

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

Informational Session: Source Reduction, Reuse, and Refill

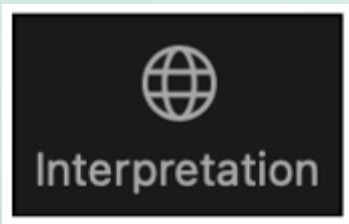
April 6, 2026

KIS, Policy Development and Analysis Office;
Packaging EPR Program

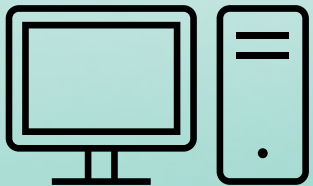
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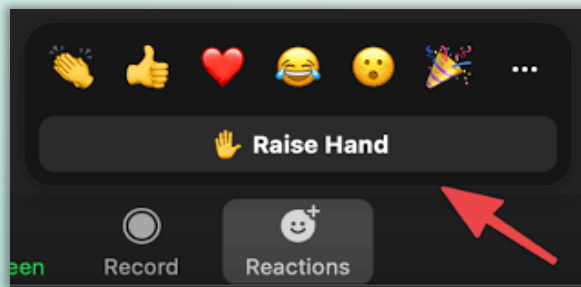
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1. Take your valuables and use exit signs.
2. Do not use elevators.
3. If you cannot use stairs, you will be directed to a protective vestibule inside a stairwell.
4. If relocated, exercise caution crossing the street.

Agenda

- I. Opening Remarks
- II. Statewide Needs Assessment Overview
 - What will be covered in the April 6th and April 14th workshops?
 - Summary Report Overview
- III. Consumer Education and Access Study
- IV. Source Reduction Baseline Study
- V. Source Reduction and Material Design
- VI. Question and Answer

Opening Remarks

Statewide Needs Assessment Overview

Main Goals 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

What was Included in the Needs Assessment? (1/1)

- **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.



What was Included in the Needs Assessment? (2/2)

- **Assessment of the needed state of the system.**
 - 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 Requirements in Statute (1/4)

- The needs assessment consists of several studies to address the requirements established in PRC section 42067(e)(2-3), which are grouped by study below.
- 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.
- **Collection, Processing, and End Markets Study**
 - (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.

Needs Assessment Requirements in Statute (2/4)

- **Collection, Processing, and End Markets Study (continued)**
 - (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.
 - (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.

Needs Assessment Requirements in Statute (3/4)

- **Collection, Processing, and End Markets Study (continued)**
 - (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.
 - (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 (4/4)

- **Source Reduction Baseline and Source Reduction and Material Design**

- (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.

- **Consumer Education and Access Study**

- (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

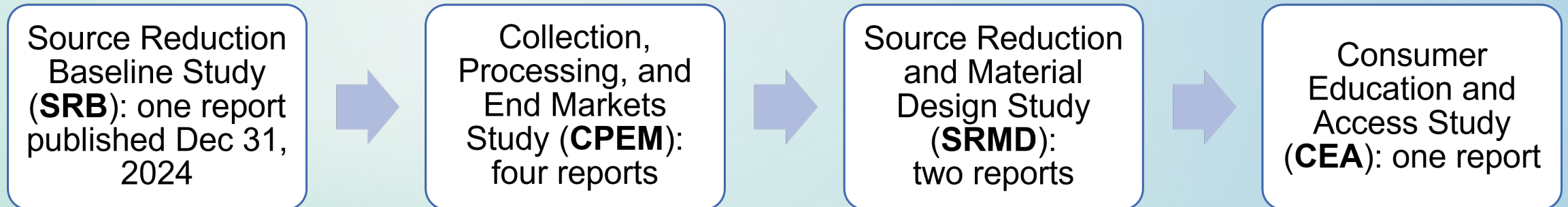
- PRC 42070(g) the Advisory Board shall review any needs assessment submitted to it within 90 calendar days of receipt of the needs assessment.
- PRC 42051.1(b)(1) the PRO plan shall include the actions and investments that the PRO will implement in order to meet the requirements of this chapter and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

- CalRecycle published the statewide needs assessment, comprising nine reports from the following studies, on February 18 & 20, 2026.



- Statewide Needs Assessment Summary Report containing findings from the above studies and including current and needed funding and statutory provisions

Two Needs Assessment Information Sessions

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)

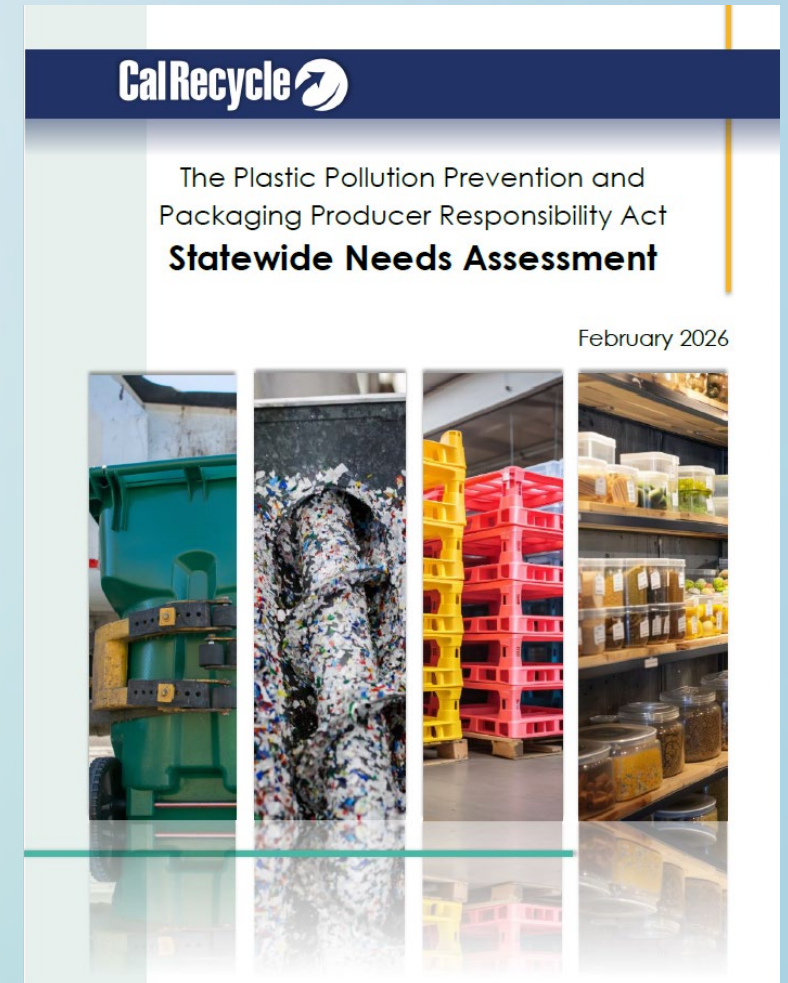
April 14th

- **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; and 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.
- 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.

Summary Report Highlights (3/3)

- 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

Consumer Education and Access 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 Source Reduction**
 - 2,297 adult California residents surveyed
 - Identify consumer need for education, interest in learning about single-use plastic reduction, and priority populations that engage in different source reduction activities
 - Findings from the survey on source reduction include reuse and refill, as well as other source reduction strategies that are applicable to covered material

Key Findings from CEA (1/2)

Source Reduction (SR):

- A majority of the respondents participate in nearly all of the source reduction activities to some degree
 - Purchasing products in bulk packaging (74%)
 - Choosing products with minimal or no plastic packaging (67%)
 - Purchasing concentrated products (64%)
 - Opting out of plastic single-use food service ware (55%)
 - Buying products by weight at the bulk section of a store (53%)
 - Bringing returnable and/or refillable containers back to participating locations (53%)
 - Purchasing products at refill stores (38%)

Key Findings from CEA (2/2)

- Environmental benefits, reduced packaging waste and lower overall cost cited as benefits of SR amongst participants
- Financial incentives and greater availability of products would motivate participation in SR
- Low-income and rural respondents are less likely to participate in SR than urban residents

Education and Outreach:

- Respondents receive information on proper waste sorting and SR through a variety of methods and sources. Preference for receiving information aligned with how it is currently received

Source Reduction Baseline Study (Published December 31, 2024)

Source Reduction

- Source reduction refers to reducing the amount of plastic used in covered materials [PRC 42067(z)(aj)]
- Source Reduction Metrics:
 - Number of plastic components of plastic covered material sold, offered for sale, or distributed in the state.
 - Weight of plastic covered material sold, offered for sale, or distributed in the state, counting only the weight of the plastic (i.e., excluding the weight of the nonplastic portions).
- Source Reduction Strategies:
 - Reuse/Refill
 - Other Source Reduction Strategies
 - Concentration
 - Elimination
 - Lightweighting
 - Material Substitution
 - Optimization
 - Rightsizing

Source Reduction Baseline (SRB)

- Source reduction baseline was published by January 1, 2025 – PRC 42057(b)
 - Estimated the total weight and number of plastic components of plastic covered material that was sold, offered for sale, or distributed in the state for the baseline year of 2023
- Source Reduction Baseline Models:
 - Model #1: Single-Use Plastic Packaging Model
 - Model #2: Single-Use Plastic Food Service Ware Model
 - Model #3: Single-Use Plastic Packaging for Single-Use Plastic Food Service Ware Model

Key Findings from SRB

Single-Use Plastic Covered Material	Total plastic components (Billion)	Total weight of plastic (Million tons)
TOTAL	171.4	2.9

- Single-use plastic packaging contributed:
 - 2.4 million tons (approximately 83%) to the overall baseline
 - 84 billion plastic components (approximately 49%) to the overall baseline
- Single-use plastic food service ware contributed
 - 0.49 million tons of plastic (approximately 17%) to the overall baseline
 - 87.4 billion plastic components (approximately 50%) to the overall baseline
- Used as the basis for source reduction modeling

Source Reduction and Material Design (SRMD) Study

Source Reduction Requirements

2027

- PRO must achieve 10% source reduction of plastic covered material
- 2% reuse/refill

2030

- PRO must achieve 20% source reduction of plastic covered material
- 4% reuse/refill

2032

- PRO must achieve 25% source reduction of plastic covered material
- 10% reuse/refill

SRMD Reports

- Evaluation of Reuse and Refill Systems and Covered Materials that Utilize Other Source Reduction Strategies (Current State Report)
- Analysis of Actions & Investments Needed to Achieve Source Reduction Goal (Needed State Report)

SRMD Current State Report



Current State Report SRMD

Focus

- Evaluates current SR strategies
- Access to reuse and refill systems
- Identifies opportunities and barriers for scaling reuse and refill

Key Details

- Data on reuse, refill, and SR strategies gathered through expert interviews, analysis of reusable food service ware (FSW) usage in dine-in restaurants, and assessment of retailer options.
- Engaged with communities across the state

Community Engagement

- Purpose of engagement:
 - Evaluate current SR strategies
 - Access to reuse and refill systems
 - Identify opportunities and barriers for scaling reuse and refill
- Gathered data from communities across the state including:
 - Booths at in person events
 - Bilingual engagement boards
 - Feedback from urban, suburban and rural communities
 - Small group discussions with:
 - CA Tribes
 - Community-based organization representatives
 - Members of the disability community



Data Collection

Expert Interviews

- 42 expert interviews surrounding feedback on SR for packaging and food service ware including large and small scale sports venues, restaurants, retailers, and manufacturers

Food Service Ware Establishment dataset

- Evaluation of CA dine-in restaurants using single-use vs durable food service ware

Instances and Solutions dataset

- Used to identify and locate B2B and B2C reuse, refill, and reuse/refill enabler solutions currently operating in CA

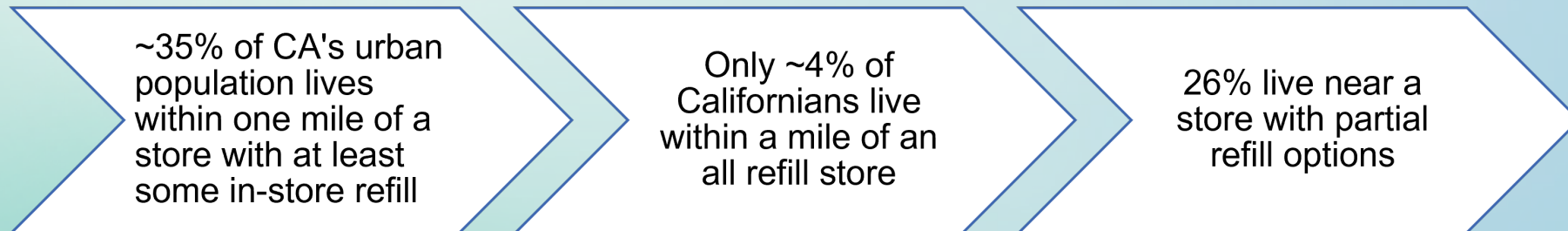
CA Store-Level dataset

- Focusing on the availability of SR options for 5 representative products; white rice, surface cleaner, shampoo, milk, and dish soap

Key Findings from Current State: SRMD 1/4

Reuse and Refill

- Goods in reuse and refill packaging and food service ware solutions were found to be a small fraction of what is available on the market today though there is a demand
- Access to in-store reuse and refill options is limited especially in disadvantaged communities:



Key Findings from Current State: SRMD 2/4

Reuse and Refill

- Reuse and refill require new systems to scale, while other source reduction strategies build on existing systems
- Prefill reuse systems show strong scalability
- Reusable food service ware and business to business (B2B) reuse are also promising though in early stages

Business to Business (B2B)



- Designed to be purchased by larger customers (e.g., businesses) and often includes goods sold in larger format packaging or bulk sizes

Key Findings from Current State: SRMD 3/4

Reuse and Refill

- Three main barriers to reuse refill are:
 - Consumer habit and convenience norms
 - Operational and cost complexity
 - Potential for negative perceptions and brand impacts
- Opportunities to expand reuse refill include:
 - Starting with closed loop and B2B reuse
 - Standardizing packaging and food service ware
 - Building capacity through hubs and contract manufacturers and fillers
 - Enabling public collection through shared infrastructure

Key Findings from Current State: SRMD 4/4

Other Source Reduction Strategies

- Source reduction strategies are widespread but face barriers such as:
 - Technical limits for lightweighting and material substitution
 - Equipment and processes constraints
 - Consumer acceptance challenges
 - Gaps in cost and market incentives
- Opportunities for source reduction include:
 - Advancing research and design for reformulation and alternative materials
 - Implementing right sizing and lightweighting
 - Establishing market incentives and cost-sharing mechanisms

SRMD Needed State Report



Needed State Report SRMD

Focus

- Identifies potential approaches, actions and investments to achieve SR goals for plastic covered material (PRC 42057), including reuse and refill requirements.

Key Details

- Two potential source reduction pathways developed to illustrate opportunities on how SR goals could be met.
- New and updated infrastructure required
- Material design changes and innovations are key

Methodology

Consider Source Reduction Strategies

Further Analyze Source Reduction Baseline

Evaluate Source Reduction Strategies

Develop Source Reduction Pathways

Determine Actions and Estimate Investments Associated with Pathways

- Consolidate the list of strategies
 - Understand contributions to SRB by sales channel, use, and format
 - Use criteria to prioritize strategies
 - Combine strategies into two pathways to meet SR goals
 - Identify potential actions and costs

Summary of Source Reduction Strategies

Reuse and refill strategies

- Refill in store
- Prefill business-to-consumer (B2C)
- Prefill business-to-business (B2B)
- Closed-loop reusable food service ware
- Open-loop reusable food service ware
- B2C e-commerce transport packaging
- B2B transport packaging

Other source reduction strategies

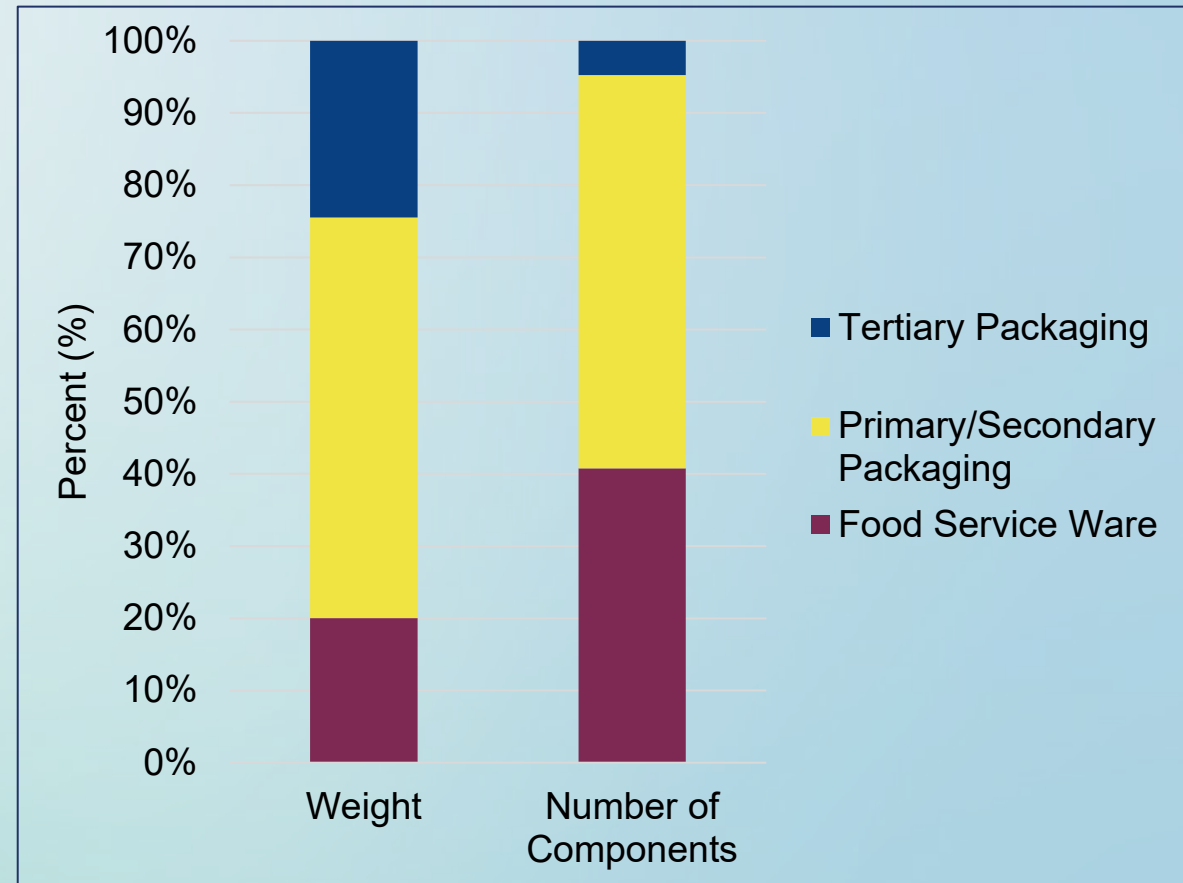
- Lightweighting
- Elimination
- Right sizing
- Concentration
- Large format
- Material substitution

Alternative Compliance

- Post Consumer Recycled Content

Source Reduction Baseline Analysis

- Total weight of plastic covered material and number of plastic components reported in the baseline remain constant in the adapted baseline
- Baseline was further assessed to understand contributions from:
 - B2B vs B2C
 - Packaging vs food service ware
 - Different forms (cup vs utensil)



Evaluate Source Reduction Strategies

- Identify and evaluate the types of goods most suitable for reuse and refill strategies, and the types of packaging formats and food service ware most suitable for implementing other source reduction strategies
- Weighted scoring of strategies to find which strategies to prioritize in pathways

Technical feasibility:

- Goods contain harsh chemicals
- Goods require high functionality packaging
- Goods require specific handling conditions
- Goods with specific physical characteristics

Implementation and Impact feasibility:

- Proportion of adapted baseline
- Operational readiness
- User Acceptance

Source Reduction Pathways

- Outcomes of the strategy prioritization scoring determined the extent to which each strategy is utilized in the two pathways.
- Two plausible scenarios demonstrate different combinations of source reduction strategies to achieve the statutory source reduction goals.
- Substitution versus Reuse emphasis: these two strategies are two of the only strategies that substantially reduce both weight and number of plastic components at the same time.

A

Substitution Emphasis Pathway
– Relies heavily on shifting to nonplastic alternatives (paper, fiber, metal, glass) with incremental design strategies.

B

Reuse Emphasis Pathway –
Prioritizes prefill, reusable food service ware, and B2B reuse systems.

Figure 6-1: Pathway A for Achieving 25% Source Reduction Requirements – Substitution-Emphasis

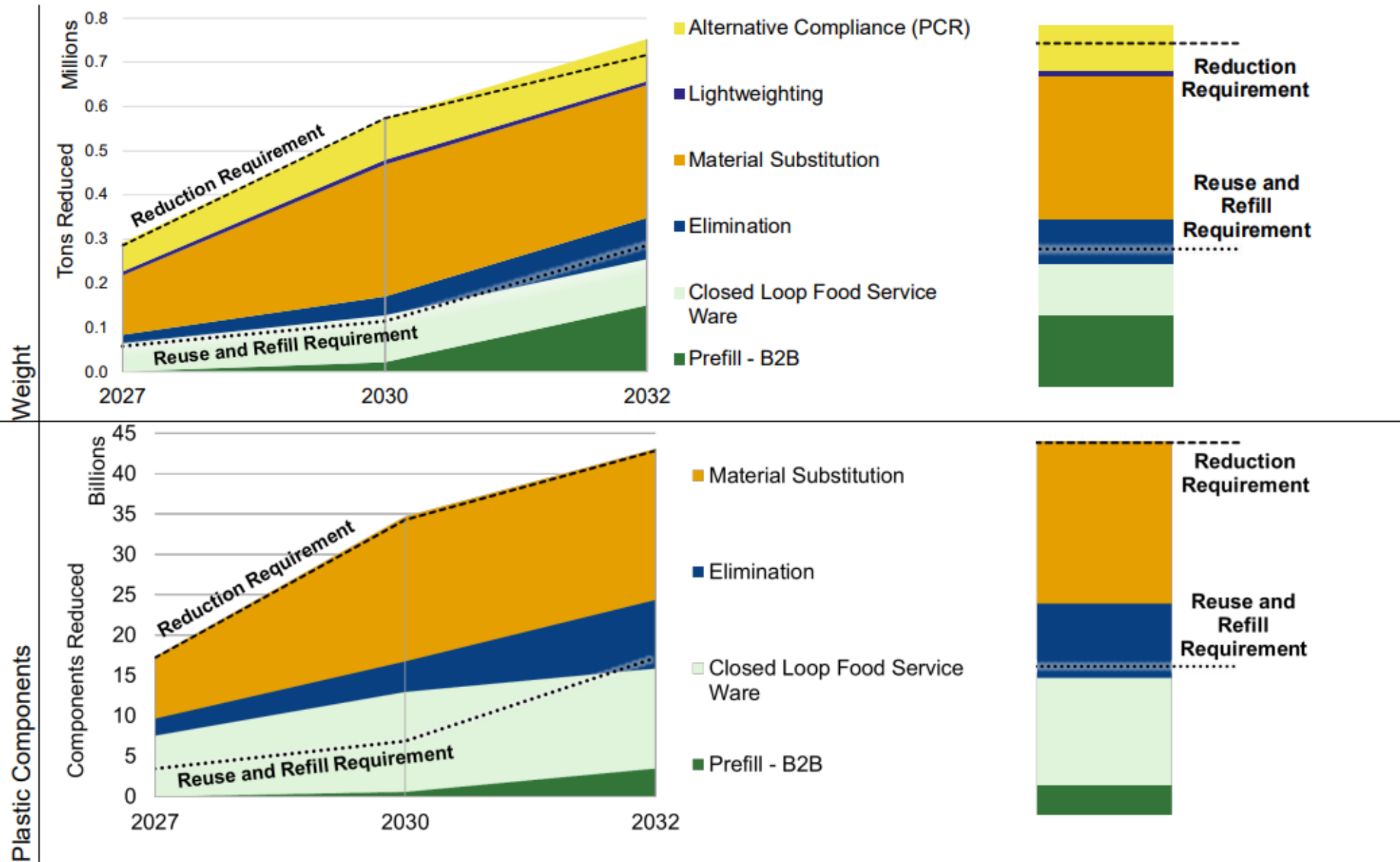
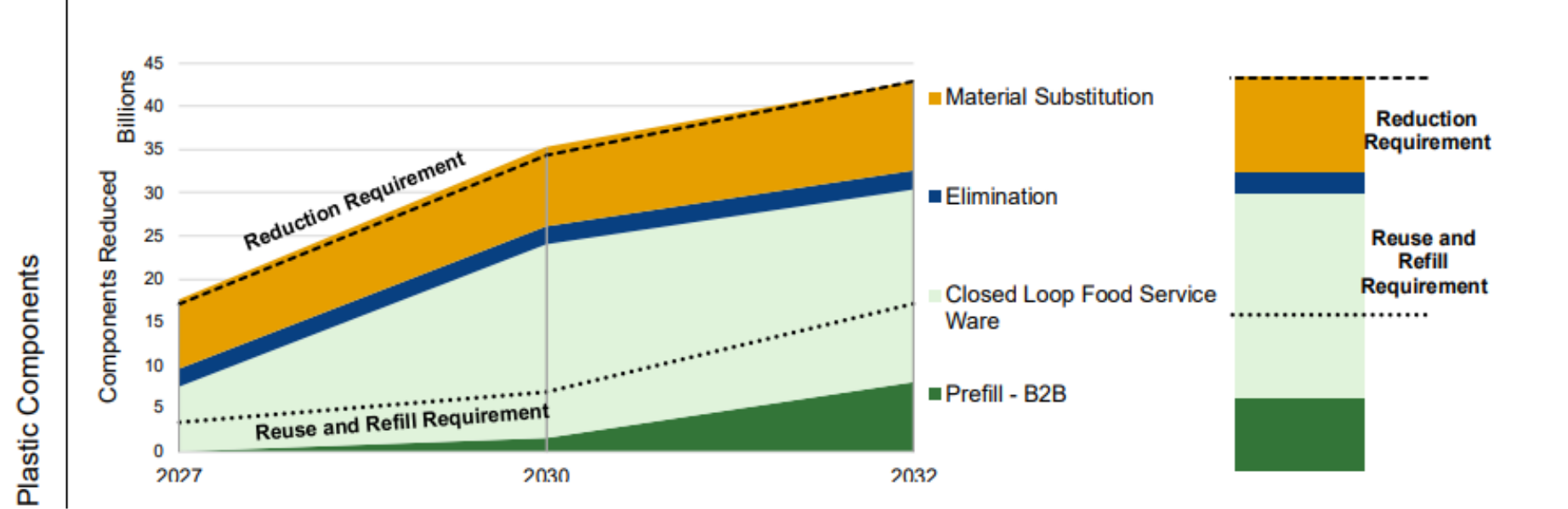
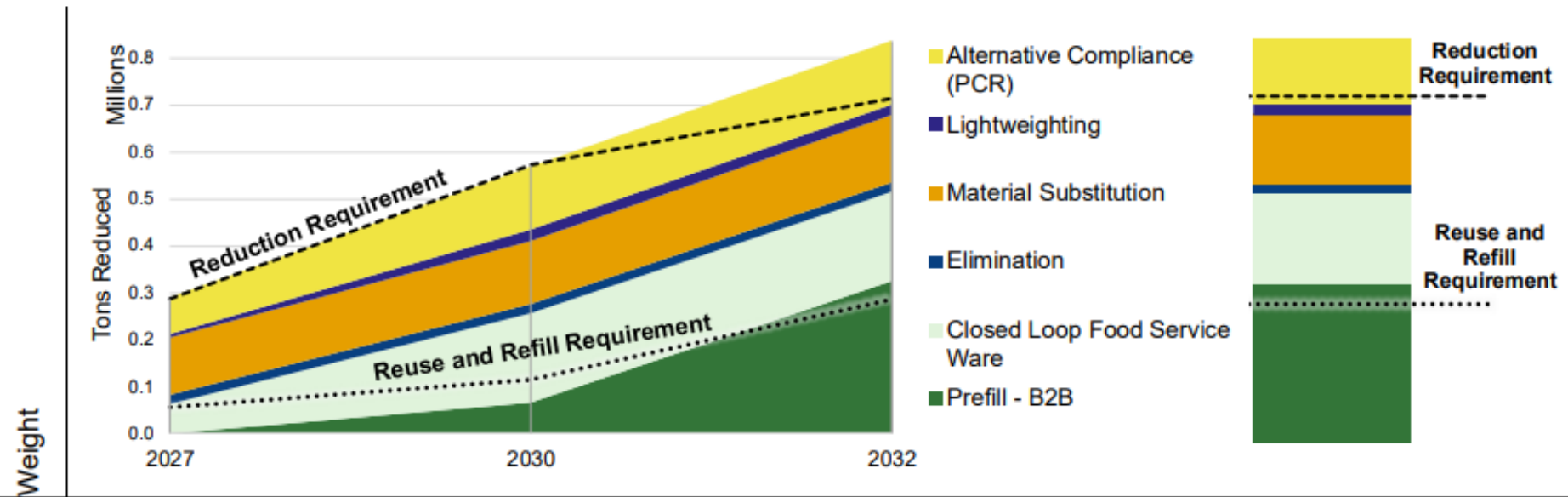


Figure 6-2: Pathway B for Achieving 25% Source Reduction Requirements – Reuse Emphasis



Key Findings from Needed State: SRMD 1/2

Source Reduction Strategies

Not all source reduction strategies will have an impact on both the weight of plastic covered material and the number of plastic components.

- Single-use plastic packaging (driven by B2B) accounted for majority of plastic weight while single-use plastic food service ware accounted for majority of plastic components
- Some source reduction strategies have higher potential to reduce weight and number of plastic components.
 - Material substitution, elimination and lightweighting for both B2B and B2C covered material were identified to be the most effective in reducing the weight of plastic covered material and number of plastic components.

Reuse Refill

- Closed loop reusable food service ware and prefill in B2B contexts were identified as strategies likely to be most effective in meeting requirements for reuse and refill.

Key Findings from Needed State: SRMD 2/2

Key Actions, Investments, and Opportunities:

- Design a system to build durable and equitable change for everyone.
 - Sustainable choices accessible within existing shopping patterns, inclusive design processes, long term infrastructure that reduces costs and increases convenience can ensure reuse and refill works
- Reuse and refill infrastructure development was estimated to create 2,700 to 5,400 jobs in the state.
- Achieving the plastic component-based reduction targets requires either substantial material substitution, significant reuse adoption, or a combination of both.
- Use closed loop systems and B2B context as starting points to build infrastructure that can support future expansion to open loop systems and B2C contexts.
- Identify and collaborate with key enablers, especially for short-term infrastructure needs.
 - Leverage co-packers, contract manufacturers who already operate at scale, have expertise, equipment and regulatory compliance systems to handle food-grade packaging.

Ways to Stay Informed

Sign-up for our SB 54 Listserv

Upcoming Needs Assessment informational sessions on:

April 14th (2:00 to 4:00 PM): Will cover needs assessment reports related to recyclability, compostability, and recycling rate requirements.

More information forthcoming; will be distributed through our listserv and available on the SB 54 Webpage and the SB 54 Statewide Needs Assessment Webpage

For questions, comments, and feedback on the NA, please email us at

Email: Packaging@CalRecycle.ca.gov



Q&A