

**OFFICE OF SOLID WASTE MANAGEMENT
ANNUAL REPORT TO THE THIRTY-SECOND LEGISLATURE
STATE OF HAWAI'I
2024**

PURSUANT TO SECTION 342G-15, HAWAI'I REVISED STATUTES,
REQUIRING THE OFFICE OF SOLID WASTE MANAGEMENT TO GIVE AN
ANNUAL REPORT ON SOLID WASTE MANAGEMENT

PREPARED BY:

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
OFFICE OF SOLID WASTE MANAGEMENT
December 2023

I. INTRODUCTION

The Office of Solid Waste Management (OSWM) provides an annual report to the Hawai'i State Legislature to describe progress towards the State's waste reduction goals. The OSWM is part of the Department of Health's Solid and Hazardous Waste Branch (SHWB) and administers the Deposit Beverage Container (DBC) Program, the Electronic Waste and Television Recycling and Recovery Program, and the Glass Advance Disposal Fee (ADF) Program. These three programs play an instrumental role in achieving the State's waste reduction goals.

II. SOLID WASTE MANAGEMENT PRIORITIES AND PRACTICES

Hawai'i Revised Statutes Section 342G-2 requires the Department of Health and the counties to consider solid waste management practices and methods in the following order of priority:

- 1) Source Reduction
- 2) Recycling (to include bioconversion)
- 3) Landfilling and/or incineration

Successfully implementing the first two practices reduces the amount of waste that is landfilled or incinerated.

Source Reduction

Hawai'i Revised Statutes Chapter 342G-1 defines *source reduction* as "the design, manufacture, and use of materials to (1) minimize the quantity or toxicity, or both, of the waste produced; and (2) reduce the creation of waste either by redesigning products or by otherwise changing societal patterns of consumption, use or waste generation." Source reduction is also called "waste prevention" or "waste reduction" and successful source reduction creates or imports less waste into the State. Quantifying source reduction is inherently difficult. In some instances, comparisons may be made to specific waste levels before a source reduction practice is employed with waste levels after, but in most cases an estimate of the amount of waste reduced is all that is possible.

Recycling

"Recycling" is defined by statute as "the collection, separation, recovery, and sale or reuse of secondary resources that would otherwise be disposed of as municipal solid waste, and is an integral part of a manufacturing process aimed at producing a marketable product made of postconsumer material." It is the process by which materials are collected and reprocessed as "raw" materials to create new products. Recycling is the most easily quantified waste diversion activity because an actual material amount can be calculated. Data from recycling facilities are regularly collected by the State and counties.

Hawai'i's commercial recyclers contend with significant issues. Because of the State's small population, and a corresponding small economy, nearly all the State's recyclable materials are shipped out of the State to recycling processors that can better manage the materials cost-effectively. Currently, most of the State's recyclables are shipped to either the U.S. mainland or Asia. Other challenges include high land values (which translate to high lease costs for recyclers), labor costs, and other overhead expenses like utilities and specialized equipment. Volatility in the recycled materials markets (e.g., China's ban on most recyclable plastics in 2018 and other global plastic import bans) is an issue that recyclers nationwide have had to manage. However, Hawai'i's recyclers are disproportionately impacted by any market fluctuations because of thinner profit margins as a result of higher overhead and transport costs.

Bioconversion

"Bioconversion" is the process by which organic waste is managed through biological or chemical means like biogasification, pyrolysis, and fermentation. In Hawai'i, the most common

bioconversion process is composting green waste (tree trimmings, grass clippings and similar material). Composting is considered a recycling activity and reported composting weights are included as part of the “Recycling” column in Table 1, below.

Reuse

Although not identified as a priority, OSWM also promotes reuse activities. “Reuse” means using a product again without first having to reprocess it. The product may be used for its original or intended use or may be used in a different capacity. Reuse of products or materials is also difficult to quantify. It is possible to measure reuse by counting the units of a product being reused or by quantifying tonnage, but effectively measuring reuse is impracticable because it takes place at so many levels and on an unregulated and widespread scale. Reusing a plastic kalua pig container to hold a dishwashing sponge or a glass kim chee jar to store pickled cucumbers are examples that contribute to waste reduction but are impossible for the State to accurately measure.

Waste Diversion

In 1991 the State Legislature passed Act 324, codified as Chapter 342G, which included an ambitious waste diversion goal of 25% by 1995. This was similar to the United States Environmental Protection Agency’s (EPA) national goal of 25% at the time, although Chapter 342G also increased the State’s waste diversion goal to 50% by 2000. In November 2020, the EPA revised its national goal to 50% by 2030. This is the first revision of the goal since 1996. The national rate in 2018 was 32% (the most recent year for which data is available). The State faces similar challenges with improving its waste diversion goals.

The diversion rates presented below in Table 1 are based on data collected by the Department of Health from permitted solid waste management facilities.

Table 1: Waste Diversion for FY2023 (tons)

County	Generation	Diversion	Disposal	Diversion Rate	Incineration
Hawai‘i	296,155	90,874	205,281	30.7%	n/a
Maui	332,355	43,181	289,174	13.0%	n/a
Honolulu*	1,507,445	371,280	1,136,165	24.6%	690,534
Kaua‘i	127,272	39,064	88,208	30.7%	n/a
State	2,263,227	544,399	1,718,829	24.1%	690,534

Notes:

Data are sourced from permitted solid waste management facility reports and some recycling data is incomplete. The Department of Health continues to collect data and will provide updates in subsequent legislative reports.

Differences in recycling rates from those published by the counties are attributed to different data collection processes and differences in the classification of recycling and landfill diversion activities as defined by statute.

*By definition, the City and County of Honolulu’s disposal tonnage also includes incineration tonnage. This amount is also separately quantified in the last column.

Table 2: Solid Waste Diversion Rates from FY2019 to FY2023

County	FY2019	FY2020	FY2021	FY2022	FY2023
Hawai'i	18.9%	25.4%	32.8%	30.5%	30.7%
Maui*	30.4%	67.9%	13.2%	14.2%	13.0%
Honolulu	16.2%	19.7%	28.4%	25.8%	24.6%
Kaua'i	30.4%	30.4%	30.1%	31.7%	30.7%
State	19.4%	25.4%	27.1%	24.8%	24.1%

Note:

*The County of Maui's diversion amount is significantly higher in FY2020 due to a one-off construction project and lower in FY2021 due to the closure of a composting facility.

HRS Chapter 342G-01 defines "waste diversion" as diverting waste from waste disposal facilities through recycling or bioconversion programs. Incineration of waste is not considered recycling, and HRS Chapter 342G-01 specifically exempts incineration as an acceptable method of processing solid waste under bioconversion. However, to provide a complete picture of what is being redirected from waste disposal facilities, Table 3 presents rates that combine both diversion and incineration tonnage.

Table 3: Solid Waste Diversion + Incineration Rates from FY2019 to FY2023

County	FY2019	FY2020	FY2021	FY2022	FY2023
Hawai'i	18.9%	25.4%	32.8%	30.5%	30.7%
Maui	30.4%	67.9%	13.2%	14.2%	13.0%
Honolulu	66.1%	67.0%	64.9%	69.7%	70.4%
Kaua'i	30.4%	30.4%	30.1%	31.7%	30.7%
State	52.5%	60.2%	53.2%	54.3%	54.6%

State Integrated Solid Waste Management (ISWM) Plan

In FY2022 OSWM released a Request for Proposals (RFP) to update the 2000 State ISWM Plan. Tetra Tech BAS, Inc. was awarded the contract, and the project is expected to start November 1, 2022. The contractor will draft the updated plan, and also provide a facilitator, coordinate meetings, and oversee the discussion and identification of possible solutions for the following solid waste stream topics: tires, batteries, photovoltaic panels, organic waste, construction waste, packaging, carpet, and mattresses. In addition, one topic shall be dedicated to reviewing OSWM's three existing recycling programs, and one topic has been intentionally left blank should the need arise to address an additional solid waste stream topic during the task force meetings.

The contract with Tetra Tech BAS was executed in October 2022. The OSWM assembled a Task Force whose members represent county government, solid waste management and recycling businesses, and environmental groups to provide feedback during the plan revision process. The first four meetings have been held with the first taking place on May 25, 2023. Information on the planning process can be accessed on the Department's website at:

<https://health.hawaii.gov/shwb/2023-state-integrated-solid-waste-management-revision/>.

III. OSWM ACTIVITIES

Deposit Beverage Container Program

The State's FY2023 Deposit Beverage Container (DBC) Program annual redemption rate was 56.02%, accounting for approximately 612 million containers recycled. The DBC Program's redemption rate is a measure of the program's effectiveness to promote: (1) collecting and redeeming eligible deposit beverage containers; and (2) recycling DBC materials. It is calculated by dividing the number of DBC redeemed by the number of DBC sold.

$$\text{FY2023 Redemption Rate: } \frac{573,745,544}{1,024,270,074} = 56.02\%$$

FY23 saw a continuation in the decline in the redemption rate that began in FY22. Since FY21 the redemption rate has gone from 63.08% to 59.87% in FY22 to 56.02% in FY23.

Last year, we hypothesized that the drop in FY22's redemption rate was due in part to the economy's recovery from the COVID-19 pandemic and the resultant increase in the number of containers imported into Hawaii. However, the fairly level number of imported containers from FY22 (1.022 billion) to FY23 (1.024 billion) indicates decreased redemption rate results mainly from the decreased number (over 38 million) of containers redeemed in FY23.

OSWM has considered other factors that potentially impacted the redemption rate this past year. One issue is the closure of several redemption centers on the Island of Hawai'i. The tight labor market has made it difficult for redemption centers to operate reliably, to the point that a County of Hawai'i solicitation released last year that would subsidize redemption center operations at county transfer stations received no interest and no bids. Due to staff shortages, redemption centers sometimes close at the last minute, increasing the difficulty for the public to reliably redeem empty beverage containers. Between FY22 and FY23, approximately 15m fewer containers were redeemed on the Big Island. OSWM continues to have discussions with the County of Hawai'i to develop solutions, including increasing funding, to improve the reliability of redemption center operations.

Another issue identified is the current segregated rate. In 2007, OSWM conducted a study to develop a faster alternative to counting redeemed containers by hand, known as the segregated rate, by surveying and averaging the number of plastic containers per pound per transaction (study link: https://health.hawaii.gov/hi5/files/2013/05/seg_rate_final_report1.pdf). At the time that the study was conducted, the majority of recyclable plastic containers were used for carbonated beverages. Because of the carbonation, the plastic container walls needed to be thicker to prevent the bottles from bursting during shipping. However, recent consumer trends have shifted consumption patterns away from carbonated sodas and instead to water. Plastic water bottles are significantly thinner and lighter than soda bottles because the product is not carbonated, and the walls do not need to be reinforced to handle the carbonation during transit. This negatively affects the redemption rate, as one empty 16.9oz bottle of Coca-Cola can weigh the same as a couple of empty 16.9oz Kirkland water bottles. We have developed a request for proposals to solicit services to update the segregated rate, to take into account the fact that plastic bottles today are on average lighter than they were fifteen years ago. We expect to release the RFP in the first quarter of 2024.

Table 4: DBC Program FY2023 Revenues & Expenditures

FY2023 Appropriation Ceiling	\$71,138,955.00
Revenue	
- Distributor Payments	\$58,763,979.05
- Restitution	\$1,100.00
- State Investment Pool Account	\$1,145,898.62
Total Revenue	\$59,910,977.67
Expenditures	
Program Administrative Costs	
- Payroll	\$ 363,345.59
- Fringe	\$ 185,799.49
- Office Equipment, Supplies, & Other Miscellaneous Services	\$ 23,900.31
- Office of the Attorney General - Services	\$ 15,330.96
Subtotal Program Administrative Costs	\$ 588,376.35
Contracts	
- Redemption Center Reimbursement Payments	\$29,138,563.52
- Redemption Center Contract Balances (Encumbered Funds)	\$37,006,121.48
- County Recycling Program Payments	\$ 227,285.77
- County Recycling Program Contract Balances (Encumbered Funds)	\$ 962,607.69
- Other Contract Payments	\$ 205,200.00
- Other Claims Balances (Encumbered Funds)	\$ 68,400.00
Subtotal Contracts	\$67,608,178.46
Central Services Administration	\$ 417,869.77
Total Expenditures*	\$68,614,424.58

*Redemption center contracts are paid as reimbursements for redeemed beverage containers and OSWM encumbers a surplus estimated amount to ensure prompt reimbursements without the need for additional contract modifications and inherent administrative processing delays. In addition, the current reported overage is also attributable to the fact that all redemption center reimbursement contracts are twelve-month contracts but start on October 1 and end on September 30 of the following year to prevent contract delays and related redemption center shutdowns at the start of the State fiscal year. It is expected that the Total Expenditures for the fiscal year will be less than Total Revenue when unspent balances are unencumbered, and the fund is reconciled.

OSWM continues to implement strategies to address issues identified in the State Auditor's report. In addition to actively recruiting and filling vacant positions, OSWM has also spent considerable time and resources updating its data management tools, improved its tracking and oversight of redemption center container redemptions, and instituted requirements for fraud prevention plans for all redemption centers. Act 012, signed into law in 2022, will further aid OSWM with meeting the Auditor's recommendations by ensuring that distributors properly account for the containers imported into, or manufactured in, the State. OSWM will be revising its administrative rules to implement Act 012 requirements after receiving input from the Task Force we have assembled to update the State Integrated Solid Waste Management Plan. We expect to start the revision process in the first quarter of 2024.

Electronic Waste and Television Recycling and Recovery Program

The Electronic Waste Recycling Act was adopted in 2008 and created a recycling program for computers, portable computers, computer monitors and computer printers. Products covered by this statute were considered “Covered Electronic Devices” (CEDs). Subsequently, the Electronic Waste and Television Recycling and Recovery Act was adopted in 2009 and expanded the program to cover televisions. Products covered under this portion of the law were termed “Covered Televisions” (CTVs). The act required manufacturers to register with OSWM and submit recycling plans to the department annually. The plans describe how each manufacturer intends to collect and recycle used CED and CTV products. Table 5 indicates the number of manufacturers registered with the department by year: The program has been managed by OSWM since its inception and has provided funding to the counties of Hawai‘i, Maui and Kaua‘i to maintain county electronic waste collection programs to collect and recycled devices not captured by manufacturer programs.

Funding of County Electronics Recycling Programs

Counties have made electronic waste diversion from landfilling a high priority and developed programs prior to the enactment of the State law. However, most of the collection programs had been drastically scaled back because of budget constraints.

New electronics recycling services for the general public had become available in response to the law. The most comprehensive programs had been centered on O‘ahu with recyclers accepting all brands of electronics free of charge and even accepting items not covered by the law. Comprehensive services are centered on O‘ahu because of its population concentration. OSWM provided funding to the counties of Hawai‘i, Maui and Kaua‘i to maintain county electronic waste collection programs. Additionally, various manufacturers also paid the shipping costs for electronics collected through these periodic waste collection efforts on the neighbor islands.

Act 151 Electronic Device Recycling and Recovery Law

During the thirty-first Legislative Session, amendments to the Electronic Waste and Television Recycling and Recovery Program were passed) and signed into law (Act 151) by Governor Ige on June 27, 2022. These amendments include combining the covered electronic devices with the covered televisions, to create one category called electronic devices. Electronic devices include computers, monitors, portable computers (laptops/tablets), printers, and televisions. Act 151 also changed the registration fee to \$5,000 for electronic device manufacturers.

Starting on January 1, 2023, electronic device manufacturers were required to fully fund their recycling programs for the collection and transportation of used devices to a certified recycler on the mainland. OSWM will continue to provide funding to the counties of Hawai‘i, Maui and Kaua‘i to provide public education and outreach to promote the manufacturer sponsored programs. OSWM will also work with the counties to determine if funding is needed to supplement the recycling programs sponsored by the manufacturers in remote or underserved areas.

Also starting in calendar year 2023, all electronic device manufacturers now have convenient collection requirements and recycling goals to meet. If a manufacturer does not meet their recycling goal, a \$1.50 per pound penalty shall be imposed for each pound not recycled. For 2023, the recycling goal is fifty percent of the total weight of all electronic devices a manufacturer sold in Hawai‘i two years prior (2021). Setting recycling goals for all manufacturers (previously only television manufacturers had recycling goals) will increase the amount of electronics recycled in Hawai‘i. As noted in Table 7 and in previous OSWM reports, many manufacturers recycled zero

electronic devices in Hawai'i, despite submitting a recycling plan. Table 5 indicates the number of manufacturers registered with the department by year:

Table 5: Number of Registered Manufacturers

Calendar Year	2019	2020	2021	2022	2023
CED	29	29	57	54	51
CTV	21	21	22	19	n/a*

*Act 151 (2022) combined the covered electronic devices and covered television categories into a single covered electronic devices category.

Manufacturer Ranking by Pounds Recycled in 2022

By January 1, 2010, CED manufacturers were required to establish their electronic recycling programs and by January 1, 2011, CTV manufacturers were required to establish their recycling programs in the State.

By law, OSWM is required to rank CED manufacturers by the number of pounds recycled. Table 6 displays the rankings for the manufacturers who reported recycling CEDs in Hawai'i. Twenty (20) CED manufacturers reported recycling zero (0) pounds of CEDs in Hawai'i and are listed alphabetically in Table 7. Please note that because of the time needed to compile this data (due to CED and CTV reporting) there is a two-year lag in the data presented.

Table 6: Manufacturer Ranking by CED Pounds Recycled in 2022

Rank	Manufacturer	CED Pounds Recycled
1	Apple Inc.	150,460
2	HP Inc.	125,153
3	Dell Marketing LP	115,262
4	LG Electronics USA, Inc.	37,859
5	Samsung Electronics America, Inc.	35,000
6	Acer America Corporation	30,000
7	Lenovo (United States) Inc.	27,000
8	Lexmark International, Inc.	5,193
9	Google LLC	5,002
10	Elo Touch Solutions, Inc.	4,551
11	Planar Systems, Inc.	3,000
12	Walmart Inc.	2,500
*13	Panasonic Corporation of North America	2,000
*14	Amazon.com Services LLC	2,000
15	Funai Corporation, Inc.	1,500
16	VTech Electronics North America LLC	1,410
*17	Sharp Electronics	1,000
*18	Microsoft Corporation	1,000
*19	MSI Computer Corp.	1,000
*20	NOOK Digital LLC	1,000
*21	ASUS Computer International	1,000
*22	DPI, Inc.	1,000
*23	Brother International Corporation	1,000
24	Epson America, Inc.	722
*25	Canon U.S.A., Inc.	500
*26	Dynabook Americas, Inc.	500
*27	KYOCERA Document Solutions America, Inc.	500
*28	Wacom Technology Corporation	500
*29	TCT Mobile (US), Inc.	500
*30	Trans Cosmos America, Inc	500
31	Xerox Corporation	489
32	SMART Technologies	300
33	IGEL Technology Corporation	100
34	BenQ America Corp.	29

*Indicates manufacturers with identical rankings

Table 7: CED Manufacturers Reporting Zero Pounds Recycled in 2022

American Future Technology Corporation dba: ibuypower
CTL
Cyberpower Inc.
Element TV Company, LP
Envision Peripherals, Inc.
HMD America, Inc.
IBM Corporation (International Business Machines Corporation)
Intel Corporation
Konica Minolta Business Solutions
Meta Platforms Technologies, LLC.
Nvidia Corporation
Oracle America Inc. (Oracle)
Promethean, Inc.
Razer Inc.
Ricoh USA, Inc.
Sceptre, Inc.
Stratasys, Inc.
TGCS
TongFang Global
ViewSonic Corporation
Zebra Technologies Corporation

In 2021, CED and CTV manufacturers reported recycling 475,045 pounds of CEDs and 2,246,328 pounds of CTVs (see Table 8).

Table 8: E-Waste Recycled (2018-22 Calendar Year)

Calendar Year	2018	2019	2020	2021	2022
CED Manufacturer	951,164	795,805	625,324	475,045	559,530
CTV Manufacturer	2,337,605	2,240,180	2,240,180	2,246,328	2,235,894
Total	3,288,769	3,147,657	2,865,504	2,721,373	2,795,424

Registered electronic device manufacturers are required to pay an annual registration fee of \$5,000 and registered television manufacturers are required to pay an annual registration fee of \$2,500. Any manufacturer that sells both CEDs and CTVs are required to pay a combined \$7,500 in annual registration fees. Table 9 indicates program revenue from manufacturer registration fees.

Table 9: Electronic Device Recycling Fund Revenue

Calendar Year	2019	2020	2021	2022*	2023
	\$297,090	\$486,232	\$366,066	\$263,033	\$255,000

*Because registration fee revenue is reported by calendar year, 2022 revenue reflects fee payments to OSWM at time of publication.

Glass Advance Disposal Fee (ADF) Program

OSWM continues to administer a statewide glass recovery program that is funded by a glass ADF. OSWM collects the fee from importers of glass container products that do not qualify as DBC (e.g., wine bottles). As required by statute (HRS §342G-85), fees (i.e., revenues) are reported on a calendar year basis. OSWM then contracts with each county to operate local glass recovery programs to divert glass from the waste stream for recycling. Per HRS §342G-84, the funds are distributed to the counties based on population. Each county is allowed the flexibility to structure its own glass-recycling program to maximize glass recycling. Program revenue by calendar year is reported in Table 10, and expenditures by fiscal year are outlined in Table 11. Table 12 details the tonnage of glass recycled by the counties as part of the Glass ADF Program by fiscal year.

Table 10: Glass ADF Revenue

Calendar Year	2019	2020	2021	2022	2023*
	\$802,827	\$746,575	\$736,207	\$808,651	\$3,056,794 [†]

*Because revenue is reported by calendar year, 2023 revenue reflects ADF payments to OSWM at time of publication.

[†] Of the total FY23 revenue, \$2,096,729.24 is from a cash equity transfer of unexpended FY20 & FY21 funds

Table 11: Expenditures for County Collection Programs

Fiscal Year	2019	2020	2021	2022	2023*
Hawai'i	\$85,720	\$113,630	\$125,810	\$10,803	\$0
Maui	\$115,390	\$0 [†]	\$124,791	\$138,400	\$0
Honolulu	\$355,469	\$423,229	\$349,895	\$357,070	\$0
Kaua'i [‡]	\$0	\$0	\$0	\$0	\$0
State	\$556,579	\$536,859	\$600,496	\$506,273	\$0

*The FY2023 County of Hawai'i contract is \$139,600; The County of Maui contract is \$170,590; and the City and County of Honolulu contract is \$640,970. No county invoices have been approved for payment at the time of the report due to county staff resource issues and other administrative delays.

[†]The County of Maui did not receive its allocated ADF funding due to staffing resource issues that impacted the County's ability to implement the program in FY2020 and FY2023.

[‡]The County of Kaua'i does not currently implement a glass recovery program.

Table 12: County Recycled Glass (tons)

Fiscal Year	2019	2020	2021	2022	2023**
Hawai'i	369	2,161	457	20 [†]	0
Maui	1,401	849	466	462	0
Honolulu	1,900	2,283	1,615	2,356	0
Kaua'i*	0	0	0	0	0
State	3,670	5,293	2,538	2,838	

[†]The County of Hawai'i's ADF contractor is currently saving collected glass for an anticipated large project in FY2023.

*The County of Kaua'i does not currently implement a glass recovery program.

** As noted above, FY23 County invoicing has been delayed. Finalized data will be reported in the 2025 Report to the Legislature.

IV. SOLID WASTE MANAGEMENT PROGRAM FUNDING

OSWM collects the Solid Waste Management Disposal Surcharge (Surcharge) from the owners/operators of disposal facilities within the State. This includes all municipal solid waste and construction and demolition landfills, as well as the H-POWER waste-to-energy incinerator on O'ahu. Tables 13 and 14 detail the annual collections and expenditures of the Surcharge.

Funds are being used for the State's ISWM Plan update and other activities that address the State's solid waste issues.

Table 13: Solid Waste Disposal Surcharge Collections

Fiscal Year	2019	2020	2021	2022	2023
	\$512,788	\$524,385	\$672,967	\$508,710	\$543,136

Table 14: Solid Waste Disposal Surcharge Expenditures

Fiscal Year	2019	2020	2021	2022	2023
	\$466,575	\$409,698	\$358,462	\$224,297	\$337,308