

# California Rule Facilitating the Recycling of Solar Panels Takes Effect January 1, 2021

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A new rule will take effect in California on January 1, 2021, that will allow generators of decommissioned solar panels (photovoltaic or PV modules) to manage them more economically as universal waste as opposed to hazardous waste under current California law. This is the first rule in the country to identify solar panels as universal waste to reduce management burdens and facilitate recycling.

Close to 100% of the materials in a solar panel are recyclable or reusable, but the panels often contain heavy metals such as cadmium, copper, lead, selenium, and silver. The presence of those metals may cause discarded panels to exhibit the hazardous waste characteristic of toxicity, and thus be classified as hazardous waste under the federal Resource Conservation and Recovery Act (RCRA) and California's more stringent Hazardous Waste Control Law. This classification makes it expensive and burdensome to store, handle and transport end-of-life panels for recycling or disposal under current regulations.

Starting on January 1, 2021, decommissioned solar panels will be regulated like other universal wastes in California, which include batteries, electronic devices, mercury-containing equipment, lamps, cathode ray tubes, and aerosol cans. The new rule will make it less expensive and burdensome to collect, process, and recycle them.

## Key Components for the New Regulation for Solar Panels

Among other advantages provided by the new rule, storage of decommissioned panels will be allowed for up to one year and using

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hazardous waste manifests and hazardous waste transporters will not be required. There also will be no storage quantity limitations.

Other key components of the regulations for handlers include notification and annual reporting to the CA Department of Toxic Substances Control, labeling (Universal Waste–PV Modules), employee training, handling to prevent breakage and releases, response to releases, containment, and recordkeeping. Universal waste handlers are also granted authority to conduct certain treatment activities, including removal of user-replaceable panel components and panel dismantling - removing or physically segregating components (glass panels, metal framing, PV cells, and pockets). Physical treatment activities, including separation, cutting, sawing, breaking, shredding, crushing, screening, and compacting are also allowed. However, the rule prohibits universal waste handlers from using or applying chemicals, including water, and/or external heat to solar panels.

### **Interplay with U.S. EPA’s Universal Waste Management Regulations**

Decommissioned solar panels are subject to the Resource Conservation and Recovery Act – a federal law governing the management of hazardous waste. EPA’s regulations under RCRA include provisions for handling universal wastes, but currently, EPA’s regulations do not treat decommissioned solar panels as universal waste. RCRA allows states to implement and manage their own hazardous waste requirements as long as the state’s program is approved by EPA. In this case, California is allowed to include solar panels in its universal waste regulations because EPA has approved the changes to California’s universal waste program earlier this year. Other states will likely monitor what happens in California under the new rule to determine if they want to follow suit. Many in the industry expect California’s new rule to be a regulatory model for other states to follow as the amount of decommissioned PV solar panels is expected to significantly increase in the years to come. The industry also speculates that the U.S. EPA may update its own universal waste rules to include solar panels.

### **Solar Use Growing in California and Panel Replacement Is Coming Due**

California has long led the nation in solar power energy production - 21,074 MW installed solar capacity - followed by North Carolina far behind at 4,308 MW. But this year California began a new era where all newly constructed homes must be equipped with solar photovoltaic systems (e.g., solar panels or tiles). This standard applies to all new residential construction installed starting January 1, 2020. California is the only state in the U.S. to date to mandate the use of solar for residential use.

Solar panels have an average life span of 25 years and a wave of older panels are expected to be retired in the next 5-6 years making viable waste management options critical. According to a University of California, Santa Barbara (UCSB) study, it is estimated that PV solar waste in the U.S. may rise from 1.3 million metric tons in 2040 to 5.5 million metric tons in 2050. Globally in 2050 the estimate is 80 million metric tons generated.

Solar power is also expected to play a big role in President-elect Joe Biden’s efforts to require the U.S. power sector to be carbon-free by 2035 and the country to have net zero carbon emissions by 2050. In addition, the new Administration and Congress will likely consider an extension of an existing federal residential solar tax

credit that is due to expire at the end of 2021. The credit refunds taxpayers 26% of the cost of solar panels for the 2020 tax year and 22% for 2021.

The new CA regulation that will become effective January 1, 2021, is posted on DTSC's website at <https://dtsc.ca.gov/regs/pv-modules-universal-waste-management/>.