



Via email only

July 14, 2026

Zoe Heller, Director
 California Department of Resources Recycling and Recovery (CalRecycle)

Jill Hunsaker Ryan, Executive Director
 Colorado Department of Public Health & Environment

Melanie Loyzim, Commissioner
 Maine Department of Environmental Protection

Katrina Kessler, Commissioner
 Minnesota Pollution Control Agency

Serena McIlwain, Secretary of Environment
Maryland Department of the Environment
Leah Feldon, Director
Oregon Department of Environmental Quality
Casey Sixkiller, Director
Washington State Department of Ecology

cc: Packaging Extended Producer Responsibility Scheme Advisory Boards or Councils in California, Colorado, Maine, Minnesota, Maryland, Oregon, and Washington

Re: Circular Action Alliance Draft Responsible End Market (REM) Standard

Dear Director Heller, Executive Director Hunsaker Ryan, Commissioner Loyzim, Commissioner Kessler, Secretary McIlwain, Director Feldon, Director Sixkiller, and esteemed Advisory Board and Advisory Council members:

We are organizations working on plastic pollution, ocean health, zero waste, and the environmental and health impacts of end market technologies on communities and on our planet. We work alongside communities affected by plastic pollution across the United States, including California, Colorado, Maine, Maryland, Minnesota, Oregon, and Washington, as well as in over 100 countries, including several that are affected by US plastic waste exports.

We urge you **to reject use of the “Responsible Markets (REM) Standard” [sic] to verify end market and broker compliance** with statutory and regulatory requirements in California, Colorado, Maine, Maryland, Minnesota, Oregon and Washington, as proposed by the Circular Action Alliance (CAA), the Producer Responsibility Organization (PRO) for packaging Extended Producer Responsibility (EPR) schemes in those states.¹

States must not surrender determination of end market and broker compliance with state protection for public health, the environment, and worker safety to private certifiers relying on private standards that bypass consultation of affected communities, undermine transparency, and fail to uphold the law.

Allowing PROs to verify end market compliance on the basis of private standards rather than state rules only encourages self-dealing and conflicts of interest.

This letter outlines our process and substance concerns with the standard and makes recommendations to regulators to ensure genuine packaging waste end markets and brokers' legal compliance, and so that they don't operate at the expense of community, environmental or worker health and safety.

1. A flawed process: public comment bypassed

Communities affected by environmental decisions should be involved early and throughout the decision-making process, following the State Administrative Procedure Act (APA) procedures.

¹ For instance, CAA's draft California PRO Plan states on p. 187 that “CAA California will not restrict the types of technology that end markets can employ, relying on verification of publishing the REM standards for that determination.”

To our knowledge, **no organization representing communities affected by end market pollution was included in the committee that developed this draft standard.**² Furthermore, no arrangements were made for consultation of non-anglophone communities or those affected by end markets processing US packaging waste exports, including in Mexico, India, Malaysia, Vietnam, and Turkey, the top 5 countries receiving US plastic waste.³

In addition, CAA's public comment window ended on Tuesday, 7 July, following the nation's main public holiday, and overlapped with other critical EPR comment windows (e.g., on California's 355-page PRO plan), making it challenging for members of the public and smaller organizations to submit comments. Finally, CAA did not commit to publishing either public comments or its own responses, falling short of APA standards.

2. Substance concerns: laws undermined, definition of recycling diluted, insufficient child labor protections, possible brokers loophole, no reliable yield calculations

The draft **undermines state and federal legal definitions and protections** with weaker and inconsistent definitions and methodologies, threatening confusion, opening loopholes, and watering down legal protections and the very definition of recycling:

- **It defines "Responsible markets (REM)" [sic] in a vague and circular way that lacks statutory safeguards** as materials markets that comply with unspecified "*regulations and standards*" and ignores key state law requirements, including California's requirement that a REM "*benefits the environment and minimizes risks to public health and worker health and safety*" (section 5, p. 7, l. 212-215);
- It **dilutes the definition of recycling** away from state definitions (e.g., California PRC § 40180⁴) and opens loopholes through associated definitions ("end market", "recycled output"), by:
 - **including facilities not considered as "recycling" under the law**, such as pyrolysis, which counts as incineration, i.e., disposal under federal law, to the extent that they produce any amount of "recycled output" (see "end markets" section 5, p. 5, l. 144-145);
 - **including non-plastic outputs in plastic recycling**, e.g. waxes, chemicals, without evidence of their actual uptake in new products (see "recycled output", section 5, p. 7, l. 208-210); this contravenes California's recycling rate methodology (PRC § 42041 (ab)) that only includes what is ultimately recycled, and excludes what is ultimately disposed; claims that non-plastic pyrolysis outputs have potential market use are made without ever proving actual uptake in market products; lawful uptake is unlikely since pyrolysis oil and wax outputs from

² The Global Alliance for Incinerator Alternatives (GAIA), whose members are affected by end market pollution and whose expertise focuses on the environmental and health effects of waste management technologies, requested to join the standard development committee after CAA first publicly mentioned it on a webinar in the fall of 2025. GAIA was not included in the committee, and its request to present its end market concerns to committee members as an alternative was not granted.

³ Top recipients of US plastic waste exports – see Basel Action Network, [April 2026 US plastic waste export data](#)

⁴ California Public Resources Code (PRC) Section 40180: "*Recycle" or "recycling" means the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace. "Recycling" does not include transformation, as defined in Section 40201 or EMSW conversion.*"

- post-consumer plastic waste are highly contaminated⁵ (see “recycling”, section 5, p. 7, l. 204-207 and “A1.1 Conversion Factor” p. 19-20);
- **including brokering and transportation**, risking waste to be counted as “recycled” if it is merely sold to a broker or transported to an end market, irrespective of an actual recycling outcome (see “recycling”, section 5, p. 7, l. 204-207);
 - Likewise, the draft standard lacks safeguards against toxic recyclate and related inflation of **recycling yields**, for which California statute requires minimum thresholds (CA PL § 42057(a)(1)), by:
 - **failing to include non-intentional additive substances (NIAS)** in its **definition of chemicals of concern**, despite the known contribution of NIAS to toxic plastic recyclate (section 5, p. 5, l. 134-136);
 - **not requiring disclosure of chemicals of concern in recycling outputs**;
 - **failing to exclude outputs not meeting product quality or safety standards**, which inflates yields by allowing for toxic or hazardous waste to count as recyclate⁶ (see “recycling”, section 5, p. 7, l. 204-207);
 - **failing to mention the exclusion of toxic recyclate** from “conversion factor” calculations for end market yields;
 - **failing to exclude outputs that are never safely or lawfully taken up into new plastic products** from “conversion factor” calculations; when yield is accurately measured, and in the best case scenario, only 2% of the plastic waste fed into pyrolysis will actually make the round trip into the steam cracker and effectively become new plastic;⁷
 - **allowing to substitute direct “conversion rate” (yield) measurements** with calculated estimates, without requiring consistency with statute-mandated recycling calculation methodologies, including California’s PRC § 42041 (ab) (see “A1.1 Conversion Factor” p. 19-20).
 - A definition is proposed for the industry marketing term **“chemical recycling”** referring to disparate technologies that are not mechanical recycling, and lacking the hallmarks of an accurate scientific, technical or legal term; critically, the proposed definition blurs the line between recycling and disposal technologies by ignoring federal law defining pyrolysis and gasification as incineration i.e. disposal and not recycling under Section 129 of the Clean Air Act (section 5, p.5, l. 130-133)
 - Proposed **disposal definitions** are narrower than state and federal definitions, which they fail to reference:
 - **Disposal entities** are defined without explicit inclusion of facilities that mainly generate fuels, energy, or hazardous waste, risking such facilities to be mischaracterized as recycling (see “disposal entities”, section 5, p. 5, l. 139-140);
 - **Incineration** is also defined without reference to Section 129 of the Clean Air Act, which defines incineration as including pyrolysis and gasification;
 - In addition, incineration is inaccurately defined as a process “that does not lead to the production of materials for new manufacturing”, although incinerator bottom ash is sometimes used in new products, without changing the legal status of incinerators as

⁵ Dr Andrew Rollinson (2023) [Leaky loop “recycling”: A technical correction on the quality of pyrolysis oil made from plastic waste](#), Zero Waste Europe

⁶ See IPEN (2024) [Hundreds of toxic chemicals present in recycled plastic pellets](#)

⁷ Dr Andrew Rollinson, op. cit.

disposal and not recycling; this narrow definition contravenes existing definitions in federal or state law (see “incineration”, section 5, p. 7, l. 185-187);

- The proposed definition of **hazardous waste** references only the federal definition of hazardous waste (40 CFR 261.3), and not more protective state-level definitions e.g., California 22 CCR § 66261.3, implying that end markets do not have to comply with state law where state definitions are more inclusive of hazardous waste. The federal definition only applies if a state does not have a health-protective state definition, or the state definition is less stringent than the federal definition. When dealing with Basel Convention Parties during waste exports, the Basel Convention definitions of hazardous wastes and prohibition on their import from the United States must be respected (Basel Convention Art. 1(1)(a)-(b), Annex VIII and Art. 4(5)).

On the labor front, the draft standard’s **prohibition on child labor falls short**. It requires REMs not to employ children under 15 (or the legal minimum for employment or completion of compulsory education, if higher), with some exceptions (sub-section 7.1.2, p. 10). **However, the following evidence makes it clear that labor in plastic end markets is hazardous, triggering ILO Convention 182, which prohibits hazardous labor for children under 18.**

Evidence shows that plastic end markets produce microplastics (particularly from shredding operations)⁸ as well as toxic volatile organic compounds (particularly from melting or thermal treatment).⁹ Children are especially susceptible to adverse effects of environmental toxicants, making exposures to harmful pollutants a particular concern for any children working in recycling end markets.¹⁰

Plastic waste shredders and balers can also cause severe injury or death to workers. In 2022, young Afghan refugee Arifullah Foezly’s dismembered body parts were found in a Turkish plastic waste sorting facility, with his legs found inside a plastic bale and his torso inside a plastic waste compactor.¹¹ A Turkish labor safety watchdog found that “two people are crushed, ripped or burned to death in recycling every month nonstop for the last ten years” in Turkish recycling facilities across all materials.¹²

The draft standard also undermines the law by **turning some state law requirements into non-critical certification criteria**, allowing end markets and brokers to potentially achieve REM status under this standard without complying with these requirements (see section 3.1.4, p. 3, l. 76-77 - only breach of “critical” indicators prevents certification from being considered or triggers immediate suspension).

- **Legal compliance is not “critical” beyond valid permits and licenses and bans on child and forced labor**; actual compliance with other rules, including applicable labor, environmental and

⁸ Erina Brown, Anna MacDonald, Steve Allen, Deonie Allen (2023) [The potential for a plastic recycling facility to release microplastic pollution and possible filtration remediation effectiveness](#), *Journal of Hazardous Materials Advances*

⁹ Zhigui He, Guiying Li, Jiangyao Chen, Yong Huang, Taicheng An, Chaosheng Zhang (2015) [Pollution characteristics and health risk assessment of volatile organic compounds emitted from different plastic solid waste recycling workshops](#), *Environment International*

¹⁰ Kam Sripada (2026) [Microplastics at the Intersection of Toxicology, Child Health, and Human Rights](#), *The Journal of Pediatric Pharmacology and Therapeutics*; Prof. Leonardo Trasande, Aleksandra Buha Đorđević, Marina Olga Fernandez (2025) [The effects of plastic exposures on children's health and urgent opportunities for prevention](#), *The Lancet Child & Adolescent Health*

¹¹ His death was investigated by Turkish journalist Adnan Khan and by ENDS Report, Journalismfund Europe, and De Groene Amsterdammer in the the podcast series ‘Boy Wasted’. Environmental Data Services (ENDS), (2025) Boy Wasted podcast episodes [1](#), [2](#), [3](#), [bonus](#), *Eco Chamber podcast*; Beatriz Santos (2025) [Investigation uncovers death of refugee in Turkish plastics recycling plant](#), *Plastic News*

¹² As quoted on the Boy Wasted podcast by the Environmental Data Services (ENDS), op. cit.

anti-corruption rules, is not required; only having a system for legal compliance is critical (see section 6.1 “legal compliance”);

Other **legal requirements are entirely ignored**, including:

- State **environmental justice requirements**, including the prevention of **cumulative impacts**, as required under Minnesota Statute § 116.065;¹³
- Requirements to respect the **importing country's waste trade laws**, including
 - waste import bans such as Malaysia's US plastic waste import ban;¹⁴
 - obligations of Basel Convention Parties (virtually all countries) banning trade of controlled wastes including mixed plastic wastes (listing Y48) and hazardous plastic wastes (listing A3210) with non-Parties like the United States;¹⁵

The draft standard also further **fails to protect communities, workers, and ecosystems from end market pollution** by:

- **Failing to include a single end market quantitative benchmark**, despite statute requirements, on:
 - hazardous waste generation,
 - emissions (e.g., greenhouse gases, microplastics, volatile organic compounds, particulate matter) to air, water, or soil
 - resource use (e.g., water, land, energy)
 - lifecycle impacts of end market process inputs (e.g., solvents)
 - in-country residuals management capacity downstream from end markets;
- **Failing to require pellet spill prevention measures** and only mentioning the voluntary (i.e., optional) private standard Operation Clean Sweep;¹⁶
- **Failing to require end market emissions transparency**, leaving workers and communities in the dark about chemicals and associated risks they are exposed to;
- **Failing to provide a pathway for public input into or appeal of REM status for end market or brokers**, even where there is evidence of end market or broker harm to community health, environment or workers;
- **Failing to provide unannounced site inspections** needed for an accurate sense of routine end market operations, and instead limiting auditing to scheduled inspections where irregularities can be concealed.

These shortcomings prevent the draft standard from establishing a common floor for end market and broker environmental, health, and worker safety performance. Environmental and health protections contained in facility permits and licenses vary greatly across jurisdictions, as does their enforcement.

In addition, the draft standard also introduces a potential **loophole for plastic waste brokers by making multisite certification and remote auditing the default approach instead of site-specific inspections and auditing**. While some plastic waste brokers trade waste remotely, others open and resort waste bales or

¹³ Minnesota Statute § 116.065 defines Environmental Justice Areas where it requires consideration of cumulative environmental burdens and disproportionate impacts.

¹⁴ Basel Action Network & The Last Beach Cleanup (2025). [2025 Fact Briefing: California's Household Paper Waste Exports are Polluting Asia and Breaking Country Import Laws](#)

¹⁵ The Basel Convention's Y48 listing covers all plastic wastes that are not almost exclusively consisting of one non-halogenated polymer (i.e. mixed or halogenated plastic wastes), and not hazardous. See Basel Convention Secretariat, [Questions and answers related to the Basel Convention Plastic Waste Amendments](#)

¹⁶ Voluntary “zero pellet loss” agreements from industry such as Operation Clean Sweep, have existed since 1991 and failed to dent pellet pollution.

stockpile them until they reach volumes that justify shipping costs, triggering microplastic pollution and facility fire risks for workers, nearby communities and ecosystems. The draft standard also misses an opportunity to require greater transparency from waste brokers, whose operations often pose challenges for waste trade traceability and associated protection of sensitive populations, ecosystems and workers.

3. Recommendations to regulators

We urge state regulators not to surrender the henhouse to the foxes, and directly regulate end markets and brokers, by:

- On accurate accounting:
 - **Requiring accurate accounting of REM yields** that excludes fuel and toxic recycle, and only considers plastic recycle effectively taken up in new products in compliance with product safety requirements;
 - **Requiring accurate accounting for recycled content** to uphold truth in labeling and protect consumers from deceptive recycling claims, including claims of recycled plastic content in products that do not contain any, as allowed under credit-based mass balance accounting;¹⁷
- On upholding laws and regulations:
 - **Requiring REMs to comply with all state statute and regulation requirements**, not watered-down private standards; in California, this also means upholding SB 343 requirements for exported plastic waste bales to count as recycling;
 - **Requiring REMs to comply fully with the Basel Convention waste trade rules**, including not allowing trade in Y48 Plastics with the United States as a non-Party;
 - **Requiring REMs to keep 5-year records** for permits, licenses, accidents, labor and legal complaints and proceedings, that regulators can access to assess whether new violations are isolated incidents or part of broader patterns justifying exclusion from REM status;
- On transparency and public input:
 - **Keeping public updated lists of REMs** in use by each state PRO, following Oregon's example, as transparency cultivates best practices for the environment, public health, and worker safety;
 - **Requiring transparency for REM emissions and resource use**, to uphold community right to know and support genuinely informed consent; such disclosures will also incentivize facilities to pollute less by improving their pollution control systems and rejecting waste that is too contaminated for safe recycling;
 - **Providing a pathway for public input on REM status** for specific end markets and brokers, and regulator consideration of evidence presented on harm to health, environment or workers;
- On polluting emissions:
 - **Requiring best practice for pellet spill prevention from REMs, brokers, and transporters**;¹⁸
 - **Requiring adequate facility fire and spills prevention and emergency planning**, and withholding/suspending REM status for sites with repeated incidents;

¹⁷ Renée Sharp & Veena Singla (2024) [The Plastics Industry's Latest Deception: "Mass Balance"](#), NRDC

¹⁸ For more, see Rethink Plastic Alliance (2023) [Tiny Plastic. Big Problem: The Case for Preventing Pellet Pollution](#) and Charleston Chapter of Surfrider Foundation, Environment America, PIRG, The 5 Gyres Institute, Waterkeeper Alliance, Harte Research Institute (2025) [International Plastic Pellet Count Report](#).

- **Withholding REM status from end markets or brokers causing cumulative impacts** that burden environmental justice and disproportionately affected communities;
- **Considering intrinsic risks from plastic waste streams:** Some plastic waste streams will remain inherently dangerous regardless of end market technology because of polymer, additive or contaminant toxicity (e.g. PVC, PS, PFAS, bisphenols, phthalates, brominated flame retardants) or microplastic emissions potential (e.g. plastic foams); associated materials should be designed out of packaging covered in EPR schemes, and brokers or end markets claiming to process them are least likely to comply with REM environmental and health requirements;
- On waste brokers:
 - **Requiring plastic waste brokers “with possession”** to comply with the same criteria as end markets;
 - **Requiring “no possession” plastic waste brokers** to disclose all operating locations and material flows through each, keep 5-year records for permits, licenses, labor and legal disputes, and ensure that any single-site adverse finding (legal violation, noncompliance, critical indicator failure) triggers an organization-wide broker review;
- On labor standards:
 - **Recognizing plastic waste REM and “with possession” broker labor as hazardous**, triggering a prohibition on child labor under 18 years of age under ILO Convention 182;
 - **Requiring compliance with federal and state labor and safety laws** including the federal Occupational Safety & Health Act (OSHA) and applicable state OSHA-approved requirements, including performance and reporting requirements (e.g. recordable incident rates; serious injury, fatality, and catastrophic incident reporting within defined timeframes; documentation of corrective actions following reportable incidents; maintenance of incident logs subject to audit), and extending requirement to end market and broker contractors and subcontractors;
 - **Requiring that REMs and brokers pay their workers, contractors and subcontractors a living wage**, to exclude not only forced labor but also other forms of exploitative labor.¹⁹

We thank you for your attention and remain at your disposal for any further information or exchange of views on these matters.

Sincerely,

Christie Keith, Executive Director & International Coordinator, [Global Alliance for Incinerator Alternatives \(GAIA\)](#) (California, other US states, other countries)

Miho Ligare, Senior Manager, Plastic Pollution Initiative, [Surfrider Foundation](#) (California, Maine, Maryland, Minnesota, Oregon, Washington, other US states)

Lucy Mullany, National Policy Director, [Alliance for Mission-Based Recycling \(AMBR\)](#) (California, Colorado, Minnesota, other US states)

¹⁹ The [ILO Living Wage Programme](#) provides technical assistance to governments, employers and workers in estimating and operationalizing living wages in line with ILO principles.

Jim Puckett, Chief of Strategic Direction, [Basel Action Network \(BAN\)](#) (California, Oregon, other US states)

Kristen McDonald, Senior Plastics Program Director, [Pacific Environment](#) (California, Washington, other US states, other countries including Vietnam)

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