Baseline Report for the Zero Waste Plan

Report to the California Legislature

July 1, 2024

CalRecycle

The California Department of Resources Recycling and Recovery

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Executive Summary

California has been charging forward implementing policy and legislative changes that drive the state toward zero waste, including by reducing, reusing, and recycling resources. Currently, California disposes about 41 million tons of waste a year with an annual state recycling rate of 41% in 2022.

While significant progress has been made to move toward zero waste, we still have challenging work ahead to continue accelerating our progress, including decreasing disposal, which has not significantly declined over the years. To move to zero waste, California needs a comprehensive, circular strategy addressing all materials, providing convenient collection, and optimizing infrastructure to maximize valuable resources through source reduction, reuse, and recycling.

Consistent with SB 101 (Budget Act of 2023), this Baseline Report for the Zero Waste Plan:

- Evaluates the effectiveness of existing programs at the Department of Resources Recycling and Recovery (CalRecycle) and
- Identifies changes needed to improve these programs.

To improve current programs and reach zero waste, CalRecycle recommends the state:

- Reaches and surpasses existing waste and emission reduction mandates and goals.
- Identifies and addresses gaps and overlaps to make current waste management systems more sustainable, effective, and cohesive.
- Improves understanding of the full lifecycle of materials management (including each stage of the material lifecycle from beginning to end) to reduce loss and discourage disposal within a closed loop economy.
- Combats environmental health and justice issues associated with the lifecycle of material production, consumption, and waste generation.
- Maximizes environmental, social, and economic benefits of a circular economy.
- Stimulates growth of our state's circular economy through activities such as:
    - Redesigning products for easy reuse or recycling.
    - Implementing infrastructure that reduces waste and enables reuse.
    - Developing markets for recycled materials.

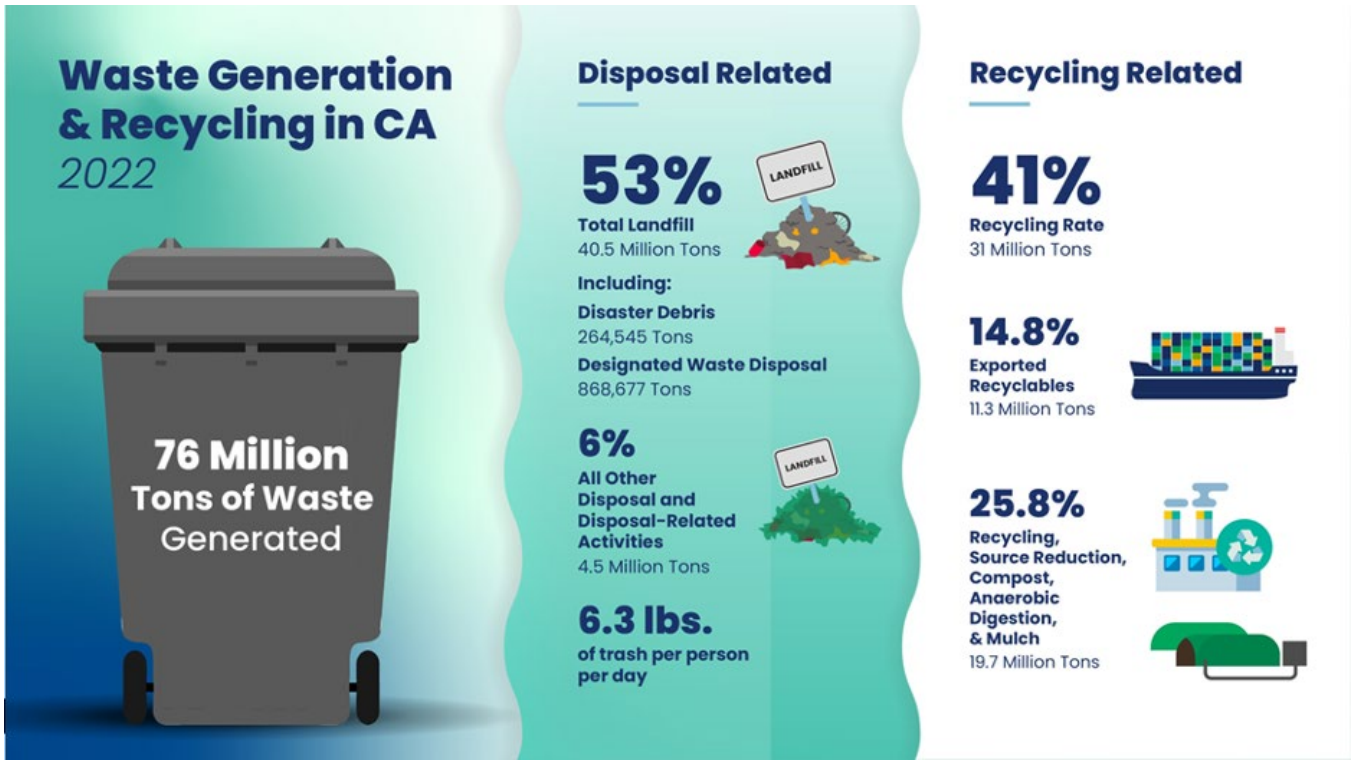
SB 101 also requires the publication of a Zero Waste Plan by January 1, 2026. The information in this Baseline Report will be used to inform the development of the Zero Waste Plan. CalRecycle is working with a contractor to identify gaps in our existing programs and develop a comprehensive statewide Zero Waste Plan to move California away from a single-use economy to a fully circular and zero waste economy.

State of Materials Management

Recycling

AB 341 (Chesbro, Chapter 476, Statutes of 2011) set a 75% source reduction, recycling, and composting goal for California by 2020.

To calculate a statewide recycling rate, CalRecycle subtracts the amount of material disposed of in landfills and six disposal-related activities from the estimated total waste generated. In 2021, California achieved a 40% recycling rate using this methodology. In 2022 that increased to 41%. The state disposed of 40.5 million tons of waste and recycled 31 million tons in 2022, because of a variety of programs and infrastructure developed over the past several decades. While California is making progress towards achieving this statewide goal, the recycling rate has remained below 50% for the past 10 years. More actions are still necessary to achieve a 75% reduction in waste.



Disposal

State law (AB 1220, Eastin, Chapter 656, Statutes of 1993) established a maximum tipping fee of $1.40 per ton, which has not changed since originally established. These fees are deposited in the Integrated Waste Management Fund (IWMF) and are in addition to any tipping fees charged by businesses accepting the material for their own cost recovery and profit. The maximum tipping fee went into effect on July 1, 2001.

It is very inexpensive to dispose of materials in California landfills. A 2019 comparison of tipping fee surcharges to fund government efforts showed that these surcharges for U.S. states is significantly lower (from 13 cents a ton in Utah to $13 a ton in Wisconsin) than those in other countries (from $13.70 a ton in Slovenia to $102.18 a ton in Flanders, Belgium). The relatively low cost to dispose of waste in California creates a disincentive to recycle or otherwise divert waste from landfills.

How CalRecycle Measures Disposal

To understand the composition of the landfilled waste stream, CalRecycle periodically conducts a material characterization study (MCS). Jurisdiction-level data on total disposal is reported to CalRecycle quarterly through the Recycling and Disposal Reporting System. These two types of data are used together to estimate specific amounts of material types in the waste stream.

CalRecycle has conducted six disposal facility-based MCSs to characterize and estimate the landfilled waste stream by distinct material types for the commercial, residential, and self-haul sectors in California. These studies should be viewed as snapshots in time of material disposal trends for the year they were conducted.

Beginning with the 2018 MCS, material sorting categories grew to include new material types related to potentially donatable food and packaging. The MCSs from CYs 2014, 2018, and 2021 show disposal by material class over the past 10 years.

How Much Waste California Disposes

The miscellaneous category includes textiles, solar panels, mixed residue, and diapers and sanitary products. For the 2021 MCS, this category also includes miscellaneous inorganics and personal protective equipment.

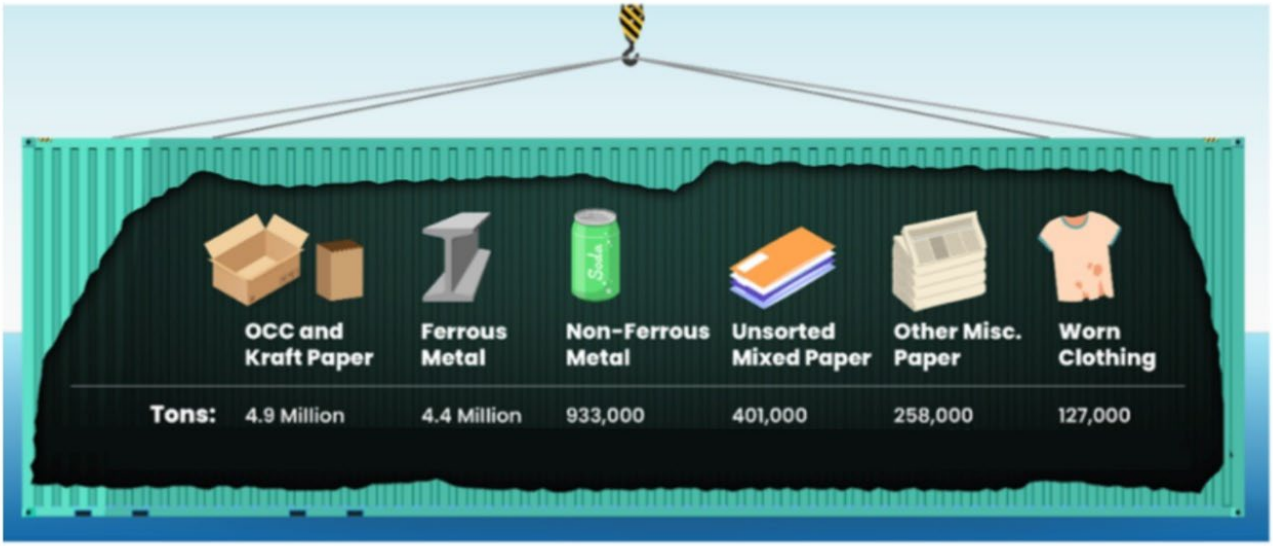
All materials showed an increase in disposal during that period. Total disposal increased by more than 9 million tons between the 2014 MCS and the 2021 MCS.

California's per capita disposal also increased from 5.3 pounds per resident per day in 2013 to 6.3 pounds per resident per day by 2022.

Exports

California exports materials due to a lack of capacity to fully manage materials locally. CalRecycle analyzes information on the amounts and vessel value of recyclable materials sent overseas from California ports by destination country to better understand the movement of these materials beyond the state. CalRecycle does not have access to information on how that material is routed after being transported to the destination country or the fate of the materials.

The state exports many types of materials to other countries for recycling, including paper scrap and plastic scrap material. Under AB 881 (Gonzalez, Chapter 501, Statutes of 2021), mixed plastic material sent overseas for export (not including to Mexico and Canada) must be counted as disposal by cities and counties if it contains any plastics not made of resin 1, 2, or 5, or if it cannot lawfully be imported into a destination country.



Top six categories of recyclable materials exports by weight for CY 2022, data is from the WISERTrade database

In 2022, 11.3 million tons of recyclable materials were exported from California ports to international markets, a 40% decrease from 2013 when 18.7 million tons were exported. This decrease is due in part to the policies many countries put in place to reduce contamination and receive recyclables they could better manage.

Biomass

SB 498 (Lara, Chapter 746, Statutes of 2014) requires biomass conversion facilities to submit an annual report to CalRecycle containing aggregated details on operations for the preceding year, starting with the 2015 report year. In 2023, 24 operating biomass conversion facilities reported to CalRecycle that they accepted almost 3.4 million tons of woody biomass. The largest source sector reported for biomass was in-forestry at over 950,000 tons, followed by mill residue at almost 885,000 tons and agriculture at nearly 858,000 tons. Urban sources provided over 682,000 tons of woody biomass.

Solid Waste Facilities

California's solid waste disposal infrastructure includes active, permitted solid waste facilities and operations. Unlike solid waste facilities, solid waste operations do not require a permit, and must instead send a notification to the Local Enforcement Agency (LEA) for inspection to ensure they meet minimum requirements. As mentioned previously, in 2022 40.5 million tons of solid waste were sent for disposal at solid waste facilities.

In 2022, there were 66 state certified LEAs with the authority to inspect and ensure proper operation of facilities and operations to protect public health, safety, and the environment, as well as ensuring a level playing field for solid waste businesses. For cities and counties without a designated LEA, CalRecycle is the enforcement agency.

Enforcement activity includes progressive action with a facility or operation not meeting its requirements, starting with a citation, and increasing to notices and orders. CalRecycle works closely with the LEAs to develop strategies to bring facilities into compliance. CalRecycle also conducts LEA performance evaluations and oversight inspections of solid waste facilities to ensure that state minimum standards are met.

Program Evaluation

Over the past 10 years, California has made substantial progress towards waste diversion and recycling. In addition to the programs created by jurisdictions to offer Californians more ways to reduce, reuse, recycle, and compost, bold new waste and recycling laws such as AB 341 (Chesbro, Chapter 476, Statutes of 2011) and SB 1383 (Lara, Chapter 395, Statutes of 2016) have increased diversion opportunities statewide and initiated new programs at CalRecycle. The state also reduced landfilled organic waste and exports of scrap materials to other countries, closing the gap to a more circular economy.

To align with the waste management hierarchy and reduce greenhouse gases, CalRecycle programs:

- Encourage source reduction.
- Maximize diversion from landfills.
- Direct materials to their highest and best use.

New Policies Build Toward Zero Waste

The state plays a key role in developing a circular economy and promoting zero waste. Recent legislation, such as SB 54 (Allen, Chapter 75, Statutes of 2022), is still in early implementation stages, but follows the trend of using extended producer responsibility (EPR) as a path to circular materials management in California. EPR is an environmental policy approach that holds producers responsible for product management throughout the product's lifecycle. EPR supports recycling and materials management goals that contribute to a circular economy and can also encourage product design changes that minimize environmental impacts.

However, California's progress falls short of our goals with the statewide disposal per capita rate higher in 2022 than it was 10 years ago, and the annual state recycling rate at 41% in 2022 below AB 341's 75% recycling goal. From the 2018 MCS to the 2021 MCS, single-use plastic waste disposal increased despite overall statewide disposal remaining consistent for both studies at around 40 million tons. At 28% of the landfill stream (by weight) in 2021, landfilled organic waste is the largest component of the waste stream, but has decreased over the three most recent studies.

Organics Recycling

In 2016, SB 1383 set emissions reduction targets for short-lived climate pollutants, such as methane. To reach methane reduction goals, SB 1383 required by 2025:

- A 75% reduction in organic waste sent to landfills.
- A 20% recovery of currently disposed edible food.

There was a decrease of over 2.7 million tons in disposed organic waste between the 2018 MCS (21.9 million tons) and the 2021 MCS (19.2 million tons). This was a 12.3% reduction in tonnage, and a 7.5% reduction in the proportion of this material in the waste

stream. To achieve the 75% reduction goal, California needs to reduce organics disposal down to 5.7 million tons.

Organic Waste Diversion Increased

As organic waste disposal is decreasing, recovery of organics for compost, renewable natural gas, and feedstock for other products is increasing. In 2020, 9.8 million tons of organic waste were reported as diverted from landfills in CalRecycle's Recycling and Disposal Reporting System. In 2022, 11.2 million tons of organic waste were diverted from landfills and processed into organic waste products.

California has made significant progress on edible food recovery. To meet the edible food recovery goal, 231,000 tons of edible food must be recovered annually by 2025. In 2022, approximately 203,000 tons of edible food were recovered.

To help California close the gap on our organics goals, CalRecycle's organics grant programs seek to invest in diverse organics recycling initiatives ranging from smaller-scale community composting programs to larger infrastructure projects. These include grant programs for Organics, Community Composting for Green Spaces, Co-digestion, SB 1383 Local Assistance, Edible Food Recovery, and Food Waste Prevention.

From FY 2014-15 to FY 2022-23, organics-related grants totaled $335,151,095 with 1,016 grant awardees total. Projected total diversion amounts for the same grants, excluding the SB 1383 Local Assistance grants, were nearly 30.7 million tons.

SB 1383 Compliance Assistance and Enforcement

CalRecycle uses several approaches to achieve and maintain compliance due to the wide range of laws it enforces. CalRecycle focuses on compliance assistance before taking formal enforcement action and imposing penalties. State laws require that CalRecycle enforcement programs have technical assistance, outreach, and training programs. Success depends on effective communication between CalRecycle and the regulated community.

SB 619 (Laird, Chapter 508, Statutes of 2021), implemented in 2022, allowed local jurisdictions to submit a Notice of Intent to Comply (NOIC) with SB 1383 by March 1, 2022. The NOICs allowed local jurisdictions to disclose if the local jurisdiction violated the SB 1383 regulations, the reason(s) why, and a plan to become compliant.

Since the beginning of 2022 when SB 619 became law, CalRecycle has worked with 126 local jurisdictions to issue Corrective Action Plans, of which:

- 47 have reported completing requirements or getting near completion.
- 52 requested extensions past March 1, 2024.
- 27 continue to implement steps to complete the requirements.

CalRecycle is completing the first set of 25 SB 1383 jurisdiction compliance evaluations and is preparing to begin another round. After completion, jurisdictions will have an

opportunity to give CalRecycle further compliance information. If noncompliance is determined, it will be addressed through a progressive enforcement process.

Extended Producer Responsibility

EPR is an environmental policy approach that requires producers to manage products through the end of their lifecycle. These products are typically hard to manage or recycle. EPR supports recycling and materials management goals that contribute to a circular economy and can also encourage product design changes that minimize environmental impacts.

Packaging

The Plastic Pollution Prevention and Packaging Producer Responsibility Act (SB 54) was enacted to reduce waste from single-use packaging waste and single-use plastic food ware. It requires producers of covered material to join a producer responsibility organization and develop a budget and plan detailing how packaging and plastic pollution reduction goals will be met. Plastic covered material must meet specific recycling rates (30% by 2028, 40% by 2030, and 65% by 2032) and source reduction goals (10% by 2027, 20% by 2030, and 25% by 2032). All packaging and plastic food ware must be recyclable by 2032.

CalRecycle is in the formal rulemaking process and anticipates promulgating regulations by January 1, 2025.

CalRecycle has:

- Started the formal SB 54 rulemaking process.
- Published a Covered Materials Category list and supplemental materials.
- Submitted the SB 54 Report to the Legislature.
- Approved a producer responsibility organization for the program and appointed 16 members to the SB 54 Advisory Board.
- Submitted draft regulations to the Office of Administrative Law.
- Overseen an extended regulation comment period for interested parties.

Mattresses

The California Used Mattress Recovery and Recycling Act (SB 254, Hancock, Chapter 388, Statutes of 2013) established an EPR program to:

- Reduce the illegal disposal of mattresses.
- Increase recycling.
- Reduce public agency costs for end of use management of used mattresses.

The mattress stewardship law requires manufacturers, through a mattress recycling organization, to develop, finance, and implement a convenient and cost-effective program to recover and recycle used mattresses. Mattress Recycling Council (MRC) is currently the only mattress recycling organization.

In its 2022 plan, the MRC committed to a 75% recycling rate by weight. The goal was exceeded at 78.4%.

Carpet

The Product Stewardship for Carpets law (AB 2398, Perez, Chapter 681, Statutes of 2010) established an EPR program to increase the amount of postconsumer carpet diverted from landfills and recycled into secondary products.

The carpet stewardship law requires manufacturers, individually or through a carpet stewardship organization, to develop, finance, and implement a convenient and cost-effective program to recover and recycle postconsumer carpet. Carpet America Recovery Effort (CARE) is currently the only stewardship organization operating a carpet recycling program in California.

In 2022, the recycling rate goal was 27%, and the goal was exceeded at 34%.

Paint

The Architectural Paint Recovery Program (AB 1343, Huffman, Chapter 420, Statutes of 2010) established an EPR program to:

- Reduce generation.
- Promote reuse.
- Properly manage unwanted leftover architectural paint.

A manufacturer or stewardship organization may establish its own goals via stewardship plans that CalRecycle approves. PaintCare is the stewardship organization responsible for implementing the program with oversight from CalRecycle. PaintCare set two convenience goals:

(1) A population goal.
(2) A distribution goal.

The population goal requires one drop-off site for every 50,000 people, which equates to 790 sites. PaintCare has exceeded this goal. As of the 2022-2023 fiscal year, statewide there were 868 free, permanent, drop-off sites.

The distribution goal requires a drop-off site within a 15-mile radius of 95% of Californians. That goal has been exceeded for the past 10 years. Additionally, collection events are held by PaintCare in areas with limited access or high local demand.

Over 99% of Californians live within 15 miles of one of the 868 paint drop-off sites.

Pharmaceuticals

SB 212 (Jackson, Chapter 1004, Statutes of 2018) created a statewide EPR program to provide safe and convenient disposal options for pharmaceutical waste at no cost to consumers.

Program operators (i.e., an individual manufacturer or nonprofit stewardship organization consisting of a group of manufacturers) are required to establish secure

collection receptacles for covered drugs at authorized collection sites, such as pharmacies or law enforcement offices.

As of 2024, there are two program operators with approved plans for pharmaceutical waste, the stewardship organizations:

- MED-Project USA (MED-Project)
- The Drug Takeback Solutions Foundation (The Foundation)

Program operators must meet the required number of authorized collection sites (five sites per county or one for every 50,000 people in the county, whichever is greater), and distribute pre-paid mail-back envelopes.

For CY 2023, MED-Project reported it met the required number of authorized collection sites in 34 out of 50 counties and established 120 mail-back distribution locations. The Foundation reported it met the required number of authorized collection sites in six out of 50 counties and established 622 mail-back distribution locations.

A total of 631,122 pounds of pharmaceutical waste was disposed of in 2023.

Sharps

SB 212 also established a statewide EPR program to provide safe and convenient disposal options for home-generated sharps waste.

Program operators must provide or initiate distribution of safe sharps waste containers and mail-back materials at no cost to the consumer at, or prior to, the point of sale.

The same two program operators with approved plans for pharmaceutical waste, MED-Project and The Foundation, also have approved plans for sharps stewardship programs.

While only operational for about two years, in 2023, MED-Project reported providing 129,183 free sharps waste containers and mail-back materials to ultimate users in California. The Foundation reported distributing 20,472 free sharps waste containers and mail-back materials to point-of-sale sites in California and providing 12,239 free sharps waste containers and mail-back materials to ultimate users in California.

The total weight of home-generated sharps waste collected in 2023 was 33,131 pounds.

EPR Compliance Assistance and Enforcement

Enforcement and compliance are critical components to ensure producer responsibility organizations (PROs) meet goals.

CalRecycle ensures that each PRO meets the performance standards and program requirements laid out in statute, regulations, and the PRO's plan. If CalRecycle determines that a PRO is noncompliant, it may issue penalties or take other enforcement actions against the PRO, such as:

- Removing noncompliant producers from CalRecycle's website.
- Revoking the plan.

- Requiring the PRO to revise the implementation of its plan and/or provide more detailed data in its annual reports.

CalRecycle has a progressive enforcement approach for all programs. CalRecycle's priority is that programs run as intended to meet waste reduction and recycling goals and to create a circular economy that benefits Californians and the environment.

Beverage Container Recycling Program

The Beverage Container Recycling and Litter Reduction Act of 1986 (AB 2020, Margolin, Chapter 1290, Statutes of 1986) established an 80% recycling rate goal for all aluminum, glass, plastic, and bimetal beverage containers sold in California. Consumers:

- Pay a California Redemption Value (CRV) fee when purchasing CRV beverages.
- Receive CRV refunds when redeeming containers at a recycling center or retailer.

CalRecycle reported a 71% Beverage Container Recycling Program (BCRP) recycling rate for 2023 with more than 18.8 billion bottles and cans recycled. The program produces some of the cleanest streams of materials for recycling.

Several grants and payment programs support beverage recycling, including:

- The Beverage Container Recycling Grant (BCRG) Program.
- The City and County Payment (CCP) Program.
- The Beverage Container Redemption Pilot Project (RPP) Grant Program.

Between FY 2012-13 and FY 2023-24, these grant programs provided almost $150 million combined in awarded funds. BCRG grants projected diverting over 23.8 million pounds of recycled beverage containers. To date RPP grants have contributed to recycling nearly 4.9 million pounds of beverage containers.

Despite its high recycling rate, BCRP fell short of the recycling goal in 2023. To increase convenient redemption opportunities, improve the recycling rate, encourage reuse, and create additional clean streams of beverage containers, the Legislature expanded the BCRP through recent legislation to:

- Establish minimum recycled content requirements for market development (AB 793, Ting, Chapter 115, Statutes of 2020).
- Promote reusable beverage containers (AB 962, Kamlager, Chapter 502, Statutes of 2021 and AB 179, Ting, Budget Act of 2022).
- Add new container types (SB 1013, Atkins, Chapter 610, Statutes of 2020 and SB 353, Dodd, Chapter 868, Statutes of 2023).
- Expand innovative redemption options (AB 179, Ting, Budget Act of 2022).
- Provide additional funds to support new circular economy programs (SB 1013 and SB 101**,** Skinner, Chapter 12, Budget Act of 2023).

BCRP Compliance Assistance and Enforcement

In 2022, CalRecycle's BCRP Enforcement Branch completed 7,944 cases and achieved a 72.3% compliance rate (5,746 cases had no violations), identifying 3,593 violations with total assessments of $482,170.

CalRecycle partners with the California Department of Justice for criminal investigations of fraudulent redemptions and is finalizing a contract with the California Highway Patrol to assist with mitigation of importing out-of-state beverage container material via tractor trailer. The BCRP also partners with the California Department of Food and Agriculture at every border station in California to:

- Monitor incoming vehicles and tractor trailers illegally importing out-of-state, beverage container material.
- Review the collection and submission of Imported Materials Reports.

Tires

CalRecycle oversees management of waste and used tires in California as authorized by SB 876 (Escutia, Statutes of 2000, Chapter 838). The goals of the program include:

- Developing long-term, sustainable, and diversified market demand for tire-derived products made in California.
- Protecting public health, safety, and the environment while developing a safe and high-quality supply infrastructure to meet demand.
- Fostering information flow, technology, and product development to achieve environmental protection and diversion goals with supply and demand in balance.

Under SB 876, CalRecycle adopted a Five-Year Plan to establish goals and priorities for the waste tire recycling program and updates the plan every two years. Though not codified in statute, the waste tire recycling goal is 75%, consistent with the 75% goal set by AB 341.

In 2012, the annual waste tire recycling rate was almost 40%. By 2022, the tire recycling rate was just under 35%. A variety of factors disrupted business operations and markets, including economic growth followed by inflation, ongoing staffing and hiring challenges, trucking and ocean shipping costs and logistical challenges, and supply chain disruptions.

The Five-Year Plan describes activities that should increase the tire recycling rate, which include:

- Conducting additional research on barriers to market development for waste tire products and technologies.
- Increasing waste tire material used in products.
- Continuing grant and incentive programs.
- Increasing waste tire processing capacity.

CalRecycle's grants seek to expand markets for and promote the production of recycled-content products made from California waste tires. These include the:

- Rubberized Pavement Grant Program.
- Tire-Derived Product Grant Program.
- Tire-Derived Aggregate Grant Program.
- Tire Incentive Program.

From FY 2013-14 to FY 2022-23, these grant programs awarded almost $98.4 million in funding, resulting in the estimated diversion of over 24.7 million passenger tire equivalents. Other CalRecycle grants geared towards managing waste tires strive to engage interested parties at the local level. These include the:

- Local Government Waste Tire Amnesty Grant.
- Local Government Waste Tire Enforcement Grant.
- Local Government Waste Tire Cleanup Grant.

Tires Compliance Assistance and Enforcement

CalRecycle regulates waste tires to prevent or mitigate the negative impacts of tires on public health, safety, and the environment. Enforcement efforts focus on waste tire haulers and handlers, and waste tire storage/processing facilities. CalRecycle inspects over 20,000 program participants annually.

Electronic Waste

The Electronic Waste Recycling Act (SB 20, Sher, Chapter 526, Statutes of 2003) established a funding system for the collection and recycling of certain electronic waste (e-waste) to increase e-waste recycling, reduce illegal dumping, eliminate stockpiles of computer monitor and television e-waste, decrease hazardous waste materials, and increase compliance.

The Electronic Waste Recycling Act appointed CalRecycle with the responsibility of implementing a payment system for covered electronic waste (CEW) collectors and recyclers. In coordination with CalRecycle, the Department of Toxic Substance Control was tasked with developing regulations for the collection, storage, and recycling of electronic waste. The program operates by collecting a fee from consumers at the time of covered electronic device purchases, which is then deposited into the Electronic Waste Recovery and Recycling Account. Funds in the account are distributed to approved CEW collectors and recyclers as an offset to the average net cost of collection, processing, and recycling.

The goals of the CEW program are to recycle electronic waste, reduce illegal dumping, eliminate stockpiles of computer monitor and TV e-waste, decrease hazardous waste materials, and increase compliance.

As of the calendar year (CY) 2023, the CEW program has 273 approved collectors and 21 approved recyclers that provide infrastructure to help meet program goals.

- In 2013:
  - 197.5 million pounds of Cathode Ray Tubes (CRT) were claimed.
  - 4.2 million pounds of non-CRT were claimed.
- By 2023:
  - 16.8 million pounds of CRT were claimed.
  - 45.8 million pounds of non-CRT were claimed.

Claims submitted decreased $20 million from 2013 ($79 million) to 2023 ($59 million).

CalRecycle enacted emergency regulations in CY 2018 that established separate rates for CRT and non-CRT claims. The amount of non-CRT claims surpassed CRT claims in 2019, and by 2021, the weight of non-CRT items surpassed CRTs in the CEW program.

SB 1215 (Newman, Chapter 370, Statutes of 2022) amends the Electronic Waste Recycling Act of 2003, expanding the definition of covered electronic devices to include battery-embedded products, as specified in statute. By January 1, 2025, CalRecycle must adopt regulations, establishing a process for e-waste recyclers to submit payment claims for battery-embedded product waste.

Used Oil

The Used Oil Payment Program funds activities that reduce illegal oil disposal, while promoting used oil and filter recycling. The Used Oil Competitive Grant Program, implemented in FY 2013-14 and FY 2015-16, was supplemental to the Used Oil Payment Program, funding education and outreach, collection, and pollution mitigation efforts to reduce the illegal disposal of used oil and oil filters.

From FY 2013-14 to FY 2023-24, used oil grants totaled $108,021,371. During that period, the Used Oil Payment Program collected over:

- 92.2 million gallons of used oil.
- 13.1 million oil filters.

Recommendations for Change

The state is working towards the goals of:

- 75% reduction of organic waste disposed of by 2025 for SB 1383.
- 65% recycling rate and 25% source reduction for covered single-use plastic by 2032 for SB 54.

To meet the state goals, improve existing programs, and move toward zero waste, CalRecycle recommends the Zero Waste Plan address the following objectives:

1. **Achieve and exceed existing waste and emission reduction mandates and goals.**

The Zero Waste Plan should conduct a comprehensive analysis to:

- Ensure current and new programs align holistically.
- Assess the gaps and inefficiencies in the systems including materials that continue to have high disposal rates.
- Highlight:
    - Components of successful programs such as EPR.
    - The remaining challenges.
- Make recommendations for existing and upcoming challenges to shift from a culture of consumerism to one of environmental stewardship.

2. **Identify and address gaps and overlaps in current waste management systems to be more sustainable, effective, and cohesive.**

To address gaps and create sustainable programs to close the loop for a circular economy, the plan should include recommendations to:

- Develop a systems-based approach that aligns CalRecycle's authority on material specific programs to
    - Create consistency and efficiency in implementation.
    - Increase impact of the state's resources and efforts.
- Identify a sustainable funding model that:
    - Incentivizes waste reduction and recycling.
    - Disincentivizes disposal.
- Create new or expanding programs resilient enough to manage emerging materials of concern.
- Assess data needs and recommend new or optimized reporting requirements to verify waste reduction and recycling.

3. **Improve understanding of the full lifecycle of materials management (including each stage of the material lifecycle from beginning to end) to reduce loss and discourage disposal within a closed-loop economy.**

Materials management historically focused on disposal and end-of-life processes, mainly recycling and composting, overlooking other supply chain stages that impact reuse or disposal options, such as production, transportation, and product design.

A circular economy examines and minimizes the environmental harm that can occur at each part of a material's life cycle, including:

- Ensuring products are designed so materials can easily be taken apart and reused or recycled when they are no longer useful.
- Treating the waste at the end of the cycle as a resource to reuse or remanufacture into new products.

4. **Combat environmental health and justice issues associated with the lifecycle of material production, consumption, and waste generation.**

Overlaid with new programs and laws is the need to integrate environmental justice principles, ensure equity, and protect public health, safety, and the environment as we pursue a circular economy. New waste issues and unintended consequences from emerging solutions can disproportionately impact low income, vulnerable, and overburdened communities. California can better address the needs of these communities by integrating environmental justice considerations in our programs, policies, and initiatives.

5. **Maximize environmental, social, and economic benefits of a circular economy.**

A circular economy provides numerous benefits. The plan should identify opportunities to maximize these benefits, starting higher on the waste management hierarchy.

Circular economy benefits can be reflected through the lifecycle of a material, from decreasing the amount of virgin resources needed to manufacture products and lightening transportation loads through source reduction, to minimizing landfill gas emissions and end-of-life management challenges.

Source reduction and reuse minimize waste-related impacts:

- Reducing the need for new infrastructure development.
- Decreasing emissions from transportation and processing or disposal of waste.

A circular economy can also promote local economies through workforce development and creating quality green jobs.

6. **Stimulate growth of the state's circular economy through activities such as:**
    a. **Redesigning products.**
    b. **Implementing infrastructure that reduces waste and enables reuse.**
    c. **Developing markets for recycled materials.**

California needs to invest in efforts that align with zero waste goals, including:

- Fostering creativity and partnerships to develop new strategies, intentional product designs, and technologies that increase reuse, source reduction, and recyclability of products.

- Expanding materials management infrastructure to promote a circular approach throughout the supply chain to:
    - Encourage sustainable design.
    - Help recyclers and processors efficiently reintroduce materials back into the supply chain.
- Establishing sustainable and responsible end markets for materials, which CalRecycle is doing in the proposed SB 54 regulations.

Conclusion

California is an environmental leader and policy innovator. The state can succeed in moving to a new circular economy if it is guided by a Zero Waste Plan that identifies and outlines a path to close existing gaps to improve the efficiency and impact of current programs. The plan should champion effective and innovative strategies that can adapt to the emerging issues and varying needs across California's urban and rural communities. If successful, it will shift the norm so that waste is viewed as a resource that remains within the supply chain rather than having a linear path to disposal or pollution in the environment.

Abbreviations and Acronyms

AB	Assembly Bill
ADC	Alternative Daily Cover
AIC	Alternative Intermediate Cover
BCRG	Beverage Container Recycling Grant
BCRP	Beverage Container Recycling Program
CalRecycle	California Department of Resources Recycling and Recovery
CARE	Carpet American Recovery Effort
CCPP	City and County Payment Program
CEW	Covered Electronic Waste
CRT	Cathode Ray Tubes
CRV	California Redemption Value
CY	Calendar Year
EAR	Electronic Annual Report
EJ	Environmental Justice
EPR	Extended Producer Responsibility
FY	Fiscal Year
HHW	Household Hazardous Waste
IWMF	Integrated Waste Management Fund
MCS	Material Characterization Study
MRC	Mattress Recycling Council
MSW	Municipal Solid Waste
NOIC	Notice of Intent to Comply
PRO	Producer Responsibility Organization
RPP	Redemption Pilot Project Grant Program
SB	Senate Bill
SLCP	Short-Lived Climate Pollutants

Glossary of Terms

Alternative Daily Cover (ADC) and Alternative Intermediate Cover (AIC): The use of materials to cover disposed waste in a landfill cell at the end of the landfill operating day (daily cover) or at some other interval (intermediate cover) to control odors, fire, vectors, litter, and scavenging.

Biomass conversion: The process of using controlled combustion of specified types of organic materials (usually wood, lawn, or crop residue) to produce electricity.

Circular economy: A policy framework that leverages source reduction, reuse, and recycling to reduce waste, promotes less consumption of raw materials, and serves as a road map to a zero waste future.

Co-digestion: Anaerobic digestion of multiple organic wastes, such as food waste and green waste to produce renewable energy or nutrient-rich soil products.

Covered battery: A device consisting of one or more electrically connected electrochemical cells designed to receive, store, and deliver electric energy.

Covered electronic device: A video display device covered by the electronic waste recycling law containing a screen greater than four inches, measured diagonally, identified as hazardous waste by the Department of Toxic Substances Control when discarded.

Disposal-related activities: A set of activities considered part of overall disposal: ADC, AIC, other beneficial reuse at landfills (such as construction activities, landscaping, and erosion control), transformation, engineered municipal solid waste, and waste-tire derived fuel.

Edible food recovery: The collection of edible food that would otherwise go to waste and redistributing it to feed people in need.

Extended Producer Responsibility (EPR): An environmental policy approach that holds producers responsible for product management throughout the product's lifecycle.

Landfill: A permitted facility that provides a legal site for final disposal of materials, including mixed solid waste, beneficial materials used for landfill construction, ADC, and specialized material sites, such as waste tires and construction and demolition waste.

Landfill disposal: Disposal of waste materials into a landfill.

Local Enforcement Agency (LEA): Designated by the governing body of a county or city and, upon certification by CalRecycle, empowered to implement delegated CalRecycle programs and locally designated activities. LEAs have the primary responsibility for ensuring the correct operation and closure of solid waste facilities in the state. They also have responsibilities to guarantee the proper storage and transportation of solid wastes.

Material Characterization Study (MCS): Also known as the "Waste Characterization Study", the MCS characterizes and estimates the landfilled waste stream into distinct material types for the commercial, residential, and self-haul sectors in California.

Municipal Solid Waste (MSW): Refuse that may be mixed with or contain nonorganic material, processed industrial materials, plastics, or other recyclables with the potential for recovery. It includes residential, commercial, and institutional wastes.

Organic waste (as defined in the SB 1383 regulations): Solid wastes containing material originated from living organisms and their metabolic waste products including, but not limited to, food, green material, landscape and pruning waste, organic textiles and carpets, lumber, wood, paper products, printing and writing paper, manure, biosolids, digestate, and sludges.

Other beneficial reuse: The use of a waste byproduct or other low-value material for a productive use, other than ADC/AIC, at a landfill within regulatory guidelines.

Per-capita disposal: A numeric indicator of reported disposal divided by the population (residents) specific to a county, region, or state.

Recyclable materials exports: Recyclable materials exported via seaborne container vessels from California ports.

Recycling and Disposal Reporting System (RDRS): The system used to track recycling and disposal information.

Short-Lived Climate Pollutants (SLCP): Powerful climate forcers that have a dramatic and detrimental effect on air quality, public health, and climate change, such as black carbon, fluorinated gases, and methane, but break down more quickly in the atmosphere than carbon dioxide.

Transformation: The use of incineration, pyrolysis, distillation, or biological conversion to combust unprocessed or minimally processed solid waste to produce electricity. Transformation does not include gasification, composting, or biomass conversion.

Used tire: A tire that meets all of the following:

a. The tire is no longer mounted on a vehicle, but is still suitable for use as a vehicle tire.
b. The tire meets applicable requirements of the Vehicle Code and Title 13 of the California Code of Regulations.
c. Tire Storage:
    1. The used tire is ready for resale, is stored by size in a rack or a stack, not more than two rows wide, but not in a pile, and is stored in accordance with local fire and vector control requirements and with state minimum standards.
    2. A used tire is required to be stored in a manner to allow the inspection of each individual tire.

Waste tire: A tire that is no longer mounted on a vehicle and is no longer suitable for use as a vehicle tire due to wear, damage, or deviation from the manufacturer's original specifications. This includes a repairable tire, scrap tire, altered waste tire, and a used tire that is not organized for inspection and resale by size in a rack or a stack in accordance with Section 42806.5, but does not include a tire derived product or crumb rubber.

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