Evaluation of 2013 Net Cost Report Information

Overview

The following tables and discussion are a summary of the evaluation of as-reported data contained in 2013 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 work was performed by staff of the CalRecycle electronic waste recycling program.

In general, the tables show the reported net costs per pound of recovering and recycling CEW among system 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 – $0.16/lb. recovery and $0.23/lb. recycling – within selected segments of participants. Figures are presented in cents per pound unless otherwise noted.

Also presented is a comparison and brief discussion of 2013 data with respect to previous years' data.

Analysis

Program compiled "as-reported" 2013 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 cost of several dollars per pound. To compensate for the likelihood of extreme instances of faulty data affecting calculated industry averages, program excluded reported recovery and recycling costs in excess of plus or minus $1 per pound (this is similar to how program has analyzed net cost report data in previous years).

The following tables include:

1. Analysis of submitted 2013 Net Cost Reports (excluding outlier costs)
2. Analysis of 2013 Net Cost Reports from "larger" operations contributing the "top" 50 percent of handled CEW
3. Analysis of 2013 Net Cost Reports from "small" operations contributing the "bottom" 50 percent of handled CEW
4. Comparison of calculated Weighted Average Costs 2005 - 2013

(Note: Alternative volume/cost analyses were presented as part of a May 12, 2012, stakeholder meeting.)

Table 1 below shows the analysis of as-reported 2013 net costs for recovering and recycling covered electronic waste using reports submitted by CEW system participants, but excluding those reports that cited recovery costs in excess of more than $1 or -$1 per pound. One dual entities reported recycling costs that exceeded that range and 18 collectors reported recovery costs that exceeded that range.

The data reveal that on the basis of a simple average (mean), the reported costs of recyclers were notably higher than the standard recycling payment rate, while the reported collectors' costs were slightly lower than the recovery payment rate. The weighted average showed that the recyclers' costs were only slightly above the recycling payment rate, while the collectors' costs increased to above the current recovery payment rate. An examination of the median (mid-point of all reported cost) in Table 1 shows that the payment rates exceeded the reported costs for most collectors (61.5%) and most recyclers (57.5%).

Table 1. Analysis of Submitted 2013 Net Cost Reports (excl. costs +/- $1 per lb.)

As-Reported 2013 Data		Weighted Average*	Mean	Median	Percentage of Reports Below Standard Payment Rate
Recovery (469)	**Revenue**	6.1			-
	Cost	23.0			-
	Net Cost	**16.8**	**15.5**	**11.0**	**61.5%**
Recycling (40)	**Revenue**	12.3			-
	Cost	36.1			-
	Net Cost	**23.8**	**25.0**	**20.5**	**57.5%**
Combined Net Costs		**40.6**	**40.5**	**31.5**	-

** 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.*

A "50/50" Evaluation

However, this is only one perspective on how to view these data. The following two 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 2013. 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. As noted earlier in this paper, a prior analysis based solely on participant individual volumes (e.g. 5 million pounds, 10 million pounds, etc.) was provided in a previous workshop.

Table 2 below shows a re-analysis of as-reported 2013 net costs for recovering and recycling CEW by those "larger" operations whose combined handling accounted for approximately 50 percent of the total CEW handled. This represents approximately six percent of all reporting collectors and ten percent of all reporting recyclers.

This perspective shows net costs reported by the larger volume collectors as substantially exceeding the existing recovery payment rate when analyzed as either a median, mean, or weighted average. This sampling substantially reduced the percentage of collectors whose reported costs are covered by the standard recovery rate (40%). Strikingly, the higher weighted average costs for larger volume CEW recovery activities appears counter intuitive, since economies of scale typically mean lower marginal costs. The ongoing practice of paying sources and/or purchasing accumulated CEW from third-party handlers in order to maximize volume may be contributing to the apparent higher costs for these larger operations. However, other factors may also be in play and CalRecycle is not in a position to further ascertain which ones are applicable to individual businesses.

The sampling of larger volume recycler's cost calculations for weighted average also increased as compared to all recyclers, with the simple mean and media costs also significantly above the current recycling payment rate. The percentage of the larger volume recyclers in this segment whose individual reported costs are covered by the current recycling payment rate moved precipitously to zero. While

representing a small sample size, this suggests that a small number of higher-volume, higher-cost operations may be bending the overall cost curve for the industry disproportionally upward.

Table 2. Analysis of 2013 Net Cost Reports ("large" operations representing top ~50% of CEW)

As-Reported 2013 Data		Weighted Average	Mean	Median	Percentage of Reports Below Standard Payment Rate
Recovery (25)	**Revenue**	4.5			-
	Cost	24.4			-
	Net Cost	**19.9**	**19.7**	**18.0**	**40%**
Recycling (4)	**Revenue**	11.7			-
	Cost	39.7			-
	Net Cost	**27.9**	**28.8**	**28.0**	**0%**
Combined Net Costs		**47.8**	**48.5**	**46.0**	-

Table 3 below shows a re-analysis of as-reported 2013 net costs for recovering and recycling CEW by those "smaller" operations whose combined handling accounted for approximately 50 percent of the total CEW handled. This represents approximately 94 percent of all reporting collectors and 90 percent of all reporting recyclers.

This perspective shows net costs reported by the smaller volume collectors as being substantially less than the existing recovery payment rate when analyzed as either a median, mean, and weighted average. This sampling of participants increased the percentage of the collectors whose reported costs are covered by the standard recovery rate (65%), even as compared to all collectors.

The smaller volume recycler net cost calculations for weighted average also generally decreased as compared to all recyclers, with only the simple mean being above the current recycling payment rate. The percentage of the smaller volume recyclers whose individual reported costs are covered by the recycling payment rate moved higher to 64% of this sampling.

Table 3. Analysis of 2013 Net Cost Reports ("small" operations representing bottom ~50% of CEW)

As-Reported 2013 Data		Weighted Average	Mean	Median	Percentage of Reports Below Standard Payment Rate
Recovery (444)	**Revenue**	7.8			-
	Cost	21.6			-
	Net Cost	**13.7**	**15.3**	**11.0**	**65%**
Recycling (36)	**Revenue**	13.0			-
	Cost	31.7			-
	Net Cost	**18.7**	**24.6**	**18.0**	**64%**
Combined Net Costs		**32.4**	**39.9**	**29.0**	-

Table 4 below compares the calculated weighted average net costs for CEW recovery and recycling as reported over the life of the program for all included participants (as opposed to various subcategories of operational scale). The recent jump in combined weighted average net costs appears primarily due to increases in reported recycling costs. The full breadth of factors behind those cost increases remain unclear, but is clearly skewed toward the largest recyclers.

Table 4. Comparison of Calculated Weighted Average Costs 2005-2013

Comparisons of Weighted Average Net Costs	2005	2006	2007	2008	2009	2010*	2011*	2012*	2013*
Recovery	17.1	16.7	14.8	16.6	14.4	15.3	15.2	17.1	16.8
Recycling	25.2	21.5	21.0	22.8	18.7	18.1	19.2	17.8	23.8
Combined	42.3	38.2	35.8	39.4	33.1	33.4	34.4	34.9	40.6

**excludes reported recovery costs in excess of $1 and -$1 per pound*

Conclusion

The calculated weighted average net costs per pound to recover and recycling CEW in California based on data submitted in required Net Cost Reports reflecting collector and recycler operations during 2013 suggest that a modest increase in the standardized statewide payment rates is warranted.

The combined reported costs for 2013 are slightly higher than the levels reported following the payment rate decrease in 2008 (which was based largely on 2007 operational data), but are noticeably higher than the costs reported and calculated as little as two years ago when CalRecycle determined that no rate changes were warranted.

A majority of individual collectors and recyclers appear able to operate successfully within the existing payment rates, as measured by the reported net costs. Meanwhile, the submitted reports suggest that the largest participants' costs substantially exceed the current recycling payment rates. This raises many questions, not the least of which are the accuracy of the reported information and the influence of large volume operations to affect calculations.

In the end, statute does not direct CalRecycle to set payment rates at a level sufficient to cover every organization's net operational costs or necessarily favor one segment of the industry over another. Instead, the varied scope and scale of the participants in the CEW program argues that the mollifying use of a weighted average across the entire industry be considered as the path to follow.