



2023 Survey Status Update

QA/QC Process, Participation, Reporting Deadline Extension, and Next Steps

September 8, 2025

Outline

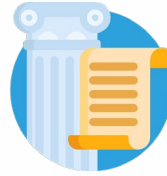


All 37 Selected Categories for the Survey



SIP Commitment
(17 categories)

Category Code	Category Name
20311	General Purpose Cleaner (nonaerosol)
30211	Anti-microbial Dry Hand Wash (Hand Sanitizer)
20903	Laundry Detergent
30404	Hand and Body Conditioner, Cream, Lotion, and Moisturizer
20104	Air Freshener, liquid/pump spray
30102	Deodorant
10115	Plastic Pipe Cement and Primer
20305	Disinfectant (aerosol)
30603	Dye, permanent
30602	Conditioner without styling claims
21405	Floor Wax Stripper
20326	Oven or Grill Cleaner (nonaerosol)
30411	Sunscreen (hair or body) (aerosol)
30207	Body Wash/Mousse/Gel/Soap/Foam/Scrub
20919	Liquid Fabric Softener
30101	Antiperspirant
20103	Dual Purpose Air Freshener/Disinfectant (aerosol)



US EPA Regulations
(1 category)

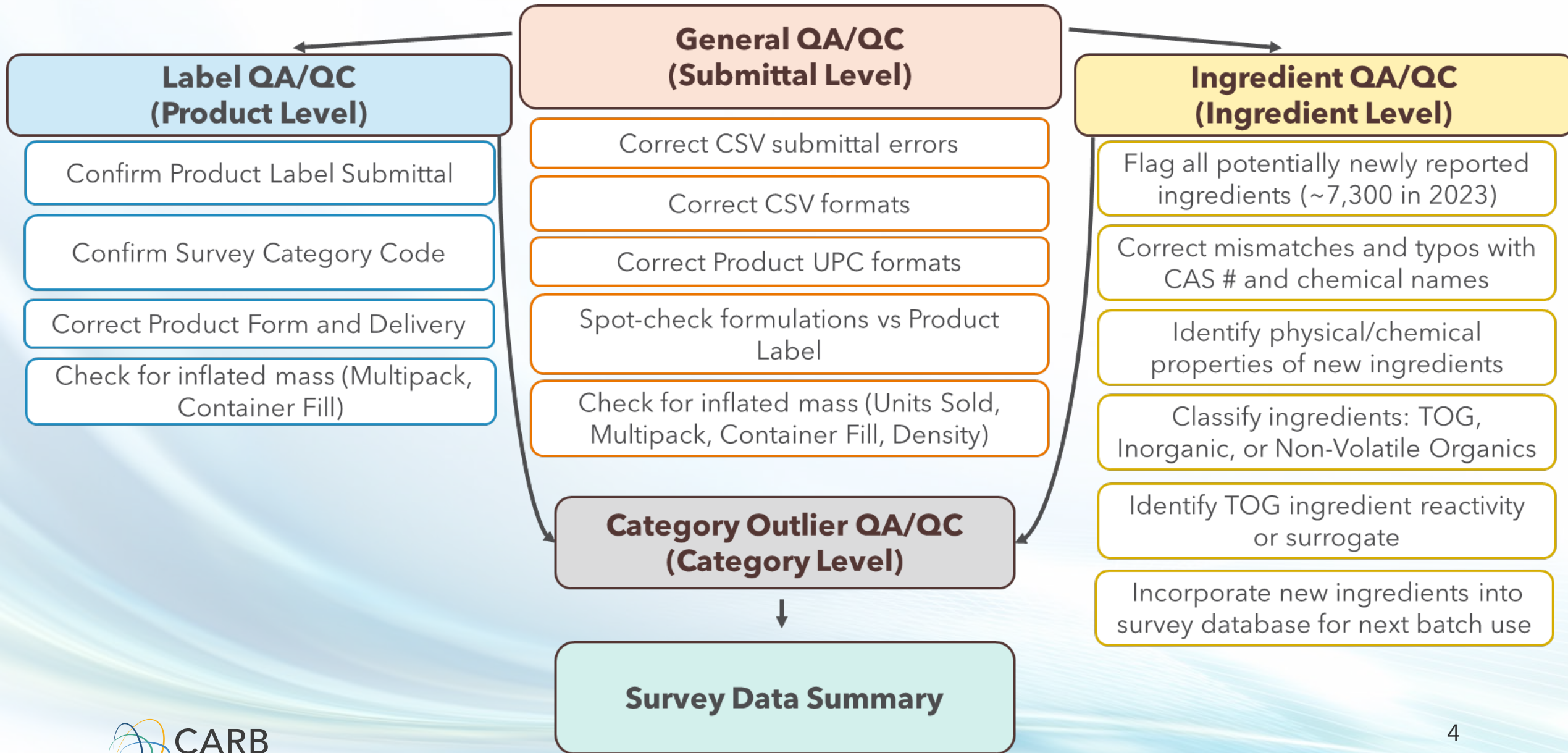
Category Code	Category Name
60214	Paint Remover or Stripper



PCBTF Prohibition
(19 categories)

Category Code	Category Name
60223	Thinner/Reducer/Retardant (Motor Vehicle Coating Systems)
60216	Paint Thinner (nonaerosol)
10210	Sealant or Caulking Compound -- Nonchemically Curing
60211	Lacquer Thinner
21303	Footwear or Leather Care Product (all other forms)
60213	Multi-purpose Solvent (nonaerosol)
21301	Footwear or Leather Care Product (aerosol)
60203	Clean Up Solvent
21018	Rust Preventative or Rust Control Lubricant (aerosol)
70117	Undercoating (aerosol only)
20504	Carpet and Upholstery Cleaner (nonaerosol - dilutable)
20312	General Purpose Degreaser (aerosol)
20321	Metal Polish/Cleanser (aerosol)
21003	Cutting or Tapping Oil (aerosol)
20313	General Purpose Degreaser (nonaerosol)
20513	Spot Remover (nonaerosol)
10209	Sealant or Caulking Compound -- Chemically Curing
21012	Multi-purpose Dry Lubricant
21014	Penetrant

Survey Quality Assurance / Quality Control Process



Timeline

Survey



December 3, 2024 Survey Launch



April 8, 2025 Deadline for Submitting Completed Survey Data for both RP and Formulators



September 22, 2025 New Reporting Deadline



Early October 2025 Preliminary Identification of Categories with Persistent Underreporting

Regulatory



January 2026 2023 Survey Data Summary Release and TOG List



March-May 2026 Pre-regulatory Category Evaluation and Stakeholder Webinars/Workshops



Late December 2026 Consolidate Category Regulatory Strategies and Prepare ISOR



Late October 2027 Regulatory Amendment Board Hearing

Outline



Overview of 2023 Survey Status to date

Survey Status	2023	3-Year Survey (37 Targeted Categories)
Total Reporting Responsible Parties (RP)	417	894
Total Products Reported	~42,200	~59,500
Total Ingredients Reported	~613,300	~525,000
Total Potentially New Ingredients to QAQC	~7,300	NA

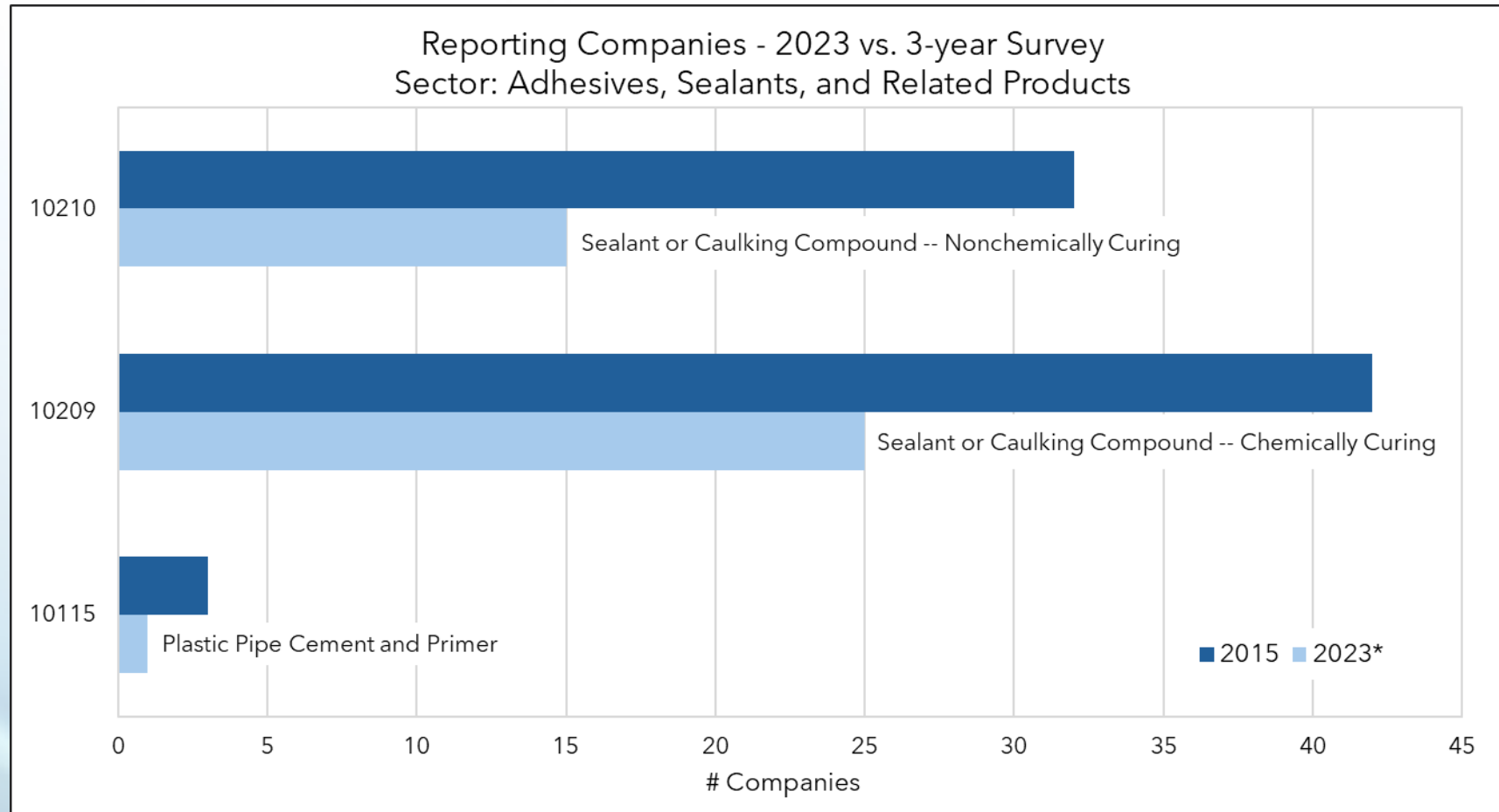
Breakdown of 2023 RP	Number of RP
Participants in Both 3-Year Survey and 2023 Surveys	223
First Time Participants in 2023	194
Non-Responding Company List (as of 8/28/2025)	574

Non-Responding Company List

Companies were removed from the list if they were:

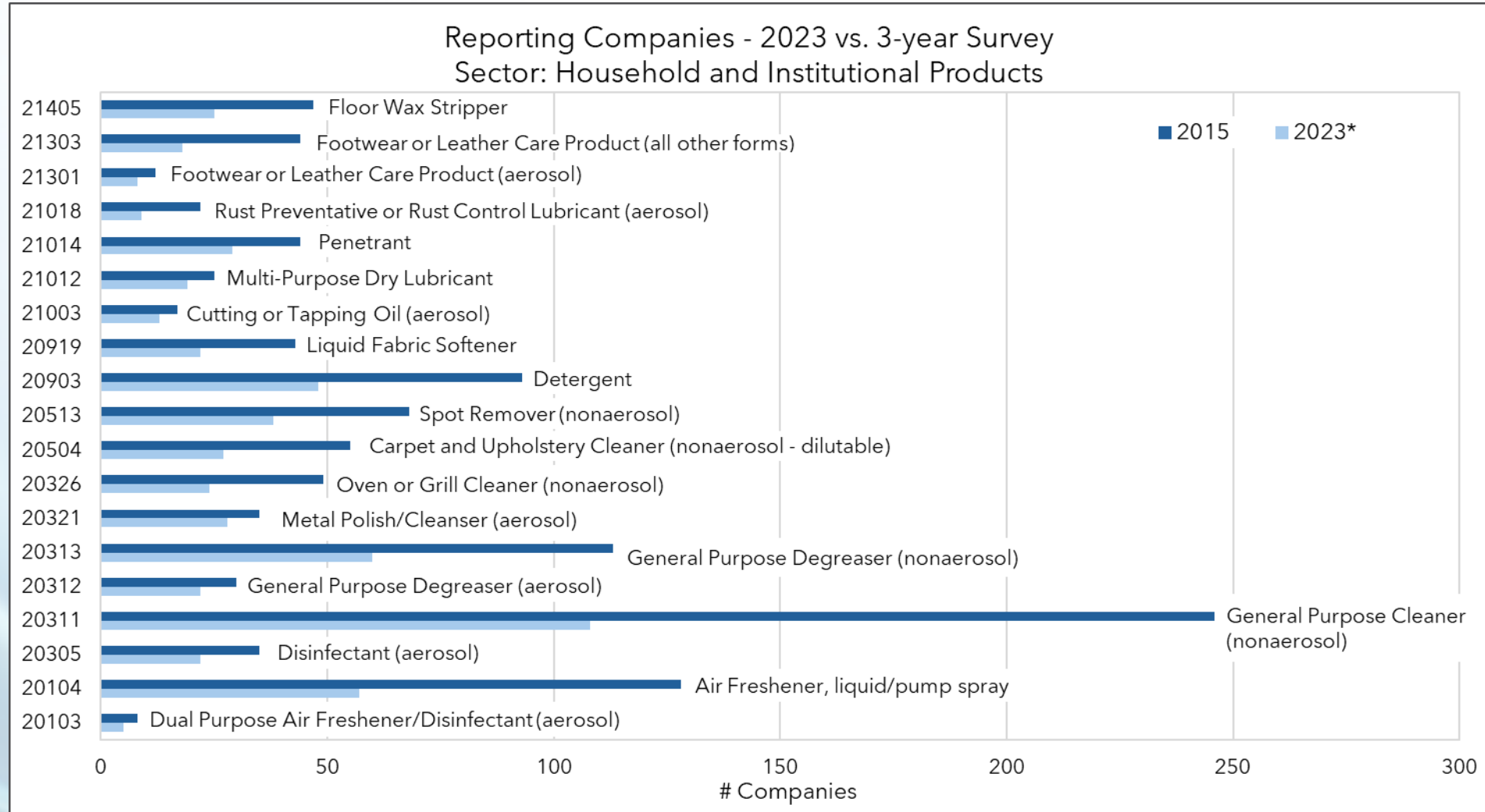
- Verified as being no longer in business in 2023
- Reported in 2023 under a new name
- Acquired by, and subsequently reported under, a different company in 2023

Last and Current Survey Participation



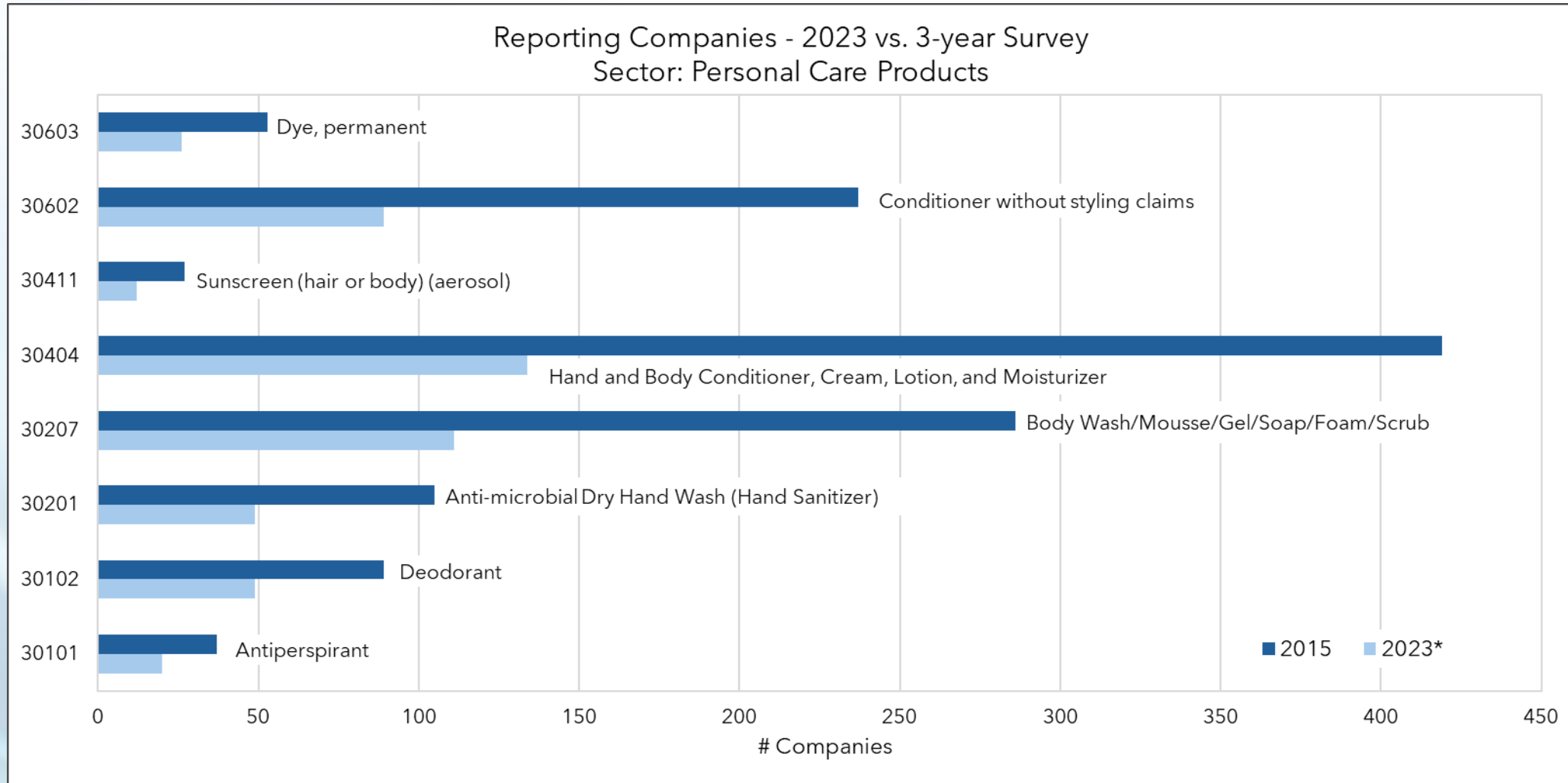
* Companies reported in 2023 that also reported in 3-year survey

Last and Current Survey Participation



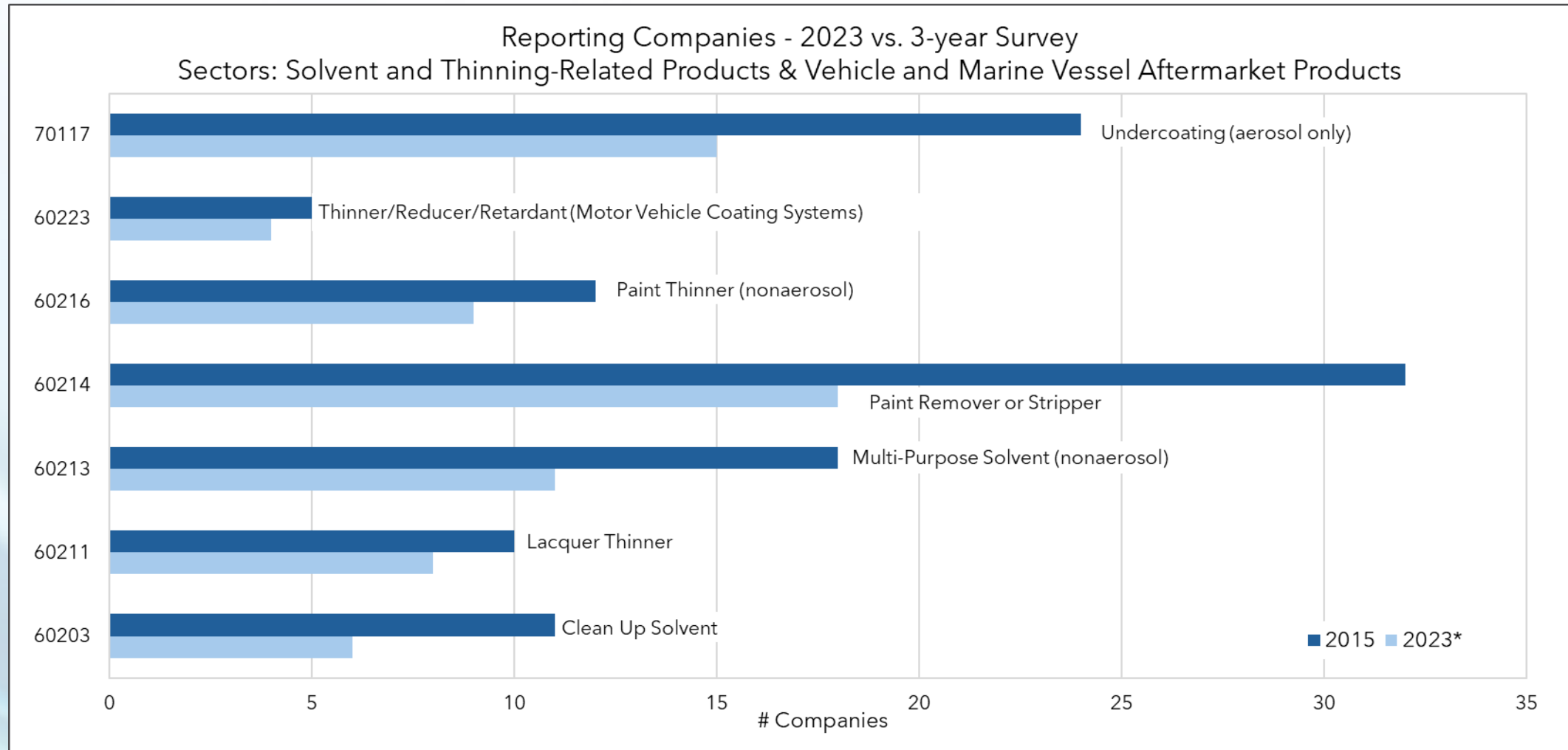
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Last and Current Survey Participation



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Last and Current Survey Participation



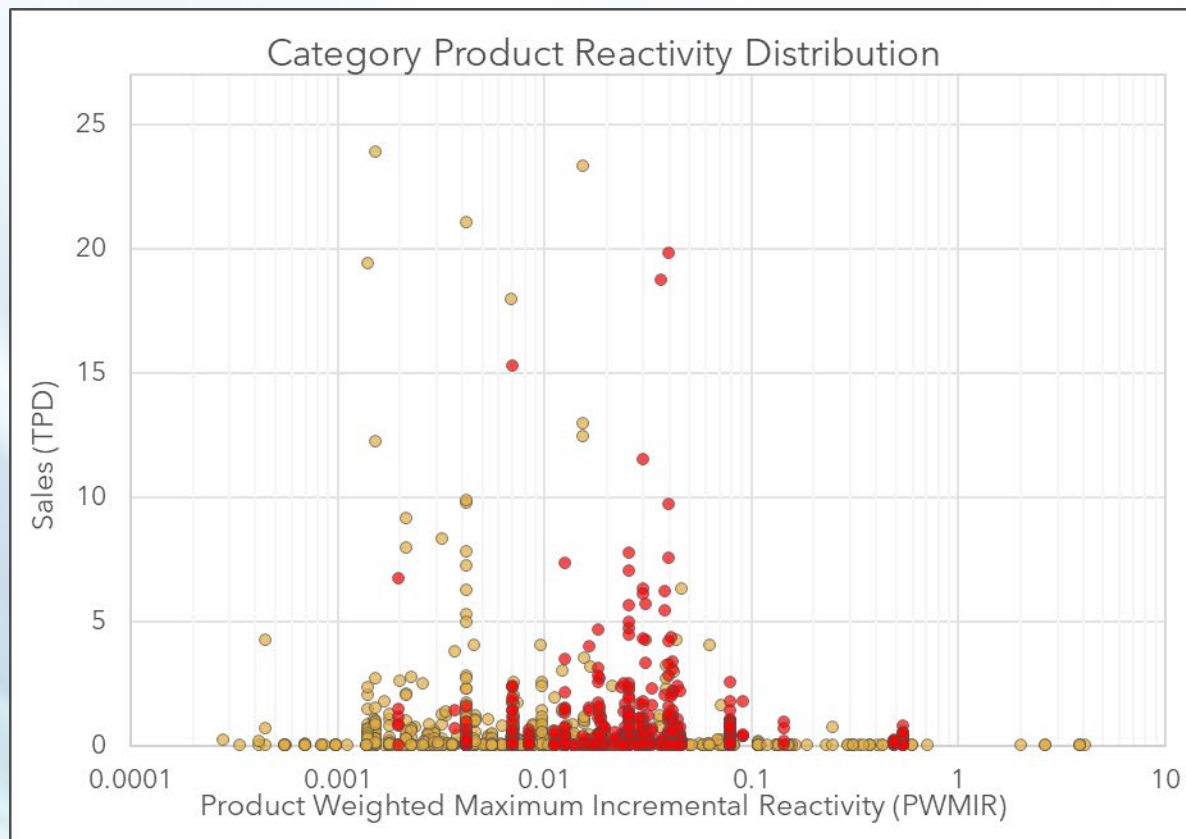
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Outline

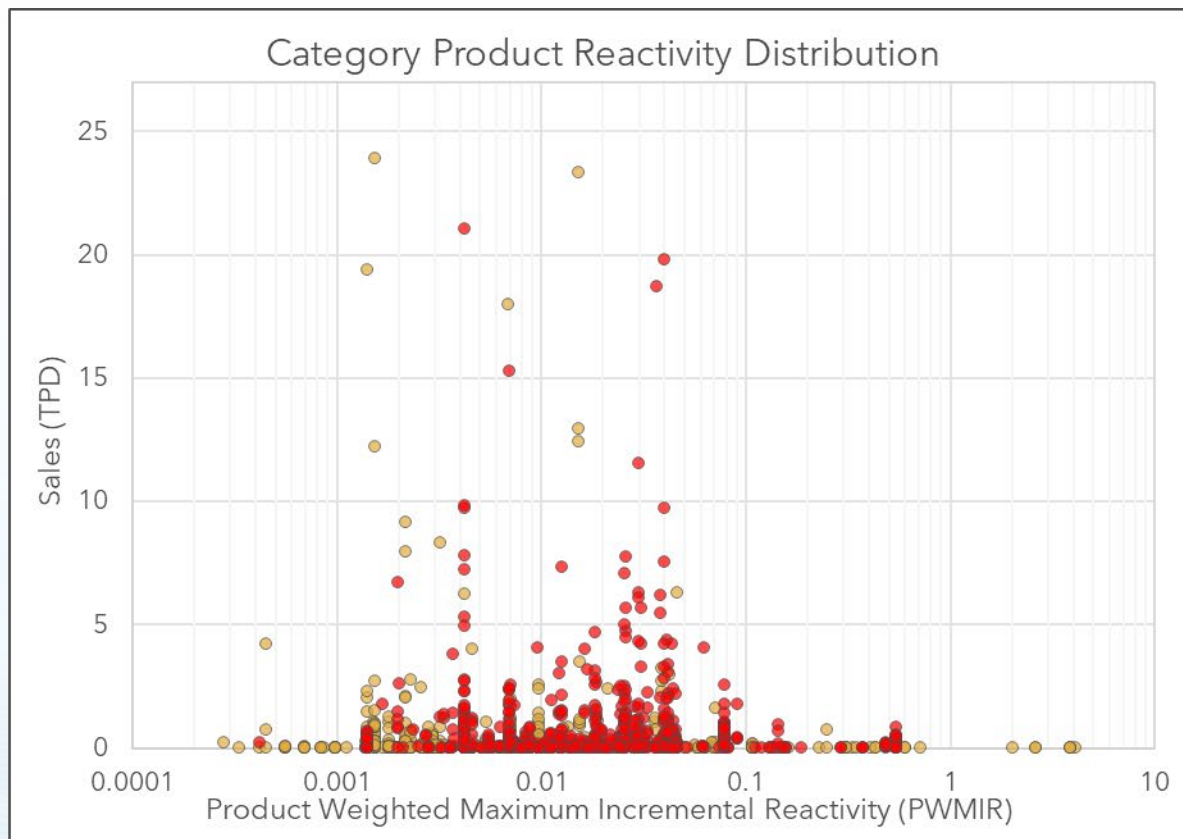


Implications of Non-Reporting

Scenario A: A single non-reporting company

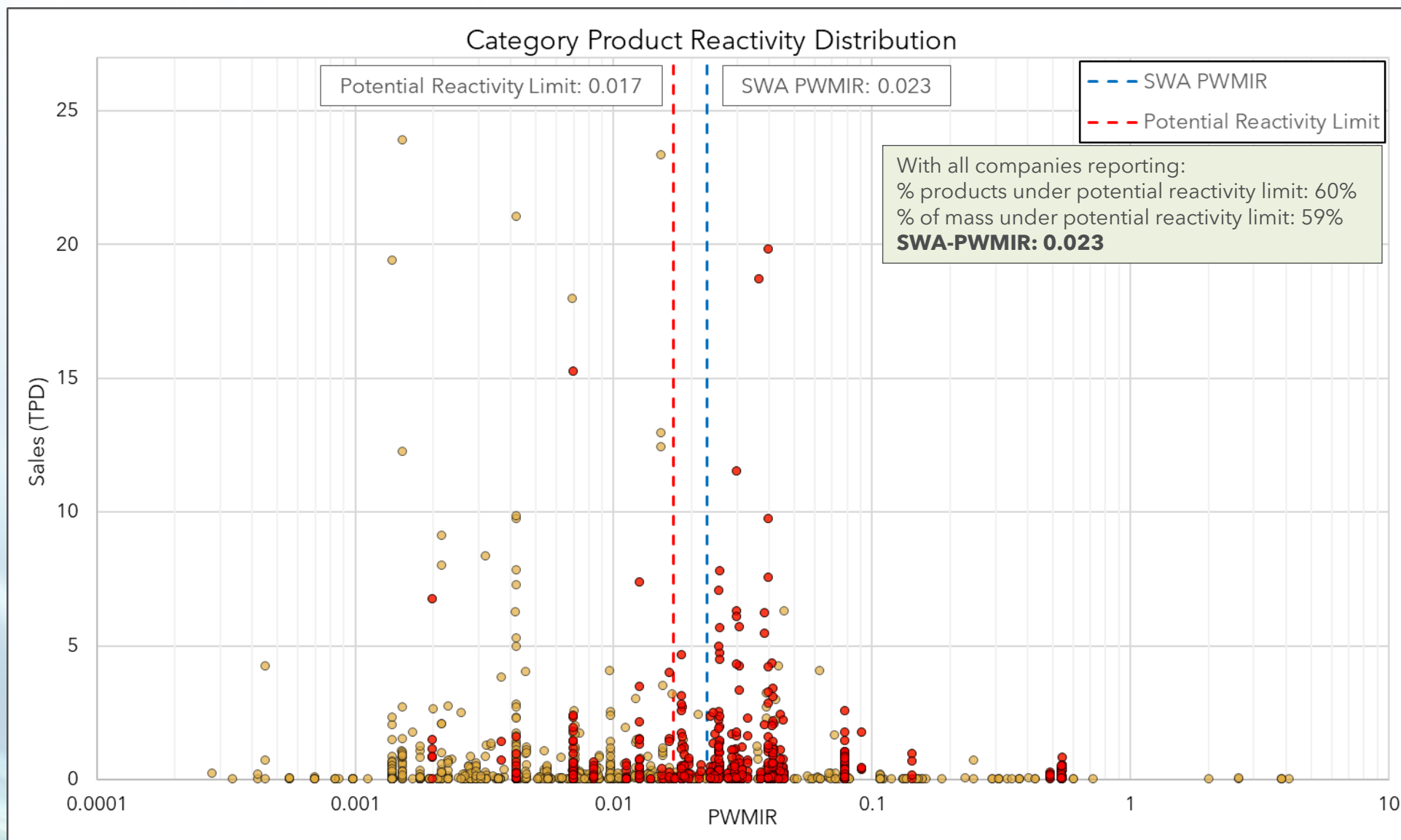


Scenario B: Many non-reporting companies

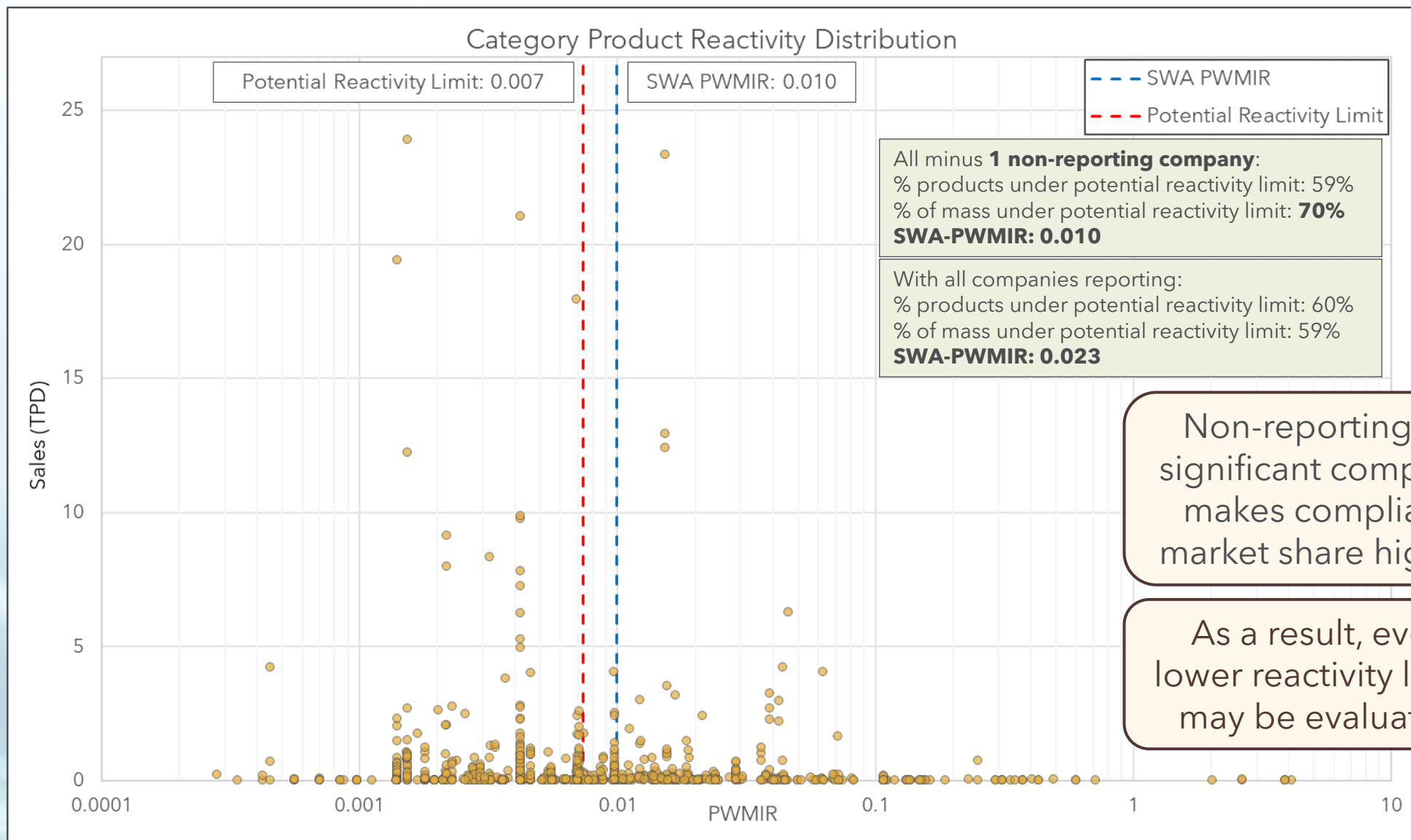


● = Non-reporting Company
● = Reporting Company

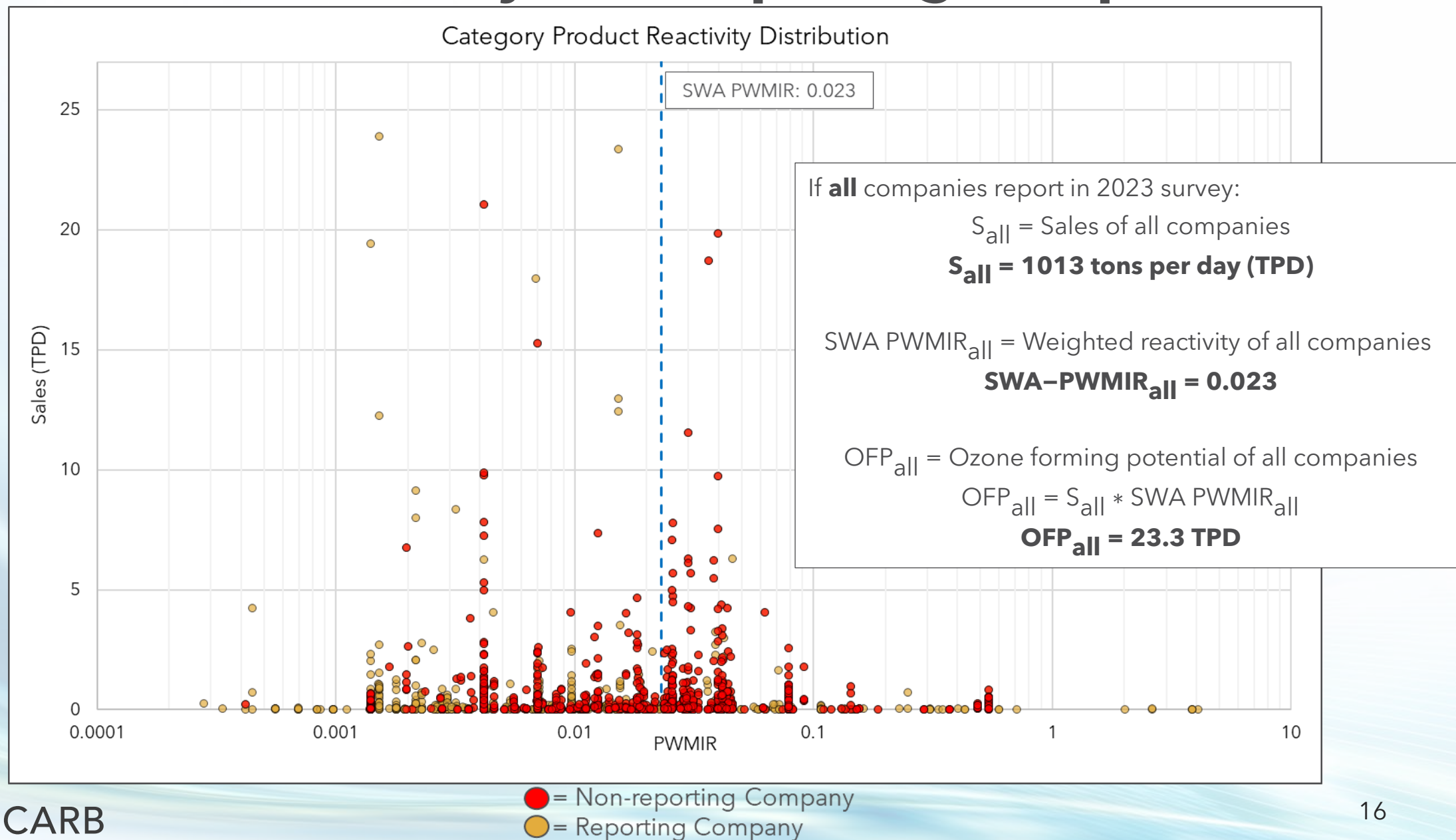
Scenario A: A Single Non-Reporting Company



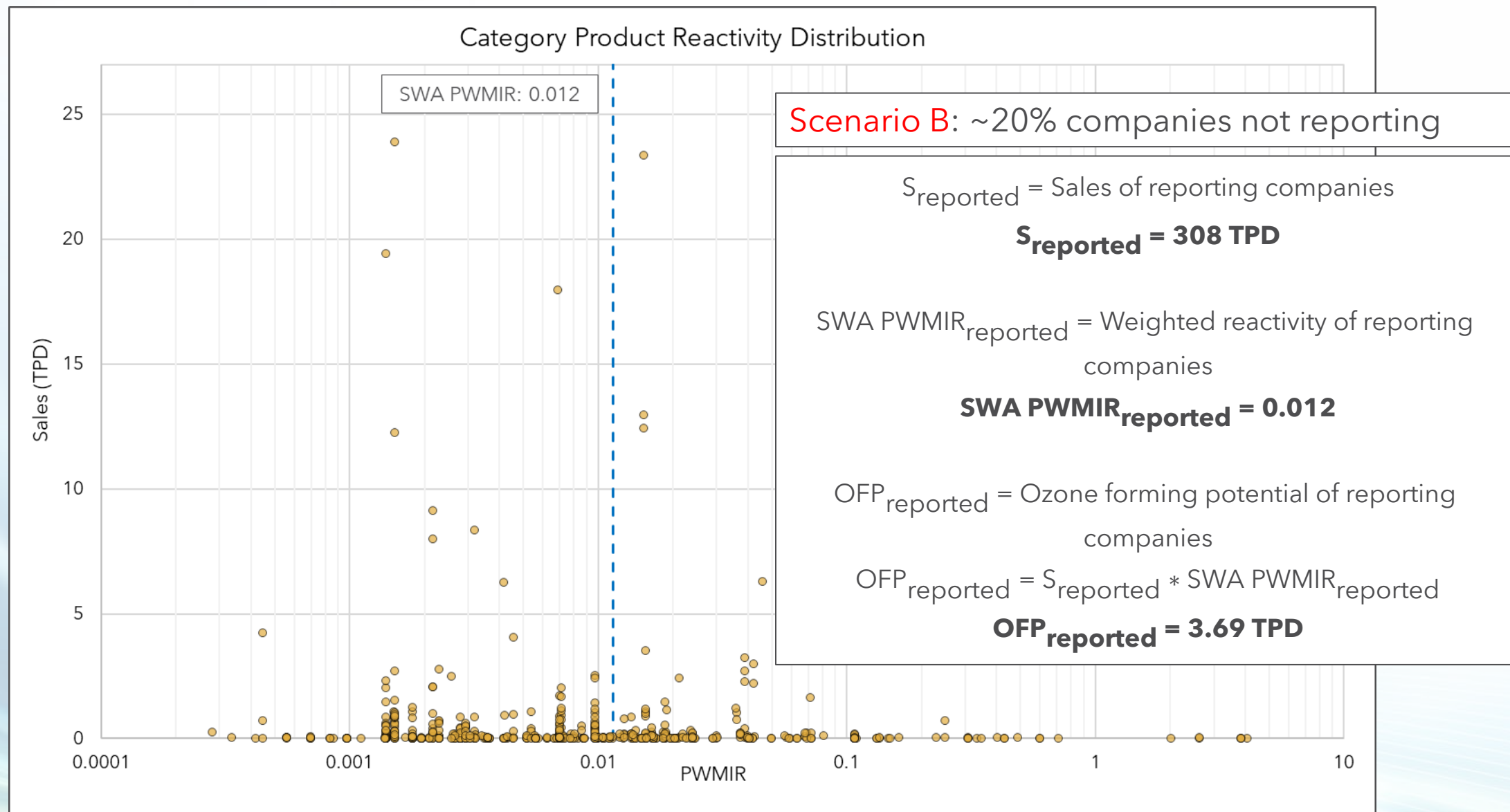
Scenario A: A Single Non-Reporting Company



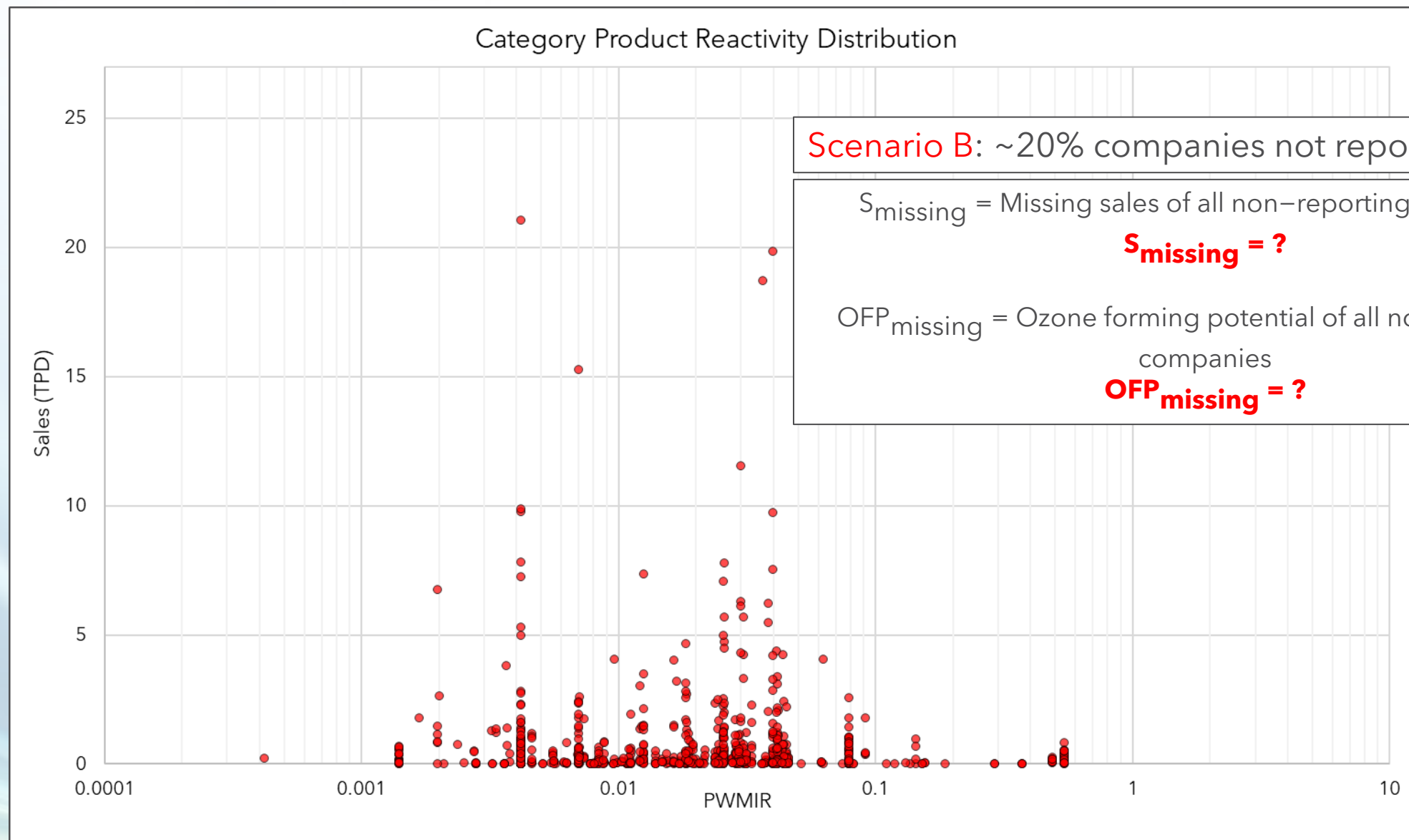
Scenario B: Many Non-Reporting Companies



Scenario B: Many Non-Reporting Companies



Scenario B: Many Non-Reporting Companies



Scenario B: ~20% companies not reporting

S_{missing} = Missing sales of all non-reporting companies

$S_{\text{missing}} = ?$

OFP_{missing} = Ozone forming potential of all non-reporting companies

$OFP_{\text{missing}} = ?$

Scenario B: Many Non-Reporting Companies

Scenario B: ~20% companies not reporting

S_{reported} = Sales of reporting companies

$S_{\text{reported}} = 308 \text{ TPD}$

$\text{SWA PWMIR}_{\text{reported}}$ = Weighted reactivity of reporting companies

$\text{SWA PWMIR}_{\text{reported}} = 0.012$

$\text{OFP}_{\text{reported}}$ = Ozone forming potential of reporting companies

$\text{OFP}_{\text{reported}} = S_{\text{reported}} * \text{SWA-PWMIR}_{\text{reported}}$

$\text{OFP}_{\text{reported}} = 3.69 \text{ TPD}$

S_{missing} = Missing sales of all non-reporting companies

$S_{\text{missing}} = ?$

$\text{OFP}_{\text{missing}}$ = Ozone forming potential of all non-reporting companies

$\text{OFP}_{\text{missing}} = ?$

To be estimated using
one of 2 options
presented in later slides

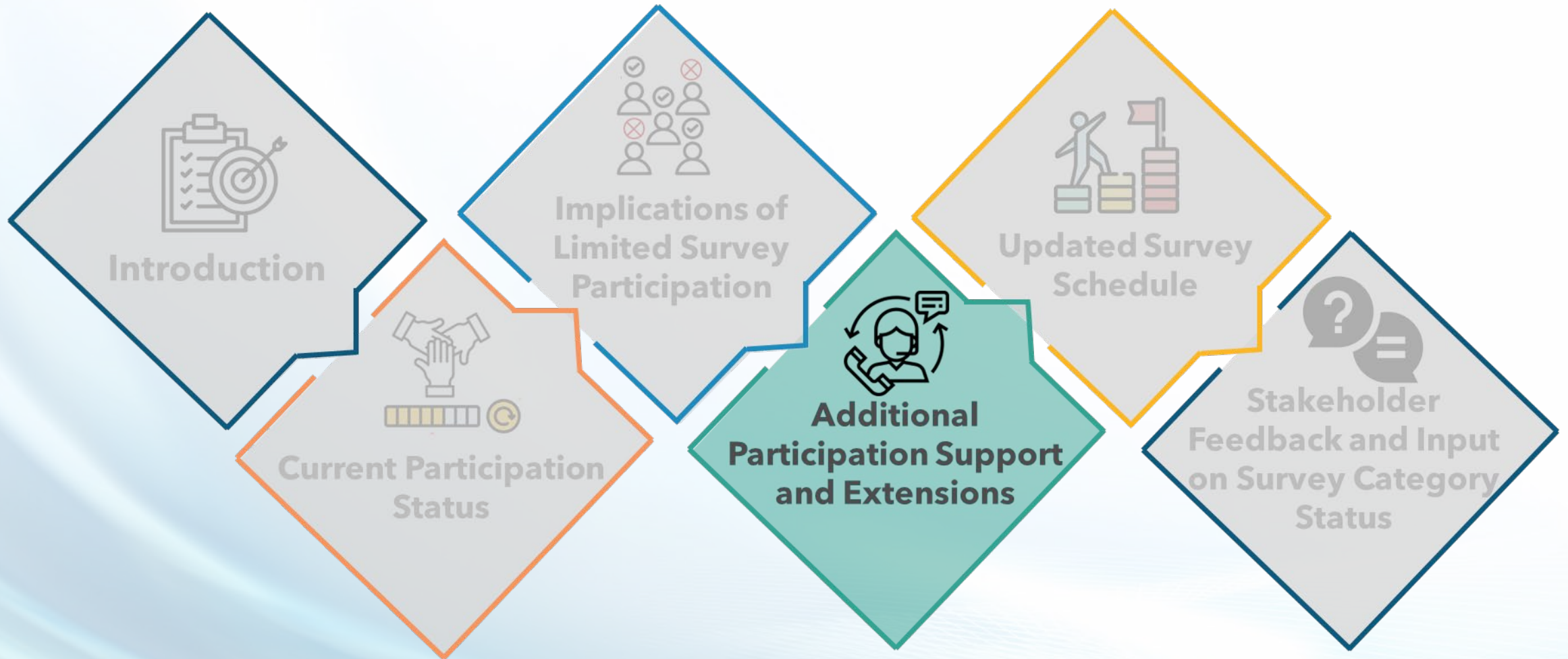
$S_{\text{corrected}}$ = Corrected sales of all companies

$S_{\text{corrected}} = S_{\text{reported}} + S_{\text{missing}}$

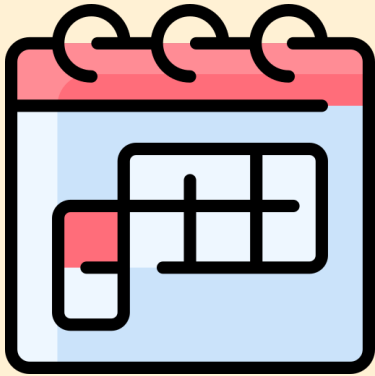
$\text{OFP}_{\text{corrected}}$ = Corrected ozone forming potential of all companies

$\text{OFP}_{\text{corrected}} = \text{OFP}_{\text{reported}} + \text{OFP}_{\text{missing}}$

Outline



Additional Support



Extension of
reporting:
September 22



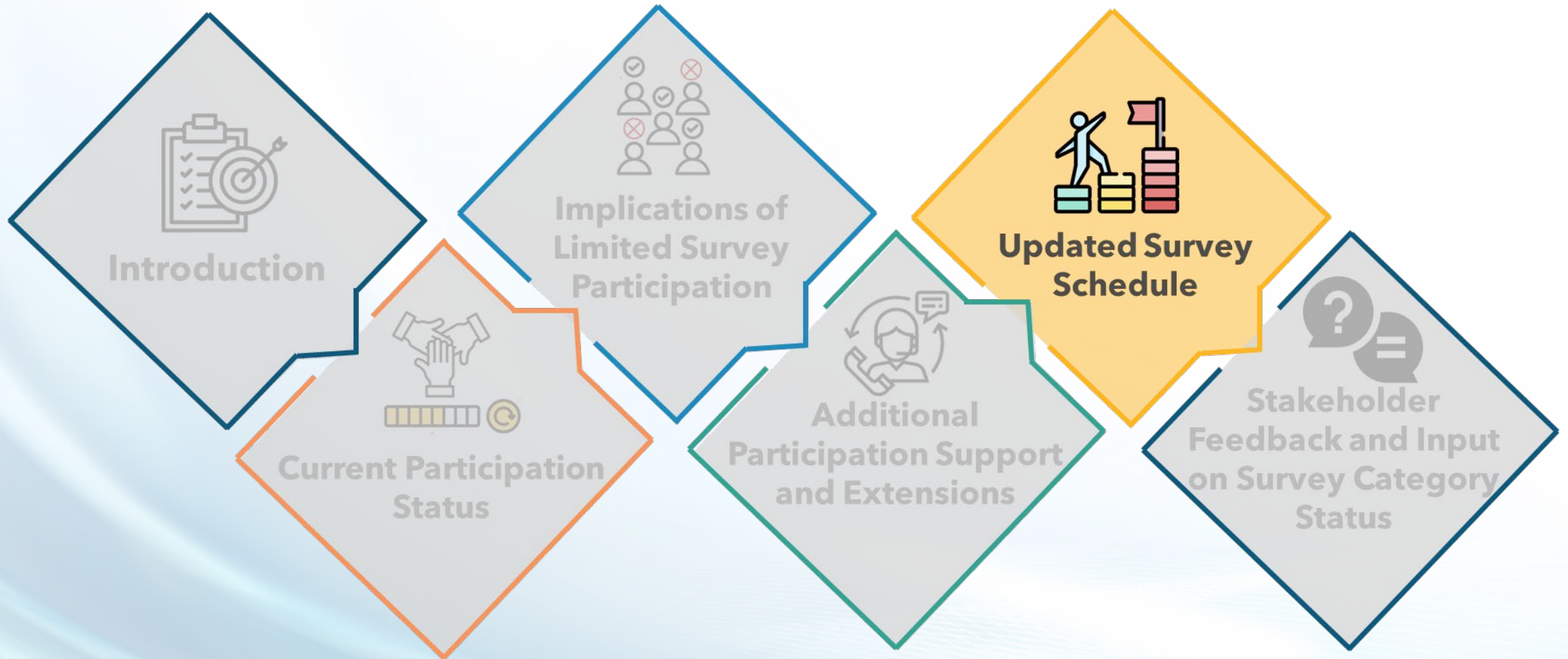
We offer one-on-one assistance

Please email the
Survey Help Box to schedule a call or meeting at
2023CPSurvey@arb.ca.gov

Put "**Live Survey Help**" in the email subject line.

Include a phone number or email for Microsoft
Teams meeting.

Outline



Timeline

Survey



December 3, 2024 Survey Launch



April 8, 2025 Deadline for Submitting Completed Survey Data for both RP and Formulators



September 22, 2025 New Reporting Deadline



Early October 2025 Preliminary Identification of Categories with Persistent Underreporting



Late October 2025 Complete QAQC of additional submittals from extended deadline



Mid January 2026 Initiate remediation of category reporting shortfalls



Late January 2026 Draft Survey Data Summary Workshop for Stakeholder Input



January 2026 2023 Survey Data Summary Release and TOG List



Late February 2026 Update Survey Category Regulatory Inventory



March-May 2026 Pre-regulatory Category Evaluation and Stakeholder Webinars/Workshops



Late December 2026 Consolidate Category Regulatory Strategies and Prepare ISOR



Late October 2027 Regulatory Amendment Board Hearing

Regulatory

2015 CARB Consumer Products Survey Data

2015 CARB Consumer and Commercial Product Survey - December 12, 2019											
Category Code	Category Name	Product Data					Emissions Data (Fate and Transport Adjusted)				
		Reporting Companies	Reported Products	Sales (tpd)	Sales Weighted Average VOC Content (undiluted)	Speciation	VOC (tpd)	ROG (tpd)	TOG (tpd)	PWMIR (gO ₃ /g)	Ozone Forming Potential (tpd)
						VOC LVP-VOC Exempt Water Other					
60201	Baseboard Stripper*	11	17	0.03	28.59%		0.01	0.01	0.01	0.70	0.02
60202	Brush Cleaner and Reconditioner*	17	51	0.35	9.78%		0.03	0.04	0.27	0.39	0.14
60203	Clean Up Solvent	11	26	0.58	24.43%		0.14	0.16	0.57	0.57	0.33
60204	Specialty Degreasers (specific use)*	Omitted to Protect Confidentiality									
60205	Denatured Alcohol	5	16	1.75	97.44%		1.70	1.70	1.70	1.04	1.82
60206	Floor or Wall Covering Adhesive Remover	Omitted to Protect Confidentiality									
60207	Gasket or Thread Locking Adhesive Remover*	6	8	0.01	45.82%		0.01	0.01	0.01	1.05	0.01
60208	General Purpose Adhesive Remover	25	57	0.22	11.08%		0.02	0.05	0.07	0.60	0.13
60209	Graffiti Remover (aerosol)	22	28	0.13	46.71%		0.06	0.08	0.12	1.79	0.24
60210	Graffiti Remover (nonaerosol)	26	57	0.15	20.03%		0.03	0.09	0.10	1.13	0.17
60211	Lacquer Thinner	10	57	4.63	10.21%		0.47	0.47	4.53	0.53	2.47
60212	Multi-purpose Solvent (aerosol)	7	14	0.75	96.28%		0.72	0.72	0.73	1.29	0.97
60213	Multi-purpose Solvent (nonaerosol)	18	96	6.58	1.54%		0.10	0.89	6.32	0.46	3.03
60214	Paint Remover or Stripper	32	181	3.75	24.81%		0.93	1.03	3.46	0.47	1.76
60215	Paint Thinner (aerosol)*	Omitted to Protect Confidentiality									
60216	Paint Thinner (nonaerosol)	12	83	4.96	11.84%		0.59	3.93	4.23	0.78	3.86
60217	Specialty Adhesive Remover*	8	15	0.02	59.22%		0.01	0.01	0.02	2.82	0.07
60218	Spray Gun Cleaner and Solvent*	9	20	0.08	4.04%		0.00	0.05	0.07	0.53	0.04
60219	Surface Preparation Solvent and Cleaner (Marine Vessel and Watercraft Surfaces)*	Omitted to Protect Confidentiality									
60220	Surface Preparation Solvent and Cleaner (Motor Vehicle Surfaces)*	11	53	0.09	32.13%		0.03	0.03	0.03	0.76	0.07
60221	Thinner/Reducer/Retardant (Furniture Coating Systems)	4	11	0.03	99.28%		0.03	0.03	0.03	2.74	0.08
60222	Thinner/Reducer/Retardant (Marine Vessel and Watercraft Coating Systems)*	Omitted to Protect Confidentiality									
60223	Thinner/Reducer/Retardant (Motor Vehicle Coating Systems)	5	59	0.65	34.69%		0.22	0.22	0.37	0.60	0.39
60224	Other adhesive removers	Omitted to Protect Confidentiality									
60299	Other solvent and thinning products	21	92	0.40	11.41%		0.05	0.05	0.06	0.17	0.07

The 2023 Survey Data Summary will use the same format as the 3-Year Survey

[Posted at CARB, 2019](#)

Anticipated 2023 Survey Data Summary release around January 2026

Remediating Survey Categories with Persistent Underreporting

Category Code	Category Name	Product Data				Emissions Data (Rate and Transport Adjusted)				
		Reporting Companies	Reported Products	Sales (tpd)	Sales Weighted Average VOC Content (Lb/Lb)	Specification	VOC (tpd)	ROG (tpd)	TOD (tpd)	PM10 (tpd)
20809	Other garden and lawn care products	25	719	89.08	0.01%		0.01	0.08	0.08	0.00
20901	All Garden and Lawn Care Products	25	774	89.38	0.01%		0.03	0.09	0.09	0.00
20901	Bleaching Agent**					No Products Reported				
20902	Detergent Booster**	30	237	10.48	0.26%		0.12	0.33	0.33	0.01
20903	Laundry Detergent**	93	1763	1031.80	1.00%		1.66	7.39	7.39	0.01
20904	Dryer Sheets/Fabric Softener - Single Use Dryer Product	27	216	8.80	0.89%		0.08	0.31	0.31	0.00
20905	Fabric Wash	7	15	0.17	0.07%		0.00	0.00	0.00	0.00
20906	In dryer Fabric Care*					Omitted to Protect Confidentiality				
20907	Laundry Freshness Scent**/Scent*	7	22	14.55	0.04%		0.01	0.02	0.02	0.00
20908	Laundry Freshness Scent**/Scent*	8	23	5.52	0.26%		0.01	0.02	0.02	0.00
20909	Laundry Scent**/Scent**/Fabric Fresh Product*	14	76	4.33	1.40%		0.13	0.16	0.17	0.04
20910	Freshness**	4	7	0.13	0.00%		0.00	0.00	0.00	0.00
20911	Spot Remover (Laundry)**					Omitted to Protect Confidentiality				
20912	Spot Remover (Laundry)**	47	203	21.67	0.40%		0.09	0.12	0.12	0.01
20913	Scent	6	67	4.66	0.10%		0.00	0.01	0.01	0.04
20914	Scent and Fabric Fresh*	4	15	0.58	5.37%		0.03	0.03	0.03	0.19
20915	Wooling Scent*					Omitted to Protect Confidentiality				
20916	Water Softener and Conditioner**	15	53	1.31	0.07%		0.00	0.00	0.00	0.00
20917	Whitener/Brightener**	46	282	256.65	0.04%		0.02	0.07	0.07	0.18
20918	Wrinkle Reducing Spray/Reduce Wrinkles**					Omitted to Protect Confidentiality				
20919	Liquid Fabric Softener	43	387	260.06	1.73%		1.01	2.50	2.51	0.02
20999	Other laundry products	26	230	25.19	1.27%		0.28	0.32	0.32	0.01

Finalize Identification of categories with persistent underreporting

Option 1: Use Last Survey Non- Reporting Company Profiles

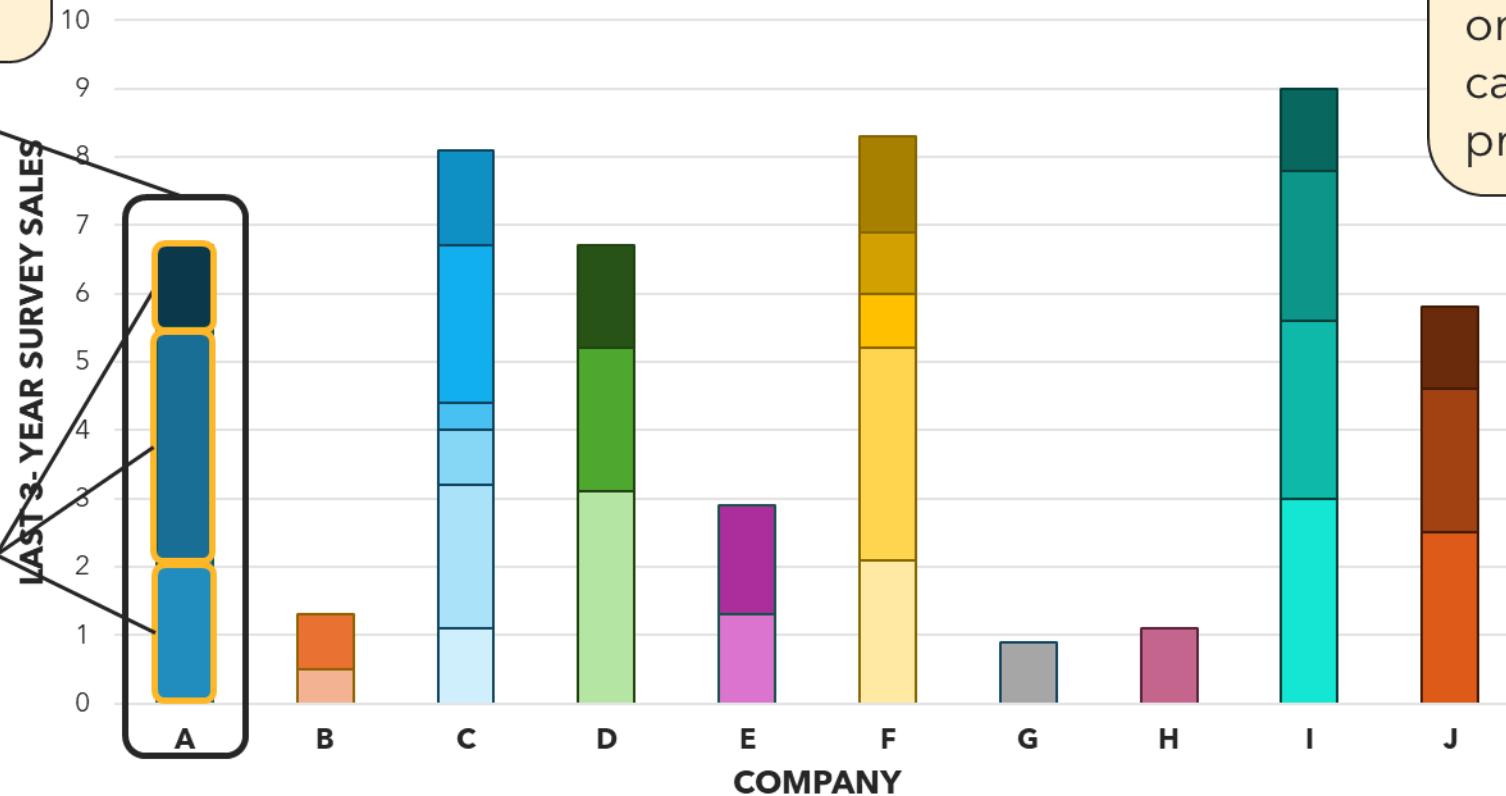
Capture from the last survey contributions of all non-reporting companies' in a current category with underreporting

Option 2: Update Last Survey Non-Reporting Company Profiles

Randomly select a sample of non-reporting companies, update their profiles thru in-depth verification, then apply findings to **entire set** of non-reporting companies

Option 1: Use Last Survey Non-Reporting Company Profiles

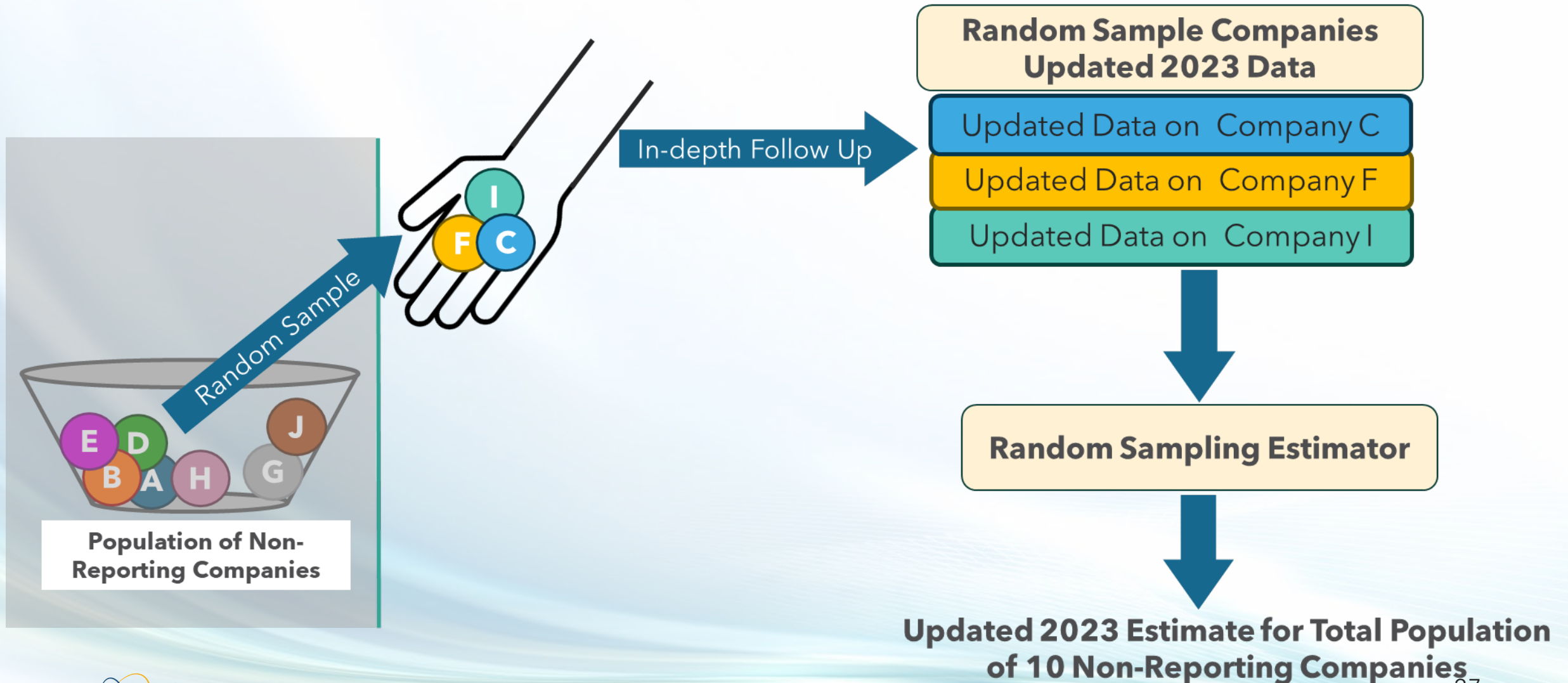
Example on Non-Reporting Company Sales Profiles



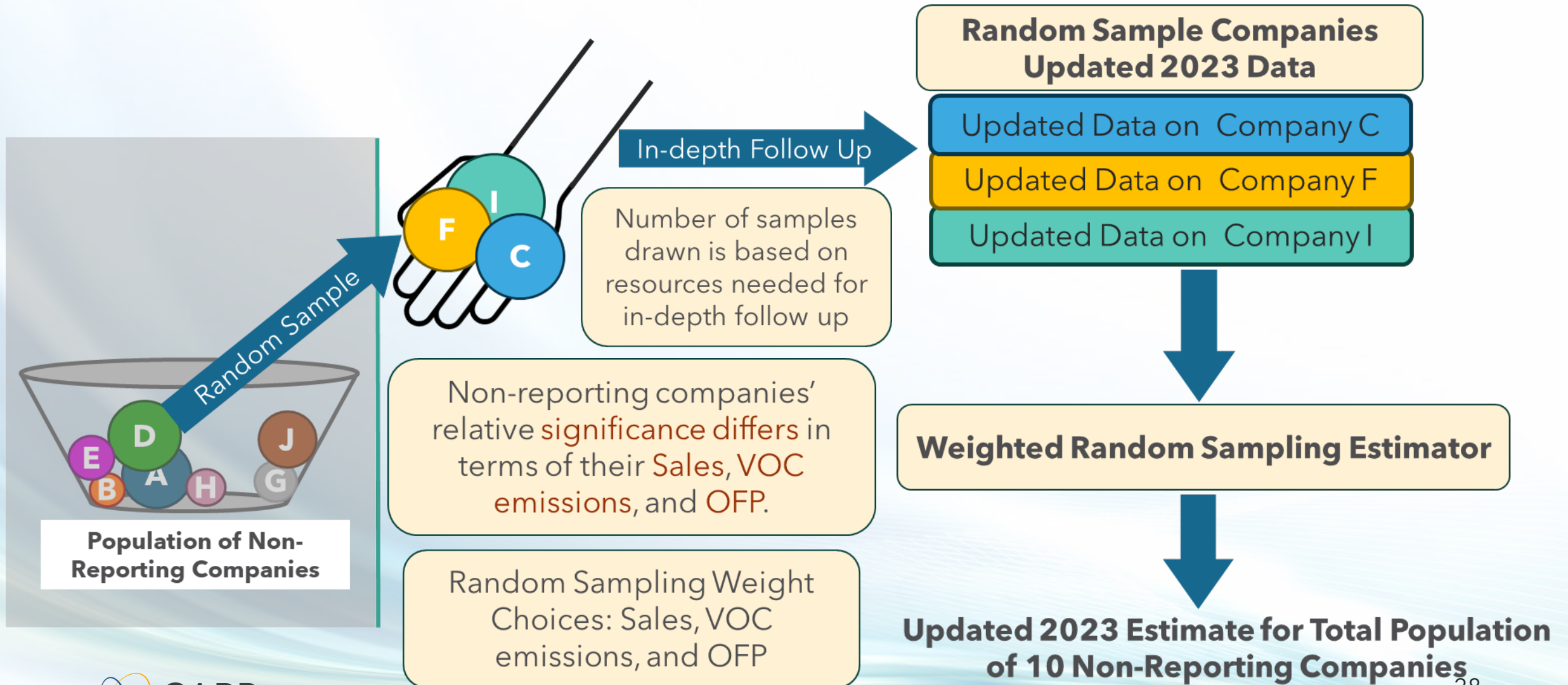
Remediating underreporting impact on sales using last survey category company sales profiles

Calculate total sales of non-reporting companies from last survey and forecast to 2023

Simple Random Sampling Estimation

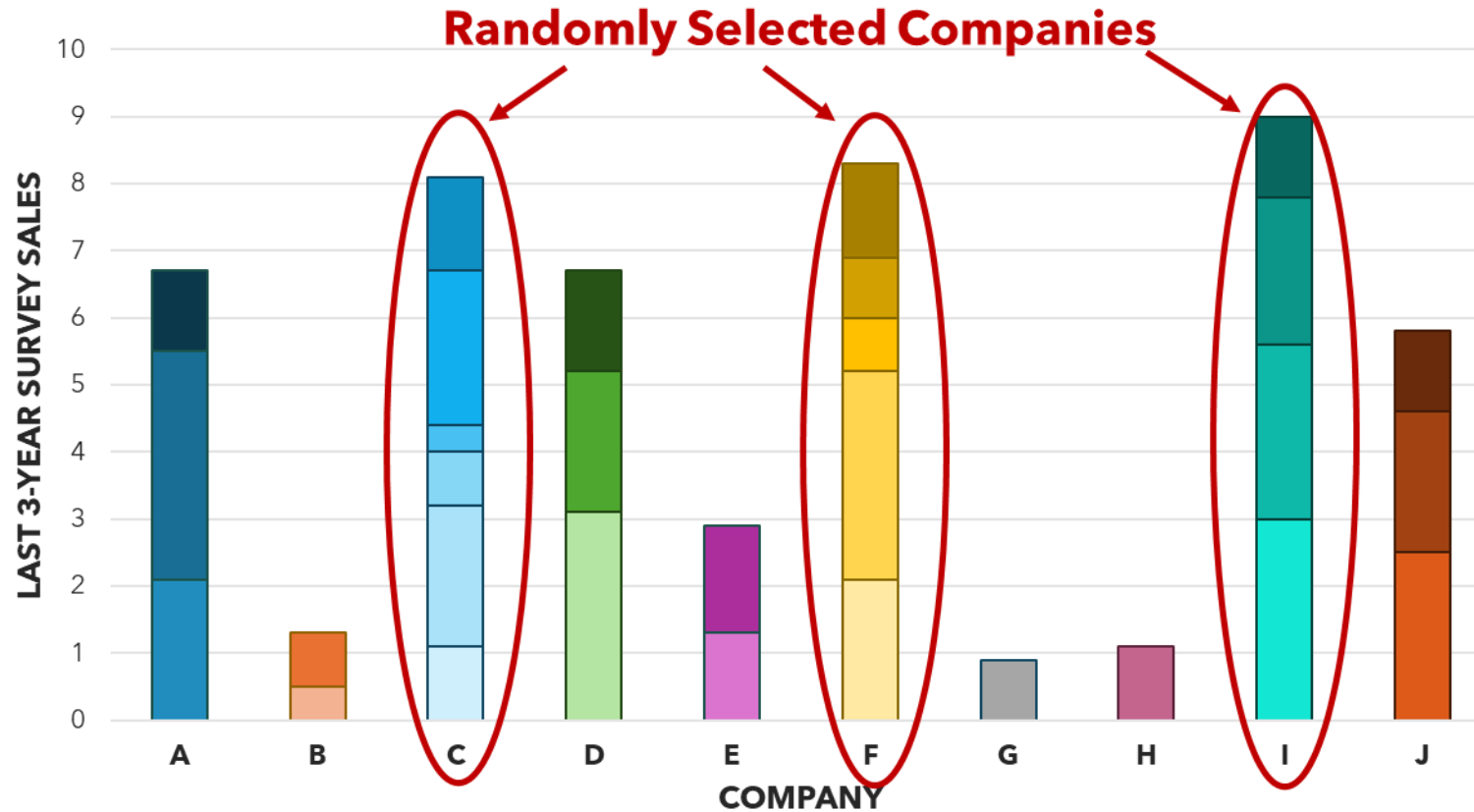


Weighted Random Sampling Estimation



Option 2: Update Non-Reporting Company Profiles

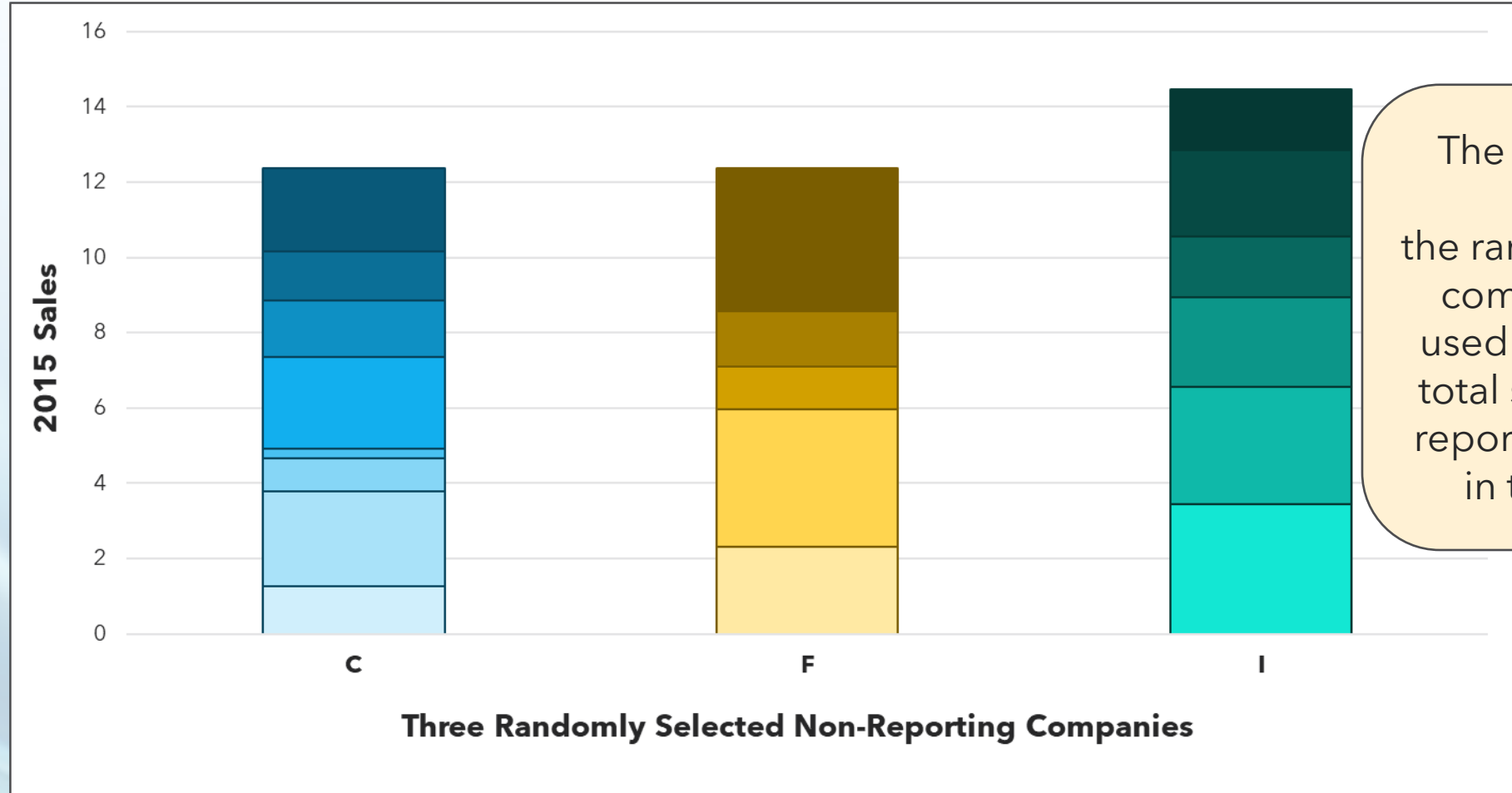
Example on Non-Reporting Company Sales Profiles



The last 3-year survey sales profiles of the 3 randomly selected non-reporting companies will be updated to 2023 through an in-depth follow-up and then will be used to estimate the updated 2023 sales of all 10 non-reporting companies in the category

Option 2: Update Non-Reporting Company Profiles

In-Depth Follow-up used to create Updated 2023 Sales Profiles of the Three Randomly Selected Non-Reporting Companies in a Category with Persistent Underreporting



The updated sales profiles of the randomly selected companies will be used to estimate the total sales of all non-reporting companies in the category.

Weighted Random Selection Estimate Methodology

Probability of Inclusion in Weighted Random Sample of Non-Reporting Companies

Company id	Last 3-Year Survey Sales	Probability of Inclusion (π_i)
A	6.7	
B	1.3	
C	8.1	$\pi_C = 0.48$
D	6.7	
E	2.9	
F	8.3	$\pi_F = 0.49$
G	0.9	
H	1.1	
I	9	$\pi_I = 0.53$
J	5.8	
Total	50.8	

$$\pi_C = N \times (S_C / S_{\text{Total}})$$
$$= 3 \times (8.1 / 50.8)$$

$$\pi_C = 0.48$$

$$\pi_F = 0.49$$

$$\pi_I = 0.53$$

π_C = The probability of the weighted random selection of company C

N = Number of non-reporting companies included in weighted random selection

S_C = Last 3-year survey sales of Company C

S_{Total} = Last 3-year survey sales of all 10 companies

Weighted Random Selection Estimate Methodology

Probability of Inclusion in Weighted Random Sample of Non-Reporting Companies

Company id	Last 3-Year Survey Sales	Probability of Inclusion (π_i)	Updated 2023 Sales (S'_i)
A	6.7		
B	1.3		
C	8.1	$\pi_C = 0.48$	$S'_C = 12.4$
D	6.7		
E	2.9		
F	8.3	$\pi_F = 0.49$	$S'_F = 12.4$
G	0.9		
H	1.1		
I	9	$\pi_I = 0.53$	$S'_I = 14.5$
J	5.8		
Total	50.8		$S'_{total} = 78.3$

In-depth follow-up with non-reporting Companies results in their updated 2023 category profile sales.

Horvitz-Thompson weighted random sample estimator:

$$S'_{Total} = (S'_C / \pi_C) + (S'_F / \pi_F) + (S'_I / \pi_I) \\ = (12.4 / 0.48) + (12.4 / 0.49) + (14.5 / 0.53)$$

$$S'_{Total} = 78.3$$

π_i = The probability of the weighted random selection of a company

S'_i = Total **updated** 2023 Sales for a company

S'_{Total} = Estimated Total **Updated** 2023 Sales for All 10 Non-Reporting Companies

Weighted Random Selection Estimate Methodology

Probability of Inclusion in Weighted Random Sample of Non-Reporting Companies

Company id	Last 3-Year Survey Sales	Probability of Inclusion (π_i)	Updated 2023 Sales (S'_i)
A	6.7		
B	1.3		
C	8.1	$\pi_C = 0.48$	$S'_C = 12.4$ 8.1
D	6.7		
E	2.9		
F	8.3	$\pi_F = 0.49$	$S'_F = 12.4$ 8.3
G	0.9		
H	1.1		
I	9	$\pi_I = 0.53$	$S'_I = 14.5$ 9
J	5.8		
Total	50.8		$S'_{total} = 50.8$

In the case of persistent non-reporting from Companies C, F, and I

The weight random sample of the Horvitz-Thompson estimation methodology is **unbiased**

Horvitz-Thompson weighted random sample estimator:

$$S'_{Total} = (S'_C / \pi_C) + (S'_F / \pi_F) + (S'_I / \pi_I) \\ = (8.1 / 0.48) + (8.3 / 0.49) + (9 / 0.53)$$

$$S'_{Total} = 50.8$$

π_i = The probability of the weighted random selection of a company

S'_i = Total **updated** 2023 Sales for a company

S'_{Total} = Estimated Total **Updated** 2023 Sales for All 10 Non-Reporting Companies

Demonstration of methodology unbiasedness

Weighted Random Selection Estimate Methodology

Probability of Inclusion in Weighted Random Sample of Non-Reporting Companies

Updated for 2023

The weight random sample of the Horvitz-Thompson estimation methodology can be applied to Sales, VOC emissions, and OFP

Company id	Last 3-Year Survey Sales	Probability of Inclusion (π_i)	Sales (S'_i)	VOC Emissions (V'_i)	OFP Emissions (O'_i)
A	6.7				
B	1.3				
C	8.1	$\pi_C = 0.48$	$S'_C = 12.4$	$V'_C = \text{TBD}$	$O'_C = \text{TBD}$
D	6.7				
E	2.9				
F	8.3	$\pi_F = 0.49$	$S'_F = 12.4$	$V'_F = \text{TBD}$	$O'_F = \text{TBD}$
G	0.9				
H	1.1				
I	9	$\pi_I = 0.53$	$S'_I = 14.5$	$V'_I = \text{TBD}$	$O'_I = \text{TBD}$
J	5.8				
Total	50.8		$S'_{\text{total}} = 78.3$	$V'_{\text{total}} = ?$	$O'_{\text{total}} = ?$

Horvitz-Thompson weighted random sample estimator:

$$S'_{\text{Total}} = (S'_C/\pi_C) + (S'_F/\pi_F) + (S'_I/\pi_I)$$

OR

$$V'_{\text{Total}} = (V'_C/\pi_C) + (V'_F/\pi_F) + (V'_I/\pi_I)$$

OR

$$O'_{\text{Total}} = (O'_C/\pi_C) + (O'_F/\pi_F) + (O'_I/\pi_I)$$

Implications of two options

Option 1: Company Profiles from Last Survey

- + No need for further verification or outreach
- Does not reflect category market changes since last survey

Option 2: Updated Company Profiles

- + Reflects category market changes since last survey
- Resources needed for in-depth follow-up to update company profiles

For both options:

Focusing non-reporting companies in 2023 in categories with persistent underreporting

All analyses used for remediation of category underreporting will be documented and available for stakeholder feedback

Company proprietary data will be treated with confidentiality

Outline



Stakeholder Input and Closing Remarks

Stakeholder Input

Identification of survey categories with persistent underreporting:

- Number of companies reporting
- Number of sales
- Stakeholder **input** on market trends since last survey

Market Trends since Last Survey?

For each of the 37 categories in the current Survey:

- Company consolidations/acquisitions?
- Persistent sales trends post pandemic?

Remediation of Survey Categories with Persistent Underreporting:

1. Use of Last Survey Profiles of non-reporting companies
2. Use of Updated Profiles of non-reporting companies

Stakeholder Assistance



One-on-one
assistance

Please email the
Survey Help Box to schedule a
call or meeting at
2023CPSurvey@arb.ca.gov

Thank you!

Questions



Use the **raised hand** function (#2 if calling in by phone)



Moderators will **call on speakers** by name or last 4 digits of their phone number.

