September 24, 2019

Department of Toxic Substances Control
Hazardous Waste Management Program
P.O. Box 806
Sacramento, CA 95812-0806

Attention: Acting Director Meredith Williams and DTSC staff

Subject: Photovoltaic modules (PV modules) – Universal Waste Management Proposed Regulation Text
California 15-day Notice and Comment Period

Submitted via e-mail regs@dtsc.ca.gov

Acting Director Williams and DTSC staff,

We provide this summary of comments regarding the proposed rule-making of the Department of Toxic Substances Control (DTSC) to promote PV recycling in the state of California and in its efforts to develop universal waste management regulations for PV modules.

As the DTSC did not make changes to the draft regulations based on many of the comments in our June 10th letter that are critical to the PV industry and PV recycling industry, we have reiterated those comments below. We also have provided additional information on the impact of these regulations on the industries and pertinent examples of how the DTSC was incorrect in its assumptions.

A) § 66273.73. Authorization for Treatment (Processing) Activities
As relayed in our prior letter, the restrictions on the use of chemicals, heat, or water to treat end of life PV modules will stifle innovation that would maximize the recovery of valuable materials. For recyclers,
this restricts the types of equipment and processes for recycling PV modules, thereby disincentivizing new companies and techniques. Additionally, these restrictions will prevent the washing of PV modules prior to recycling/processing to remove dirt and other contaminants.

The proposed language requires recyclers to only use existing technology developed for printed circuit boards, TV displays, and other existing e-waste. We believe this wording will have unintended, negative consequences by preventing the use of newer, innovative and more effective methods for PV recycling. These newer methods would have a positive environmental impact by allowing more effective separation methods, increasing the amount of recoverable material. These newer methods also would have a positive economic impact, due to more efficient operations and increased value of the recovered materials, possibly leading to increased recycling.

“Newer methods” are not simply a hope. Other parts of the world have already commercialized new technology that is innovative and effective. For example, Suez built a dedicated PV recycling plant in Knittlingen, Germany:

*Using a new recycling process, which combines mechanical, thermal and electrochemical treatment, up to 50,000 used end-of-life photovoltaic modules per year can be recycled and the raw materials they contain returned to the material cycle, the company announced late last week. The processes used until now were able to recover only the panel glass, aluminum from the module frame and the copper from the cables, Suez explained. This new plant, the first of its kind according to the French group, allows for up to 90 per cent of the material contained in the modules to be recycled. "With our new process, we are tapping into a new source for precious metals as raw materials," said Herman Snellink, managing director of Suez Deutschland GmbH.*

Also, the U.S. Department of Energy released a new Funding Opportunity Announcement (FOA) (number: DE-FOA-0002064) on March 26, 2019 which “… seeks to fund collaborations to address the growing recycling and end-of-life management issues associated with PV systems.” SEIA is among the many stakeholders that have submitted proposals. Limiting PV module recycling methods in California will slow and stifle innovation that could increase material recovery and reuse at a time when the federal government is beginning to dedicate resources to this cause.

B) § 66273.32. USEPA Notification, Department Notification, and Reporting Requirements for Universal Waste Handlers (100-kilogram) reporting threshold

We would like to reiterate that the 100-kilogram (220 pounds) reporting threshold is unwarranted for the PV industry and will have a significant impact on thousands of businesses that use tens of thousands of vehicles and employees to transport PV modules to installation sites and/or to disposal sites. The average residential installation uses eight to 10 PV modules, each weighing 40-45 pounds, though many residential installations can be much larger. Recording, tracking and reporting the information noted in (f)(3) of this section is an unreasonable administrative burden for solar installers and service companies. Additionally, if this threshold limits the number of waste modules that can be transported from sites without special handling, these regulations can increase decommissioning costs and carbon emissions

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caused by multiple vehicle trips. For these reasons, the threshold for reporting requirements for PV modules should be increased to at least 1,000 pounds.

The draft regulations are unclear on the circumstances for which a handler would need to give the DTSC a 30-day notification that it will be accepting PV waste from any particular location, or if DTSC is requiring handlers to register once with the DTSC and then follow up with annual reporting. If the latter, then we recommend DTSC insert language to that effect. Without such language, it currently appears that the handler needs to notify the DTSC when it is taking PV waste off a roof and away from each and every property, which would be an unreasonable administrative burden. Thus, we urge the DTSC to clarify the intent of the 30-day notification requirement and how it applies to handlers accepting PV waste.

The draft regulations are also unclear on whether warehouses and distribution centers must register as universal waste handlers if they may potentially receive modules that are designated as universal waste. Many such facilities are leased and may not be allowed to have such waste on the premises. This potential impact is not clearly stated in the DTSC’s economic impact statement and will be unfairly burdensome, onerous and costly to the solar industry. Thus, we urge the DTSC to exempt warehouses, distribution centers and other such facilities from registering as universal waste handlers and the requirements.

Additionally, since residential households are exempt from the requirements of this chapter pursuant to Section 66273.8 (Exemptions), the unintended consequence of not increasing the reporting limit for handlers may be to encourage new installers to leave old panels behind for the resident to deal with if the original installer has gone out of business.

These comments also apply to Section 66273.51 and anywhere else in draft or current regulations where PV module load weights would be restricted to 100 kilograms or 220 pounds.

C) No waste exclusion for PV modules
We continue to have several objections to the assumptions in the Economic & Fiscal Impact Statement and Appendix that led the DTSC to avoid considering a waste exclusion for PV modules.

One reason the DTSC did not consider the waste exclusion alternative is that the agency is unaware of manufacturers and other businesses outside California that are recovering usable materials from end of life PV modules. SEIA and CALSSA have shared information with the DTSC on several occasions that PV module manufacturers are recycling modules out of state. Additionally, DTSC staff were present at the PUC Offices in San Francisco for the PV & Battery Recycling workshop in early April 2019, where presentations from CPSC, SEIA, and PVCycle all shared information about solar panel recycling in other states and countries. The two attached fact sheets have been readily available on SEIA’s website; with the current 2019 PV End-of-Life management factsheet replacing the 2018 version (which replaced updates in 2016 and 2017). SEIA currently operates a national PV recycling network with six recyclers who actively recover glass, aluminum and other constituent metals for resale to or reuse by downstream vendors. This information was covered in the 2017 DTSC Workshop on PV modules.

Another reason the DTSC did not consider the waste exclusion alternative was that the agency is unaware of manufacturers and other businesses inside California recovering usable materials from end of life PV modules. However, the reason California does not have an active recycling market is that the DTSC has prohibited such activity, including pilot programs, since SB 489 passed. This circular logic is not productive to finding a solution. The DTSC has a number of exclusions already in place, therefore the
argument that enforcement is difficult is questionable. Items such as scrap metal that is being recycled and shredded circuit boards being recycled are currently covered by federal waste exclusions; while it is not confirmed if PV modules could be covered by such an exclusion, the necessary process and analysis was not undertaken to make that determination; it is a disservice to the solar industry to simply not do the analysis.

D) Integrated devices

We urge DTSC to be very clear as to whether or not devices such as calculators, garden lights, backpacks, luggage, or other similar devices can be managed as universal waste. These items would be allowed to be managed like other e-waste materials listed under Section 66273.9 “Electronic device.” § 66260.10 and § 66273.9 both define most of these items as “photovoltaic module integrated device,” yet calculators are defined as an “electronic device.” Integrated devices appear to be exempt from these regulations, but calculators do not. Electronic devices appear to be approved for processing by the existing e-waste processing infrastructure here in California, so it is implied that calculators may be handled/processed by that processing infrastructure. “Photovoltaic module integrated devices,” such as garden lights, appear to be exempt, but without testing, an e-waste processor may not be assured those lights are non-hazardous. Therefore, the DTSC should add a statement such as “Photovoltaic module integrated devices, while exempt from this Chapter, may be processed as electronic devices.” This statement would make it clear that e-waste processors can process garden lights and other similar products without a question of whether that are allowed or not. It may just be easier to add photovoltaic integrated devices to electronic devices, making this allowance automatic. Please see the applicable sections below.

§ 66260.10. Definitions and § 66273.9. Definitions

“Photovoltaic module integrated device” means a device with a photovoltaic module embedded or attached, for which the photovoltaic module is not intended to be removed or replaced as part of the normal use and operation of the device, and is intended for personal or household use or adornment (e.g. garden lights, backpacks, luggage).

(8) PV module integrated devices that are not an electronic device. If such devices exhibit a characteristic of a hazardous waste as set forth in article 3 of chapter 11, they are regulated as hazardous waste pursuant to chapters 10 through 16, 18, and 20 through 22 of this division.

§ 66273.7.1. Applicability – PV modules

(c) PV modules that are integrated into the structure of an electronic devices as defined in section 66273.9 (e.g., calculators) shall be managed as an electronic device.

§ 66273.9. Definitions

“Electronic device” means any electronic device that is identified as hazardous waste because it either exhibits the characteristic of toxicity as specified in article 3 of chapter 11 of this division, and/or is a listed hazardous waste as specified in article 4.1 of chapter 11 of this division. Examples of electronic devices include: computer monitors, televisions, cash registers and oscilloscopes (CRT devices), computers, computer peripherals, telephones, answering machines, radios, stereo equipment, tape players/recorders, phonographs, video cassette players/recorders, compact disc players/recorders, calculators, and some appliances. Electronic device does not mean a major appliance, as defined in Public Resources Code section 42166,
other devices which are comprised largely of metals, qualify as “scrap metal” as defined in section 66260.10, and are recycled.

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CPSC and the solar industry were actively engaged with Senator Monning’s office during the drafting of SB 489 due to the fact that solar panels were showing up at landfills and the problem was only going to continue to grow. Here we are five years later still trying to get these regulations in a form that is supportable and can be implemented upon adoption and would support solar panel recycling within California.

Our groups have been diligently engaged in the stakeholder process since SB489 was passed in 2015. We continue to advocate that the opportunities to collaborate on practical, reasonable requirements are possible and that will continue to support California’s decarbonization and renewable energy goals.

Sincerely,

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