



CPSC

**California Product
Stewardship Council** SM

Solar Panel Recycling: Present Constraints and Future Possibilities

September 20, 2018

Topics Discussed...

- Who is CPSC
- Status of Solar Panel recycling in CA
- HHW grant projects
- Partnerships
- Next Steps



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Jordan Wells,
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Heidi Sanborn,
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14 Member Board: <https://calpsc.org/about-us/meet-the-board-members/>

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Looking for
3 new board
members!



Steve Rodowick
Butte County

CPSC Partners (7/26/18)



Platinum Partners

- Edgar Institute
- Recology



Gold Partners

- California Refuse Recycling Council
- California Resource Recovery Association
- Green Cities California



CPSC Partners (7/26/18)



Silver Partners



Carton Council

- CalRecycle*
- Carton Council
- Product Care Association
- Waste Connections, Inc.



GREEN WASTE OF TEHAMA
A Waste Connections Company



Bronze Partners

- CA Assoc. of Recycling Market Development Zones
- Blue Marble Materials
- Ecology Action
- Peninsula Packaging Company, LLC
- Potential Industries Inc.
- R3 Consulting
- Gaiaca
- Zanker Recycling



**Potential
Industries Inc**



* CalRecycle has not signed the CPSC Pledge, since this would be inappropriate for a State agency, but is a partner and financial supporter of CPSC.

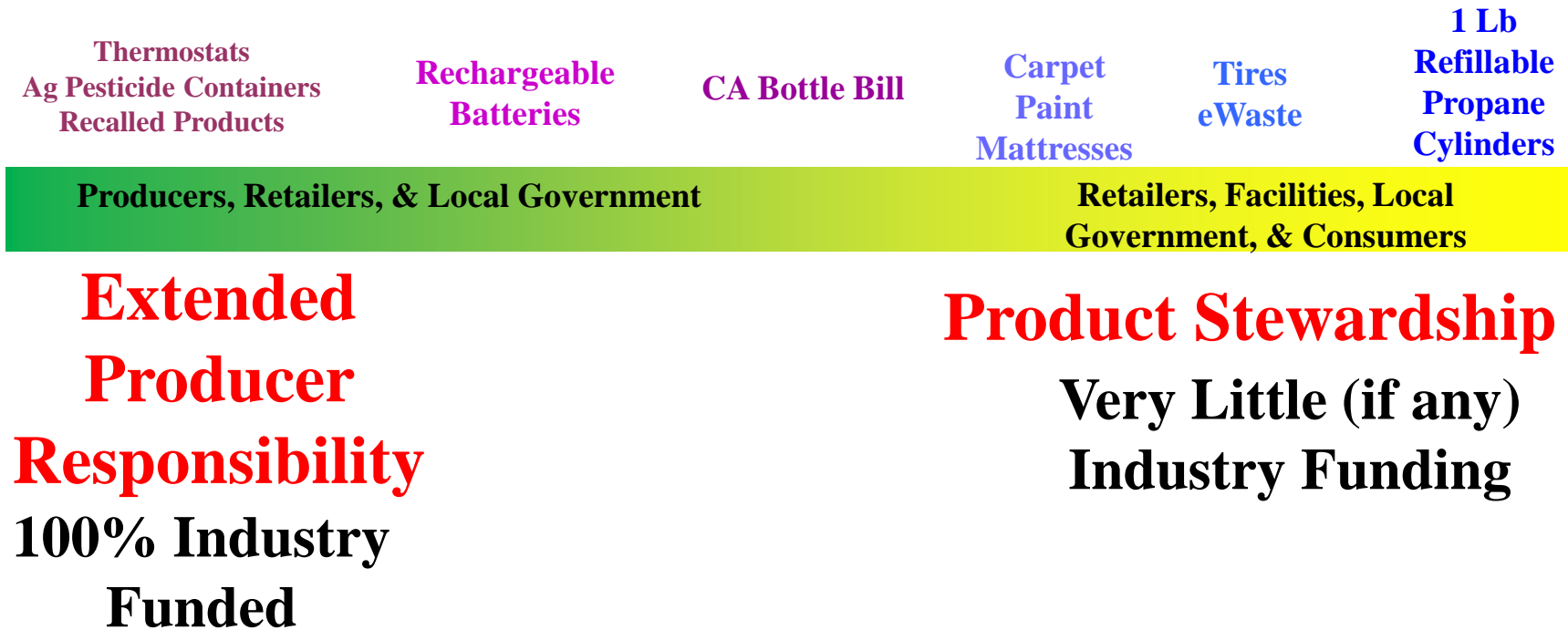
CPSC Mission – Goals of EPR

To shift California's product waste management system from one focused on government funded and ratepayer financed waste diversion to one that relies on producer responsibility in order **to reduce public costs and drive improvements in product design that promote environmental sustainability.**

WHAT IS EPR?

Funding and Structures Vary Widely!

EPR/Product Stewardship Spectrum



International Support for PV EPR



(www.irena.org), An Intergovernmental organization,
quote from 2016 Report:

“End-of-life management is based on the **Extended Producer Responsibility (EPR)** principle. This holds producers physically and financially responsible for the environmental impact of their products through to end-of-life and provides incentives for the development of greener products with lower environmental impacts. **This principle can also be used to create funds to finance proper collection, treatment, recycling and disposal systems.**”

Solar Panels

- AKA Photo-Voltaic (PV) modules
 - Silicon vs non-silicon
- Producers state each PV panel has a life expectancy of 20-30 years
- Primarily made from recyclable materials, such as metal and glass
- Industry making lower quality PVs lasting only 5 years – very wasteful!



Solar Panels- The Problem

- Early generation PV modules reaching end-of-life after 20-30 years, plus faulty newer modules
- No plan for effective processes of removal, dismantling, disposal and/or reuse
- Usage is increasing



Right- Solar Panel denied at Butte HHW was found folded and hidden in the E-waste bin

Left-Solar panels stacked at Marin Sanitary with no where to go for recycling



Solar Panels- A Global Problem

Cumulative waste volumes of top five countries for of end-of-life PV panels in 2050

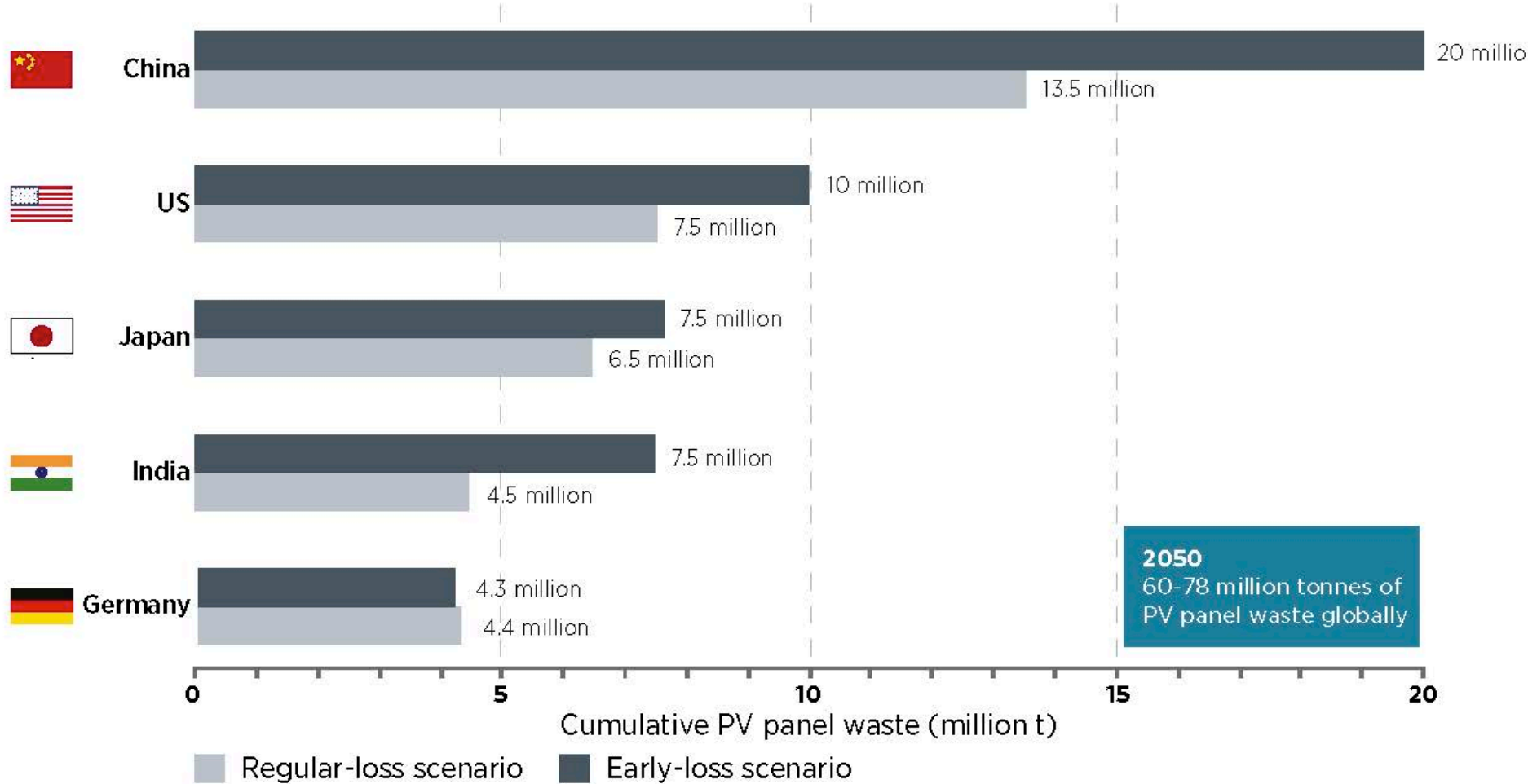


Figure (above). Estimated Global PV Waste Volumes Projected by the International Renewable Energy Agency (2016)

How Other Countries Manage PV's

The EU introduced its very first EPR legislation for waste electrical and electronic (WEEE) management in 2002 and **revised in 2012 to include PV as a separate category**, to capture the growing issue of end-of-life management



This law does NOT include equipment with integrated PV



Washington: The Only State with EPR for PV's!

In 2017 WA passed ESSB 5939, requiring manufacturers selling solar products into the state to have end-of-life recycling programs for their own products.



What is California Doing?

1. In 2015, Senate Bill 489 (Monning) authorizes DTSC to adopt regulations to designate used/spent solar panels as universal waste
2. DTSC still has not updated the regulations – CPSC sent sign on letter to DTSC asking them to kindly hurry up J
3. In May 2018, the California Energy Commission voted unanimously to require solar photovoltaic systems on all new homes starting in 2020.



Department of
Toxic Substances
Control



CPSC Sign-On Letter to DTSC

“We urge you to make the finalization of the PV regulations a higher priority and get them done. We need a solution and having such a high cost to manage without any funding or processing capacity is driving people to be frustrated at the least, and illegally dump them at the worst.”



“We are committed to proactively contributing to DTSC’s regulatory development process, and urge the DTSC to expedite the regulatory process to allow the state’s recyclers to recycle PV modules as soon as practical as universal waste.”



“Delays in the rulemaking are exacerbating the existing PV recycling capacity issue within the State of California. SMUD has experienced the efforts of the rulemaking delay directly, including on our most recent PV-1 dismantling project in 2017.”



SMUD

SACRAMENTO MUNICIPAL UTILITY DISTRICT

The Power To Do More.®



HHW Grant Projects



City of
Santa Monica[®]

CPSC will work with Butte County and the City of Santa Monica to pilot collection and recycling of PV's but there are no regs yet!!!L

Grant Partnership Solutions



CPSC will work with local partners, such as the Solar Energy Industry Association (SEIA) and the California Electronic Asset Recovery (CEAR) to develop a recycling plan for the pilot projects, as well as long-term solutions



New PV Recycler in Phoenix, AZ



“Our goal is to keep solar PV materials out of landfills and to reuse all components that are salvageable.”

To celebrate the opening of their new facility, they are accepting solar panels to be recycled on a first come first serve at an introductory price of \$15 per solar panel.

www.recyclepv.solar

What you can do to help

1. Take pictures and document the day/time you see PV panels dumped and send them to joanne@calpsc.org
2. Sign-on to CPSC's Next Letter to the Legislature and DTSC to hurry with the rulemaking
3. Join CPSC and be added to our Solar Panel listserv!



Like CPSC on Social Media



Email CPSC with any questions: info@calpsc.org

Thank you for your support!



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