Evaluation of 2024 Net Cost Report Information

Overview

The following tables and discussion are a summary of the evaluation of "as-reported" 2024 data contained in the 2024 Net Cost Reports, submitted pursuant to Title 14 of the California Code of Regulations (CCR), Section 18660.10, pertaining to the management of covered electronic waste (CEW). This evaluation was performed by staff of the CalRecycle CEW Recycling Program.

In general, the tables in this attachment show the reported net costs per pound of recovery and recycling cathode ray tube (CRT) CEW and non-CRT CEW among program participants when the as-reported costs are examined, revealing weighted average, mean, and median costs. They also show the percentage of participating organizations that reported costs lower than the current standard payment rates ($0.40 cents per pound recovery rate, the $0.73 cents per pound CRT CEW recycling portion and the $0.75 cents per pound non-CRT CEW recycling portion) within selected segments of participants. Figures based on the available Net Cost data appear in the tables below. The data is presented in cents per pound unless otherwise noted.

Analysis of All Net Cost Reports

Program staff compiled "as-reported" 2024 data and examined it in a variety of ways to gain insights into industry costs and inform CEW payment rate considerations. Wide variations in costs were reported by both collectors and recyclers. This is to be expected due to the range of business practices and operational scales within the industry. It is also certain that there are errors contained in the reported costs and revenues in some Net Cost Reports, as evidenced by some reports asserting recovery costs of several dollars per pound. To compensate for instances of inaccurate data affecting calculated industry averages, program staff excluded outlier reports statistically by determining the quartiles and interquartile range (IQR) of each data set, setting an upper and lower limit of data points by using the standard 1.5 x the IQR, and eliminating any reports with a Net Cost that falls outside of the given range.

The following tables include:

1. Analysis of submitted 2024 Net Cost Recycling Reports
2. Analysis of submitted 2024 Net Cost Recovery Reports
3. Analysis of 2024 Net Cost Recycling Reports from "larger" operations contributing the "top" 50 percent of handled CEW
4. Analysis of 2024 Net Cost Recovery Reports from "larger" operations contributing the "top" 50 percent of handled CEW
5. Analysis of 2024 Net Cost Recycling Reports from "small" operations contributing the "bottom" 50 percent of handled CEW
6. Analysis of 2024 Net Cost Recovery Reports from "small" operations contributing the "bottom" 50 percent of handled CEW
7. Comparison of calculated Weighted Average Net Costs 2005 – 2017
8. Comparison of calculated Weighted Average Net Costs of CRT CEW and non-CRT CEW 2017-24

Tables 1 and 2 below show the analysis of as-reported 2024 net costs for recycling and recovery, respectively, of CEW using reports submitted by CEW Recycling Program participants but excluding "outlier" reports that cited net costs that fell outside of 1.5 times the interquartile range of the data set. Of the 280 submitted recovery reports for collection, 57 collector reports were excluded because they

reported recovery costs that were outliers, and 9 additional recovery reports were excluded due to obvious errors. Not all recyclers cancel both CRT and Non-CRT CEW. Of the 20 recycling reports CalRecycle received, 16 supplied CRT recycling data and 20 supplied non-CRT data. One recycler report, which contained CRT and Non-CRT cost data, was excluded because the net costs were outliers.

The data reveal that the reported net costs of recyclers reached an all-time high in 2024, but due to the payment increases across all categories in 2024, CalRecycle payments covered that difference for the majority of collectors and recyclers. An examination of the percentage of recycling reports whose weighted average net cost was smaller than or equal to the corresponding standard payment rates in Table 1 shows that the payment rates for non-CRT CEW covered the reported costs for 80% of CRT recyclers and 79% of non-CRT recyclers. For collectors, the net cost matched the previous year's net cost, and 62% of collectors reported a net cost at or below the standard payment rate.

Table 1: Analysis of Submitted 2024 Net Cost Recycling Reports

CRT Weighted Average*	CRT Mean	% of Reports < or = Std Pay Rate	Non-CRT Weighted Average	Non-CRT Mean	% of Reports < or = Std Pay Rate
$0.59	$0.61	80%	$0.56	$0.57	79%

** The weighted average reflects the overall industry cost per pound, calculated as if the industry operated as a single organization; i.e., by dividing the collective reported costs and revenues (total net cost) by total pounds recovered and/or recycled by all participants in the study sample.*

Table 2: Analysis of Submitted 2024 Net Cost Recovery Reports

CEW Weighted Average	CEW Mean	% of Reports < or = Std Pay Rate
$0.36	$0.34	62%

A "50/50" Evaluation

The above calculations are only one perspective on how to view the data. The following four tables compare the reported net costs by two different sets of participating organizations, each one having handled approximately half of the total amount of CEW recovered or recycled in 2024. The totality of reporting entities were ranked in order of their reported volume of CEW throughput, and then contributing volume was divided roughly in half, assigning a volume to the "larger" contributors and, separately, the "smaller" operations. The terms "larger" and "smaller" are admittedly relative within the context of the overall CEW management industry, with some of the assigned "smaller" entities being substantially larger than the smallest participants.

Tables 3 and 4 below show the analysis of as-reported 2024 net costs for recycling and recovery respectively for CEW by those "larger" operations whose combined handling accounted for

approximately 50% of the total CEW handled. This represents approximately 7% of all reporting collectors, 15% of all reporting non-CRT recyclers, and 27% of reporting CRT recyclers.

Table 3: Analysis of 2024 Net Cost Recycling Reports ("large" operations representing top ~50% of CEW)

CRT Weighted Average	CRT Mean	% of Reports < or = Std Pay Rate	Non-CRT Weighted Average	Non-CRT Mean	% of Reports < or = Std Pay Rate
$0.53	$0.54	100%	$0.44	$0.43	100%

Table 4: Analysis of 2024 Net Cost Recovery Reports ("large" operations representing top ~50% of CEW)

CEW Weighted Average	CEW Mean	% of Reports < or = Std Pay Rate
$0.36	$0.36	50%

This perspective shows net costs for recovery reported by the larger volume collectors as being equal to the industry average.

The sampling of larger volume recyclers' net cost calculations resulted in a weighted average which is $0.06 and $0.12 cents per pound less for CRT CEW and non-CRT CEW, respectively, as compared to all recyclers. The percentage of the larger volume recyclers in this segment whose individual reported costs are covered by the recycling portion of the current payment rate is 100% for CRT CEW and for non-CRT CEW. While representing a small sample size, this suggests that a small number of higher-volume, low-cost operations may be bending the overall cost curve disproportionally downward for the industry as a whole.

Tables 5 and 6 below show the analysis of as-reported 2024 net costs for recycling and recovery, respectively, CEW by those "smaller" operations whose combined handling accounted for approximately 50% of the total CEW handled. This represents approximately 93% of all reporting collectors, 85% of non-CRT CEW reporting recyclers, and 73% of CRT CEW reporting recyclers.

Table 5: Analysis of 2024 Net Cost Recycling Reports ("small" operations representing bottom ~50% of CEW)

CRT Weighted Average	CRT Mean	% of Reports < or = Std Pay Rate	Non-CRT Weighted Average	Non-CRT Mean	% of Reports < or = Std Pay Rate
$0.65	$0.64	73%	$0.67	$0.60	75%

Table 6: Analysis of 2024 Net Cost Recycling Reports ("small" operations representing bottom ~50% of CEW)

CEW Weighted Average	CEW Mean	% of Reports < or = Std Pay Rate
$0.36	$0.34	63%

This perspective shows that the net costs for recovery reported by the smaller volume collectors are equal to the recovery payment rate for large collectors, when analyzed as a weighted average. Small collectors appear slightly more efficient when comparing the non-weighted, average net cost.

The practice of purchasing CEW from third-party handlers may be contributing to the apparently higher costs for some of these larger operations. However, other factors may be in play, and it is difficult to further ascertain which ones are applicable to individual businesses.

Comparing the recycling net costs on Tables 3 and 5 shows that CRT recycling costs $0.12 cents more per pound, and non-CRT costs $0.23 cents more per pound, for the small recyclers. The percentage of the smaller volume recyclers whose individual reported costs are covered by the recycling portion of the current payment rate for this sampling is 73% for CRT CEW and 75% for non-CRT CEW. For large recyclers, 100% of costs are covered by the recycling portion of the current payment rate for both waste streams.

Historic Perspective

Table 7 below compares the calculated weighted average net costs for CEW recovery and recycling before the recycling portion was split into CRT CEW and non-CRT CEW. This data was reported over the life of the program for all included participants, but excludes outlier reports that cited net costs for recovery or recycling in excess of $1 per pound profit or loss. Beginning in 2021, CalRecycle used the statistical method known as Interquartile Range to exclude individual outlier collection and recycling reports with net costs significantly different from the mean.

Table 8 below compares the calculated weighted average net costs for CEW recovery, as well as the separate non-CRT CEW and CRT CEW recycling costs, as reported from 2017-2021. The 2017 split recycling data was from thirteen CRT recyclers and seven non-CRT recyclers that voluntarily reported, which is why the 2017 data is on both tables.

Table 7: Comparison of Calculated Weighted Average Costs 2005-2017

Category	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Recovery	$0.17	$0.17	$0.15	$0.17	$0.14	$0.15	$0.15	$0.17	$0.17	$0.17	$0.18	$0.16	$0.20
Recycling	$0.25	$0.22	$0.21	$0.23	$0.19	$0.18	$0.19	$0.19	$0.24	$0.24	$0.27	$0.25	$0.27
Combined	$0.42	$0.38	$0.36	$0.39	$0.33	$0.33	$0.34	$0.35	$0.41	$0.41	$0.44	$0.41	$0.47

Table 8: Comparison of Weighted Average Net Costs 2017-23

Year	Recovery	Recycling CRT	Combined CRT	Recycling Non-CRT	Combined Non-CRT
2017	$0.20	$0.24	**$0.44**	$0.38	**$0.58**
2018	$0.21	$0.20	**$0.41**	$0.36	**$0.57**
2019	$0.22	$0.28	**$0.50**	$0.41	**$0.63**
2020	$0.25	$0.30	**$0.56**	$0.43	**$0.69**
2021	$0.29	$0.35	**$0.64**	$0.46	**$0.74**
2022	$0.30	$0.43	**$0.74**	$0.49	**$0.79**
2023	$0.36	$0.51	**$0.87**	$0.53	**$0.88**
2024	$0.36	$0.59	**$0.95**	$0.56	**$0.92**

Conclusion

Based on the 2024 calculated weighted average net costs per pound to recover and recycle CEW in California, as well as additional factors that affect the markets such as increased labor costs, and estimated reasonable rate of profit or return on investment, staff of the CalRecycle CEW Recycling Program suggest that another adjustment in the recycling portion of the combined recovery and

recycling for both CRT and non-CRT CEW payment rate is warranted. For the standardized statewide recovery rate for all CEW, Program suggests maintaining the current rate of $0.40/lb.