reuse Hub: Plan



Websites

- In Phase 1, CPSC created a solar panel reuse map and hub, connecting homeowners, installers, recyclers, and reuse organizations to streamline opportunities for aging panels. The hub will include information on locations where secondhand panels can be purchased including thrifts and e-commerce sites such as Rheaply.



Partnerships

- The project made partnerships with cities, counties, California Conservation Corps, certified handlers, reuse organizations, and certified facilities who will process most types of solar panels. In their ongoing projects, these partnerships will continue to expand.



Solar Reuse Hub: Plan (Cont.)



Education Campaign

- The project developed inclusive outreach materials to educate the public about the collection and proper disposal of solar panels and the benefits of reuse.
- The project organized campaigns by reaching out to communities in the partner cities/counties directly and by making social media campaigns on different platforms.



Reuse Events

- The project developed reuse events by partnering with local training and reuse groups to demonstrate reuse potential.
- Marin's reuse training event had 21 participants ranging in sector representation, including installers, contractors, recyclers, sellers, students, waste management workers, NGOs, consultants and local government workers.

Solar Reuse Hub: SMART Goals



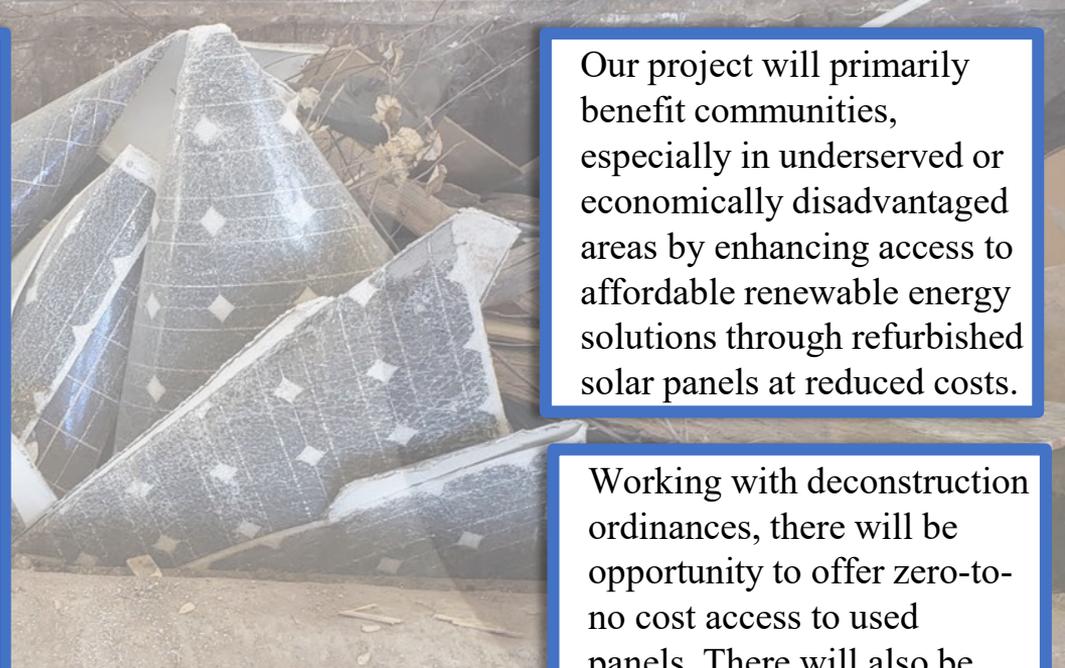
SMART Goals for Advancing Innovation	Proposed Metrics for Success
Increase awareness by organizing two education campaigns by June 2025	Social media and outreach metrics
Establishment of solar reuse hub by Dec 2025 in collaboration with cities/counties and certified businesses	Number of cities/counties added to the Hub, Number of businesses added to the Hub, Number of businesses funded for events.
Organize at least two repair event by Dec 2025	Number of solar panel repair event, solar panels repaired for reuse, people who participate in the event
Support local businesses, especially those owned by BIPOC communities as well as local artists/innovators	Investing in local repair businesses and artists/innovators with reuse outlets.

Solar Reuse Hub: Community Benefits Plan



The Hub will address improper solar panel management impact communities:

- Lack of proper waste management practices may result in illegal dumping or improper disposal.
- Improper disposal of PV panels poses environmental risks, potentially leading to soil and water contamination due to toxic leaching.
- Programs without repair and reuse miss economic opportunities, including job creation and economic growth linked to sustainable waste management practices.
- High costs of panels may prevent adoption and avoidance of trying new applications for the panels, such as furniture, art, or outbuildings.



Our project will primarily benefit communities, especially in underserved or economically disadvantaged areas by enhancing access to affordable renewable energy solutions through refurbished solar panels at reduced costs.

Working with deconstruction ordinances, there will be opportunity to offer zero-to-no cost access to used panels. There will also be direct financial support for repair, reinstallation, and artistic businesses.

Pictured: solar panels improperly dumped after being turned away from the landfill.



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