

ADDENDUM TO THE INITIAL STATEMENT OF REASONS (ISOR) AND ECONOMIC AND FISCAL IMPACT ANALYSIS

October 18, 2019

Photovoltaic modules (PV modules) – Universal Waste Management

**Department of Toxic Substances Control reference number: R-2017-04
Office of Administrative Law Notice Reference Number: Z-2019-0409-04**

On April 19, 2019, the Department of Toxic Substances Control (DTSC) published proposed regulations that would allow hazardous waste PV modules to be managed according to universal waste management standards in California Code of Regulations, title 22, division 4.5, chapter 23. These and other rulemaking documents are available for review on DTSC's website at <https://dtsc.ca.gov/regs/>. Written comments were accepted during the 52-day public comment period, and a public hearing was held on June 10, 2019, during which DTSC accepted written and oral testimony. The revision to the proposed action for the rulemaking and links to the documents were noticed for public review and comment on September 9, 2019, for 15 days, which ended on September 24, 2019.

DTSC reviewed all comments received during the two public comment periods. In response to these public comments and to clarify the regulations as originally proposed, DTSC has prepared this Addendum to the Initial Statement of Reasoning (ISOR) and Economic and Fiscal Impact Analysis.

Modification to the ISOR and Economic and Fiscal Impact Analysis

Waste Exclusion Alternative

(ISOR: Pages 53-54)

(Economic and Fiscal Impact Analysis: Attachment Pages 12-13)

The waste exclusion alternative for PV modules is not a viable option because California, nor any other state, cannot adopt regulations that are less stringent than the standards as specified under the Resource Conservation and Recovery Act (RCRA) under United States Environmental Protection Agency (U.S. EPA). Analytical tests using the federal Toxicity Characteristic Leaching Procedure (TCLP) demonstrated that some PV modules may exceed the federal threshold levels for toxicity of regulated metals.¹ DTSC concludes that any PV modules that fail the federal hazardous waste criteria for toxicity must be managed as hazardous waste because these wastes are not excluded from federal hazardous waste regulations. Selecting the waste exclusion alternative for the management of PV modules that are RCRA hazardous waste would mean allowing

¹ (i) *Regulations on Photovoltaic Module Disposal and Recycling*, Vasilis Fthenakis, Brookhaven National Laboratory, 2001. (ii) Fthenakis V. and Gonsiorawski R., *Lead-free solder technology from ASE Americas*, Workshop Report BNL-67536, 1999.

them to be managed under less stringent standards than those of federal requirements, which is not allowed. Therefore, DTSC rejected the waste exclusion alternative.