

**OFFICE OF SOLID WASTE MANAGEMENT  
ANNUAL REPORT TO THE THIRTY-FIRST LEGISLATURE  
STATE OF HAWAI'I  
2022**

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:

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DEPARTMENT OF HEALTH  
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## 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 (i.e., 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 FY2021 (tons)**

County	Generation	Diversion	Disposal	Diversion Rate	Incineration
Hawai‘i	292,753	96,123	196,631	32.8%	
Maui	317,137	41,708*	275,429	13.2%	
Honolulu	1,834,003	519,960	1,314,043†	28.4%	671,078
Kaua‘i	126,585	38,141	88,444	30.1%	
State	2,570,478	695,931	1,874,546	27.1%	671,078

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.

\*The County of Maui’s diversion amount was impacted in FY2021 due to the closure of a composting facility.

†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 for FY2017 through FY2021**

<b>County</b>	<b>FY2017</b>	<b>FY2018</b>	<b>FY2019</b>	<b>FY2020</b>	<b>FY2021</b>
<b>Hawai'i</b>	22.9%	19.5%	18.9%	25.4%	32.8%
<b>Maui*</b>	30.6%	18.4%	30.4%	67.9%	13.2%
<b>Honolulu</b>	28.1%	20.8%	16.2%	19.7%	28.4%
<b>Kaua'i</b>	54.2%	57.3%	30.4%	30.4%	30.1%
<b>State</b>	<b>30.0%</b>	<b>23.7%</b>	<b>19.4%</b>	<b>25.4%</b>	<b>27.1%</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 for FY2017 through FY2021**

<b>County</b>	<b>FY2017</b>	<b>FY2018</b>	<b>FY2019</b>	<b>FY2020</b>	<b>FY2021</b>
<b>Hawai'i</b>	22.9%	19.5%	18.9%	25.4%	32.8%
<b>Maui</b>	30.6%	18.4%	30.4%	67.9%	13.2%
<b>Honolulu</b>	68.3%	65.5%	66.1%	67.0%	64.9%
<b>Kaua'i</b>	54.2%	57.3%	30.4%	30.4%	30.1%
<b>State</b>	<b>57.2%</b>	<b>54.1%</b>	<b>52.5%</b>	<b>60.2%</b>	<b>53.2%</b>

### III. OSWM ACTIVITIES

#### Deposit Beverage Container Program

The State of Hawai'i Deposit Beverage Container (DBC) Program achieved an annual redemption rate of 63.08% in FY2021, accounting for approximately 602.5 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.

$$\text{FY2021 Redemption Rate: } \frac{602,465,060}{955,143,178} = 63.08\%$$

During the Great Recession, the DBC Program saw redemption rates of 71.93% in FY2008, 78.72% in FY2009, and 76.11% in FY2010. OSWM anticipated a similar increase in redemption rates in FY2021 as eligible containers would be redeemed to supplement lost income due to the economic fallout from the COVID-19 pandemic. In July and August 2020, the redemption rate was over 75% in each month, and the redemption rate was over 70% in October and November. However, the economy fortunately improved and redemption rates lowered throughout the remainder of FY2021.

OSWM has prioritized maintaining the public's access to certified redemption centers. In FY2021 OSWM awarded a contractor to ensure continuous access on the Island of Lāna'i for the next five years, worked with a partner to open a redemption center in Kahuku, and continues to discuss opportunities and options to fill a void in Windward O'ahu. Increasing public access to convenient redemption centers will improve the redemption rate.

**Table 4: DBC Program FY2021 Revenues & Expenditures**

Revenue	
- Distributor Payments	54,558,786.97
- Restitution	1,200.00
- State Investment Pool Account	189,205.29
- Other Revenue	17,540.83
Total Revenue	54,766,733.09
Expenditures	
Program Administrative Costs	
- Payroll	415,262.39
- Fringe	224,900.04
- Office Equipment, Supplies, & Services	39,431.04
- Office of the Attorney General Services	42,638.98
- Other Program Costs	1,608.91
Subtotal Program Administrative Costs	723,841.36
Contracts	
- Redemption Center Reimbursements	46,076,238.34
- Encumbered Redemption Center Reimbursements	19,130,817.65
- County Recycling Program Support	556,567.44
- Encumbered County Recycling Program Support	247,165.48
- Other Contracts	77,640.00
- Encumbered Other Contracts	40,000.00
Subtotal Contracts	66,128,428.91
Central Services Administration	506,808.83
Other Miscellaneous Expenditures	390.31
Total Expenditures	67,359,469.41

Some redemption center reimbursement contract amounts were increased in FY2021 due to OSWM extending all redemption center contracts by an additional three months to end on September 30, 2021, from the previous end date of June 30, 2021. Due to issues encumbering funds for the next fiscal year before funding allocations were posted, contract payments were sometimes delayed, and these delays led to redemption center closures due to insufficient funds.

Most of these contracts had a sufficient balance to extend with no budgetary adjustments (i.e., no-cost extensions), but some contracts had insufficient funds to extend the contract period for three months without an increase in the contract price. All redemption center reimbursement contracts have reverted to twelve-month contracts, but now start on October 1 and end on September 30 the following year.

As a snapshot in time, the DBC special fund closed on June 30, 2021 with an estimated overage of almost \$12.6m, however because the redemption center contracts were extended into the subsequent quarter and new funding was then used to service some of the contracts, the fund was not overspent relative to the legislative appropriation.

OSWM also continues to implement strategies to address issues identified in the State Auditor's report. In addition to 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. In the next year, OSWM anticipates contracting for assistance with distributor report reviews. OSWM will also be contracting for assistance with updating the State Integrated Solid Waste Management Plan, which will include an assessment of existing DBC administrative rules and developing revisions as 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	2017	2018	2019	2020	2021
<b>CED</b>	63	63	59	59	57
<b>CTV</b>	19	21	21	21	22

### Manufacturer Ranking by Pounds Recycled in 2020

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-three (23) CED manufacturers reported recycling zero (0) pounds of CEDs in Hawai'i and are listed alphabetically in Table 5. Please note that because of the time needed to compile this data (due to CED and CTV reporting, and by OSWM for analysis) there is a two-year lag in the data presented.

**Table 6: Manufacturer Ranking by CED Pounds Recycled in 2020**

Rank	Manufacturer	CED Pounds Recycled
1	HP, Inc.	200,033
2	Apple Inc.	200,000
3	Dell Marketing LP	51,909
4	Samsung Electronics America, Inc.	50,000
5	Acer America Corporation	30,000
6	LG Electronics USA, Inc.	27,878
7	Lenovo (United States) Inc.	26,416
8	Brother International Corporation	5,562
9	Elo Touch Solutions, Inc.	5,420
10	Lexmark International, Inc.	4,438
11	Planar Systems, Inc.	3,000
12	VTech Electronics North America LLC	1,593
13	Google LLC	1,510
14	Funai Corporation, Inc.	1,414
15*	Amazon.com Services LLC	1,200
15*	Walmart Inc.	1,200

\*Indicates manufacturers with identical rankings

**Table 6: Manufacturer Ranking by CED Pounds Recycled in 2020 (cont.)**

<b>Rank</b>	<b>Manufacturer</b>	<b>CED Pounds Recycled</b>
16	Panasonic Corporation of North America	1,150
17	Microsoft Corporation	1,006
18*	Canon U.S.A., Inc.	1,000
18*	DPI, Inc.	1,000
19	Oki Data Americas, Inc.	950
20*	KYOCERA Document Solutions America, Inc.	800
20*	NOOK Digital LLC	800
21	Sharp Electronics	786
22	Dynabook Americas, Inc.	750
23*	TCT Mobile, Inc.	700
23*	Trans Cosmos America, Inc	700
23*	Venturer Electronics Inc.	700
24*	Optoma Technologies, Inc.	600
24*	Robert Bosch Tool Corporation	600
25*	ASUS Computer International	500
25*	Envision Peripherals, Inc.	500
25*	Wacom Technology Corporation	500
26	Epson America, Inc.	309
27	SMART Technologies	300
28	Motorola Mobility LLC	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.
Cyberpower Inc.
Element TV Company, LP
Facebook Technologies, LLC.
Fujitsu America Inc.
IBM Corporation (International Business Machines Corporation)
IGEL America Sales Corporation
Intel Corporation
Konica Minolta Business Solutions U.S.A, Inc.
Nvidia Corporation
Oracle America Inc. (Oracle)
Promethean, Inc.
Razor Inc.
Ricoh USA, Inc.
Sceptre, Inc.
Shaghal, Ltd.
Stratasys, Inc.
TGCS



**Table 7: CED Manufacturers Reporting Zero Pounds Recycled in 2020 (cont.)**

TongFang Global
ViewSonic Corporation
Xerox Corporation
Zebra Technologies Corporation

In 2020, CED and CTV manufacturers reported recycling 625,324 pounds of CEDs and 2,240,180 pounds of CTVs (see Table 8).

**Table 8: E-Waste Recycled (2016-2020)**

Pounds Recycled					
Calendar Year	2016	2017	2018	2019	2020
<b>CED Manufacturer</b>	1,780,235	1,192,408	951,164	795,805	625,324
<b>CTV Manufacturer</b>	1,661,062	2,299,611	2,337,605	2,351,852	2,240,180
<b>Total</b>	<b>3,441,297</b>	<b>3,492,019</b>	<b>3,288,769</b>	<b>3,147,657</b>	<b>2,865,504</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**

Calendar Year	2017	2016	2019	2020	2021
	\$362,500	\$367,500	\$347,500	\$347,500	\$340,000

**Funding of County Electronics Recycling Programs**

Counties have made electronic waste diversion from landfilling (or incineration) 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.

**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 (i.e., wine bottles). As required by statute (HRS §342G-85), fees 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 and expenditures are indicated in Tables 10 and 11, respectively. Table 12 details the tonnage of glass recycled by the counties as part of the Glass ADF Program.

**Table 10: Glass ADF Revenue**

Calendar Year	2017	2018	2019	2020	2021*
	\$744,788	\$760,593	\$802,827	\$746,575	\$722,682

\*By statute, revenue is reported by calendar year. 2021 revenue reflects ADF payments prior to publication.

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

Fiscal Year	2017	2018	2019	2020	2021
Hawai'i	\$0	\$110,171	\$85,720	\$113,630	\$125,810
Maui*	\$99,100	\$109,390	\$115,390	\$0	\$0
Honolulu	\$489,100	\$535,360	\$355,469	\$423,229	\$349,895
Kaua'i†	\$0	\$0	\$0	\$0	\$0
State	\$588,200	\$754,921	\$556,579	\$536,859	\$475,705

\*In FY2020, the County of Maui did not receive its allocated ADF funding due to staffing resource issues. Funds have not been expended in FY2021 due to delayed invoicing by the County of Maui.

†The County of Kaua'i has been ineligible to receive its allocated ADF funding because it currently does not have a glass recovery program.

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

Fiscal Year	2017	2018	2019	2020	2021
Hawai'i	0	617	369	2,161	457
Maui	745	547	1,401	849	466
Honolulu	5,220	4,859	1,900	2,283	1,615
Kaua'i*	0	0	0	0	0
State	5,965	6,023	3,670	5,293	2,538

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

#### **IV. SOLID WASTE MANAGEMENT PROGRAM FUNDING**

The Solid Waste Management Disposal Surcharge (Surcharge) was the primary funding source for OSWM's planning staff, Recycling Coordinator, Solid Waste Coordinator, and one full time equivalent (FTE) position in each of SHWB's Solid Waste and Clerical Sections. Act 88, SLH 2021, converted the funding for these positions from special funds to general funds.

OSWM collects the 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 will be used to support an update of the State's Integrated Solid Waste Management Plan and other planning activities to address the State's solid waste issues.

**Table 13: Solid Waste Disposal Surcharge Collections**

<b>Fiscal Year</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
	\$664,391	\$413,102	\$621,912	\$524,385	\$672,967

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

<b>Fiscal Year</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
	\$282,810	\$375,185	\$466,575	\$409,698	\$358,462