

**OFFICE OF SOLID WASTE MANAGEMENT  
ANNUAL REPORT TO THE THIRTY-SECOND LEGISLATURE  
STATE OF HAWAI'I  
2023**

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 2022

## 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 FY2022 (tons)**

<b>County</b>	<b>Generation</b>	<b>Diversion</b>	<b>Disposal</b>	<b>Diversion Rate</b>	<b>Incineration</b>
<b>Hawai‘i</b>	293,348	89,476	203,872	30.5%	n/a
<b>Maui</b>	392,734	55,574	337,160	14.2%	n/a
<b>Honolulu*</b>	1,680,857	434,105	1,246,752	25.8%	736,827
<b>Kaua‘i</b>	132,077	41,836	90,241	31.7%	n/a
<b>State</b>	<b>2,499,016</b>	<b>620,991</b>	<b>1,878,025</b>	<b>24.8%</b>	<b>736,827</b>

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 FY2018 to FY2022**

County	FY2018	FY2019	FY2020	FY2021	FY2022
Hawai'i	19.5%	18.9%	25.4%	32.8%	30.5%
Maui*	18.4%	30.4%	67.9%	13.2%	14.2%
Honolulu	20.8%	16.2%	19.7%	28.4%	25.8%
Kaua'i	57.3%	30.4%	30.4%	30.1%	31.7%
<b>State</b>	<b>23.7%</b>	<b>19.4%</b>	<b>25.4%</b>	<b>27.1%</b>	<b>24.8%</b>

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 FY2018 to FY2022**

County	FY2018	FY2019	FY2020	FY2021	FY2022
Hawai'i	19.5%	18.9%	25.4%	32.8%	30.5%
Maui	18.4%	30.4%	67.9%	13.2%	14.2%
Honolulu	65.5%	66.1%	67.0%	64.9%	69.7%
Kaua'i	57.3%	30.4%	30.4%	30.1%	31.7%
<b>State</b>	<b>54.1%</b>	<b>52.5%</b>	<b>60.2%</b>	<b>53.2%</b>	<b>54.3%</b>

### 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.

### III. OSWM ACTIVITIES

#### Deposit Beverage Container Program

The State's FY2022 Deposit Beverage Container (DBC) Program annual redemption rate was 59.87%, 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.

$$\text{FY2022 Redemption Rate: } \frac{612,042,881}{1,022,241,141} = 59.87\%$$

The DBC Program has investigated why the FY2022 redemption rate was significantly lower compared to FY2021 (63.08%). Our hypothesis is that macroeconomic issues related to the impact of COVID-19 on global supply chains played an outsized role in this year's redemption rate. In FY2020, approximately 980 million containers were sold in the State. In FY2021, as the economy improved but with low global inventories, statewide distribution numbers dropped to 955 million containers. In FY2022, over one billion containers were distributed statewide, likely a course correction by retailers to compensate for constricted supplies in the previous year. Between FY2021 and FY2022, several large national retailers reported significant distribution increases in Hawai'i: Walmart increased by 62.6%, Safeway increased by 50.8%, and Costco increased by 21%.

The number of eligible containers redeemed statewide increased by approximately 10 million containers from FY2021 to FY2022, however the anomalous increase in containers distributed statewide resulted in the lower redemption rate.

OSWM continues to prioritize efforts to increase the public's access to certified redemption centers and make it easier to redeem eligible containers. In FY2022, OSWM facilitated the opening of a new redemption center in Windward O'ahu and is collaborating with a partner to open a new redemption center in Kaimuki. Increasing public access to convenient redemption centers can improve the redemption rate.

OSWM also continues to monitor the status of the economy, both locally and nationally. In FY2009, during the height of the Great Recession, the redemption rate reached 78.72%. Should the State face similar challenges due to rising interest rates and a possible recession in the next year, OSWM anticipates redemption rates increasing significantly as eligible containers are redeemed to supplement lost income.

**Table 4: DBC Program FY2022 Revenues & Expenditures**

<b>FY2022 Appropriation Ceiling</b>	<b>71,138,955</b>
<b>Revenue</b>	
- Distributor Payments	62,718,408.83
- Restitution	1,200.00
- State Investment Pool Account	206,162.66
<b>Total Revenue</b>	<b>62,925,771.49</b>
<b>Expenditures</b>	
<b>Program Administrative Costs</b>	
- Payroll	514,625.79
- Fringe	265,734.42
- Office Equipment, Supplies, & Other Miscellaneous Services	26,479.37
- Office of the Attorney General - Services	15,886.35
<b>Subtotal Program Administrative Costs</b>	<b>822,725.93</b>
<b>Contracts</b>	
- Redemption Center Reimbursement Payments	50,503,784.65
- Redemption Center Contract Balances (Encumbered Funds)	14,877,565.35
- County Recycling Program Payments	770,808.58
- County Recycling Program Contract Balances (Encumbered Funds)	52,751.58
- Other Contract Payments	48,635.00
- Other Claims Balances (Encumbered Funds)	16,000.63
<b>Subtotal Contracts</b>	<b>66,269,545.79</b>
<b>Central Services Administration</b>	<b>470,733.36</b>
<b>Total Expenditures*</b>	<b>67,563,005.08</b>

\*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 developing administrative rules to implement Act 012 as part of its efforts to update the State ISWM Plan, as both tasks require assembling a Task Force. In addition, the State ISWM Plan update will also include the assessment of current DBC statutes and administrative rules and develop additional revisions if needed.

### 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 are considered “Covered Electronic Devices” (CEDs). 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 are termed “Covered Televisions” (CTVs). The program is managed by OSWM.

The act requires manufacturers to register with OSWM and submit recycling plans to the department. 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:

**Table 5: Number of Registered Manufacturers**

Calendar Year	2018	2019	2020	2021	2022
<b>CED</b>	63	29	29	57	54
<b>CTV</b>	21	21	21	22	19

### Manufacturer Ranking by Pounds Recycled in 2021

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 2021**

Rank	Manufacturer	CED Pounds Recycled
1	Apple Inc.	151,429
2	HP Inc.	150,328
3	Samsung Electronics America, Inc.	50,000
4	Acer America Corporation	30,020
5	LG Electronics USA, Inc.	27,024
6	Lenovo (United States) Inc.	26,420
7	Lexmark International, Inc.	5,295
8	Google LLC	5,004
9	Elo Touch Solutions, Inc.	4,551
10	Planar Systems, Inc.	3,000
11	Dell Marketing LP	2,080
12*	Brother International Corporation	1,500
12*	Amazon.com Services LLC	1,500
12*	Panasonic Corporation of North America	1,500
12*	Walmart Inc.	1,500
16	VTech Electronics North America LLC	1,410

\*Indicates manufacturers with identical rankings

17	Oki Data Americas, Inc.	1,350
18*	NOOK Digital LLC	1,200
18*	Sharp Electronics	1,200
18*	Canon U.S.A., Inc.	1,200
21*	DPI, Inc.	1,000
21*	Microsoft Corporation	1,000
23*	KYOCERA Document Solutions America, Inc.	750
23*	TCT Mobile, Inc.	750
23*	Dynabook Americas, Inc.	750
26	Robert Bosch Tool Corporation	600
27	Epson America, Inc.	513
28	Xerox Corporation	467
29	ASUS Computer International	304
30*	Envision Peripherals, Inc.	300
30*	Wacom Technology Corporation	300
30*	Trans Cosmos America, Inc.	300
30*	SMART Technologies	300
34*	Motorola Mobility LLC	100
34*	IGEL Technology Corporation	100

\*Indicates manufacturers with identical rankings

**Table 7: CED Manufacturers Reporting Zero Pounds Recycled in 2020**

American Future Technology Corporation dba: ibuypower
BenQ America Corp.
CTL
Cyberpower Inc.
Element TV Company, LP
Fujitsu America Inc.
IBM Corporation (International Business Machines Corporation)
Intel Corporation
Konica Minolta Business Solutions U.S.A, Inc.
Meta Platforms Technologies. LLC
Nvidia Corporation
Oracle America Inc. (Oracle)
Promethean, Inc.
Razor Inc.
Ricoh USA, Inc.
Sceptre, Inc.
Stratasys, Inc.
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 (2017-2021 Calendar Year)**

<b>Calendar Year</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>CED Manufacturer</b>	1,192,408	951,164	795,805	625,324	475,045
<b>CTV Manufacturer</b>	2,299,611	2,337,605	2,240,180	2,240,180	2,246,328
<b>Total</b>	<b>3,492,019</b>	<b>3,288,769</b>	<b>3,147,657</b>	<b>2,865,504</b>	<b>2,721,373</b>

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**

<b>Calendar Year</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022*</b>
	\$472,494	\$297,090	\$486,232	\$366,066	\$263,033

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

### **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 have been drastically scaled back because of budget constraints.

New electronics recycling services for the general public have become available in response to the law. The most comprehensive programs have 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 provides funding to the counties of Hawai’i, Maui and Kaua’i to maintain county electronic waste collection programs. Various manufacturers also pay 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 (HB1640 HD2 SD1 CD1) 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 in calendar year 2023, electronic device manufacturers will be required to fully fund their recycling plan from the collection of the devices, transportation of the devices to a certified recycler on the mainland, and the actual recycling of the devices. As noted above, OSWM provided funding to the counties of Hawai’i, Maui and Kaua’i to maintain county electronic waste collection programs in previous fiscal years. OSWM will work with the counties to determine if funding is needed to supplement the recycling programs sponsored by the manufacturers, for example in remote/underserved areas. OSWM could also provide funding to provide public education and outreach to promote electronics recycling programs.

Also starting in calendar year 2023, all electronic device manufacturers will 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.

### 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	2018	2019	2020	2021	2022*
	\$760,593	\$802,827	\$746,575	\$736,207	\$808,651

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

**Table 11: Expenditures for County Collection Programs**

Fiscal Year	2018	2019	2020	2021	2022*
Hawai'i	\$110,171	\$85,720	\$113,630	\$125,810	\$10,803
Maui†	\$109,390	\$115,390	\$0	\$124,791	\$0
Honolulu	\$535,360	\$355,469	\$423,229	\$349,895	\$163,401
Kaua'i‡	\$0	\$0	\$0	\$0	\$0
State	\$754,921	\$556,579	\$536,859	\$600,496	\$174,205

\*The FY2022 County of Hawai'i contract is \$139,600 (remaining balance \$128,797); The County of Maui contract is \$138,480; and the City and County of Honolulu contract is \$640,970 (remaining balance \$477,569).

†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.

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

**Table 12: County Recycled Glass (tons)**

Fiscal Year	2018	2019	2020	2021	2022
Hawai'i	617	369	2,161	457	20†
Maui	547	1,401	849	466	462
Honolulu	4,859	1,900	2,283	1,615	2,356
Kaua'i*	0	0	0	0	0
State	6,023	3,670	5,293	2,538	2,838

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

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

#### **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**

<b>Fiscal Year</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
	\$731,724	\$512,788	\$524,385	\$672,967	\$508,710

**Table 14: Solid Waste Disposal Surcharge Expenditures**

<b>Fiscal Year</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
	\$375,185	\$466,575	\$409,698	\$358,462	\$224,297