

# Energy & Science



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## Section 7

# ENERGY & SCIENCE

The increase in Maui County's population has been reflected in the utilities. Consumption and use of electricity, gas, utilities, and water have all increased dramatically over the last decade. Statistics on electricity, gas, water production and consumption are covered. Hawaiian Commercial and Sugar generated 5.53% of the electric power used on the island of Maui in 2001. Ongoing scientific endeavors include observation of astronomical and man-made space objects from the summit of Mt. Haleakala.

## 7.1.1

## TELESCOPES AT THE SUMMITS OF MAUNA KEA AND HALEAKALA: 2003

Facility (mirror diameter in meters)	Capital cost/1 (\$mil)	Annual operating cost (\$mil)	County based staff	Operational
<b>Mauna Kea observatories:</b>				
UH 0.6-m (Optical)	0.3	2	2	1968
UH 2.2-m (Optical/Infrared)	5	1.3	8	1970
Canada-France-Hawaii 3.6-m (Optical/Infrared)	30	6.2	50	1979
NASA IRTF 3.0-m (Infrared)	10	3.2	16	1979
United Kingdom 3.8-m (Infrared)	5	3.0	31	1979
James Clerk Maxwell 15-m Submillimeter	32	5.0	39	1986
Caltech 10.4-m Submillimeter	10	2.6	11	1986
W.M. Keck Observatory (Keck I & II) 10-m x 2 (Optical/Infrared)	170	11.0	115	1992/96
VLBA Antenna 25-m (Radio)	7	0.25	2	1992
Submillimeter Array 8x6-m	80	6.0	36	2003
Subaru (Japan National Large Telescope) 8-m (Optical/Infrared)	170	15.0	70	1999
Fredrick C. Gillett Gemini 8m (Optical/Infrared)	92	8.0	70	1999
Mauna Kea Observatories Support Services	(X)	3/ 2.4	28	(X)
<b>Total</b>	<b>611</b>	<b>61.6</b>	<b>476</b>	
<b>Haleakala observatories:</b>				
Mees Solar Observatory	0.5	0.1	2	1968
Lunar Ranging Facility	3.3	0.7	7	1976/84
Haleakala Observatories Projects	(NA)	0.5	4	1979
Maui Space Surveillance Site (MSSS) 4/ Advanced Electro-Optical System 3.7-m Telescope (AEOS)	200.0	16.0	120	1979
Magnum 2-m Telescope 5/	50.0	15.0	55	1997
Faulkes 2-m Telescope 6/	5.0	0.25	1	2000
Haleakala Support Facilities	5.0	(NA)	(NA)	2003
	(X)	0.13	6	(NA)
<b>Total</b>	<b>263.8</b>	<b>32.68</b>	<b>195</b>	

NA Not available.

X Not applicable.

1/ Historical cost, not adjusted for inflation.

2/ Combined budget and staffing with UH 2.2-m telescope.

3/ Not included in the total since derived from facility operating costs.

4/ Formerly Air Force Maui Optical Station (AMOS).

5/ MAGNUM = Multicolor Active Galactic Nuclei Monitoring.

6/ Under construction.

Source: University of Hawaii at Manoa, Institute for Astronomy, records.

## 7.1.2

## ELECTRIC UTILITIES, MAUI COUNTY

	1999	2000	2001	2002	2003
<b>CUSTOMERS, DEC. 31</b>					
<i>Total</i>					
Maui Island	52,079	53,204	54,405	55,504	56,880
Molokai	2,911	2,903	2,926	2,960	3,017
Lanai	1,420	1,494	1,509	1,519	1,526
<b>Maui County</b>	<b>56,410</b>	<b>57,601</b>	<b>58,840</b>	<b>59,983</b>	<b>61,423</b>
<i>Residential<sup>1</sup></i>					
Maui Island	44,510	45,379	46,320	47,253	48,327
Molokai	2,364	2,351	2,381	2,416	2,464
Lanai	1,227	1,296	1,306	1,310	1,319
<b>Maui County</b>	<b>48,101</b>	<b>49,026</b>	<b>50,007</b>	<b>50,979</b>	<b>52,110</b>
<i>Other</i>					
Maui Island	7,569	7,825	8,085	8,251	8,553
Molokai	547	552	545	544	553
Lanai	193	198	203	209	207
<b>Maui County</b>	<b>8,309</b>	<b>8,575</b>	<b>8,833</b>	<b>9,004</b>	<b>6,313</b>
<b>GENERATING AND FIRM PURCHASED CAPABILITY, DEC. 31 (MW)</b>					
Maui Island	228.9	250.1	250.1	250.1	245.2
Molokai	12.1	12.1	12.1	12.0	11.8
Lanai	10.4	10.4	10.4	10.4	10.3
<b>Maui County</b>	<b>251.4</b>	<b>272.6</b>	<b>272.6</b>	<b>272.5</b>	<b>267.3</b>
<b>PEAK DEMAND (MW)<sup>2</sup></b>					
Maui Island	180.1	185.1	191.0	193.9	197.7
Molokai	7.0	6.5	6.5	6.6	6.5
Lanai	5.0	5.0	5.2	4.9	5.0
<b>POWER SOLD (1,000 kWh)</b>					
<i>Total</i>					
Maui Island	1,002,594	1,042,006	1,071,486	1,096,739	1,142,689
Molokai	35,576	36,349	35,681	34,942	35,894
Lanai	26,569	27,108	26,905	27,036	28,136
<b>Maui County</b>	<b>1,064,739</b>	<b>1,105,463</b>	<b>1,134,072</b>	<b>1,158,717</b>	<b>1,206,719</b>
<i>Residential</i>					
Maui Island	340,071	354,689	360,025	378,828	398,949
Molokai	12,551	12,687	12,348	12,439	13,048
Lanai	6,620	6,855	7,068	7,358	7,515
<b>Maui County</b>	<b>359,243</b>	<b>374,231</b>	<b>379,440</b>	<b>398,625</b>	<b>419,512</b>
<i>Other</i>					
Maui Island	662,523	687,317	711,462	717,911	743,741
Molokai	23,025	23,661	23,333	22,503	22,846
Lanai	19,949	20,253	19,838	19,678	20,621
<b>Maui County</b>	<b>705,496</b>	<b>731,232</b>	<b>754,633</b>	<b>760,092</b>	<b>787,208</b>

## 7.1.2

CONTINUED

	1999	2000	2001	2002	2003
<b>AVERAGE ANNUAL USE (kWh)<sup>3</sup></b>					
<i>Residential</i>					
Maui Island	7,640	7,816	7,773	8,017	8,255
Molokai	5,309	5,397	5,186	5,149	5,296
Lanai	5,396	5,289	5,412	5,617	5,697
<b>Maui County</b>	<b>7,469</b>	<b>7,633</b>	<b>7,588</b>	<b>7,819</b>	<b>8,050</b>
<i>Other</i>					
Maui Island	87,531	87,836	87,998	87,009	86,957
Molokai	42,093	42,865	42,814	41,366	41,312
Lanai	103,361	102,288	97,722	94,152	99,619
<b>Maui County</b>	<b>84,907</b>	<b>85,275</b>	<b>85,433</b>	<b>84,417</b>	<b>84,528</b>
<b>AVERAGE RATE (dollars per kWh)</b>					
<i>Residential</i>					
Maui Island	0.15549	0.18232	0.18656	0.17119	0.18289
Molokai	0.19547	0.22787	0.23631	0.22173	0.22953
Lanai	0.19478	0.22184	0.24415	0.22445	0.23460
<b>Maui County</b>	<b>0.15761</b>	<b>0.18459</b>	<b>0.18925</b>	<b>0.17375</b>	<b>0.18527</b>
<i>Other</i>					
Maui Island	0.13866	0.16582	0.17125	0.15684	0.16954
Molokai	0.19053	0.22376	0.22841	0.21110	0.22509
Lanai	0.19737	0.22112	0.24555	0.22480	0.23516
<b>Maui County</b>	<b>0.14201</b>	<b>0.16922</b>	<b>0.17497</b>	<b>0.16020</b>	<b>0.17287</b>
<b>Revenues (\$1,000)</b>					
<i>Total</i>					
Maui Island	144,741	178,638	189,003	177,446	199,057
Molokai	6,840	8,186	8,247	7,508	8,137
Lanai	5,227	5,999	6,597	6,075	6,612
<b>Maui County</b>	<b>156,808</b>	<b>192,823</b>	<b>203,847</b>	<b>191,030</b>	<b>213,806</b>
<i>Residential</i>					
Maui Island	52,878	64,668	67,166	64,851	72,964
Molokai	2,453	2,891	2,918	2,758	2,995
Lanai	1,290	1,521	1,726	1,652	1,763
<b>Maui County</b>	<b>56,621</b>	<b>69,080</b>	<b>71,809</b>	<b>69,260</b>	<b>77,721</b>
<i>Other</i>					
Maui Island	91,863	113,970	121,837	112,596	126,093
Molokai	4,387	5,294	5,330	4,750	5,142
Lanai	3,937	4,478	4,871	4,424	4,849
<b>Maui County</b>	<b>100,187</b>	<b>123,743</b>	<b>132,038</b>	<b>121,769</b>	<b>136,085</b>

<sup>1</sup> Residential refers to single-metered residential customers which may include condominiums for visitor use but excludes master-metered apartment and condominium buildings used by residents, which are classified as commercial customers.

<sup>2</sup> Peak demand is the maximum amount of energy required from the electrical system. The islands' electrical systems are not interconnected, so no peaks are reported for Maui County as a whole.

<sup>3</sup> Based on number of customers at end of year.

SOURCE: Hawaii State Department of Commerce and Consumer Affairs, Division of Consumer Advocacy, records; capacity and peak demand: Hawaiian Electric Industries, Inc., Securities and Exchange Commission 10-K filings, 1999-2003.

### 7.1.3

## GAS UTILITIES, MAUI COUNTY

*Excludes bottled gas*

	1998	1999	2000	2001	2002	2003
<b>Island of Maui</b>						
<b>Customers (December 31)</b>						
Residential <sup>1</sup>	319	326	333	329	325	321
Other	77	79	78	79	75	76
Total	396	405	411	408	400	397
<b>Gas Sold (1,000 therms)</b>						
Residential	71	74	78	77	68	69
Other	682	813	805	786	771	766
Total	752	887	883	863	839	836
<b>Average Annual Use (therms)</b>						
Residential	221	228	233	234	210	216
Other	8,852	10,285	10,320	9,947	10,281	10,081
<b>Average Rate (\$ per therm)<sup>2</sup></b>						
Residential	2.15527	1.98769	2.10372	2.43086	2.71343	2.82044
Other	1.21693	1.14251	1.23916	1.45250	1.36960	1.51092
<b>Revenues (\$1,000)</b>						
Residential	152	148	163	187	185	196
Other	829	928	997	1,141	1,056	1,158
Total	982	1,076	1,161	1,329	1,241	1,353
<b>Island of Molokai<sup>3</sup></b>						
<b>Customers (December 31)</b>						
Total/Residential	96	92	78	71	80	72
<b>Gas Sold (1,000 therms)</b>						
Total/Residential	20	19	17	15	14	15
<b>Average Annual Use (therms)</b>						
Total/Residential	205	206	220	205	117	202
<b>Average Rate (\$ per therm)</b>						
Total/Residential	2.31461	2.23825	2.33821	2.62590	2.84208	3.00433
<b>Revenues (\$1,000)</b>						
Total/Residential	46	42	40	38	40	44

<sup>1</sup> Residential refers to single-metered residential customers which may include condominiums for visitor use but excludes master-metered apartment and condominium buildings used by residents which are classified as commercial customers.

<sup>2</sup> Based on number of customers at end of year.

<sup>3</sup> All Molokai customers are residential.

SOURCE: Hawaii State Department of Commerce and Consumer Affairs, Division of Consumer Advocacy, records.

## 7.1.4

## HAWAII STATE ENERGY REPORT, ENERGY CONSUMPTION ESTIMATES BY SOURCE

*In billion BTU*

	1996	1997	1998	1999	2000	2001
Asphalt and road oil	2,663.4	2,629.6	2,138.0	2,340.3	4,009.3	2,271.0
Aviation gasoline	833.0	608.8	540.3	293.6	226.3	243.8
Distillate fuel	25,736.6	24,973.5	25,298.4	30,951.2 <sup>r</sup>	29,672.1 <sup>r</sup>	35,180.4
Kerosene-type jet fuel	57,171.9	57,921.6	56,643.3	53,720.0	53,510.8	50,437.3
Naphtha-type jet fuel	22.0	9.0	0.0	0.0	0.0	0.0
Kerosene	3.0	2.8	1.5	0.9	1.3 <sup>r</sup>	0.9
Liquified petroleum gasses	4,766.4	870.3	3,050.5	1,358.0	2,027.4	2,102.2
Lubricants	541.2	571.7	598.5	604.8	595.7	545.8
Motor gasoline	48,892.3	48,781.1	48,692.3	46,653.8	48,397.8	50,587.3
Residual fuel	65,253.6	62,112.4	81,383.5 <sup>r</sup>	81,383.5 <sup>r</sup>	85,001.5 <sup>r</sup>	83,517.5
Other petroleum products <sup>1</sup>	15,488.5	15,257.4	12,595.3	12,615.2	11,806.6	17,159.9
<b>Subtotal petroleum products</b>	<b>221,371.8</b>	<b>213,738.2</b>	<b>230,941.6<sup>r</sup></b>	<b>229,921.2<sup>r</sup></b>	<b>235,248.9<sup>r</sup></b>	<b>242,046.2</b>
Geothermal energy	5,120.0	4,683.3	4,983.0	4,437.1	5,515.6	4,349.9
Solar thermal and photovoltaic energy	1,255.0	1,273.0	1,317.7	1,353.0 <sup>r</sup>	1,364.9 <sup>r</sup>	1,341.0
Wind energy	123.7	206.2	196.6 <sup>r</sup>	168.7 <sup>r</sup>	173.4	21.6
<b>Subtotal geothermal, solar thermal, photovoltaic and wind energy</b>	<b>6,498.6</b>	<b>6,162.4</b>	<b>6,496.2<sup>r</sup></b>	<b>5,958.8<sup>r</sup></b>	<b>7,053.9<sup>r</sup></b>	<b>5,712.6</b>
Coal	20,368.5	20,040.3	18,222.9 <sup>r</sup>	17,653.7 <sup>r</sup>	17,653.7 <sup>r</sup>	17,550.7
Hydroelectric power	1,082.6	1,194.5	1,236.6 <sup>r</sup>	1,175.0 <sup>r</sup>	1,055.4	1,025.0
Natural gas	2,824.3	2,688.3	2,803.7	2,886.5	2,975.0	2,919.4
Wood and waste	15,996.8	14,779.2	17,649.8 <sup>r</sup>	18,098.3 <sup>r</sup>	16,101.2 <sup>r</sup>	15,121.0
<b>Total energy consumption</b>	<b>251,411.7</b>	<b>241,824.9</b>	<b>279,884.9<sup>r</sup></b>	<b>275,730.6<sup>r</sup></b>	<b>280,033.8<sup>r</sup></b>	<b>282,163.2</b>

NOTE: Totals may not equal sum of components due to independent rounding.

<sup>1</sup> Other petroleum products are aviation gasoline blending components, motor gasoline blending components, petroleum coke, still gas, unfinished oils, and petroleum waxes.

<sup>r</sup> Revised from previous Data Book.

SOURCE: U.S. Department of Energy, Energy Information Administration, Combined State Energy Data System 2000.

## 7.1.5

**WATER SERVICES AND CONSUMPTION, MAUI COUNTY***Years ending June 30*

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	<b>NUMBER OF SERVICES</b>										
State Total	219,596	222,569	226,998	229,989	230,952	233,043	235,799	238,665	242,092	245,397	247,862
Maui County	26,522	27,021	27,460	27,918	28,306	28,720	29,333	29,750	30,414	31,021	31,680
Maui	25,042	25,531	25,960	26,409	26,795	27,205	27,809	28,217	28,872	29,451	30,102
Molokai	1,480	1,490	1,500	1,509	1,511	1,515	1,524	1,533	1,542	1,570	1,578
	<b>CONSUMPTION (million gallons)</b>										
State Total	73,338	73,732	74,990	75,389	71,810	73,301	76,631	76,401	78,748	77,868	80,735
Maui County	10,311	11,177	11,494	11,477	11,485	11,729	12,547	12,719	12,883	12,312	12,695
Maui	9,990	10,822	11,150	11,138	11,110	11,399	12,199	12,388	12,546	11,997	12,357
Molokai	321	355	344	339	330	369	348	331	337	315	338

Source: Data compiled by Hawaii State Department of Business, Economic Development & Tourism from City and County of Honolulu Board of Water Supply, County of Hawaii Department of Water Supply, County of Kauai Department of Water, and County of Maui Department of Water Supply.

7.1.6

**DAILY AVERAGES FOR WATER PRODUCTION BY AREA, MAUI COUNTY**

*(in thousands of gallons)*

Area	07/03	08/03	09/03	10/03	11/03	12/03	01/04	02/04	03/04	04/04	05/04	06/04	Prev. 12 months
<b>Central Maui</b>													
Groundwater-lao	18,394	19,728	19,734	20,335	18,270	18,006	13,008	15,658	12,157	14,325	15,542	17,752	16,901
lao Tunnel	1,424	1,457	1,457	1,411	1,426	1,380	1,301	1,342	1,404	1,484	1,856	1,837	1,482
Groundwater-Waihee	5,899	5,583	5,592	3,889	3,061	585	3,702	2,929	3,498	3,840	4,107	4,091	3,897
Surface Water	725	772	1,115	1,144	902	954	835	753	656	975	881	1,082	964
<b>Upcountry Maui</b>													
Surface Water	8,234	8,076	7,545	8,223	7,195	5,242	5,291	6,058	4,835	5,436	5,668	7,321	6,540
Groundwater	1,089	1,179	1,181	753	590	346	333	394	262	276	321	333	589
<b>West Maui</b>													
Surface Water	4,105	4,311	3,608	3,466	3,343	3,370	3,232	3,743	3,563	3,144	3,276	3,583	3,545
Groundwater	4,445	2,845	3,180	3,595	3,433	3,324	3,968	3,555	2,647	2,512	2,737	2,764	3,253
<b>East Maui</b>													
Groundwater	229	286	272	223	258	212	536	244	343	351	325	375	304
<b>Molokai</b>													
Groundwater	1,271	1,223	1,225	1,190	1,236	1,196	1,188	943	941	997	1,192	1,229	1,153
<b>TOTAL WATER PRODUCTION</b>	<b>45,813</b>	<b>45,459</b>	<b>44,910</b>	<b>44,229</b>	<b>39,713</b>	<b>34,614</b>	<b>33,412</b>	<b>35,618</b>	<b>30,305</b>	<b>33,340</b>	<b>35,905</b>	<b>40,367</b>	<b>38,629</b>

Source: County of Maui, Department of Water Supply, Water Quality Report.

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## 7.1.7

# WATER SYSTEM DEVELOPMENT FEE SCHEDULE

*(Effective July 29, 2002)*

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METER SIZE	TOTAL FEE
5/8 inch	\$6,030
3/4 inch	8,442
1 inch	15,678
1 1/2 inch	34,974
2 inch	61,506
3 inch	138,690
4 inch	247,230
6 inch	555,966
8 inch	987,714
10 inch	1,543,680
12 inch	2,222,658

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Note: Fees do not include installation charges.

Source: County of Maui, Department of Water Supply, *Annual Report FY 2003*.

## 7.1.8

**NUMBER OF SERVICES BY METER SIZE,  
MAUI COUNTY**

District	5/8"	3/4"	1"	1-1/2"	2"	3"	4"	6"	8"	Total
<b>Regular Rates</b>										
Wailuku	15,078	673	450	373	359	69	22	3	1	<b>17,028</b>
Makawao	8,124	278	163	74	26	13	5	0	0	<b>8,683</b>
Lahaina	2,620	97	104	126	113	34	6	1	0	<b>3,101</b>
Hana	478	7	8	4	3	0	0	0	0	<b>500</b>
Molokai	1,469	35	30	14	18	1	0	1	0	<b>1,568</b>
Subtotal	27,769	1,090	755	591	519	117	33	5	1	<b>30,880</b>
<b>Agricultural Service Meters</b>										
Wailuku	23	9	6	5	1	0	0	0	0	<b>44</b>
Makawao	426	66	100	96	37	1	1	0	0	<b>727</b>
Lahaina	2	2	1	0	0	0	0	0	0	<b>5</b>
Hana	13	0	3	0	0	0	0	0	0	<b>16</b>
Molokai	4	2	1	1	0	0	0	0	0	<b>8</b>
Subtotal	468	79	111	102	38	1	1	0	0	<b>800</b>
<b>Total</b>	<b>28,237</b>	<b>1,169</b>	<b>866</b>	<b>693</b>	<b>557</b>	<b>118</b>	<b>34</b>	<b>5</b>	<b>1</b>	<b>31,680</b>

Source: County of Maui, Department of Water Supply, *Annual Report FY 2003*.

7.1.9

**OUTSIDE WATER DELIVERIES TO DEPARTMENT OF  
WATER SUPPLY, MAUI COUNTY**

<b>Purchased From</b>	<b>1,000 Gallons</b>	<b>Amount</b>	<b>Cost Per 1,000 Gallons</b>
East Maui Irrigation	2,634,661	\$158,871	\$0.060
Wailuku Agribusiness	101,972	18,964	0.186
Maui Land & Pine	846,126	42,306	0.050
Hawaiian Home Lands	11,963	17,500	1.460
R.W. Meyers	3,198	1,279	0.400
HC&S	113,095	28,082	0.248
<b>Total</b>	<b>3,711,015</b>	<b>\$267,002</b>	<b>\$0.072</b>
<b>District</b>			
Wailuku	215,067	\$47,047	\$0.219
Kula	1,639,509	98,862	0.060
Makawao	987,191	59,528	0.060
Lahaina	846,126	42,306	0.050
Hana	7,961	480	0.060
Molokai	15,161	18,779	1.239
<b>Total</b>	<b>3,711,015</b>	<b>\$267,002</b>	<b>\$0.072</b>

Source: County of Maui, Department of Water Supply, *Annual Report FY 2003*.

**7.1.10**  
**WATER SALES TO GENERAL & AGRICULTURAL**  
**CONSUMERS BY DISTRICT & SYSTEMS,**  
**MAUI COUNTY FY JULY 2002 - JUNE 2003**

<b>System</b>	<b>Services</b>	<b>Change from FY 2002</b>	<b>Consumption (1,000 gallons)</b>	<b>Change from FY 2002 (1,000 gallons)</b>
<b>Wailuku District</b>				
Wailuku	5,099	34	1,252,578	9,426
Waihee	185	3	26,089	(1,480)
Waikapu	301	0	51,704	4,424
Wailuku Heights	466	10	93,252	13,257
Kahului	4,502	63	1,728,800	8,269
Puunene	10	(1)	38,398	2,199
Kihei	5,282	203	3,916,117	154,935
Maalaea	45	0	83,639	2,327
Makena	159	23	204,780	15,683
Paia-Kuau	856	3	166,034	9,273
Spreckelsville	165	4	87,192	710
<b>Subtotal</b>	<b>17,070</b>	<b>342</b>	<b>7,648,583</b>	<b>259,023</b>
<b>Makawao District</b>				
Kokomo-Kaupakalua	1,010	13	181,201	18,373
Kuiaha	299	0	52,758	7,144
Haiku-Pauwela	825	26	137,789	15,968
Makawao	1,975	4	357,361	21,632
Pukalani	2,020	64	383,638	34,364
Hailiimaile	200	0	35,813	2,689
Upper Kula	1,892	144	504,773	(41,533)
Lower Kula	1,076	(12)	796,066	(62,633)
Ulupalakua	76	(3)	69,514	(2,906)
Kula Agr. Park	37	(1)	193,033	(20,411)
<b>Subtotal</b>	<b>9,410</b>	<b>235</b>	<b>2,711,946</b>	<b>(27,313)</b>
<b>Lahaina District</b>				
Lahaina	1,970	39	917,782	51,875
Honokowai	413	3	583,486	33,088
Alaeloa	711	28	424,846	46,056
Honokohau	13	0	1,446	242
<b>Subtotal</b>	<b>3,107</b>	<b>70</b>	<b>1,927,560</b>	<b>131,261</b>
<b>Molokai District</b>				
Kawela-Kaunakakai	1,114	5	247,731	15,027
Ualapue	349	(1)	78,920	5,879
Kalae	107	2	11,175	1,791
Halawa	8	2	272	107
<b>Subtotal</b>	<b>1,578</b>	<b>8</b>	<b>338,098</b>	<b>22,804</b>
<b>Hana District</b>				
Hana	380	4	55,867	(3,609)
Nahiku	34	0	3,522	(389)
Keanae	80	0	8,079	484
Kaupo	21	0	1,313	402
<b>Subtotal</b>	<b>515</b>	<b>4</b>	<b>68,781</b>	<b>(3,112)</b>
<b>Total</b>	<b>31,680</b>		<b>12,694,968</b>	<b>382,663</b>

Source: County of Maui, Department of WaterSupply, *Annual Report FY 2003*.

## 7.1.11

**WATER CONSUMPTION BY DISTRICT,  
MAUI COUNTY FY JULY 2002 - JUNE 2003**

*(1,000 gallons)*

Months	Total	Wailuku	Makawao	Kula	Lahaina	Molokai	Hana
<b>General</b>							
July-August	2,124,131	1,418,450	178,471	107,324	352,147	56,190	11,549
September-October	2,083,529	1,360,488	208,036	105,277	340,442	57,924	11,362
November-December	1,859,701	1,186,297	176,123	96,103	336,728	55,369	9,081
January-February	1,749,175	1,135,288	168,348	93,505	292,187	49,045	10,802
March-April	1,683,398	1,122,778	149,774	74,285	284,127	49,586	2,848
May-June	1,944,823	1,269,248	173,254	111,299	309,975	60,897	20,150
<b>Total</b>	<b>11,444,757</b>	<b>7,492,549</b>	<b>1,054,006</b>	<b>587,793</b>	<b>1,915,606</b>	<b>329,011</b>	<b>65,792</b>
<b>Agricultural</b>							
July-August	249,585	34,043	17,522	193,843	2,290	1,384	503
September-October	243,121	25,277	17,936	195,560	2,209	1,597	542
November-December	187,600	20,943	17,638	145,033	2,123	1,635	218
January-February	174,924	27,638	16,422	125,402	2,661	1,448	1,353
March-April	164,211	22,549	13,513	125,369	1,327	1,340	113
May-June	230,780	25,580	17,460	184,453	1,344	1,499	444
<b>Total</b>	<b>1,250,221</b>	<b>156,030</b>	<b>100,491</b>	<b>969,660</b>	<b>11,954</b>	<b>8,903</b>	<b>3,173</b>
<b>Grand Total</b>	<b>12,694,968</b>	<b>7,648,579</b>	<b>1,154,497</b>	<b>1,557,453</b>	<b>1,927,560</b>	<b>337,917</b>	<b>68,965</b>

Source: County of Maui, Department of WaterSupply, *Annual Report FY 2003*.