SB 54 Plastic Pollution Prevention and Packaging Producer Responsibility Act Statewide Needs Assessment

Informational Session: Collection, Processing, and End Markets, Recycling, Composting and Recycling Rate

April 14, 2026

Policy Development and Analysis Office;
Packaging EPR Program

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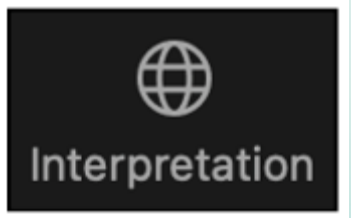

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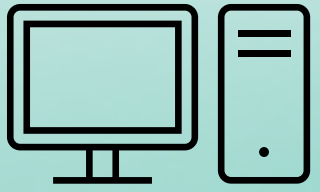

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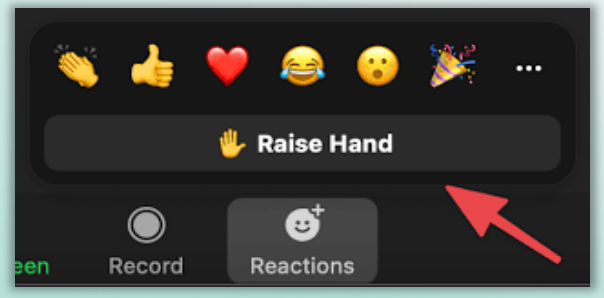

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Agenda

1. Statewide Needs Assessment Overview
   - Summary Report Overview
2. Key findings by study
   - Consumer, Education, and Access, as related to collection and processing
   - Current State of Collection, Processing, and End Markets
   - Needed State of Collection, Processing, and End Markets
3. Question & Answer Session

Statewide Needs Assessment Overview

Main Requirements of the Act

2027

10% Less Plastic Packaging and Food Ware (Source Reduce)

2028

30% Plastic Packaging and Food Ware Recycled

2030

40% Plastic Packaging and Food Ware Recycled

20% Less Plastic Packaging and Food Ware (Source Reduce)

2032

100% of Covered Materials Either Recyclable or Compostable

65% Plastic Packaging and Food Ware Recycled

25% Less Plastic Packaging and Food Ware (Source Reduce)

- Recycling rate requirements
- Source reduction requirements
- Recyclability/compostability requirements

Purpose of the Needs Assessment (NA)

- Investigate potential pathways to meet the source reduction, recycling rate, recyclability, and compostability requirements of SB 54.
- Inform the Producer Responsibility Organization's (PRO) plan and budget
- Inform immediate planning and investment strategies by interested parties across the value chain.
- Ensure the actions and investments made are evidence-driven and address the varying needs and challenges faced by California's diverse communities.
- Lay the groundwork for future research and innovation.

Needs Assessment Contents (1/2)

- **Assessment of the current state of the system, including:**
  - Current covered material design.
  - Access to and participation in existing programs and infrastructure.
  - Material flows through current system.
  - Sources and impacts of contamination.
  - Location and impacts of infrastructure.
  - Consumer education and outreach.

Needs Assessment Contents (2/2)

- **Assessment of the needed state, including:**
  - Consider the role of material design to help achieve the Act's goals.
  - Identify actions producers and interested parties may take to reduce, reuse, recycle, and compost covered material to meet the Act's goals.
  - Identify barriers to and factors that enable behavior change, creation of new and expanded infrastructure, and implementation of programs.

Needs Assessment Studies

- The needs assessment consisted of several studies.
- CalRecycle published the statewide needs assessment, comprising nine reports, on February 18 & 20, 2026.

Source Reduction Baseline Study (**SRB**): one report published Dec 31, 2024

Collection, Processing, and End Markets Study (**CPEM**): four reports

Source Reduction and Material Design Study (**SRMD**): two reports

Consumer Education and Access Study (**CEA**): one report

Statewide Needs Assessment Summary: one report containing findings from the above studies and including current and needed funding and statutory provisions

Needs Assessment Requirements in Statute

- PRC section 42067(e)(2-3) establishes Needs Assessment requirements
- Following statutorily required analyses are incorporated into multiple studies:
  - (2)(F) Consumer education needs for recycling, composting, reuse, and reduction.
  - (2)(G) Funding needs and actions necessary to achieve the requirements of this chapter.
- Other statutory requirements are grouped by study in subsequent slides.

Needs Assessment Requirements in Statute – CPEM (1/3)

- (2)(A) Existing state statutory provisions and funding sources related to market development and financial incentives to help achieve the state's goals related to recycling, composting, reuse, reduction, and recovery.
- (2)(B) The current recycling, composting, collection, and hauling system in the state and the expanded access and additional recycling or composting options needed for enhancements to the system.
- (2)(C) The existing access to on-premises recycling and composting for multifamily residences, and the need to expand that access.
- (2)(D) The processing capacity and infrastructure in the state and regionally and the ability for innovative and advanced technologies such as artificial intelligence and robotics to improve that capacity.
- (2)(E) Current market conditions and the need to create viable responsible end markets in the state and regionally.

Needs Assessment Requirements in Statute – CPEM (2/3)

- (2)(H) Actions and investments necessary to provide sufficient access to collection, recycling, composting, processing, and transportation to viable responsible end markets.
- (2)(I) An evaluation of the availability or lack of availability of markets for recycled covered material, the need to incentivize recycled or composted material market development, and the associated investments and actions needed to ensure that the covered materials are recycled or composted and have viable and sufficient responsible end markets to meet the requirements of Section 42050.
- (2)(J) Factors contributing to contamination and actions and investments needed to avoid contamination and improve recycled and composted material in order to ensure the material meets quality requirements for remanufacturing.
- (2)(K) Availability of responsible end markets and mechanisms to identify and expand responsible end markets. The evaluation shall include identification of measures to avoid and minimize environmental and public health impacts on communities where recycling occurs.

Needs Assessment Requirements in Statute – CPEM (3/3)

- (3)(A) The needs associated with shifting packaging or food service ware from a covered material category that is unlikely to develop sustained viable responsible end markets to a covered material category that either has a viable responsible end market or is likely to develop a sustained viable responsible end market.
- (3)(B) Actions and investments necessary to improve covered material design to improve recyclability and compostability.
- (3)(D) An evaluation of integrating innovative and advanced technologies throughout a MRF that utilize artificial intelligence to improve data collection in order to identify, categorize, and track the disposition of covered materials throughout the recycling process.

Needs Assessment Requirements in Statute – SRB and SRMD

- (3)(C) Funding needed to implement the source reduction requirements established in Section 42057, including, but not limited to, investments needed to develop reuse and refill infrastructure and to provide consumers with convenient access to that infrastructure to grow and market the use of reusable and refillable packaging and food service ware.
- (3)(E) An evaluation of actions and investments that would be effective in achieving source reduction requirements.

Needs Assessment Requirements in Statute – CEA

- (2)(C) The existing access to on-premises recycling and composting for multifamily residences, and the need to expand that access.
- (2)(F) Consumer education needs for recycling, composting, reuse, and reduction.

Other Needs Assessment Requirements

- PRC 42070(g) the Advisory Board shall review any needs assessment submitted to it within 90 calendar days of receipt of the needs assessment.
- PRC 42051.1(b)(1) the PRO plan shall include the actions and investments that the PRO will implement in order to meet the requirements of this chapter and address the needs and investments identified in the needs assessment.

How was the Needs Assessment Developed?

- New data collection and analysis through contracted studies
- Use of existing data including CalRecycle data to support analyses (e.g., EAR, RDRS, SRB, SB 343 and SB 54 MCS)
- Engaged with a variety of interested parties, including:
  - Producer Responsibility Organization (PRO)
  - Packaging Producer Responsibility Advisory Board (AB)
  - Local jurisdictions (LJ)
  - Material Recovery Facilities (MRF)
  - Organics Processing Facilities (OPF)
  - Haulers and Recycling Service Providers (RSP)
  - Community-based Organizations (CBO)
  - Environmental Justice Groups (EJ)
  - Native American Tribes (Tribes)
  - Other interested parties
- Published findings in a series of reports

Needs Assessment Informational Sessions

April 6th

- **Main Focus:** Source reduction requirements, including reuse/refill
- **Reports Presented:**
  - Source Reduction Baseline Report (briefly)
  - Source Reduction and Material Design Current State Report
  - Source Reduction and Material Design Needed State Report
  - Consumer Education and Access (portion focused on source reduction, reuse, and refill)

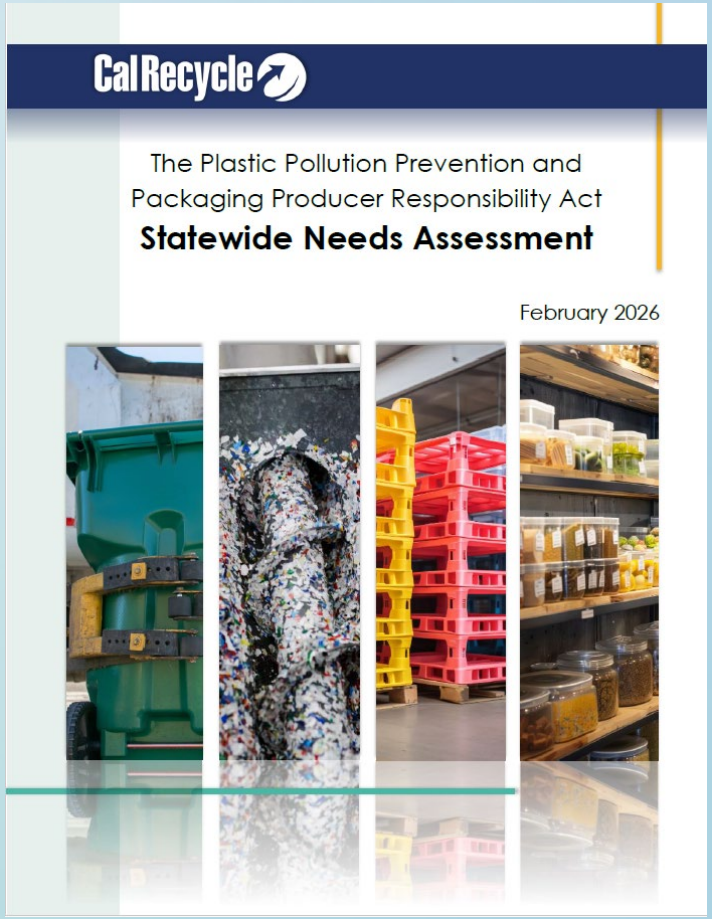
April 14th

- **Main Focus:** Requirements for recycling rate, recyclability, and compostability
- **Reports Presented:**
  - Collection, Processing, and End Markets Current State Reports
  - Collection, Processing, and End Markets Needed State Report
  - Consumer Education and Access (portion focused on recycling and composting)

Summary Report Overview

Summary Report

- Provides highlights from each needs assessment report and links findings from different reports.
- Includes information on how recycling rates for covered material were estimated.
- Provides information on what existing laws and programs intersect with the Act.



Summary Report Highlights (1/3)

- Creating a system built for everyone, rather than only offering a specialty option, will allow for more sustainable and equitable change.
- Early investments that make sustainable choices accessible within existing shopping patterns leveraging inclusive design processes, combined with long-term infrastructure can reduce costs and increase convenience.
- The upstream decisions made by manufacturers and producers about the composition and design of covered material also will have widespread downstream impacts.

Summary Report Highlights (2/3)

- Covered materials have varying levels of collection, processing, and recycling:
  - Glass is widely accepted in curbside collection, feasible to process and have established end markets.
  - Polyvinyl chloride (PVC) is not commonly collected or processed and has limited end markets
- Covered materials also have varying levels of access to reusable/refillable and source reduced alternatives.
- Access to services varies by community. Lower-income and rural communities are less likely to have access to recycling services and source reduced alternatives.

Summary Report Highlights (3/3)

- Recycling infrastructure is commonly located in areas already carrying high pollution burdens.
- The collection and processing of covered material to send to end markets for recycling depends on sufficient market value, and the stability of that value, to ensure sustainable recovery.
- Education and outreach across the entire value chain will be important for influencing change across the system.
- Education and outreach could be further simplified and made more effective if coupled with covered material design changes, simplifying behavior changes, such as simplifying the task of sorting materials appropriately.

High Level Summary of Findings by Study

Assessing Education and Access

- Education and access related to source reduction, reuse/refill, recycling and composting was assessed in multiple studies through various ways for different purposes

Representative Survey of Californians

- Consumer Education and Access Study

Listening Sessions

- Source Reduction and Material Design Study
- Collection, Processing, and End Markets Study

Surveys Focus on Priority Populations

- Collection, Processing, and End Markets Study

Community Events

- Source Reduction and Material Design Study

Consumer Education and Access (CEA)

- **Focus**
  - Consumer knowledge of and participation in recycling, composting, source reduction and reuse activities
  - Access to waste collection and source reduction activities
  - Waste sorting behaviors
- **Key Details in relation to Recycling and Composting**
  - 2,297 adult Californian residents surveyed
  - Identify existing access to on-premises recycling and composting at multifamily residences
  - Identify priority populations that engage in and have access to alternative recycling methods
  - Identify consumer need for education and evaluated consumer knowledge of proper sorting of plastic and nonplastic items in the correct bin

Key Findings from CEA (1/4)

Access and Participation in Curbside Recycling

- Majority of respondents say they have and use recycling bins (87%) and green material bins (75%).
  - For both bin types, lack of availability is roughly twice as common of a response as lack of use.
  - Low-income and rural respondents are more likely to say bins are not available or available but they do not use them compared to higher income and suburban/urban respondents.
- Compared to single-family respondents, multifamily respondents are
  - More likely to say bins are not available (e.g., 15% vs 5% for recycling bins)
  - Much less likely to have their own bins (50% compared to 91%)
  - More likely to share bins with other households (46% compared to 7%)
- Multifamily and rural respondents more likely to report not using recycling/green bins because sorting is too much work.
- Most common motivator for those who do not recycle is more recycling bin/dumpster availability (39%)
  - 33% of low-income respondents, 31% of rural respondents, and 37% of multifamily home respondents are most motivated to recycle more by more bin availability

Key Findings from CEA (2/4)

Access and Participation in Alternative Recycling Methods

- Surveyed low-income and multifamily households are less likely than their counterparts to use alternative recycling methods.
- 51% of respondents say they utilize drop-off recycling centers, while more than 25% do not use any alternative recycling methods.
  - 49% of low-income respondents, 55% of rural respondents, 48% of multifamily home respondents, and 56% of tribal respondents indicate that they use drop-off recycling centers
  - Among priority populations, low-income and rural respondents are less likely than high-income and suburban respondents to say that their needs are being met by available services and are more likely to say alternative recycling methods are not available locally.

Key Findings from CEA (3/4)

Knowledge of and Sorting Behaviors

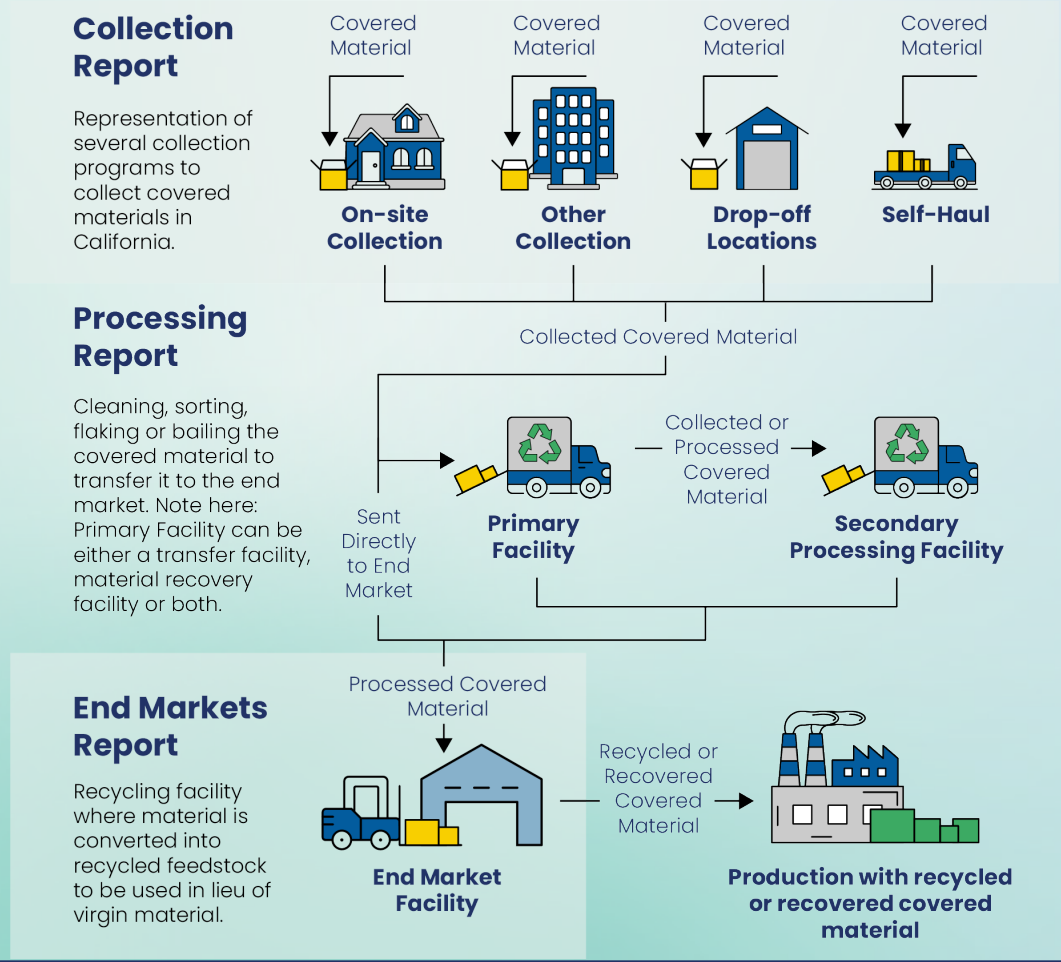
- Although most respondents report that they recycle (95%), many are uncertain about how to:
  - Prepare recyclables before placing them in bins
  - Identify chasing arrows symbols and resin code numbers on plastic items
  - Properly sort plastic items in the correct bin
    - A majority of respondents are incorrectly disposing of LDPE #4 and PS #6 plastics, and 46% are incorrectly disposing plastic utensils/straws in the recycling bin.
- Respondents generally report properly disposing of most nonplastic items. Exceptions include paper milk cartons (66% place in recycling), aseptic cartons (39%), and wooden boxes (30%).
- Compared to single-family respondents, multifamily respondents are:
  - More likely to place all trash, recycling, and green waste in a single bin (23% compared to 12%)

Key Findings from CEA (4/4)

Education and Outreach Needs

- Nearly 40% of respondents say they are currently receiving information about appropriate waste sorting via labels on products, mail, and the internet.
- Among the few respondents that do not recycle who say they would be motivated to recycle more if they had clearer information on what to recycle or had more accessible recycling information, more would prefer information via emails and infographics on waste bins
- Nearly half of low-income and rural respondents (45% low-income, 44% rural) express interest in learning more about which items go in which bins.

Collection, Processing, and End Markets (CPEM) – Current State Summary



- Across reports, CMCs were aggregated to the level information could be found. For example, glass end markets group all glass into one glass category because at that stage, the material is often crushed and difficult to discern.

CPEM Engagement Overview

Community Recycling and Composting Survey

- Survey was designed to assess barriers, opportunities, and impacts of waste infrastructure in disadvantaged communities and priority populations
- 332 total survey responses received
  - 324 from individuals from CBOs and EJ groups
  - 8 from California Native American Tribes

Listening Sessions with CBOs, EJ Groups, and California Native American Tribes

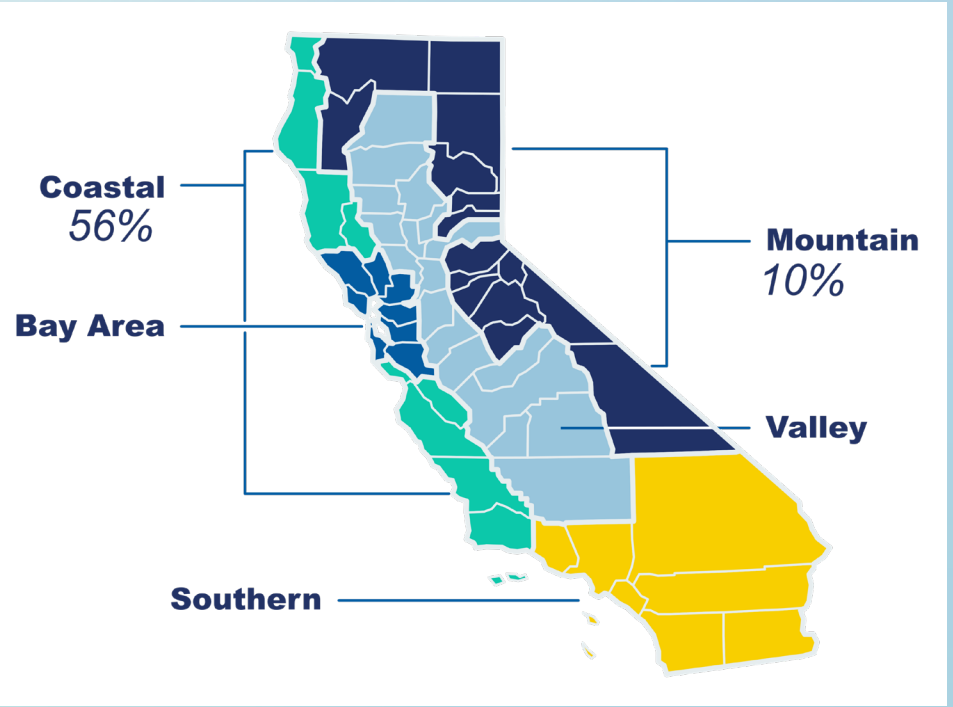
- Goals of listening sessions:
  - Provide feedback, context, discussion for responses to themes/topics presented in survey
  - Facilitate further discussion on barriers and opportunities within communities
  - Gather feedback on the studies and future engagement
- 10 listening sessions were held for CBOs, EJ groups, and Tribes

Current State of Collection

- **What was studied**
  - Types of programs available to collect covered material categories (CMC)
  - Access and participation in collection programs
  - Costs of collection
  - Contamination
  - Impacts on communities and the environment

- **Highlights**
  - 143 local jurisdictions represented by survey responses
  - 16 Community-based organizations (CBOs) and environmental justice (EJ) groups, and three Native American Tribes (Tribes) participated in the study.
  - Curbside access is high in most of the state though limited in some regions

Percent of Households with Access to Residential Onsite Curbside Collection Services in Mountain and Coastal Regions



Key Findings from Current State of Collection (1/3)

Access to curbside collection varies across the state

- Full access: Refers to local jurisdictions providing onsite collection services for solid waste and materials collected for recycling for all waste generators.
- Partial access: Refers to onsite curbside collection services that differ within a local jurisdiction. Here an urban area with high density may receive full access while a rural area with lower population density may have limited or no access to curbside collection.

Access to Collection and Types of Programs

- 87% of the state has full access to onsite curbside collection with limited access in Coastal (56%) and Mountain (10%) regions
- Drop-off programs are especially important in rural and other areas
- Alternative collection systems identified often accept hard to manage material: flexibles and films, and small format items.

Participation

- Some areas with access may have low subscription rates due to waivers, low awareness and confidence in collection programs

Key Findings from Current State of Collection (2/3)

Acceptance of materials can vary by material type

- Aluminum, glass, mixed paper, paperboard, OCC, plastic #1 (PET rigid), plastic #2 (HDPE rigid), and tin/steel/bimetal are the most broadly accepted materials by onsite curbside collection services statewide.
- Ceramic, other multi-material laminate, plastic #6 - expanded or foamed plastic, rigid, and textiles are the materials least accepted in collection programs statewide.

Acceptance and Costs of Collection of Onsite Curbside Collection

- 5.5 million tons of covered material collected for recycling
- 1 million tons of covered material collected for organics recycling
- Average cost of collection statewide is $300/ton; lowest in Southern region ($284/ton) and highest in Coastal ($338/ton)

Contamination

- Increases costs on both ratepayers and local jurisdictions through fees and processing burden.

Key Findings from Current State of Collection (3/3)

Positive Impacts on Communities & Environment

- Reducing litter and pollution and therefore cleaner neighborhoods, reducing greenhouse (GHG) emissions through diverting materials from landfill

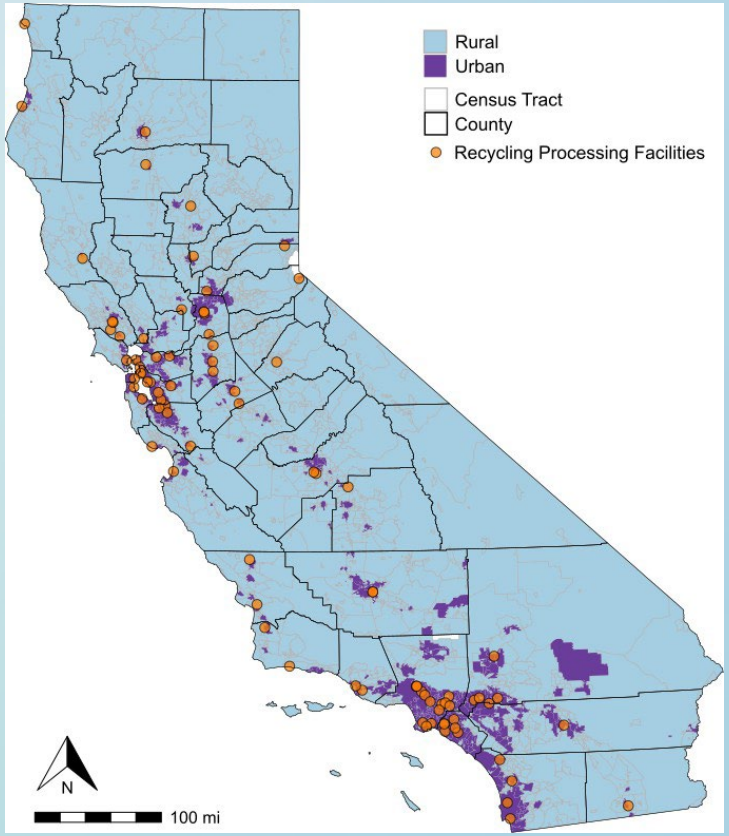
Negative Impacts on Communities & Environment

- Increased waste filling landfills was a top concern of communities
- Litter and illegal dumping were most often identified impacts felt personally- maybe linked to lack of access to affordable collection (e.g., Mountain region)

Current State of Processing

- **What was studied:**
  - Acceptance and marketability of CMC
  - Costs
  - Contamination
  - Community and environmental impacts from processing facilities
- **Highlights:**
  - Identified 89 recycling processing facilities (RPF)
    - Receive 5.9 million tons of covered material
  - Identified 58 active organics processing facilities
    - Receive 313,400 tons of covered material
  - 14 CBOs, and EJ groups, three Tribes participated
  - Most processing facilities are in urban areas

Location of Recycling Processing Facilities in California



Key Findings from Current State of Processing (1/5)

- Covered materials were evaluated on:
  - Sortation Feasibility
    - The technical capability of processors to effectively sort inbound materials by manual separation, magnets, mechanical screens, optical sorters, other equipment, and technology in the facility processing equipment arrays.
  - Marketability
    - The cost-effectiveness of separating commodities and delivering them to end markets.

Key Findings from Current State of Processing (2/5)

Acceptance, sortation, and marketability of materials were evaluated. Each is influenced by material type (e.g., resin) and other material characteristics, operations and maintenance costs, and product manufacturing methods.

CMC Marketability at Plastics Recycling Processing Facilities		
High	**Variable**	**Limited**
Plastic #1 – PET Clear Bottles, Jugs, Jars	Plastic #1 – Other PET Rigid	Plastic #1 – PET Flexibles and Films
Plastic #1 – PET Pigmented Bottles, Jugs, Jars	Plastic #2 – HDPE Pails and Buckets	Plastic #2 – HDPE Flexibles and Films
Plastic #2 – HDPE Bottles, Jugs, Jars	Plastic #2 – Other HDPE Rigid	Plastic #3 – PVC Rigid
Plastic #5 – PP Rigid	Plastic #6 – PS Rigid Items	Plastic #3 – PVC Flexibles and Films
Plastic #5 – Other PP	Plastic #6 – Other PS	Plastic #4 – LDPE Bottles and Jugs
		Plastic #4 – Mono LDPE Flexibles and Films
		Plastic #5 – Mono PP Flexibles and Films
		Plastic #6 – EPS Rigid Items
		Plastic #6 – Flexibles and Films
		Plastic #7 – Other Rigid Plastics
		Plastic #7 – Other Flexibles and Films
		Small Format – Plastics
		Multi-Material Laminate
		Plastic-based Textiles

Key Findings from Current State of Processing (3/5)

Acceptance, sortation, and marketability of materials were evaluated. Each is influenced by material type (e.g., resin) and other material characteristics, operations and maintenance costs, and product manufacturing methods.

CMC Marketability at Organics Processing Facilities	
High	**Limited**
Kraft Paper	Plastics Designed for Compostability OCC Mixed Paper Molded Pulp Untreated Wood

Key Findings from Current State of Processing (4/5)

Contamination

- Impacts include:
  - Increased operational downtime
  - Costs
  - Contaminated commodities (reducing the portion of accepted material able to be recovered and the quality of the material received by end markets)
- Main contaminants at recycling processing facilities are flexibles and films, nonaccepted plastic containers, and nonaccepted paper products
- Main contaminants at organics processing facilities are materials with a plastic component
- Presorting and screening can improve product quality.

Key Findings from Current State of Processing (5/5)

Positive impacts on communities from processing

- Recycling plastic waste, nutrient-rich compost production, less use of energy and resources compared to manufacturing new materials

Negative impacts on communities and environment

- Water pollution from chemicals used in processing and increased energy consumption by facilities

Challenges and opportunities

- Long distances to transport materials is a challenge for Tribal communities
- Insufficient funding causes delay in services being rolled out
- Compensation is an incentive for residents to recycle

Current State of End Markets

- **What was studied:**
  - End market identification
    - Identified end markets for materials in the state
  - Contamination
  - Material recovery
  - End market viability
  - Costs
- **Highlights**
  - Some CMCs have limited end markets or limited information on end markets
  - Market volatility impacts what processors recover and sell to end markets. Even materials with more developed end markets experience significant fluctuations in bale pricing
  - Information on out-of-state end markets is limited, however about 70% of covered material sent to end markets was estimated to go overseas

Key Findings from Current State of End Markets (1/8)

End markets identified*

Primary Material Managed	End market facilities Identified in CA	End market facilities Identified Outside CA But in U.S.
PET	6	1
HDPE and PP	4	1
PE Film	3	2
Aluminum	0	5
Steel	0	2
Glass	7	0

*End markets for noncovered materials (such as CRV) are not included

Challenges with End market Identification

- Difficult to track final disposition of materials, especially for those sent to out-of-state end markets.
- Some materials have limited end markets or limited information on end markets, including ceramics, metals, wood and other organic materials, and some plastics.
- Organic recovery at composters and in-vessel digestion was estimated generally using surveys and contractor experience.

Key Findings on Current State of End Markets (2/8)

CMC End Market Group	Weight Accepted by or Sent to End Markets, Excluding Contamination	Recovered Material Produced	CMC End Market Groups Accepted by or Sent to End Markets but not Recovered	Estimated CMC Conversion Rate (%)
All Glass CMC end market groups	223,300	216,600	6,700	97%

Example: Glass CMC End Market Group

Estimating material recovery at end markets

- For each CMC end market group, the following was estimated whenever possible:
  - Weight of covered material (minus contamination) accepted or sent to end markets
  - CMC conversion rate
- The amount of recovered material produced was estimated by multiplying the total tonnage of each CMC group accepted at each facility excluding contamination by the CMC conversion rate.

Key Findings from Current State of End Markets (3/8)

- CMC conversion rates were estimated using data provided by survey respondents when possible.
  - If no responses were provided, conversion rates were gathered through secondary research

The following materials have sufficient information on end markets to estimate CMC conversion rates:

- PET #1 Rigid – 66%
- HDPE #2 Rigid – 82%
- PP #5 Rigid – 56%
- PE Plastic Films – 89%
- Glass – 97%
- Paper and Fiber – 91%

Key Findings on Current State of End Markets (4/8)

Glass

- Almost 100% of glass material grades remain in-state for recycling
- Of the roughly 762,000 tons of glass material grades accepted by end markets, about 223,000 are estimated to be covered material
- Contamination in glass material grade can be high
- Five end market facilities indicated they were not operating at full capacity

Metal

- All identified end market facilities were located outside California.
- An estimated 53% is exported domestically, with the remaining 47% exported internationally
- Additional information is necessary to accurately estimate metal covered material reaching end markets

Key Findings on Current State of End Markets (5/8)

Paper and Fiber

- Three end market facilities were identified in California, accepting mostly OCC and mixed paper
- OCC comprises the majority of covered material sent to end markets, followed by mixed paper, paperboard, and kraft paper
- End markets for other types of paper was more limited.

Plastic

- 17 end market facilities were identified that accepted California covered material (13 were in state)
- Of the roughly 269,000 tons of PET material grades accepted by or sent to end markets, about 31,000 tons was estimated to be covered material
- End markets face ongoing viability challenges.

Key Findings on Current State of End Markets (6/8)

Wood and Other Materials

- End markets for untreated wood packaging are assumed to chip and grind the material for mulch, animal bedding, and other products rather than incorporated into composting or in-vessel digestion.
- Some composting and in-vessel digestion facilities accept and incorporate covered materials, however, much of this material is screened out during processing.

Key Findings from Current State of End Markets (7/8)

Contamination decreases recovery across materials

- HDPE and PP end markets reported most contamination comes from mis-sorting during processing. Flexibles, rigid plastics, glass, metals and other plastic polymers are contaminants
- PET end markets reported labels and residue, noncovered material, small format plastics, and PP rigids are common contaminants
- Paper and Fiber end markets reported plastic film, flexible packaging, wax coated paper, pressure sensitive adhesives are common contaminants
- Glass end markets reported small format packaging, foil coatings on glass, ceramics, plastic are common contaminants
- Organics end markets reported many screening out many products designed for compostability

Key Findings from Current State of End Markets (8/8)

Market costs and viability

- Costs of feedstock and labor are two biggest ongoing costs for plastic and paper and fiber end markets
- Viability influenced by variable cost of feedstock, competition with virgin materials, limited availability of feedstock due to international exports, fall in demand for domestically recovered material
    - Plastic end markets reported operating below capacity due to affordable feedstock supply challenges
    - Glass end markets have underutilized capacity (operating between 15-76% capacity) partially due to high rates of contamination.

Community Impacts

- End markets primarily located around SF Bay area, Sacramento and Los Angeles
    - Census tracts within San Joaquin, Stanislaus and Kern counties are in the top 25th percentile of pollution burden and have the highest overlap with end market locations.
- Only 12% of CBOs and EJ groups felt their community had access to programs about health risks and pollution

Using Current State Data for Recycling Rate

- Recycling rates were published as part of most recent covered material category (CMC) list
- Recycling Rate = (tons recycled per year)/(tons disposed of + tons recycled per year)
  - Source of tons recycled:
    - Amount of recovered material produced in Current State of End Markets Report
    - If the above is not available, estimated material outflow from processing facilities based on Current State of Processing Report
    - If neither of above are available, it was noted that there is currently insufficient information
  - This estimation of the recycling rate does not assume whether current end markets meet the final standard and criteria required to be considered a REM.
  - Source of tons disposed of: SB 54 Disposal Facility-Based Material Characterization Study applied to Recycling and Disposal Reporting System (RDRS) disposal data for CY 2024

Needed State of Collection, Processing, and End Markets

- Examined how recycling rate, compostability, and recyclability requirements could be met using information from the current state reports
  - Design Improvements
  - Increasing Collection
  - Improving Processing
  - Increasing End Market (EM) Recovery

Needed State of Collection, Processing, and End Markets – Summary

Methods

- Determined needed state gaps by comparing projected and current tons with that required by recycling rates and recyclability or compostability mandates.
- Used surveys, literature, and expert input to develop alternatives for increasing collection, processing, and recovery at end markets to meet gaps.

Key Findings

- Material design choices underpin system operations and will affect needed actions and investments.
- Covered material in system affects needed upgrades to infrastructure.

CPEM Needed State – Material Design

- Simplify, standardize and harmonize types of covered materials
  - Simplify education materials, reduce generator confusion to improve sorting
  - Increased collection, increased processing and end market efficiency
  - Increase recyclability and compostability of material
- Examples of Potential Opportunities:
  - Remove plastic component where possible (e.g., from Aluminum foil)
  - Replace multi-material laminates with HDPE flexibles and film
  - Use HDPE or LDPE for all flexible/film plastic
  - Replace plastics designed for compostability with more recyclable counterparts (e.g., PET)
  - Replace ceramic CMC with glass

CPEM Needed State – Collection Opportunities

- Develop drop-off and other alternative collection systems, especially for rural areas
- Employ multiple strategies when engaging with public on collection of materials, such as:
  - Coupling education with material redesign and clear product labeling
  - Single-message education in multiple languages
  - Direct and empathetic engagement, particularly from trusted messengers
  - Evaluating different methods with pilot programs
- Reduce contamination in all material streams, using methods such as:
  - Improved material design
  - Change consumer behavior via listed engagement strategies
  - Increasing access to convenient collection
  - Contamination monitoring (visual inspections, randomized or targeted audits, full characterizations to find common contaminants, fees, not picking up contaminated bins)

CPEM Needed State – Processing Opportunities

- Target enhanced/new infrastructure at small format plastics, aseptics and gabletops, flexible/film plastics, plastics #3 through #7
  - Secondary processing of mixed rigid, flexible, and film plastics
- Adopt optical sorters with artificial intelligence (AI) software, looped conveyors, glass cleanup systems
- Reduce plastic covered material sent to OPF through material redesign and contamination reduction strategies
- Reduce contamination
  - Inbound material contamination auditing
  - Optical sorters to separate flexible/film plastics from paper/fiber lines
  - Manual pre-sorting and bale audits
  - Adjusting screens and other sorting technologies to reduce tangled/wrapped/plugged equipment
  - AI monitoring of residue stream

CPEM Needed State – End Market Opportunities

- Upgrade end markets that accept CRV grade to also handle non-CRV, especially PET
- Additional end markets may be needed for aseptic and gabletop cartons; flexible/film plastics; and potentially rigid HDPE, LDPE, and PP.
- Existing capacity may be sufficient for other material classes (glass, metal, paper/fiber), with increases to collection and processing effectiveness
- Upgrades at processing facilities or glass end markets may be necessary to prevent disposal of small format paper and plastic
- Facilitate stable markets – long term contracts across the supply chain and subsidizing the processing and recycling of covered material

CPEM Needed State – Other Opportunities

- Outreach and education to address factors related to illegal dumping
- Involve community early and frequently in planning, and consider community during design (e.g., when planning new facilities, create vegetated buffer between facility and surrounding community)
- Continued direct engagement and soliciting ongoing feedback from communities to ensure just transition

Ways to stay informed

Sign-up for our SB 54 Listserv

SB 54 updates will be available through our listserv. Please visit the SB 54 Webpage and the SB 54 Statewide Needs Assessment Webpage for more information.

Email: Packaging@CalRecycle.ca.gov

Q&A