

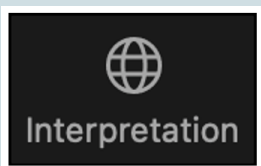


2025 Rate Determination Survey Methodology Workshop

**December 19, 2023
2:00 – 4:00 pm**



Interpretation Services | Servicios de Interpretación



Zoom – Select your language on the Interpretation icon
Zoom - Seleccione su idioma en el icono Interpretación

Submit your questions via the Q&A feature; these will be addressed at the end of the workshop.



Introductions

CalRecycle, Beverage Container Recycling Program:

- **Oswaldo Hernández, Supervisor**
- **Jim Huck, Supervisor**



Agenda

- **Workshop Purpose**
- **2025 Rate Determination Survey Methodology**
- **Financial & Refund Value Risk**
- **Confidence Levels / Error Rates**
- **Survey Sites / Sample Sizes**
- **Site Data Collection Methodology**
- **Questions / Comments / Input / Ideas**



Workshop Purpose

Per PRC 14549.5 “. . . the department shall . . . consult with private and public operators of curbside recycling programs, collection programs, and recycling centers concerning . . .”



Our Goal

To ensure the most accurate rates feasible to properly compensate consumers and industry, and to protect the solvency and integrity of the California Beverage Container Recycling Fund.



What Process Does CalRecycle Use to Determine Rates for the California Recycling Programs?



California Recycling Programs

- Recycling Centers (RC)
- Curbside Programs (CS)
- Drop-Off / Collection Programs (CP)
- Community Service Programs (SP)
- Reverse Vending Machines (RVM)



Financial Risk

- **Determine financial risk:**
 - **Determine the refund value of each material and for each program**
 - **Rank the redemption frequency from high to low**

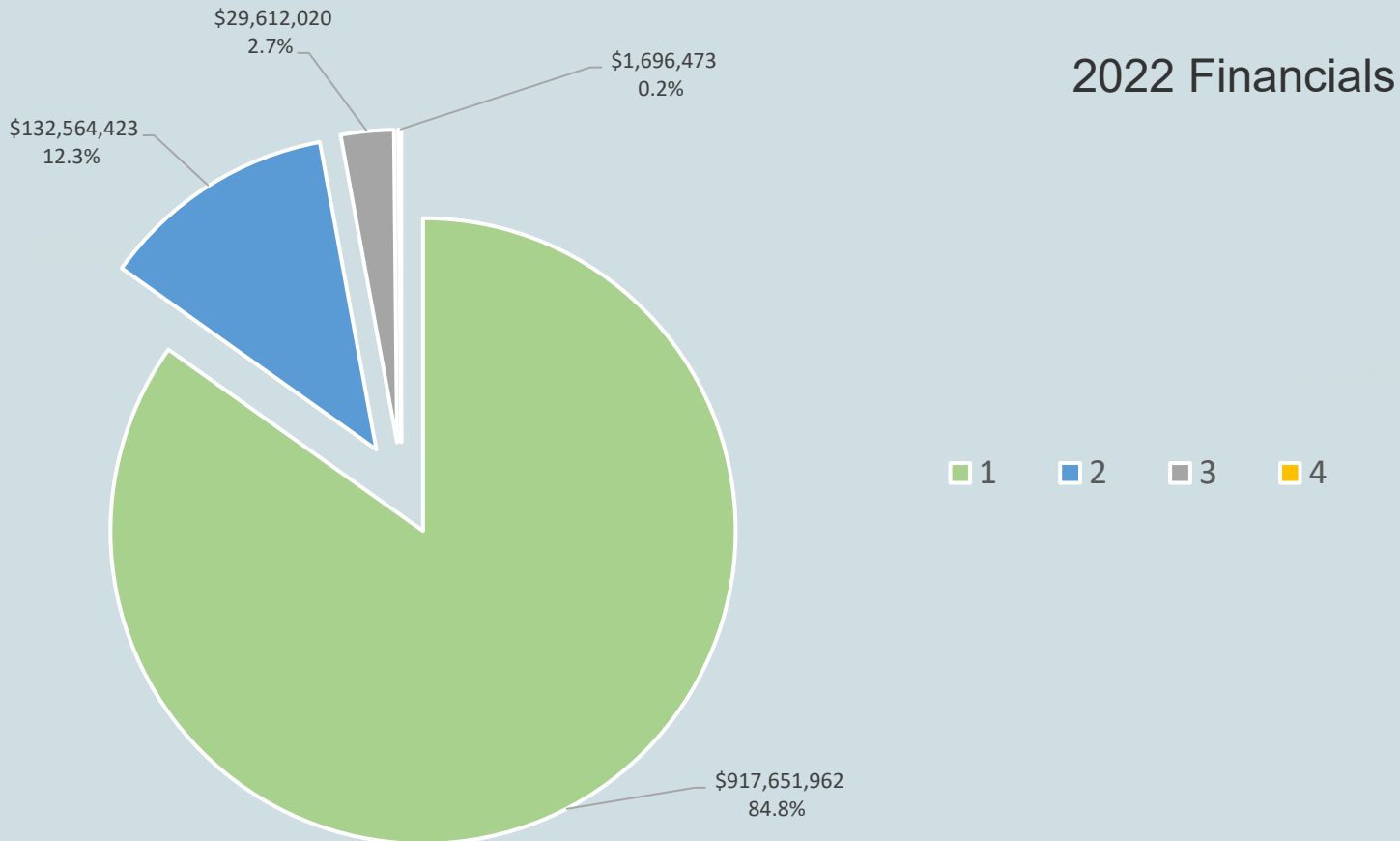


Refund Value

Calendar year (CY) 2022

Program-Material	Redeemed Value	% of total
RC – PET	\$478,000,000	44.2%
RC – Aluminum	\$370,400,000	34.3%
RC – Glass	\$61,300,000	5.7%
Total		84.2%

Where does the CRV collected go?





Financial Risk

Based on financial risk:

- **Determine the number of containers to sample for each material at each program based on confidence level and error rate goals**
- **Determine the number of sites to survey for each program**



Confidence Level

- A number, shown as a percentage, that represents the likelihood that the value of survey results will fall within a specified range (dollar value), compared to the value of the whole population.



Error Rate

The Error Rate or “margin of error” is a number shown as a percentage that expresses the maximum expected difference between our survey sample result and the true value of the entire population.



High Confidence Level + Low Error Rate

Although it is impossible to sample all the containers in a population, with a high confidence level and a low error rate, the results of the survey sample will be close to, and representative, of the value of the entire population.



Why Are Confidence Levels & Error Rates Important?

- Impacts rates and the \$1.46 billion CRV Fund
- It monetarily impacts every consumer and industry stakeholder who deals with CRV material
- We all need confidence and assurance that the rates are reliable and accurate



Minimum Rate Calculation Goals

**CALIFORNIA CODE OF REGULATIONS
TITLE 14. NATURAL RESOURCES, DIVISION 2.,
CHAPTER 5., SUBCHAPTER 1., § 2000. -
DEFINITIONS.**

**"Statistical Sample" means an estimate with
an 85% confidence level**



Rate Calculation Goals

Standard Goals:

85% Confidence Level

5% Error Rate



How Is Sample Size Determined?

- Based on data from previous survey cycle
- Percentage of CRV to Non-CRV materials
- Standard Deviation of beverage container weights



Number of CRV Containers Sold in California (January 1, 2022 – December 31, 2022)

PET	14.0 Billion
Aluminum	10.4 Billion
Glass	2.8 Billion
HDPE	179.2 Million
<u>Other</u> (bi-metal & #3 - #7 plastics)	<u>340.7 Million</u>
Total	27.8 Billion



Binomial Formula

- Used to determine sample size based on proportions
 - i.e. - proportion of CRV containers to non-CRV containers.
- The closer the proportion is to 50%, the more containers required to be surveyed.



Binomial Formula (cont'd)

- **The closer the proportion is to 100% or to 0%, the fewer containers needed to sample.**
- **Binomial Formula was the legacy equation used by Rate Determination**
 - **Is not appropriate for segregated-only programs.**
 - **The formula was providing extremely low numbers at Recycling Centers and RVM's (near 100% CRV)**



What is Standard Deviation?

- The variability of the CRV containers surveyed.

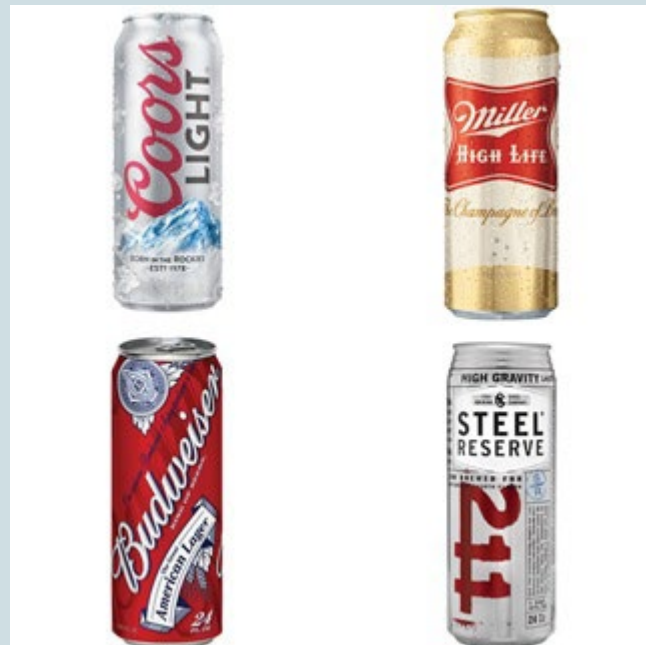


Aluminum

Generally, low standard deviation



5¢ AL containers



10¢ AL containers



PET Plastic #1

- Generally, high standard deviation



So many
different
containers!





Glass

- Generally, low standard deviation





High-Density Polyethylene (HDPE)

- Generally, high standard deviation





New CRV Containers

Beginning January 1, 2024:

- **Wine and distilled spirits are part of the program per SB 1013.**
 - **Includes new beverage containers for wine and distilled spirits**
- **Fruit and vegetable juices regardless of size are part of the program per SB 353.**
 - **Previously fruit juices less than 46 oz and vegetable juices 16 oz or less part of program**



New CRV Containers (cont'd)

CRV for new container types:

- **Bag in a box - \$0.25**
- **Pouch - \$0.25**
- **Bladder - \$0.25**

CRV for existing container types

- **\$0.05 or \$0.10 based on container type and size**



New CRV Containers (cont'd)





Sample Size Selection

- After completing the Binomial Formula and Standard Deviation Formula, the highest result is chosen.
- The process is repeated for every material type for each program type



Sample for Each Round of 2025 Surveys at Recycling Centers

- Aluminum = 1,491+ containers
- Glass = 2,002+ containers
- HDPE = 64+ containers
- HDPE (BIN) = 7,789+ containers
- PET = 23,379+ containers
- Bi-Metal = 863+ containers
- #3 - #7 plastics = 295+ containers

35,883+



Sample for Each Round of 2025 Surveys at Curbside Programs

• Aluminum	=	1,739+	containers
• Glass	=	1,852+	containers
• HDPE	=	7,704+	containers
• PET	=	<u>12,721+</u>	containers
		24,016+	



Sample for Each Round of 2025 Surveys at Drop-Off/Collection And Community Service Programs

- Aluminum = 1,509+ containers
 - Glass = 2,341+ containers
 - HDPE = 4,347+ containers
 - PET = 4,238+ containers
- 12,435+



Reverse Vending Machines

- There are 13 operational RVMs



Sample for Each Round of the 2025 Rate Survey

72,334+ Containers

(Aluminum, Glass, HDPE, PET, Bi-Metal, and #3 - #7 plastics)



2025 Rate Determination Survey Sites



How Are Survey Sites Determined?

- Based on data from previous survey year studies
- The total number of containers to survey
- Variance between survey sites
- CalRecycle staff resources available



Survey Sites (Planned) 2025

• Recycling Centers	80
• Curbside Programs	66
• Drop-Off / Collection Programs	30
• <u>RVMs</u>	<u>13</u>
Total	189



How Are Survey Sites Selected?

What sites are eligible to be selected for the annual Rate Determination survey?

- **Currently operational programs**
- **Certified at least eight months during prior Fiscal Year**
- **Reported volume to DORiiS during prior Fiscal Year**
- **2 or more months of reporting in DORiiS during the prior year.**
 - **If only 2 months reported, they can not be consecutive.**
- **Not receiving an Individual Commingled Rate (ICR)**



Survey Site Regions

RCs & CSs, sites are grouped by region:

- **Southern California**
 - Los Angeles, San Diego, Orange, Riverside, San Bernardino, Ventura, Santa Barbara, and Imperial Counties (8 counties)
- **Northern California**
 - All other counties (50 counties)



What are Strata?

Sites are stratified based on received PET, AL, GL volumes

- **Strata #1** **Top 50% of volume**
- **Strata #2** **Next 25% of volume**
- **Strata #3** **Lowest 25% of volume**




Survey Site Strata Selection – Recycling Centers (RC)

Strata	Sites Available	Sites to Visit
#1 South (high)	155	26
#2 South (medium)	167	11
#3 South (low)	378	13
#1 North (high)	75	14
#2 North (medium)	110	8
#3 North (low)	268	8
Total	1153	80



Survey Site Strata Selection – Curbside Programs (CS)

Strata	Sites Available	Sites to Visit
#1 South (high)	23	12
#2 South (medium)	36	7
#3 South (low)	152	7
#1 North (high)	24	20
#2 North (medium)	40	10
#3 North (low)	216	10
Total	491	66



Survey Site Strata Selection – Drop Off/Collection Programs & Community Service Programs (CP/SP)

Strata	Sites Available	Sites to Visit
#1 (high)*	7	7
#2 (medium)**	14	12
#3 (low)	189	11
Total	210	30

* 3 visits (per 6 month round) ** 2 visits (per 6 month round)



Survey Site Selection

- Each site is given a random number by a computer program
- Random site numbers are sorted in numerical order by program
- Sites are sorted by volume strata (high, medium, low volumes)
- The needed number of sites are selected from each volume strata for each program



Program Rejection

- **Recycling Centers not open adequate amount of time. RCs open less than 4 days a week will be rejected.**
- **Programs that can not surveyed seasonally. Programs that run historically less then 9 months a year will be rejected.**



Program Rejection (cont'd)

- Catalina programs
- CS/CP/SP programs that separate Non-CRV items from CRV items will be rejected
- Removal of “Off-Spec” items - such as rigid plastic, thermoforms*, and plastic lined food aluminum will be evaluated and may be allowed based on staff review



Rate Determination Surveys

- **Scheduled every month of the year**
- **Scheduled 35-40 weeks of the year**
- **Conducted every day of the week for RCs**
- **Distributed evenly over all seasons to reflect “seasonality”**



2025 Rate Survey Periods

- **12 month study / Two six-month survey rounds**
 - **Round #1 - October 1, 2023 to March 31, 2024**
 - **Round #2 - April 1, 2024 to September 30, 2024**
- **Same sites surveyed in each six-month round**
- **The same number of containers are surveyed for each material type at each type of recycling program**



Site Visits



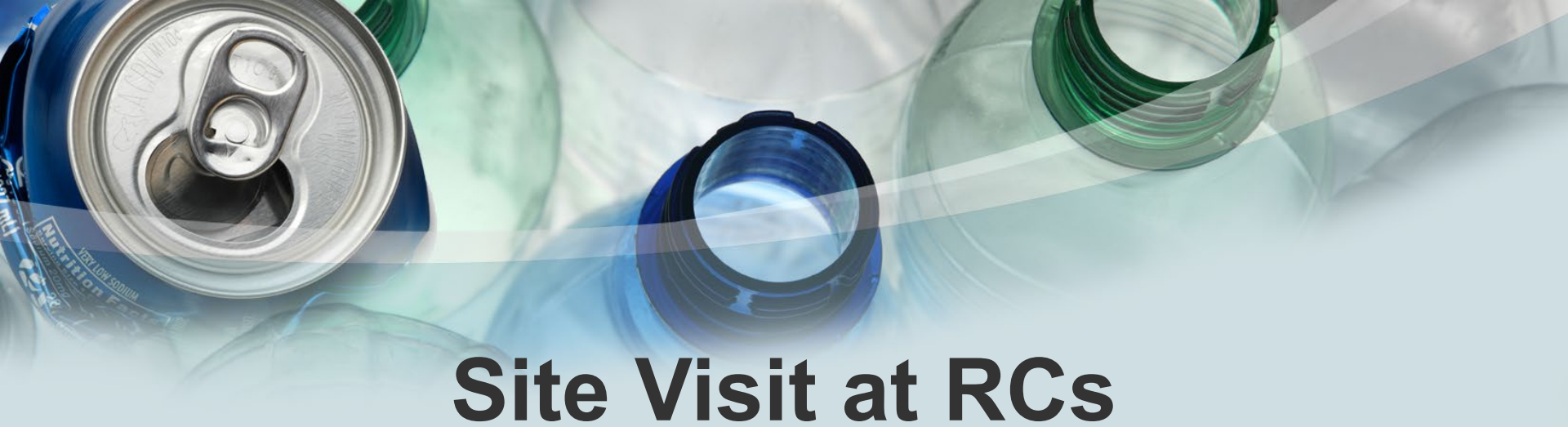
Survey Planning

- **June**
 - Initial planning completed
 - Selected and Alternate Sites identified
 - Letters sent to selected/alternate participants
- **July-August**
 - Phone calls and/or emails to selected/alternate sites and their program's haulers (if applicable)
 - Confirmation of site details and site visits
 - Review of Survey Program



Survey Begins in October

- For each site survey:
 - Site hours, locations, material availability reviewed
 - Draft schedule created
 - Staff send scheduling emails (3 weeks prior)
 - Staff call sites to schedule visit and confirm site details





RC Sample Collection

- **AL, GL, PET, HDPE**
 - **After customer transaction completed (as purchased), collect material.**
 - **Collect CRV material “as-is”, including contaminants, residual product, etc., as purchased by the attendant.**
 - **Survey whole containers only.**



RC Sample Collection

- **Bimetal, Plastic 3-7, HDPE, and New Container Types**
 - Not typically collected from the consumer.
 - Team members use material in RC's bins.
 - Survey whole containers only.
 - Expanded survey volume for HDPE by sampling material stored by the Recycling Center.



Site Visit at CS/CP/SP Programs

- Survey team will normally consist of 2 team members
- Appointment times scheduled as closely as possible to follow schedule



Program Sample Collection

- **AL, GL, PET, HDPE**
 - **Whole containers only**
 - **Empty containers for AL and Glass – no liquids**
 - **As-is for plastics – residual product and other liquids**
 - **Pick containers from a pile based on baling (as described)**



Program Sample Collection Process

- **AL, GL, PET, HDPE**
 - First confirm that material provided is from selected program
 - Collect sample from pile dropped by route truck
 - Collect from bins or bunkers if material types are separated and **ONLY** from program selected
 - Collect from MRF line if material is **ONLY** from program selected (rare)



Pile





Bunkers





Bins/Dumpsters





How Does CalRecycle Analyze the Survey Samples?

- Containers of a single material type are counted and weighed into batches
 - RC – as purchased from customers
 - CS / CP / SP – from piles, bins, and bunkers
 - RVMs – from the machines storage unit



How Does CalRecycle Analyze the Survey Samples? (cont'd)

- **Batches of containers are sorted, counted, weighed, and analyzed**
 - **CRV less than 24 oz. (5 cents)**
 - **CRV \geq 24 oz. (10 cents)**
 - **Non-CRV containers**
 - **Identify Product Type**
 - **Individual Weights for a Sub-Sample of Containers**
 - **Contaminants**



What Does CalRecycle Do With Survey Data?

- Data from surveys is analyzed by program type and material type:
 - Containers Per Pound (CPP)
 - Refund Value Per Segregated Pound (RVSP)
 - Refund Value Per Commingled Pound (RVCP)
 - Legislation and Regulations
 - Provide data and analysis to internal and external stakeholders



Segregated

"Segregated" means divided by material type and that such divided load consists of 100% California Refund Value material.



Commingled

- A commingled load is “a mix of empty beverage containers as defined in Section 14512 [CRV containers], and all other containers of the same material type.” §14506.5 PRC 12.1



Rate Based on Program

- **Segregated rate:**
 - Recycling centers
- **Commingled rate:**
 - Curbside Programs
 - Drop-Off /Collection Programs
 - Community Service Programs
 - Reverse Vending Machines



Individual Commingled Rate Survey

- Program suspended August 2019
- Currently includes 100 participants
- Re-examining program in early 2024



Survey Cycle

- **Organize / Plan** March - Sept. 202X
- **1st Round Surveys** Oct. 202X – Mar. 202X+1
- **2nd Round Surveys** Apr. 202X+1 – Sep. 202X+1
- **Public Hearing for Rates** October 202X+1
- **Notice of New Rates** December 202X+1
- **New Rates Effective** January 1, 202X+2



Program Updates

- **Developing the Blue Bin Study – what’s going in the blue bin?**
- **What does the commingled rate reflect?**
- **Impact of new beverage containers to all programs**



Workshop Purpose – Recap

California Beverage Container Recycling & Litter Reduction Act Section: 14549.5

“ . . . the department shall . . . consult with private and public operators of curbside recycling programs, collection programs, and recycling centers concerning . . . ”



Our Goal - Recap

To ensure the most accurate rates feasible to properly compensate consumers and industry, and to protect the solvency and integrity of the California Beverage Container Recycling Fund.



Discussion and Industry Input

- **Size of the statewide sample**
- **Appropriate sampling methodologies**
- **Alternatives to exclusive reliance on statewide commingled rate**



Questions and Comments

During the workshop, use the Q&A feature to submit questions or comments.

Questions and comments will be accepted until 5 pm January 9, 2024. Please email your questions and comments to RateDetermination@CalRecycle.ca.gov
Responses will be posted on our website.



Thank You!