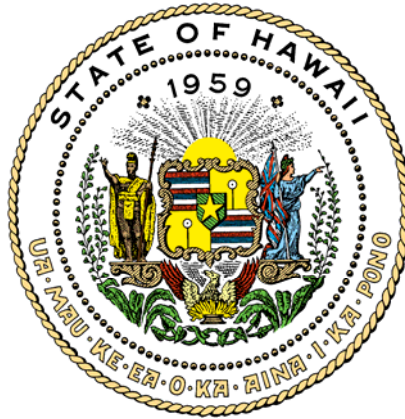


Report to the 2010 Hawai‘i State Legislature

Lead By Example State of Hawai‘i Agencies’ Energy Initiatives FY 2008-2009



State of Hawai‘i
Department of Business, Economic Development & Tourism
January 2010

TABLE OF CONTENTS

<i>EXECUTIVE SUMMARY</i>	2
---------------------------------	----------

<i>LEAD BY EXAMPLE: STATE OF HAWAI'I EXECUTIVE AGENCIES' ACHIEVEMENTS IN ENERGY</i>	7
--------------------------------------------------------------------------------------------	----------

The LBE Initiative	8
--------------------	---

Executive Agency Electricity Consumption	10
------------------------------------------	----

Electricity Costs by State Agencies	14
-------------------------------------	----

Efficiency in Buildings	19
-------------------------	----

Utility Rebates Save Money at State Facilities	23
------------------------------------------------	----

Highlights of Current State Energy Activities	29
-----------------------------------------------	----

Plans for Future LBE Activities	35
---------------------------------	----

Individual Agency Responses	37
-----------------------------	----

<i>Consolidated LBE Reports from State of Hawai'i Executive Agencies</i>	38
---------------------------------------------------------------------------------	-----------

Act 96 SLH 2006: Buildings and Facilities	38
-------------------------------------------	----

Act 96 SLH 2006: Transportation Vehicles and Fuel	73
---------------------------------------------------	----

Act 160	85
---------	----

TABLES

Table 1: Lead By Example Targets (Baseline FY 2005)	9
-----------------------------------------------------	---

Table 2: Utility Electricity Consumption by State Agencies	12
------------------------------------------------------------	----

Table 3: Differences in Electricity Consumption (kWh) for Reported Years	13
--------------------------------------------------------------------------	----

Table 4: Cost of Electricity Purchased by State Agencies	16
----------------------------------------------------------	----

Table 5: Differences in Cost of Electricity for Reported Years (\$)	17
---------------------------------------------------------------------	----

FIGURES

Figure 1: Comparison of State Agencies' Electricity Consumption in kWh	10
------------------------------------------------------------------------	----

Figure 2: Comparison of kWh Consumption by Agency	11
---------------------------------------------------	----

Figure 3: Comparison of State Executive Agency Utility Electricity Costs	14
--------------------------------------------------------------------------	----

Figure 4: Cost of Purchased Electricity by Agency	15
---------------------------------------------------	----

Figure 5: Consumption and cost percentage change from FY05 to FY09 by agency	18
------------------------------------------------------------------------------	----

Figure 6: DSM Rebates from HECO since 1996, by Agency	23
-------------------------------------------------------	----

Figure 7: Annual State Executive Facilities' DSM Rebate Savings (\$) from HECO since 1996	24
-------------------------------------------------------------------------------------------	----

Figure 8: Annual State Executive Facilities' Energy Savings (kWh) from HECO Rebate Programs since 1996	25
--------------------------------------------------------------------------------------------------------	----

Figure 9: Rebate Energy Savings (kWh) by Technology in 2009	25
-------------------------------------------------------------	----

Figure 10: Typical Office Building Energy Use Breakdown	26
---------------------------------------------------------	----

Figure 11: State of Hawai'i Facilities on O'ahu, Electricity Consumption by Occupancy Type	26
--------------------------------------------------------------------------------------------	----

Figure 12: State Agency Consumption (kWh) by Island in 2009	27
-------------------------------------------------------------	----

Figure 13: Consumption by Agency by Island in 2009	27
----------------------------------------------------	----

Figure 14: Consumption by Sector	28
----------------------------------	----

APPENDICES

Appendix 1: UH Community Colleges Waste and Pollution Initiatives	A-1
Appendix 2: UH ITS recycling programs	A-10
Appendix 3: DHHL Vehicle Inventory 2009	A-19
Appendix 4: DOE Vehicle Fuel Report 2009	A-21
Appendix 5 DOT Harbors Vehicle Data 2009	A-28
Appendix 6: HHSC Vehicle Data 2009	A-30
Appendix 7: NELHA Vehicle Inventory 2009	A-32
Appendix 8: PSD Vehicle and Fuels Data 2009	A-33

EXECUTIVE SUMMARY

The Lead By Example (LBE) initiative began in 2006 in response to legislative and executive mandates to change the way state executive branch agencies use energy in operations and facilities. These efforts acknowledge the high cost of electricity in Hawai‘i, the energy security benefits of alternative fuel use, and the many opportunities for increasing energy efficiency in new and existing state offices, facilities and schools. The legislation also required incorporating environmentally preferable purchasing into state operations.

Fully implemented, the LBE initiative represents an important step in achieving long-term economic and environmental benefits for the state.

During fiscal year 2009, total state agency electric consumption dropped 5.8% from 2008 and 2.5% from baseline year 2005. This represents the largest single-year decrease since the Lead By Example initiative began, and the first time that overall consumption has been lower than the 2005 baseline levels. Despite the decrease in consumption, overall cost has steadily risen each year. This is due in large part to the escalating price of oil. Hawai‘i relies on imported petroleum for about 86% of its primary energy¹. Fiscal year 2009 opened with a spike in crude oil prices, which hit a record high of \$147.27 per barrel in July 2008². As a result, between 2008 and 2009, while kWh consumption decreased by 5.8%, costs increased 1.2%. The impact of the world oil market is more striking when comparing current figures to those of 2005: state agencies used 2.5% less electricity in 2009 than in 2005, but that electricity cost 57.4% more.

As indicated by the significant decrease in electrical consumption, State of Hawai‘i executive branch agencies made great progress during fiscal year 2009. Retrofitting existing buildings for energy efficiency and modifying operations strategies were the primary contributors to reducing electrical consumption, but progress was also made in green building design, environmentally preferable purchasing, transportation and the adoption of renewable energy. Some highlights follow.

Efficiency

- Six state buildings have received ENERGY STAR® awards, acknowledging that they rank in the top 25% of similar buildings nationwide. Agencies are reviewing buildings to recertify existing buildings and to identify new buildings for certification.
- Six state buildings are LEED certified. An additional 52 LEED projects are in the process toward the goal of certification. The Department of Education (DOE) and the University of Hawai‘i (UH) now design and construct all new buildings to meet LEED Silver standards.
- The Department of Accounting and General Services (DAGS) is in the process of retrocommissioning the facilities it manages through de-lamping and installing high-efficiency lighting and plumbing fixtures.

¹ Source: Hawai‘i Clean Energy Initiative

² Source: New York Mercantile Exchange

- DAGS, on behalf of the Department of Public Safety (PSD), has initiated a statewide energy conservation/efficiency project for correctional facilities.
- Both DAGS and the Hawai‘i Public Housing Authority (HPHA) executed large performance contracts to implement major energy conservation measures.
- The Hawai‘i State Public Library System (HSPLS) is in the process of retrofitting light fixtures for all 51 public libraries and should be completed by mid-2010.
- The Department of Hawai‘ian Home Lands (DHHL) is planning for a sustainable community in Wai‘anae called Ka‘ūpuni Village. This project consists of 18 affordable, net-zero energy homes that will include a number of green building features. Net-zero energy homes are homes where the amount of energy produced on-site by renewable energy sources is equal to the amount of energy the building consumes.
- The Natural Energy Laboratory of Hawai‘ian Authority (NELHA) and Kona International Airport continued discussions about NELHA’s providing the airport with seawater A/C in the future, which could save 50% - 80% of the cost of air conditioning. NELHA has been using deep-seawater A/C at its own facilities for many years.
- State agencies have received more than \$4.8 million in efficiency rebates from the Hawai‘ian Electric Company (HECO) and its subsidiaries since 1996. These rebates have resulted in estimated cumulative dollar savings of over \$89 million and estimated cumulative electricity savings of 480 million kilowatt-hours. This is enough to power about 61,068 households for a year.
- Department of Land and Natural Resources’ (DLNR) State Parks Division started retrofitting existing lighting fixtures and installing new efficient fixtures and appliances. A major project to replace the air conditioning system at ‘Iolani Palace is in the design phase.
- Several agencies have implemented or already participate in a variety of recycling programs.
- The Airports Division of the Department of Transportation (DOT-Air) is replacing and relocating the Diamond Head Chiller Plant at the Honolulu International Airport. The new equipment is 50% more efficient and will save approximately \$2.3 million per year in electrical operating costs. The two other remaining chillers will be replaced and upgraded; the Central Chiller Plant in 2009 and the Ewa Chiller Plant in 2010.
- The Department of Business, Economic Development, and Tourism (DBEDT) offered testimony to the Land Use Commission in support of LEED Silver homes on six petitions affecting nearly 14,000 residential units.
- DBEDT, in coordination with the U.S. Environmental Protection Agency and pursuant of Act 155, has offered training on benchmarking to state agencies. Act 155 requires benchmarking of all state facilities by December 31, 2010. Benchmarking is a process which involves calculating the building’s annual energy consumption per square foot, allowing buildings to be compared and identifying areas for improving energy efficiency.
- A total of 55 workshops and other events relating to LBE topics were held in FY09, attracting at least 2,550 participants, including many from state agencies. In some

cases, DBEDT provided funds so that other executive agencies' staff members could attend the training.

- The State Building Code Council approved the 2006 International Energy Conservation Code (IECC) and modified the code to better suit the climate in Hawai'i, resulting in an estimated 15% efficiency improvement.

Renewables

- Photovoltaics (PV) have been the primary renewable energy technology widely adopted by state facilities.
- DAGS is examining a 100 kilowatt (kW) PV system for the Kalanimoku Building.
- DLNR's State Parks have started to plan for solar energy sources to power infrastructure facilities such as well pumps, sewer pumps, and base yard facilities.
- Some DOE facilities have had PV systems installed and requests for proposals were put out for the design and installation of PV systems for about 80 schools.
- 70 kW of PV will be installed on the One-Stop Center building at Kaua'i Community College.
- UH Hilo will install PV systems on five buildings with a combined capacity of 231 kW. UH Hilo has a policy to include PV in all new construction projects.
- The Airports Division of the Department of Transportation (DOT-Air) installed 16 small-scale wind turbines at Honolulu International Airport. The turbines have a combined capacity of 16 kW.
- DOT-Air installed photovoltaic systems with a capacity of 875 kW at the Lihue, Kona, Hilo and Kahului Airports as part of the DOT's Photovoltaic Energy Systems Project.
- A power purchase agreement to install a 1.01 MW photovoltaic system at Kona International Airport over parking stalls as sun-shade trellis structures is pending on a Request for Proposal.
- The Legislature appropriated general obligation bond funds to the Department of Agriculture (DOA) for the design and construction of a Hydropower Plant in Waimea, Hawai'i, which will reduce electrical pumping costs when completed.
- Act 207 of 2008 established new responsibilities for the Director of DBEDT as the state's Energy Resources Coordinator. The Coordinator is working on creating a streamlined permitting process for renewable energy projects and an inter-island cable project to supply renewable energy to the island of O'ahu from the neighbor islands.

Transportation

- State vehicles are already utilizing E-10 Unleaded gasoline which contains 10% ethanol. State law requires its sale.
- Many state vehicles are also flexible-fuel capable, and can use a higher percentage of ethanol if the higher blend becomes available.
- The state is developing a pricing preference for biodiesel, and several agencies are prepared to use it.
- UH has a small fleet of alternatively-fueled and hybrid vehicles.

Purchasing Practices

- Most departments already use life-cycle cost analyses, purchase efficient equipment such as those with the ENERGY STAR® label, and take advantage of utility rebates.
- DAGS already requires use of highly efficient mechanical equipment. Utility rebates have typically been used to help offset the cost of purchasing and installing energy-efficient equipment.
- The State Procurement Office (SPO) continues to provide price and vendor listings which include ENERGY STAR®, recycled, or environmentally preferred products.
- For products and supplies not included on the SPO price lists, purchasing agencies are required to preferentially order recycled products, oil products with greater recycled content, and biofuels.
- Information on recycled and environmentally preferable products (EPP) has been prepared by DBEDT. Lead By Example, in partnership with the SPO, also has hosted multiple trainings on EPP that are available to state employees.
- An annual survey designed to track the environmentally preferable purchasing practices of state agencies is coordinated by the Department of Health's (DOH) Office of Solid Waste Management. The results show that state agency EPP in 2009 lead to greenhouse gas (GHG) savings equivalent to removing approximately 255 passenger vehicles from roadways for one year and energy savings equal to conserving about 25,961 gallons of gasoline in a year.

Leadership in Energy and Environmental Design

Hawai'i remains a member of the U.S. Green Buildings Council (USGBC), the non-profit entity which administers the Leadership in Energy and Environmental Design (LEED) program. DAGS is developing LEED application guidelines to be used by state agencies. There are currently 20 LEED Accredited Professionals on staff at five state agencies; DAGS, DBEDT, DOE, DOT and UH. Others are in training for this goal.

To date, six state facilities have been certified as meeting LEED standards or have been completed and are awaiting certification by USGBC:

LEED Platinum

- Natural Energy Laboratory of Hawai'i Authority Gateway Energy Center

LEED Gold

- UH Hilo Student Life Complex

LEED Silver

- Frear Hall Residence Housing

LEED Certified

- DOE Waipahu Intermediate School Cafeteria
- UH Hilo 'Imiloa Astronomy Center of Hawai'i
- UH-Mānoa John A. Burns School of Medicine

A significant number of additional buildings which are anticipated to meet LEED Silver standards are either being planned or are in the design phase, while the following state facilities are currently under construction or construction bids have been awarded, and are expected to be rated by LEED:

- North Kohala Public Library (Silver)
- Mānoa Public Library (Silver)
- UH Hilo Sciences and Technology Center (Silver)
- Honolulu International Airport Lounge (Silver)
- Keaukaha Military Reservation (Silver)
- Ewa Makai Middle School (Silver)
- Baldwin High School Library (Silver)

LEAD BY EXAMPLE: STATE OF HAWAI‘I EXECUTIVE AGENCIES’ ACHIEVEMENTS IN ENERGY

This report responds to legislative and executive mandates issued in 2006, which require state agencies to implement a variety of energy programs now known as the Lead By Example (LBE) initiative. A number of requirements were established by Act 96, SLH 2006, Part III, which reflects Administrative Directive 06-01, issued by Governor Linda Lingle on January 20, 2006. Act 96 directs state agencies to improve energy, water and resource efficiency in state facilities, increase fuel efficiency, and use alternative fuels in state vehicles.

In addition, we are continuing with the requirements of Act 160, Section 168.5, SLH 2006, to report state agencies’ electricity consumption, the steps taken to reduce energy use, and their plans for future reductions. Although not mandated by law, the costs of purchasing utility electricity also have been compiled.

This LBE report provides data on electricity use and costs, as well as highlights of state agencies’ energy activities under the LBE initiative. Executive agencies were invited to submit reports containing information required by law; these reports have been consolidated by the Department of Business, Economic Development and Tourism (DBEDT). The consolidated reports, which are attached, list all agencies’ actions, where applicable, under each section of Acts 96 and 160, SLH 2006.

The LBE effort was kicked off at a meeting of all cabinet members, convened by DBEDT, on May 11, 2006. Since that initial meeting, agencies developed a framework for planning, implementing and reporting energy efficiency activities. State agency personnel have been trained and received technical assistance as needed. The agencies have set energy-savings targets and are developing tools which will enable their goals to be reached.

Agency representatives formed an LBE Leadership Group to coordinate these actions, supported by three Working Groups. These Working Groups address Buildings, Transportation, and Environmental Practices and Procurement. Each Working Group develops plans and recommendations to be reviewed by the Leadership Group, which is composed of high-level representatives of executive departments and the University of Hawai‘i. The Leadership Group members have the authority to ensure efficient communication and the commitment to develop effective policies and plans for each department.

The LBE Initiative

Fiscal year 2009, the fourth year of the LBE initiative, continued the increased emphasis on energy efficiency brought about by soaring petroleum prices and the resulting high electricity costs. New state buildings are being constructed to higher efficiency standards, and existing ones are receiving equipment retrofits and are being retrocommissioned to ensure proper operation of energy systems. Several agencies are adopting solar technologies, particularly photovoltaics and solar water heating.

Executive agencies continued training their personnel in subjects such as building commissioning, performance contracting, financing, green building design and construction, energy-efficient equipment, and photovoltaics. A total of 55 workshops and other events relating to LBE topics were held in FY09, attracting at least 2,550 participants, including many from state agencies. In some cases, DBEDT provided funds so that other executive agencies' staff members could attend the training.

Consistency in data collection and accuracy in recordkeeping have been some of the challenges of the LBE initiative. Last year (FY08), electricity consumption and billing information was acquired directly from the utilities to be compiled and maintained by statisticians in DBEDT's Research and Economic Analysis Division (READ). Before FY08, each agency provided data from their own records. Compiling data from 26 agencies was less consistent than obtaining data from a sole source such as the utility. Since utility data was already being used for FY08 and FY09, READ requested utility data from FY05 through FY07. As expected, there were slight discrepancies between the utility and agency data going back to FY05. Starting with this year's report, utility data will be used for all years of the LBE initiative to provide a standard of consistency that did not exist in previous reports. Fiscal Year 2005 will continue to serve as the baseline year, but the data have been updated to reflect this new standard.

Table 1 outlines the targets for the LBE report that have been set in response to the legislative and administrative mandates noted above.

This report summarizes the achievements and activities of executive agencies as they "Lead By Example" in 2009. The 26 participating agencies include:

- Department of Accounting and General Services (DAGS)
- Department of Agriculture (DOA)
- Department of the Attorney General (AG)
- Department of Budget and Finance (B&F)
- Department of Business, Economic Development and Tourism (DBEDT)
- Department of Commerce and Consumer Affairs (DCCA)
- Department of Education (DOE)
- Department of Hawai'ian Home Lands (DHHL)
- Department of Health (DOH)
- Department of Human Resources Development (DHRD)
- Department of Human Services (DHS)

Department of Labor and Industrial Relations (DLIR)
 Department of Land and Natural Resources (DLNR)
 Department of Public Safety (PSD)
 Department of Taxation (DOTAX)
 Department of Transportation—Airports Division (DOT-Air)
 Department of Transportation—Harbors Division (DOT-Har)
 Department of Transportation—Highways Division (DOT-Hwy)
 Foreign Trade Zone (FTZ)
 Hawai‘i Community Development Authority (HCDA)
 Hawai‘i Health Systems Corporation (HHSC)
 Hawai‘i Housing Finance and Development Corporation (HHFDC)
 Hawai‘i State Public Library System (HSPLS)
 Hawai‘i Tourism Authority—Convention Center (HTA/CC)
 Natural Energy Laboratory of Hawai‘i Authority (NELHA)
 University of Hawai‘i System (UH)

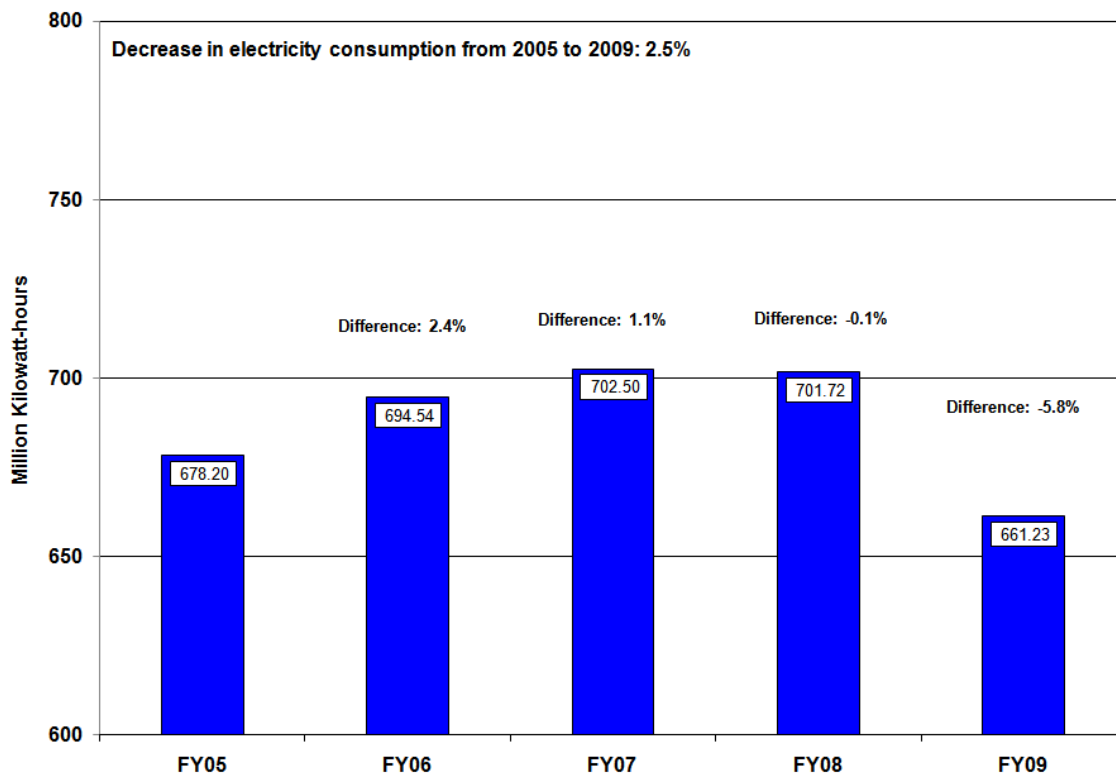
Table 1: Lead By Example Targets (Baseline FY 2005)

Action Item	Impact Short Term 0-3 yrs. (FY08)	Impact Long Term 10 yrs (FY2015)
Provide education programs on energy efficiency	3% reduction in kWh	6% reduction in kWh
R&M/O&M facilities in place as of FY05 (e.g., lighting retrofits, purchasing more efficient equipment)	6% reduction in kWh	20% reduction in kWh
LEED Silver for new construction	30% reduction in kWh for each new building built to LEED Silver	30% reduction in kWh for each new building built to LEED Silver
Increase energy efficiency and fuel diversification of State vehicles as of FY05	5% reduction in petroleum consumption	12% reduction in petroleum consumption
Increase availability of environmentally preferable products to state agencies	3% increase in availability of environmentally preferable products	12% increase in availability of environmentally preferable products
Increase procurement of environmentally preferable products	5% increase in procurement of environmentally preferable products	12% increase in procurement of environmentally preferable products

Executive Agency Electricity Consumption

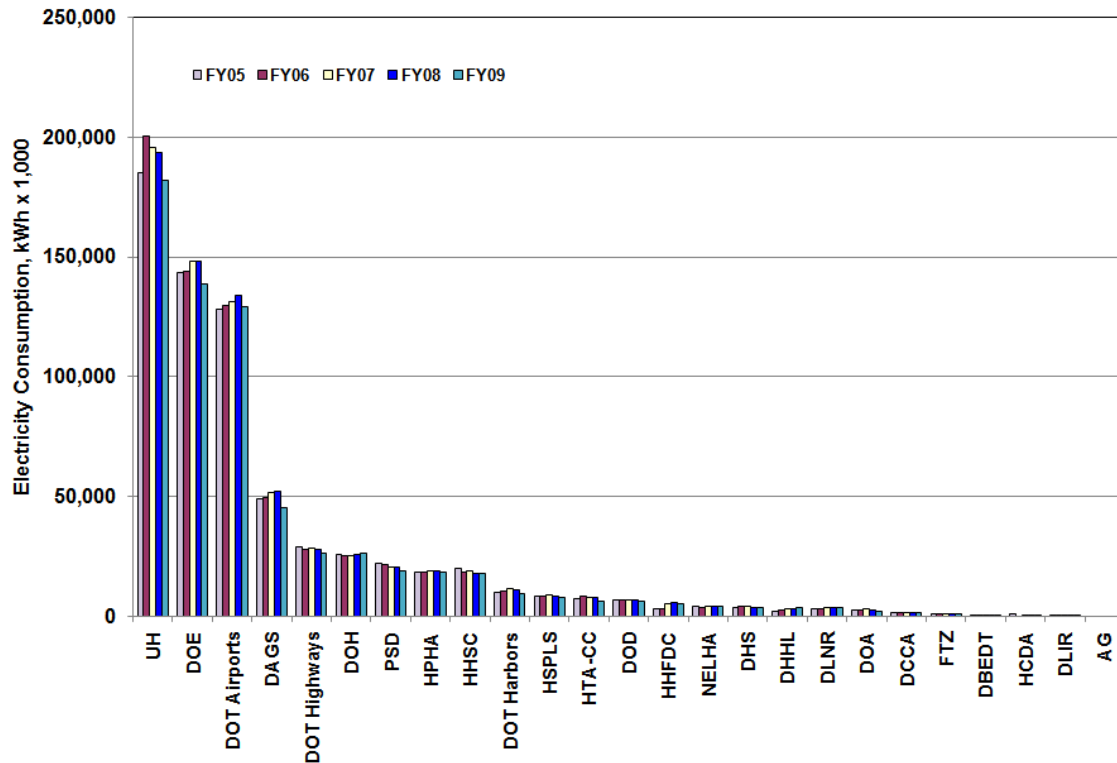
In 2009 agencies consumed a total of 661 million kilowatt-hours (kWh) of electricity, compared to 701 million kWh in 2008, 702 million kWh in 2007, 694 million kWh in 2006, and 678 million kWh in 2005. This represents a decrease of 5.8% between 2008 and 2009 and is the first time since the start of the LBE initiative that total consumption dropped below the 2005 baseline levels. Starting in 2005, consumption increased 2.4% in 2006 and another 1.1% in 2007. The drop of 0.1% in 2008 represented the first decrease from the previous year, but the overall consumption level remained higher than in 2005. With the 5.8% drop in consumption for 2009, the state realized its first real decrease in consumption. Electricity use for State of Hawai'i executive agencies is depicted in Figure 1.

Figure 1: Comparison of State Agencies' Electricity Consumption in kWh



Energy use varies widely within individual agencies. In 2009 most agencies reported reductions in energy use; others noted minimal increases and a few used significantly more electricity. Four agencies account for most of the electricity used by the executive branch: the University of Hawai'i (UH) campuses, the Department of Education (DOE), the Airports Division of the Department of Transportation (DOT-Air), and the Department of Accounting and General Services (DAGS). From FY05-09, 16 executive agencies were able to decrease their electricity consumption. Each agency's kWh consumption is summarized in Figure 2.

**Figure 2: Comparison of kWh Consumption by Agency
Showing Percentage Change from FY05 to FY09³**



DOE's 6.1% decrease in FY09 was particularly impressive because a number of new capital improvement projects were added to DOE meters. 19 new portables were connected to existing schools' electrical meters at nine campuses on three islands, and a new 10-classroom building was connected to the existing meter at Mililani High School on O'ahu. Despite the additions, electricity consumption increases were averted by DOE's ongoing lighting and HVAC retrofit programs as well as the School Energy Conservation Program in effect at all DOE schools since July 1, 2007. The Program takes a school's historical average of electrical energy use and compares this average to actual electrical consumption monthly. Adjustments are made to the historical average (baseline) to account for any new load changes such as new facilities, equipment, and/or energy conservation measures. Schools pay for ½ of the energy cost for energy consumption above the baseline and receive a "rebate" for ½ the energy cost energy consumption below the baseline biannually.

It should be noted that several agencies' utility records are consolidated into DAGS' report since DAGS manages their buildings. These include the departments of Budget

³ For this report, figures and tables were updated to exclude the Housing and Community Development Corporation of Hawai'i (HCDCH). The Hawai'i Public Housing Authority (HPHA) and Hawai'i Housing Finance and Development Corporation (HHFDC) were established out of HCDCH in 2005. Housing data provided in this report are identified as HPHA and HHFDC data.

and Finance (B&F), Human Resource Development (DHRD), Taxation (DOTAX), and some offices within the Department of Business, Economic Development and Tourism (DBEDT). Tables 2 and 3 provide information on individual agencies' electricity consumption and the changes from year to year since FY05. The reported number of kilowatt-hours consumed annually is provided in Table 2, while Table 3 presents the differences among years in kWh as well as percentage change.

Table 2: Utility Electricity Consumption by State Agencies⁴

Agency	FY05 kWh	FY06 kWh	FY07 kWh	FY08 kWh	FY09 kWh
AG	35,420	34,798	34,945	35,849	33,890
DAGS	49,230,992	49,779,316	51,797,308	52,245,047	45,519,417
DBEDT	496,413	358,760	610,347	546,138	546,359
DCCA	1,535,941	1,541,342	1,611,503	1,615,431	1,642,705
DHHL	2,283,061	2,494,168	2,989,292	3,391,736	3,694,566
DHS	3,857,967	4,007,321	4,046,162	3,924,563	3,717,370
DLIR	330,872	400,854	394,799	373,783	299,619
DLNR	3,454,292	3,454,427	3,628,338	3,648,394	3,480,072
DOA	2,825,754	2,920,780	3,309,250	2,845,190	2,327,260
DOD	6,703,102	6,913,967	7,129,678	6,932,392	6,392,223
DOE	143,384,951	144,128,064	148,414,237	147,987,700	138,927,520
DOH	25,726,039	25,496,454	25,404,262	25,887,669	26,216,375
DOT - Air	128,101,116	129,604,326	131,269,766	133,988,212	129,019,506
DOT - Har	10,315,114	10,702,082	11,374,640	11,325,990	9,550,867
DOT - Hwy	28,804,170	28,203,362	28,303,598	27,941,945	26,426,481
FTZ	921,920	1,044,160	1,011,840	1,033,600	895,680
HCDA	1,150,027	252,285	322,151	318,810	312,752
HCDCH	18,456,206	18,567,637	19,235,874	18,884,841	18,481,546
HHFDC	3,057,300	3,142,688	5,430,162	5,832,603	5,485,910
HHSC	20,127,174	18,553,340	18,804,930	18,146,647	17,914,301
HSPLS	8,477,520	8,512,526	8,890,675	8,714,828	8,181,762
HTA - CC	7,389,600	8,715,000	8,056,800	7,848,600	6,525,600
NELHA	4,270,831	3,917,223	4,035,528	4,178,093	4,500,456
PSD	21,966,423	21,584,032	20,839,695	20,431,439	18,910,860
UH	185,299,794	200,215,505	195,556,630	193,639,569	182,226,984
Totals	678,201,997	694,544,416	702,502,409	701,719,068	661,230,080

⁴ For this report, figures and tables were updated to exclude the Housing and Community Development Corporation of Hawai'i (HCDCH). The Hawai'i Public Housing Authority (HPHA) and Hawai'i Housing Finance and Development Corporation (HHFDC) were established out of HCDCH in 2005. Housing data provided in this report are identified as HPHA and HHFDC data.

Table 3: Differences in Electricity Consumption (kWh) for Reported Years⁵

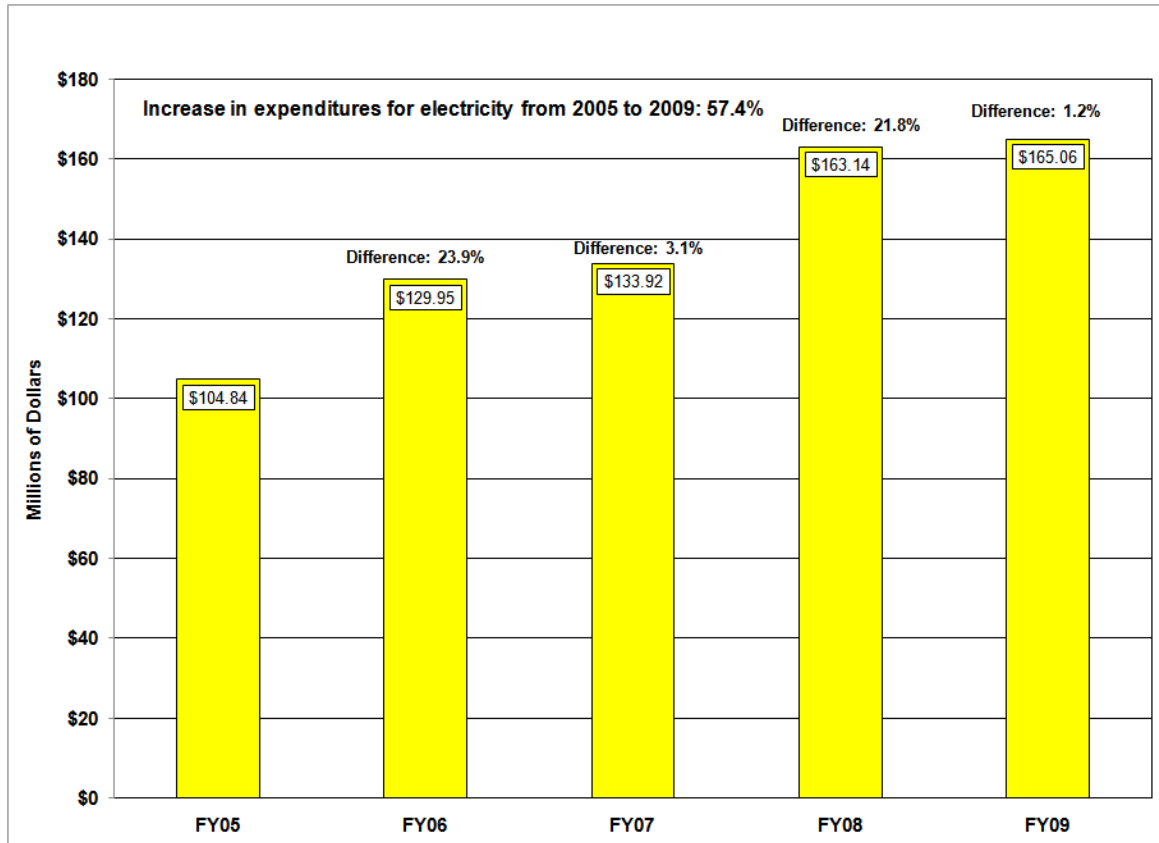
Agency	FY05- FY06	%	FY06- FY07	%	FY07- FY08	%	FY08- FY09	%	FY05- FY09	%
AG	-622	-1.8	147	0.4	904	2.6	-1,959	-5.5	-1,530	-4.3
DAGS	548,325	1.1	2,017,992	4.1	447,739	0.9	-6,725,630	-12.9	-3,711,575	-7.5
DBEDT	-137,653	-27.7	251,587	70.1	-64,209	-10.5	221	0.0	49,946	10.1
DCCA	5,402	0.4	70,160	4.6	3,928	0.2	27,275	1.7	106,765	7.0
DHHL	211,107	9.2	495,124	19.9	402,444	13.5	302,830	8.9	1,411,505	61.8
DHS	149,354	3.9	38,841	1.0	-121,599	-3.0	-207,193	-5.3	-140,597	-3.6
DLIR	69,982	21.2	-6,055	-1.5	-21,016	-5.3	-74,164	-19.8	-31,253	-9.4
DLNR	135	0.0	173,911	5.0	20,056	0.6	-168,322	-4.6	25,780	0.7
DOA	95,026	3.4	388,470	13.3	-464,060	-14.0	-517,930	-18.2	-498,494	-17.6
DOD	210,865	3.1	215,711	3.1	-197,286	-2.8	-540,170	-7.8	-310,879	-4.6
DOE	743,113	0.5	4,286,173	3.0	-426,537	-0.3	-9,060,180	-6.1	-4,457,431	-3.1
DOH	-229,585	-0.9	-92,192	-0.4	483,407	1.9	328,706	1.3	490,336	1.9
DOT-Air	1,503,210	1.2	1,665,440	1.3	2,718,446	2.1	-4,968,706	-3.7	918,390	0.7
DOT-Har	386,968	3.8	672,558	6.3	-48,650	-0.4	-1,775,123	-15.7	-764,246	-7.4
DOT-Hwy	-600,808	-2.1	100,236	0.4	-361,653	-1.3	-1,515,465	-5.4	-2,377,690	-8.3
FTZ	122,240	13.3	-32,320	-3.1	21,760	2.2	-137,920	-13.3	-26,240	-2.8
HCDCA	-897,742	-78.1	69,866	27.7	-3,341	-1.0	-6,058	-1.9	-837,275	-72.8
HPHA	111,430	0.6	668,237	3.6	-351,033	-1.8	-403,295	-2.1	25,340	0.1
HHFDC	85,389	2.8	2,287,474	72.8	402,441	7.4	-346,693	-5.9	2,428,610	79.4
HHSC	-1,573,834	-7.8	251,590	1.4	-658,283	-3.5	-232,346	-1.3	-2,212,873	-11.0
HSPLS	35,006	0.4	378,149	4.4	-175,847	-2.0	-533,066	-6.1	-295,758	-3.5
HTA-CC	1,325,400	17.9	-658,200	-7.6	-208,200	-2.6	-1,323,000	-16.9	-864,000	-11.7
NELHA	-353,608	-8.3	118,305	3.0	142,565	3.5	322,363	7.7	229,625	5.4
PSD	-382,391	-1.7	-744,337	-3.4	-408,256	-2.0	-1,520,579	-7.4	-3,055,563	-13.9
UH	14,915,711	8.0	-4,658,875	-2.3	-1,917,061	-1.0	-11,412,585	-5.9	-3,072,809	-1.7

⁵ For this year's report, figures and tables were updated to exclude the Housing and Community Development Corporation of Hawai'i (HCDCH). The Hawai'i Public Housing Authority (HPHA) and Hawai'i Housing Finance and Development Corporation (HHFDC) were established out of HCDCH in 2005. Housing data provided in this report are identified as HPHA and HHFDC data.

Electricity Costs by State Agencies

State executive branch agencies consumed 661 million kWh in fiscal year 2009, a 2.5% decrease from 2005. Electricity costs, however, were much more expensive than in previous years due to escalating worldwide oil prices. Electricity purchased from utilities cost \$105 million in 2005 but jumped to \$165 million in 2009, a 57.4% increase. The cost totals for the fiscal years from 2005 to 2009 are given in Figure 3.

Figure 3: Comparison of State Executive Agency Utility Electricity Costs



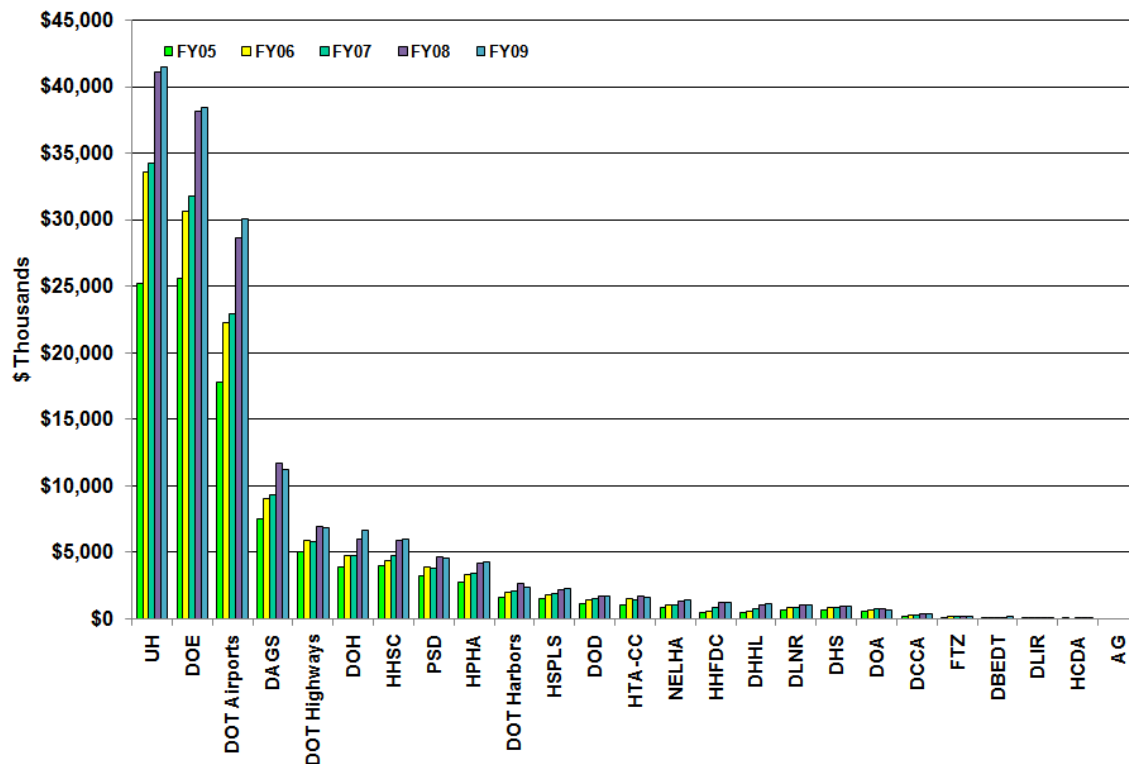
Electricity cost state executive agencies \$25 million more in 2006 than in 2005, \$4 million more between 2006 and 2007, \$30 million between 2007 and 2008, and an additional \$ 1.8 million more between 2008 and 2009.

In fiscal year 2009, agencies' energy bills reflected the higher oil costs, resulting in increases in utility charges per kilowatt-hour, but the increases were not as dramatic as in FY08, when overall costs rose 21.8%. This year's cost increase was relatively small at 1.2%. Major cost increases were averted by a large decline in consumption.

Agencies are actively addressing their energy consumption with methods such as retrofitting lights, tinting windows, replacing aging air conditioning systems, and

assessing the potential for solar water heating. Some are also starting to produce electricity with renewable energy systems that reduce the amount of electricity that is bought from the utility. Electricity costs for each agency are reported by fiscal year in Figure 4.

**Figure 4: Cost of Purchased Electricity by Agency
Showing Percentage Change from FY05 to FY08⁶**



Agencies' electricity costs for fiscal years 2005 through 2009 are shown in Table 4. Table 5 lists the differences in dollars paid for utility electricity from year to year, and the percentage change between years.

⁶ For this year's report, figures and tables were updated to exclude the Housing and Community Development Corporation of Hawai'i (HCDCH). The Hawai'i Public Housing Authority (HPHA) and Hawai'i Housing Finance and Development Corporation (HHFDC) were established out of HCDCH in 2005. Housing data provided in this report are identified as HPHA and HHFDC data.

Table 4: Cost of Electricity Purchased by State Agencies⁷

Agency	FY05	FY06	FY07	FY08	FY09
AG	\$10,741	\$11,632	\$12,204	\$14,626	\$12,843
DAGS	\$7,482,710	\$9,092,737	\$9,310,630	\$11,667,310	\$11,194,778
DBEDT	\$115,698	\$89,907	\$124,219	\$139,262	\$158,482
DCCA	\$219,025	\$268,360	\$273,982	\$347,577	\$372,611
DHHL	\$489,457	\$628,026	\$811,507	\$1,031,764	\$1,128,085
DHS	\$682,243	\$847,648	\$869,025	\$1,011,941	\$1,004,178
DLIR	\$80,885	\$116,710	\$116,422	\$130,371	\$115,599
DLNR	\$705,898	\$841,123	\$889,243	\$1,057,708	\$1,044,212
DOA	\$545,360	\$647,465	\$789,592	\$793,773	\$649,987
DOD	\$1,163,226	\$1,422,139	\$1,492,829	\$1,741,314	\$1,703,990
DOE	\$25,567,384	\$30,610,076	\$31,805,744	\$38,173,389	\$38,403,638
DOH	\$3,934,069	\$4,728,875	\$4,759,470	\$6,022,990	\$6,681,536
DOT-Air	\$17,761,072	\$22,259,323	\$22,920,171	\$28,641,831	\$30,078,400
DOT-Har	\$1,648,777	\$2,044,297	\$2,136,409	\$2,663,999	\$2,422,304
DOT-Hwy	\$5,010,087	\$5,905,006	\$5,782,714	\$6,980,180	\$6,881,176
FTZ	\$134,290	\$180,726	\$174,446	\$221,373	\$206,781
HCDCA	\$149,278	\$53,436	\$61,014	\$74,315	\$78,566
HCDCH	\$2,726,530	\$3,308,536	\$3,427,260	\$4,229,350	\$4,314,868
HHFDC	\$451,607	\$568,198	\$910,554	\$1,243,518	\$1,256,511
HHSC	\$3,982,094	\$4,415,497	\$4,801,818	\$5,866,179	\$6,007,542
HSPLS	\$1,533,815	\$1,808,919	\$1,893,315	\$2,244,370	\$2,249,731
HTA-CC	\$1,104,124	\$1,520,889	\$1,411,445	\$1,717,207	\$1,582,841
NELHA	\$871,574	\$1,015,139	\$1,071,918	\$1,313,291	\$1,425,614
PSD	\$3,264,187	\$3,951,300	\$3,848,077	\$4,689,674	\$4,601,729
UH	\$25,206,974	\$33,613,946	\$34,221,881	\$41,121,936	\$41,486,486
Total	\$104,841,105	\$129,949,909	\$133,915,889	\$163,139,248	\$165,062,485

⁷ For this year's report, figures and tables were updated to exclude the Housing and Community Development Corporation of Hawai'i (HCDCH). The Hawai'i Public Housing Authority (HPHA) and Hawai'i Housing Finance and Development Corporation (HHFDC) were established out of HCDCH in 2005. Housing data provided in this report are identified as HPHA and HHFDC data.

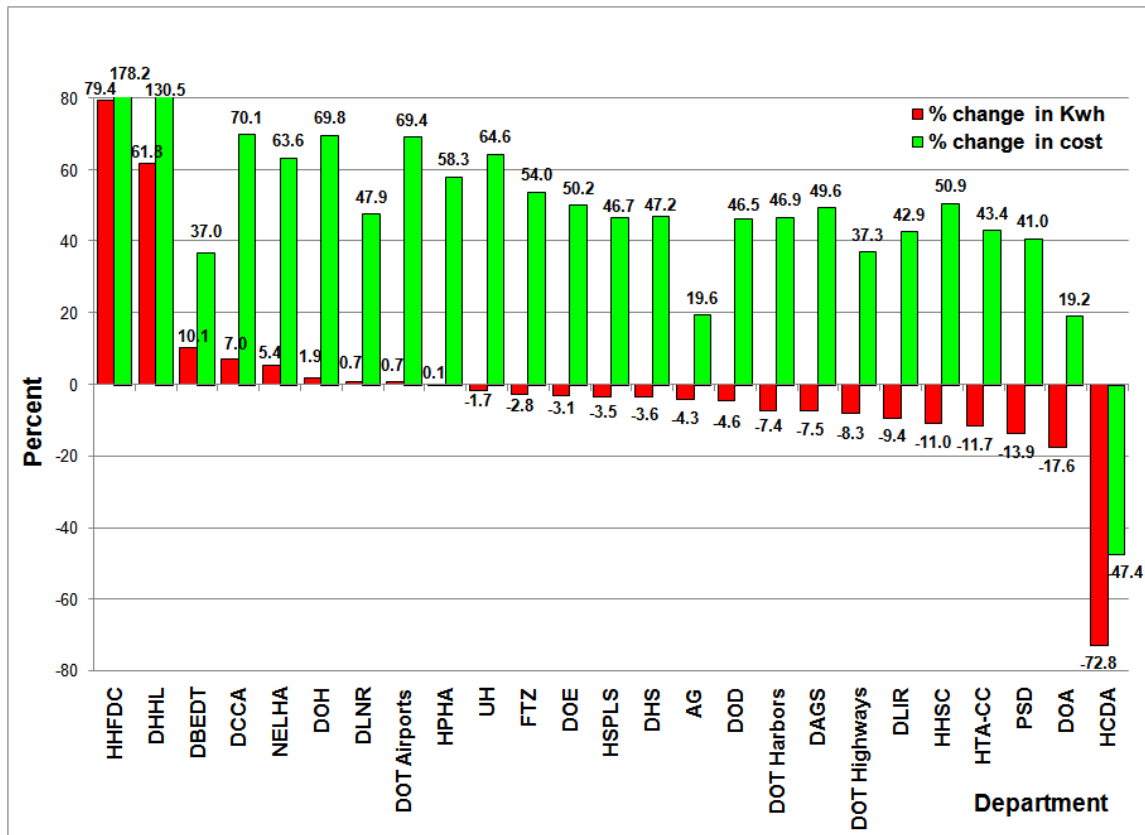
Table 5: Differences in Cost of Electricity for Reported Years (\$) ⁸

Agency	FY05- FY06	%	FY06- FY07	%	FY07- FY08	%	FY08- FY09	%	FY05- FY09	%
AG	892	8.3	571	4.9	2,422	19.8	-1,783	-12.2	2,102	19.6
DAGS	1,610,028	21.5	217,892	2.4	2,356,681	25.3	-472,533	-4.1	3,712,068	49.6
DBEDT	-25,792	-22.3	34,312	38.2	15,043	12.1	19,220	13.8	42,784	37.0
DCCA	49,335	22.5	5,622	2.1	73,595	26.9	25,034	7.2	153,586	70.1
DHHL	138,569	28.3	183,480	29.2	220,257	27.1	96,320	9.3	638,627	130.5
DHS	165,405	24.2	21,378	2.5	142,915	16.4	-7,762	-0.8	321,935	47.2
DLIR	35,825	44.3	-288	-0.2	13,948	12.0	-14,771	-11.3	34,715	42.9
DLNR	135,225	19.2	48,120	5.7	168,465	18.9	-13,497	-1.3	338,314	47.9
DOA	102,105	18.7	142,127	22.0	4,181	0.5	-143,787	-18.1	104,626	19.2
DOD	258,913	22.3	70,690	5.0	248,485	16.6	-37,324	-2.1	540,764	46.5
DOE	5,042,692	19.7	1,195,668	3.9	6,367,645	20.0	230,248	0.6	12,836,253	50.2
DOH	794,806	20.2	30,595	0.6	1,263,520	26.5	658,546	10.9	2,747,468	69.8
DOT-Air	4,498,251	25.3	660,848	3.0	5,721,661	25.0	1,436,569	5.0	12,317,329	69.4
DOT-Har	395,521	24.0	92,112	4.5	527,590	24.7	-241,695	-9.1	773,527	46.9
DOT-Hwy	894,919	17.9	-122,293	-2.1	1,197,467	20.7	-99,004	-1.4	1,871,088	37.3
FTZ	46,437	34.6	-6,281	-3.5	46,927	26.9	-14,592	-6.6	72,491	54.0
HCDA	-95,842	-64.2	7,579	14.2	13,301	21.8	4,251	5.7	-70,712	-47.4
HHFDC	116,590	25.8	342,356	60.3	332,964	36.6	12,993	1.0	804,904	178.2
HPHA	582,006	21.3	118,724	3.6	802,090	23.4	85,518	2.0	1,588,337	58.3
HHSC	433,404	10.9	386,321	8.7	1,064,360	22.2	141,363	2.4	2,025,448	50.9
HSPLS	275,104	17.9	84,396	4.7	351,055	18.5	5,361	0.2	715,916	46.7
HTA-CC	416,764	37.7	-109,443	-7.2	305,761	21.7	-134,366	-7.8	478,716	43.4
NELHA	143,565	16.5	56,779	5.6	241,373	22.5	112,323	8.6	554,040	63.6
PSD	687,113	21.1	-103,222	-2.6	841,597	21.9	-87,945	-1.9	1,337,542	41.0
UH	8,406,972	33.4	607,935	1.8	6,900,055	20.2	364,550	0.9	16,279,512	64.6

⁸ For this year's report, figures and tables were updated to exclude the Housing and Community Development Corporation of Hawai'i (HCDCH). The Hawai'i Public Housing Authority (HPHA) and Hawai'i Housing Finance and Development Corporation (HHFDC) were established out of HCDCH in 2005. Housing data provided in this report are identified as HPHA and HHFDC data.

As stated above, the state's vulnerability to oil market fluctuations has offset cases of improved efficiency and the introduction of renewable energy. This dynamic is clearly illustrated in Figure 5 below.

Figure 5: Consumption and cost percentage change from FY05 to FY09 by agency⁹



Since 2005, while 16 of the 26 departments managed to decrease total electricity use, only a single agency was able to decrease costs¹⁰. For example, the Department of Labor and Industrial Relations (DLIR), the Hawai'i Heath Systems Corporation (HHSC), the Hawai'i Tourism Authority–Hawai'i Convention Center (HTA-CC), and the Department of Public Safety (PSD) decreased their kWh consumption by 9.4%, 11%, 11.7% and 13.9%, respectively, between 2005 and 2009, but their electricity bills all rose by more than 40% during the same period.

⁹ For this year's report, figures and tables were updated to exclude the Housing and Community Development Corporation of Hawai'i (HCDCH). The Hawai'i Public Housing Authority (HPHA) and Hawai'i Housing Finance and Development Corporation (HHFDC) were established out of HCDCH in 2005. Housing data provided in this report are identified as HPHA and HHFDC data.

¹⁰ It should be noted that the majority of the 72.8% and 47.4% decrease in consumption and costs for the Hawai'i Community Development Authority (HCDA) occurred in 2006 as a result of tenants vacating a building (Source: LBE Report FY 2006). Excluding HCDA, the data would show that between 2005 and 2009, no agency was able to reduce spending on electricity despite overall decreases in consumption.

Efficiency in Buildings

In Hawai‘i applying energy efficiency to the design, construction and operation of buildings is becoming a standard practice. The State of Hawai‘i is active in several “green building” initiatives and now requires LEED Silver certification, to the extent possible, for new construction and major renovation. In addition to energy savings, LEED Silver standards dictate improved indoor environmental quality, which has been linked to reduced absenteeism, up to 16% increased productivity, 20% better test performance in schools, and an average of 2½ days earlier discharge from hospitals.¹¹

LEED is a program of the U.S. Green Building Council (USGBC). DBEDT joined the Council in 2006; its membership on behalf of the State of Hawai‘i allows all state employees access to USGBC publications and training sessions at a reduced cost, as well as exclusive online reports, participation in local USGBC chapter events, and reduced LEED project registration and certification fees. Although certification provides independent, third-party verification of a building’s performance to LEED standards, some agencies are designing facilities to meet LEED criteria but do not plan to formally certify them because of cost considerations. There are 20 LEED Accredited Professionals on staff at five agencies: DBEDT, DOE, DOT, DAGS and UH. Other employees are in training for this goal.

The following state buildings have either achieved LEED standards or are in process toward that goal. A number of these projects were already underway before the LBE initiative began.

LEED Platinum

- NELHA Hawai‘i Gateway Energy Center (completed)
- NELHA Gateway Center office structure (planned)

LEED Gold

- UH-Hilo Student Life Complex (completed; certification pending)
- UH Institute of Marine Biology Coconut Island Biology Research Laboratories (design)

LEED Silver

- DAGS CSD Administrative Building (registered)
- DAGS Keaukaha Military Reservation Joint Military Center (under construction)
- DAGS Maui Public Safety Complex (design)
- DOE ‘Ewa Makai Middle School campus (under construction)
- DOE Kīhei High School campus (designed)
- DOE Wailuku Elementary School II (design)
- DOE Baldwin High School Library (under construction)
- DOH Hawai‘i State Hospital new forensic facility (design)
- DOT-Air HNL Bus Maintenance Facility (planned)

¹¹ Source: Garzone, C. (2006). U.S. Green Building Council and the LEED™ Green Building Rating System

- DOT-Air HNL Cargo Facility (planned)
- DOT-Air HNL Commuter Terminal (under design)
- DOT-Air HNL Concourse (under design)
- DOT-Air HNL Consolidated Car Rental Facility (designed)
- DOT-Air HNL Maintenance Facility (planned)
- DOT-Air HNL Mauka Concourse (under design)
- DOT-Air KOA Aircraft Rescue Fire Fighters Building (designed)
- DOT-Air KOA Commuter Terminal (designed)
- HSPLS North Kohala Public Library (construction bid awarded)
- HSPLS 'Aiea Public Library (funded)
- HSPLS Koloa Public Library (sited)
- HSPLS Nānākuli Public Library (planning)
- HSPLS Mānoa Public Library (construction bid awarded)
- PSD Kaua'i Regional Complex (planned)
- PSD Maui Community Correctional Center relocation (design)
- PSD O'ahu Regional Complex (planned)
- PSD new transitional housing (planned)
- UH Information Technology Center (design)
- UH-Hilo Hawai'ian Language Building (design)
- UH-Hilo Sciences and Technology Center (under construction)
- UH-Hilo Student Services Building addition and renovation (design)
- UH-Hilo College of Pharmacy
- UH-Hilo Hawai'ian Language Building (design)
- UH-Hilo Student Services Building addition and renovation (design)
- UH-Mānoa Campus Center renovation and addition (design)
- UH-Mānoa College of Education (planned, pending funds)
- UH-Mānoa Edmonson Hall renovation (funded for design)
- UH-Mānoa Frear Hall Residence Building (completed; certification pending)
- UH-Mānoa Gartley Hall renovation (design)
- UH-Mānoa Kennedy Performance Arts Facilities (funded for design)
- UH-Mānoa Pacific Regional Biosafety Laboratory (funded for design and construction)
- UH- Mānoa Performing Arts Facility (design)
- UH-Mānoa School of Law addition and renovation (funded for planning)
- UH-Mānoa new classroom building (planning)
- UH-West O'ahu new Kapolei campus development (design)
- Honolulu Community College Advanced Technology Training Center (funded for design)
- Kapi'olani Community College Culinary Institute of the Pacific (design)
- Leeward Community College Education and Innovation Instructional Facility (funded for design)
- Maui Community College science facility (design)
- Windward Community College Library and Learning Center (design)

LEED Certified

- DOE Waipahu Intermediate School Cafeteria (completed)
- UH-Mānoa School of Medicine (completed)
- UH-Hilo ‘Imiloa Astronomy Center of Hawai‘i (completed)
- UH John A. Burns School of Medicine (completed)

LEED Commercial Interiors

- DOT-Air HNL Airport Lounge (awarded for construction)

DOE also has eight school facilities planned, designed or under construction that meet LEED Silver standards but will not pursue formal certification due to cost concerns. *Hawai‘i High Performance School Guidelines*, developed by DBEDT in cooperation with DOE, which provide guidance for design consultants, will still be used when applicable to achieve LEED requirements in school buildings. Sustainable design criteria similar to those of LEED are being incorporated by DAGS during the design phase of the Kapolei Judiciary Complex, within the constraints of project funding. DBEDT, working with DAGS, has developed guidelines for design and construction which can be applied toward meeting LEED requirements.

Act 155, signed into law in 2009, requires all existing state buildings that are either larger than 5,000 square feet or use more than 8,000 kWh of electricity per year to be benchmarked by December 31, 2010. Benchmarking is a process which involves calculating the building’s annual energy consumption per square foot. Buildings are given an “energy usage intensity” (EUI) score, allowing buildings to be quickly compared and identify areas for improving energy efficiency. DBEDT, in cooperation with the U.S. Environmental Protection Agency (EPA), has offered several training sessions on EPA’s Portfolio Manager to state employees. Portfolio Manager is an online tool available for benchmarking a building’s energy use.

Benchmarking is also a way of evaluating whether buildings are potential candidates for ENERGY STAR® status. ENERGY STAR® is a joint program of the U.S. EPA and the U.S. Department of Energy to protect the environment and reduce costs through energy efficient products and practices. ENERGY STAR® certified buildings rank in the top quartile of an EPA performance rating system calculated from actual energy use of similar existing buildings in the nation. ENERGY STAR® certified buildings also must qualify for thermal comfort while meeting lighting, ventilation, and indoor air quality requirements.

Hawai‘i has been an active member of EPA’s ENERGY STAR® 10% Challenge program since 2005. The program identifies buildings where financially attractive energy efficiency improvements could reduce energy use by 10%, and then implements those changes through low-cost building tune-ups, lighting upgrades, and replacement of old equipment. Another benefit is the reduction of greenhouse gas emissions.

Six state facilities have achieved ENERGY STAR® status; some of which have received annual certification repeatedly.

- Kakuhihewa Building (Kapolei State Building)
- Leiopapa A Kamehameha Building (State Office Tower)
- Abner Paki Hale Courthouse
- Hilo State Office Building
- Keoni Ana Building
- Waipahu Civic Center

To ensure that buildings function as efficiently as possible, commissioning and retrocommissioning processes are being employed. Commissioning is applied to new buildings, while retrocommissioning optimizes an existing building's operation and maintenance. DAGS, for example, is retrocommissioning 11 projects on four islands.

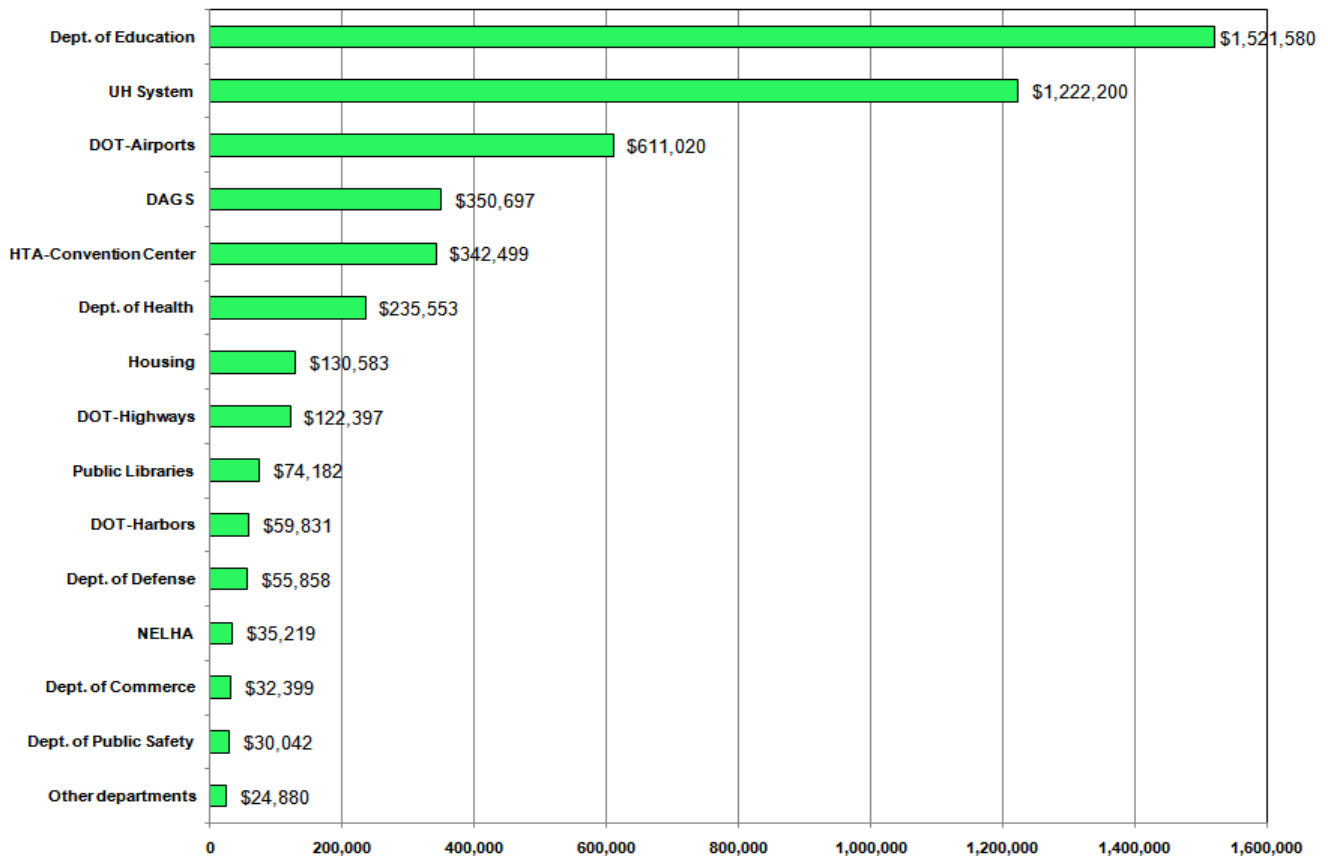
DAGS is also the state's lead agency for energy performance contracting, a proven method of implementing energy efficiency capital projects without requiring up-front funds. DAGS developed a prequalified list of Energy Service Companies and set of boilerplate documents which may be used by State and County agencies to solicit performance contracting proposals.

Utility Rebates Save Money at State Facilities

Since 1996 many public agencies have taken advantage of utility-sponsored demand-side-management (DSM) programs. Utilities have provided rebates for both retrofit and new construction in the areas of lighting, motors, and heating/ventilation/air conditioning (HVAC), and also have supported customized approaches.

More than \$4.8 million in rebates have been provided by the Hawai‘ian Electric Company, Inc. (HECO) and its subsidiaries to State of Hawai‘i executive agencies from 1996 through June 2009. Savings from retrofits and new construction in 2009 was 68,182 MWh, enough to power 8,675 homes in Hawai‘i for that year. The utility costs and energy savings are expected to grow to over \$203 million and 979,560 MWh, respectively, over the life of the energy-efficient equipment.¹² This is equivalent to approximately 124,626 households’ annual electricity use.¹³

Figure 6: DSM Rebates from HECO since 1996, by Agency



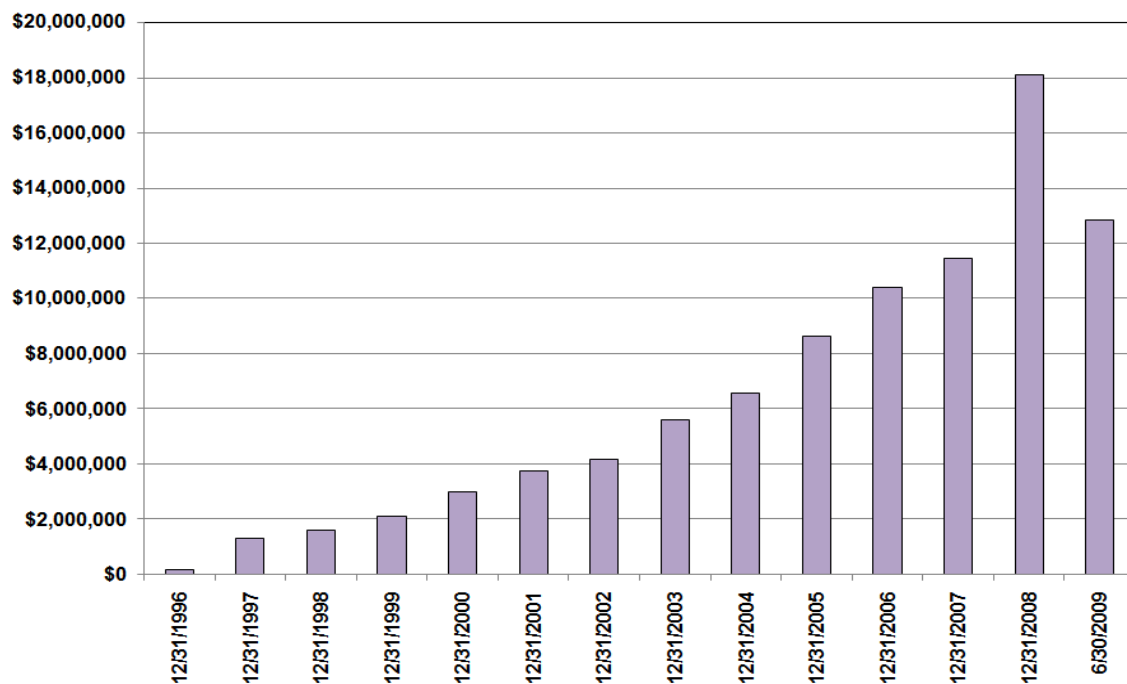
¹² For this report, it was assumed that the average life of appliances, custom equipment, motors and cooling equipment is 15 years. Average life of lighting and water heating are 14 years and 10 years, respectively.

¹³ Figures representing number of households’ annual electricity consumption were calculated using data from the Energy Information Administration, which shows that average household consumption per month in Hawai‘i for 2009 is 655 kWh. The average annual consumption for Hawai‘i households is approximately 7860 kWh.

The Department of Education and the University of Hawai‘i system have been the largest beneficiaries of HECO rebates, receiving over \$1 million each since 1996, as shown above in Figure 6. The “Housing” rebates were provided to the Housing and Community Development Corporation of Hawai‘i (HCDCH), which was reorganized in 2005 into two agencies, HPHA and HHFDC.

The state agencies receiving DSM rebates from the HECO utilities saved an additional \$169,354 to \$2.5 million per year on their electricity bills from 1996 to June 30, 2009. In total, the agencies have saved \$93.7 million during the same period.¹⁴ Annual cost savings for state executive agencies are depicted in Figure 7.

Figure 7: Annual State Executive Facilities’ DSM Rebate Savings (\$) from HECO since 1996

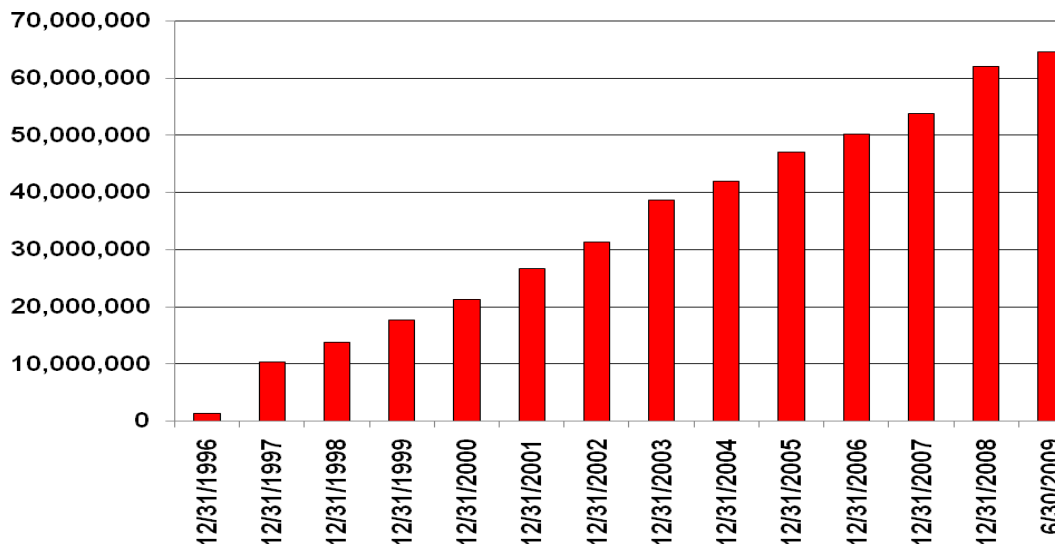


Since 1996, an estimated total of 499.7 million kWh have been saved through DSM rebates at state facilities served by HECO utilities. This is enough to power approximately 63,577 households for a year.¹⁵ Total demand savings for the period are 13.7 MW. Annual electricity savings (kWh) due to state agency participation in utility efficiency rebate programs since 1996 are depicted in Figure 8.

¹⁴ This figure was calculated by adding up the estimated annual cost savings from 1996. Estimated annual cost savings were calculated by multiplying the kWh savings by the average cost of electricity per kWh (Source: Energy Information Administration) during each year going back to 1996. It should be noted that the annual savings are cumulative, since equipment installed in one year continues to offer savings over time.

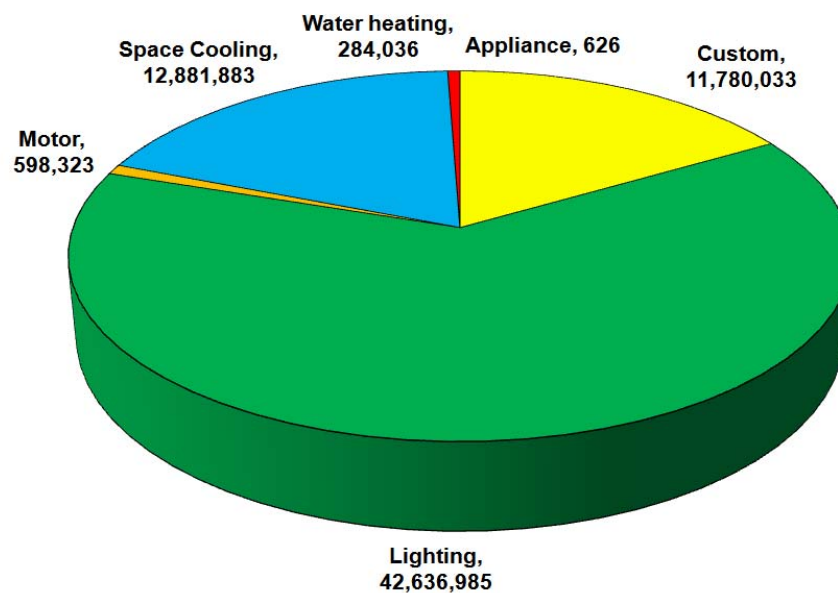
¹⁵ Figures representing number of households’ annual electricity consumption were calculated using data from the Energy Information Administration, which shows that average household consumption per month in Hawai‘i for 2009 is 655 kWh. The average annual consumption for Hawai‘i households is approximately 7860 kWh.

Figure 8: Annual State Executive Facilities' Energy Savings (kWh) from HECO Rebate Programs since 1996



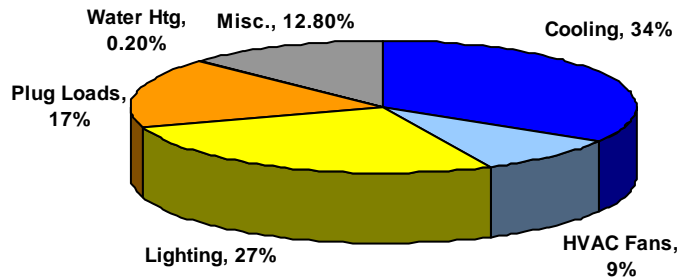
In 2009, lighting retrofits accounted for approximately 41 million kWh of electricity savings, representing 63.4% of the total. Space cooling saved an additional 11.9 million kWh and custom retrofits saved 10.8 million kWh. Other rebates were provided for motors, water heating, and appliances. State agencies' 2009 energy savings due to utility DSM rebate programs broken down by technology are depicted in Figure 9.

Figure 9: Rebate Energy Savings (kWh) by Technology in 2009



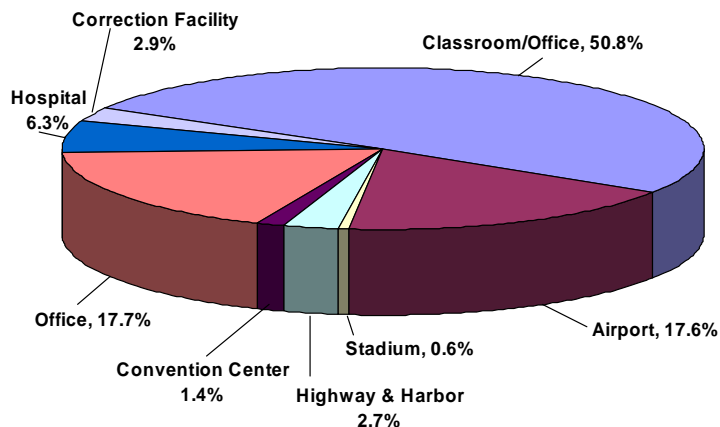
HECO's data show that a typical office building's electricity is primarily used for space conditioning. The combined burden of running systems for cooling, heating, ventilation and air-conditioning (HVAC) requires 43% of a typical office building's electricity. Lighting is responsible for about 27%. "Plug loads" such as computers, copiers, and other equipment consume an additional 17% while water heating accounts for 0.2%. Miscellaneous uses (e.g. elevators, water coolers) comprise the remaining 12.8%. These data, shown in Figure 10, highlight areas for energy conservation.

Figure 10: Typical Office Building Energy Use Breakdown¹⁶



When State of Hawai'i facilities on O'ahu are examined by type, campuses consisting of classrooms and offices consume about half of the electricity. Office buildings and the Honolulu International Airport each consume approximately 17% of the total. The public hospital system is also a significant consumer, accounting for around 6%. These data, provided by HECO, are shown in Figure 11.

Figure 11: State of Hawai'i Facilities on O'ahu, Electricity Consumption by Occupancy Type¹⁷



Roughly 80% of the more than 2,600 buildings owned and operated by the state government are on O'ahu.¹⁸ Figure 12 shows consumption by island and Figure 13

¹⁶ Source: Van Liew, T. (2003). HECO and Rebuild Hawaii: Energy Benchmarking Studies in Hawaii

¹⁷ Source: Cedric D.O. Chong and Associates. (2005). State of Hawaii Facilities on Oahu Energy Benchmarking Study

shows consumption by agency by island. State agencies accounts for approximately 7% of overall statewide consumption as depicted in Figure 14. These data were supplied by HECO.

Figure 12: State Agency Consumption (kWh) by Island in 2009

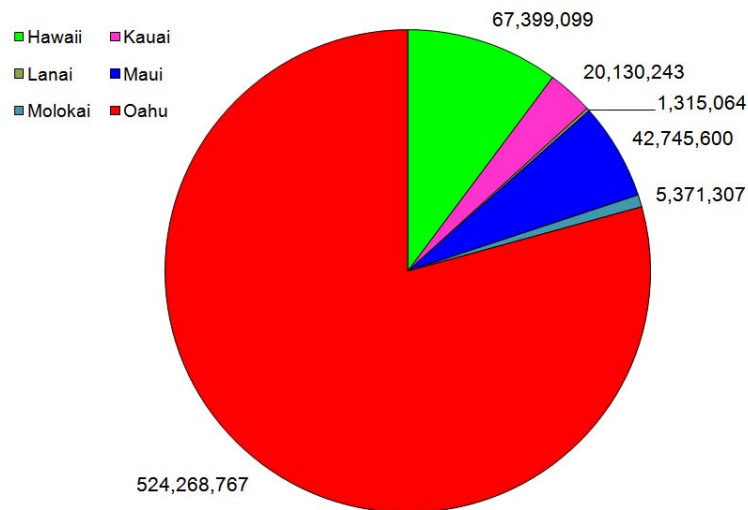
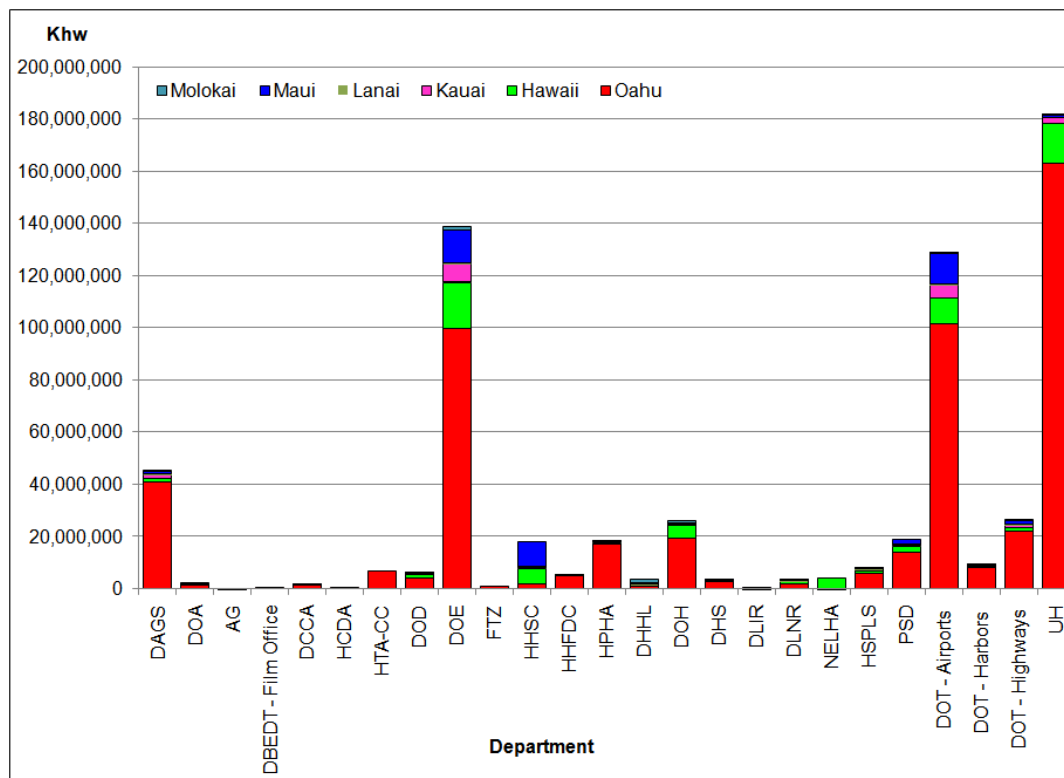
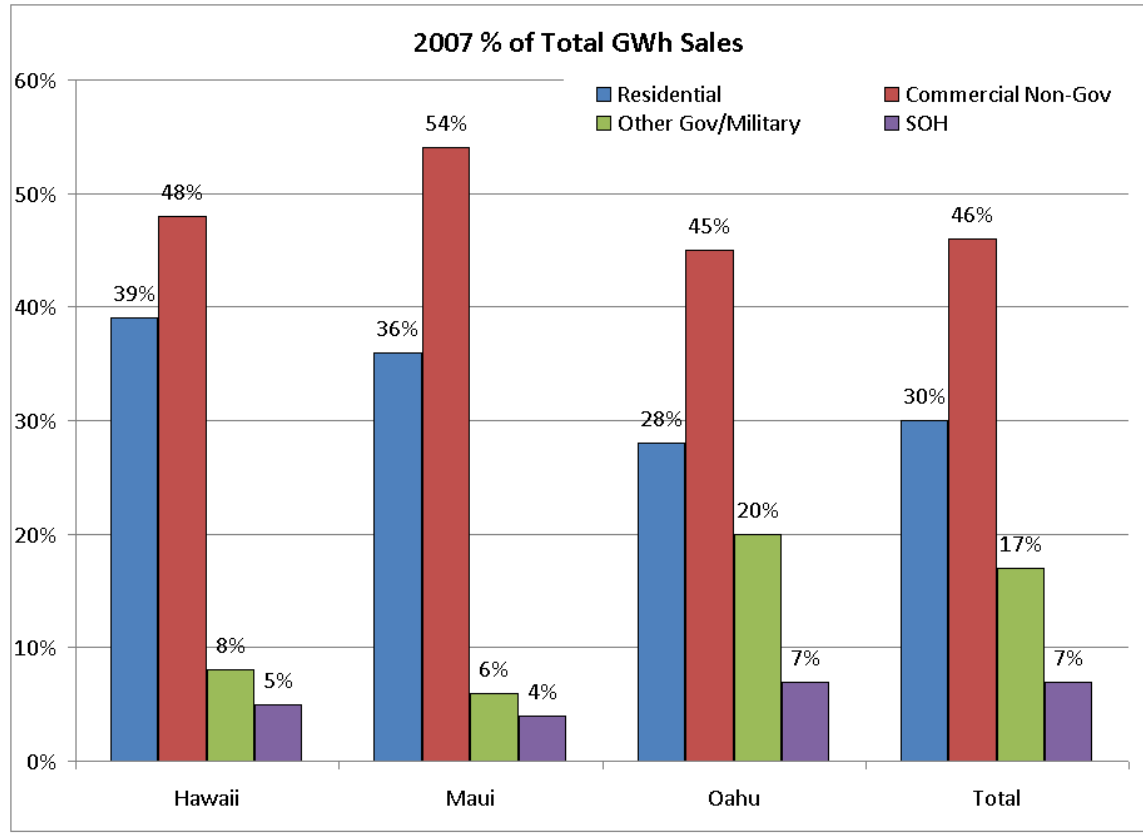


Figure 13: Consumption by Agency by Island in 2009



¹⁸ Source: Cedric D.O. Chong and Associates. (2005). State of Hawaii Facilities on Oahu Energy Benchmarking Study

Figure 14: Consumption by Sector



Highlights of Current State Energy Activities

Since the State of Hawai‘i established its energy program in 1974, state agencies have undertaken a myriad of activities focusing on energy efficiency, conservation, and renewable energy. DBEDT’s director, the state’s Energy Resources Coordinator, is responsible for coordinating energy activities statewide.

These decades of programmatic action have positioned the Administration to rapidly implement the LBE initiative. The state’s energy staff and many agencies’ efforts have already built a solid foundation, completed some benchmarking and assessments, provided numerous opportunities for training, and executed a number of projects. Some of the recent achievements are described below.

Efficiency

HPHA executed a performance contract that covers 4,500 federally-funded units in 65 projects. Projected utility use reduction is 20%, with an annual electrical savings of 5,059 MWh and annual cost savings of \$3.1 million.

DAGS also initiated an Energy Savings Performance Contract in FY 2009 for 10 buildings in the State Capitol District. The project is anticipated to provide over \$35 million worth of improvements and services, with a guaranteed annual savings of at least \$3 million in utility and operating costs over a 20-year period. Projected annual overall utility savings are 14,529 kW electrical demand and 6,509,405 kWh in energy. In addition, there will be a reduction of 14,529 kGal in potable water use and 53,225 kGal in sewer assessments. Major energy conservation measures include air handling unit upgrades, chiller replacements, and building control systems.

DAGS is in the process of carrying out de-lamping and lamp replacement in the facilities it manages. Over 13,000 lamps have already been removed. Over 50,000 32W lamps are anticipated to be replaced with 25W lamps. Over 1,000 40W exit signs have been replaced with 1W LED exit signs. In addition, light sensor switches, protective tinting on windows, low-flow plumbing fixtures and electric hand-dryers have been installed.

DAGS, on behalf of the Department of Public Safety (PSD), has initiated a statewide energy conservation/efficiency project for their correctional facilities.

DAGS started a paper and cardboard recycling program at Waipahu Civic Center, bringing the total of major State office buildings with recycling programs to 14.

DLNR’s State Parks started retrofitting existing lighting fixtures and installing new efficient fixtures and appliances.

DLNR is also in the design phase of a project to replace the air conditioning system at ‘Iolani Palace. The new system will improve efficiency while helping to preserve the

priceless cultural and historic artifacts within the monument. Other improvements include window-tinting and the installation of energy-efficient lighting.

DOE now designs all new buildings or facilities to meet the LEED Silver standard. Ewa Makai Middle School, which is now under construction, will be the first new DOE school to seek formal LEED Silver certification. Other on-going designs that adhere to LEED Silver or better standards include the Wailuku Elementary II and Kihei High School. DOE has also initiated a number of projects that are designed to LEED standards but will not seek formal certification. These include a new gymnasium under construction at Pahoa High School; new classroom buildings at Na‘ālehu Elementary School, Kea‘au Middle School, Campbell High School; a new administration building for Kalaheo Elementary; a new library for Baldwin High School; and a new cafeteria for Lahainaluna High School, which is presently under construction. DOE also is applying LEED Silver standards to existing buildings undergoing retrofits as well.

DOE will start a pilot study to determine life-cycle costs for solar water heating for school cafeterias and locker rooms. DOE will also explore water heating through heat recovery from existing walk-in refrigeration compressors.

DOT-Air is replacing and relocating the Diamond Head Chiller Plant. The project is under construction at the Honolulu International Airport. It is the first of three upgrades planned. The new equipment is 50% more efficient and has increased load capacity. The new chiller will save approximately \$2.3 million per year in electrical operating costs. The two other remaining chillers will be replaced and upgraded; the Central Chiller Plant in 2009 and the Ewa Chiller Plant in 2010.

DOT-Air installed an Energy Monitoring and Control System to turn off lights in areas that are not in use and reduce or eliminate air conditioning in these same areas at Honolulu International Airport.

HHFDC’s three high rise buildings have undergone evaluation and two have undergone renovation with the rooftop membranes being replaced to reduce heat gain. One building, Pohulani Elderly, is in the request for proposal stage for the replacement of the commercial A/C plant with a functioning heat recovery system to preheat hot water for residential apartments.

HSPLS is constructing two new public libraries at North Kohala and Mānoa to meet LEED Silver certification. The North Kohala Public Library should be completed by early-2010 and the Mānoa Public Library in mid-2011. Additionally, HSPLS is in the process of retrofitting light fixtures for all 51 public libraries and should be completed by mid-2010.

DHHL’s Land Development Division has implemented several building efficiency measures at the 403-unit Kanehili Subdivision in East Kapolei, including solar water heating, energy-efficient air conditioning, humidistats, R-11 insulation, and high-efficiency, dual glazed, low-emissivity vinyl windows.

A DHHL Sustainable Community, Ka'ūpuni Village, is being planned now in Wai'anae. This project consists of 18 affordable, net zero energy homes that will include a number of green building features including photovoltaic systems, efficient water and electrical fixtures, natural day lighting, ENERGY STAR® appliances, low-emissivity dual glaze windows and ceilings, green building materials and resources, recycling centers, community gardens, and aquaculture.

NELHA and Kona International Airport continued discussions about NELHA providing the airport with seawater A/C in the future, which could save 50% - 80% of the cost of air conditioning. NELHA has been using deep-seawater A/C for many years.

HCDA is installing surfactant injection systems, used to remediate contaminated water, within Kaka'ako Waterfront and Makai gateway parks that should result in savings in water consumption of up to 60%.

Several departments implemented conservation measures by changing operation schedules for sprinklers and air conditioning systems.

DHRD, in an effort to address increasing energy costs, piloted a four-day work week program from August to October 2008. During the three-month pilot period, the department was open 4 days a week (Monday through Thursday), 10 hours a day, and closed on Friday.

DBEDT and DOH established the Green Government Challenge, a new statewide certification and recognition program for state agencies that are implementing programs to reduce energy, water and waste in their offices and building operations.

The University of Hawai'i (UH) continued to apply LEED standards for all Capital Improvement Programs and major renovation projects. There are several projects under planning and design with goals for LEED Silver or better. UH Hilo's Science and Technology Building is currently under construction to meet LEED Silver standards. Leeward CC is planning to convert an existing dive tank pool to a water catchment basin to irrigate the lower campus.

UH Informational Technology Services (ITS) assisted Apple Inc. in promoting a free electronics recycling program for any accredited K-12 or post-secondary education institutions throughout the state. 70,500 pounds of electronics were collected from UH campuses alone for earth-friendly recycling, preventing the dumping of toxic materials into Hawai'i's waste system.

1018.56 tons of UH Mānoa waste went to H-Power, 384.33 tons went to the landfill, 286.94 tons of greenwaste went to Hawai'ian Earth, 573.88 tons of greenwaste was turned into mulch by the grounds crew and used in the landscape, 135.39 tons of paper and cardboard were recycled, 64.89 tons of metal was recycled, and 157 tons of e-waste was recycled. UH Mānoa disposed of a total 2620.99 tons of waste, 1218.10 of which was recycled; meaning 46.47% of the campus waste collected was recycled.

UH Community Colleges also implemented or participated in a variety of recycling programs and efforts. Please see Appendix 1 for more detail.

HHSC's Ka'ū Hospital installed fluorescent bulbs, began leaving grass cuttings on lawns for fertilization, and cut back on watering lawns to curtail excessive water use.

Renewables

Photovoltaics (PV) have been the primary renewable energy technology widely adopted by state facilities.

DAGS has planned a 100 kilowatt (kW) photovoltaic system for the Kalanimoku Building.

DLNR's State Parks have started to plan for solar energy sources to power infrastructure facilities such as well pumps, sewer pumps, and base yard facilities. Potential project areas include, but are not limited to, Koke'e State Park, Kaua'i; Wailuā River State Park, Kaua'i; Polihale State Park, Kaua'i; and Sand Island State Recreation Area, O'ahu.

Some DOE facilities have had PV systems installed either by independent school effort and/or with electric utility support such as "Sun Power for Schools." Kualapu'u Public Charter school had a 22 kW system installed. Through federal government support Kapa'a HS is planning for a moderate sized PV system to cover operational costs for aqua-culture farm pumping in conjunction with DLNR. Requests for proposals have been put out for the design and installation of various-sized PV systems on about 80 schools.

At Kaua'i Community College, a 70 kW PV system will be installed on the south-facing roof of the One-Stop Center building in Fall 2009. At UH Hilo, a 30 kW PV system with the new Sciences & Technology Building is currently under construction. A 23 kW PV system over the Campus Center will soon be under construction. A 30 kW PV system is being planned on PB 11 roof. An 88 kW PV system over the North Hawai'i Education and Research Center is currently in the bidding process. An estimated 60 kW PV system will be additive bid alternates in the Student Services Building project. UH Hilo has implemented a policy to include PV in all new construction projects.

The Legislature appropriated general obligation bond funds to the Department of Agriculture in the amount of \$350,000 in FY10 and \$1,000,000 in FY11 for the design and construction of a Hydropower Plant in Waimea, Hawai'i, which will reduce electrical pumping costs when completed.

Act 207 of 2008 established new responsibilities for the Director of DBEDT as the state's Energy Resources Coordinator. The Coordinator is in the process of creating a streamlined permitting process that includes state and county permits required for the siting, development, construction, and operation of a new renewable energy facility of at least 200 megawatts capacity. Act 208 also established a full-time renewable energy

facilitator position in DBEDT. The facilitator reports to the Energy Resources Coordinator. The facilitator's duties to date have included facilitating existing permits, proposing changes to the permit process and coordinating energy projects. In FY09, the facilitator met with numerous renewable energy project representatives and commenced work in support of siting an inter-island cable to supply renewable energy to the island of O'ahu from the neighbor islands.

The Department of Transportation Airports Division (DOT-Air) installed 16 small-scale wind turbines at Honolulu International Airport. The turbines have a combined capacity of 16 kW.

DOT-Air installed photovoltaic systems with a capacity of 875 kW at the Lihue, Kona, Hilo and Kahului Airports as part of the Department of Transportation's Photovoltaic Energy Systems Project.

A power purchase agreement to install a 1.01 MW photovoltaic system at Kona International Airport over parking stalls as sun-shade trellis structures is pending on a Request for Proposal.

Transportation

Not all state agencies have vehicle fleets. Those that do must comply with federal and state regulations relating to the purchase of efficient vehicles, and to purchase the most fuel-efficient vehicles that meet the needs of their programs.

State vehicles are already utilizing E-10 Unleaded gasoline, which contains 10% ethanol. State law requires its sale. Many state vehicles are also flexible-fuel capable, and are capable of using higher percentages of ethanol if they become available. UH has a small fleet of alternatively-fueled and hybrid vehicles.

The state is developing a pricing preference for biodiesel, and several agencies are prepared to use it. Currently, supplies of locally-produced biodiesel are very limited.

Act 156, signed into law in 2009, requires all state and county agencies, when purchasing new vehicles, to seek vehicles with reduced dependence on petroleum-based fuels that meet the needs of the agency. The act provides a priority list with highest priority going to electric or plug-in hybrid electric vehicles, then hydrogen or fuel cell vehicles, other alternative fuel vehicles, hybrid electric vehicles, and vehicles identified by the US EPA as "Fuel Economy Leaders."

Purchasing Practices

Most departments already utilize life-cycle cost analyses, purchase efficient equipment (such as those with the ENERGY STAR® label), and take advantage of utility rebates. DAGS already requires the projects which it manages to use highly efficient mechanical

equipment. Utility rebates have typically been used to help offset the cost of purchasing and installing energy-efficient equipment.

The State Procurement Office (SPO) continues to provide price and vendor listings, which include ENERGY STAR®, recycled, or environmentally preferred products. For products and supplies not included on the SPO price lists, purchasing agencies are still required to preferentially order recycled products, oil products with greater recycled content, and biofuels.

DBEDT, in cooperation with the SPO and the U.S. Environmental Protection Agency (EPA), hosted several training sessions on green purchasing and environmentally preferable products. These trainings were open to any state or county employee.

Information on recycled and environmentally preferable products (EPP) has been prepared by DBEDT and is available to state agencies. This includes lists of EPP available in Hawai‘i, a case study of successful EPP efforts, an evaluation of procurement practices, and recommendations for specifications and bid requests to address EPP concerns.

An annual survey designed to track the environmentally preferable purchasing practices of state agencies is coordinated by the Department of Health’s (DOH) Office of Solid Waste Management. The results show that state agency EPP in 2009 lead to greenhouse gas (GHG) savings equivalent to removing approximately 255 passenger vehicles from roadways for one year and energy savings equal to conserving about 25,961 gallons of gasoline in a year.

Plans for Future LBE Activities

Continued Efficiency Efforts

Continued improvements in efficiency and the use of renewable energy in state facilities are expected. Building on the solid foundation of assessments, training, benchmarking, energy performance contracts, and other activities undertaken in the past several decades, the administration will maintain its focus on modifying agency operations to improve efficiency. Gathering and assessing data, training staff, developing additional reference materials, enhancing inter-agency communications, identifying needs for additional skills and tools, and setting efficiency targets are all on the LBE agenda.

Need for Adequate Implementation Resources

State agencies are committed to the LBE effort, but future results depend on securing adequate implementation resources. Funds for capital improvements, maintenance, and retrofits must be appropriated for energy efficiency and renewable energy goals to be reached. High-priority projects include lighting, LEED commissioning, window tints and energy management controls, and renewable energy installations.

Agency Goals and Plans

As part of the LBE initiative, state agencies have clarified and prioritized their plans for future energy improvements. These plans include new construction, as well as retrofits and repairs. LBE Working Groups will be addressing the following tasks:

- 1) Data Collection:
 - Develop a standardized data collection system to establish and refine baselines for various target areas: buildings, transportation, environmental practices and procurement.
 - Develop standardized documents/formats for various data requirements.
 - Train personnel to use the data tools; collect data for the various target areas.
- 2) Training and Education Activities:
 - Conduct training/education for the various Working Group members (e.g., speakers, selected discussion topics, inter-Working Group meetings to promote information/idea exchanges.)
 - Develop an education/promotional campaign for state personnel to implement and practice increased efficiency.
 - Continue technical training and education efforts to support LBE.
- 3) Technical Assistance:
 - Develop LEED projects and identify pilot projects.
 - Develop commissioning and retrocommissioning projects.
 - Conduct building assessments, including walk-through audits.
 - Identify and certify ENERGY STAR® state buildings.

4) Evaluation:

- Continue assessment and discussion process to identify future tasks, such as development of evaluation criteria, data requirements, and training needs.
- Develop evaluation tools, quantitative and qualitative, such as conducting post-occupancy evaluations (objective and subjective) of LEED Silver Buildings or buildings with selected technology installations for energy efficiency improvements.

5) Policy Review and Recommendations:

- Continue discussion on energy-efficiency-only budget requests to improve the request process and information provided.
- Continue examination of potential policy recommendations from the Leadership Group, Buildings Working Group, Transportation Working Group, and the Environmental Practices and Procurement Working Group.

Individual Agency Responses

A compilation of the responses from most State of Hawai‘i executive agencies may be found in the following section. Agencies were asked to report on their specific activities relating to Act 96 and Act 160, SLH 2006. Selected details from specific responses, such as vehicle fleet data, are attached as appendices.

DBEDT issued invitations to participate in this compiled report to all state executive branch departments, including attached agencies.

The following agencies did not respond, nor did they provide statutorily required data:

DOD: Department of Defense
DOT-Hwy: Department of Transportation Highways
FTZ: Foreign Trade Zone
HPHA: Hawai‘i Public Housing Authority

The departments and offices which did respond include:

AG: Department of the Attorney General
B&F: Department of Budget and Finance
DAGS: Department of Accounting and General Services
DBEDT: Department of Business, Economic Development & Tourism
DCCA: Department of Commerce and Consumer Affairs
DHHL: Department of Hawai‘ian Home Lands
DHRD: Department of Human Resource Development
DHS: Department of Human Services
DLIR: Department of Labor and Industrial Relations
DLNR: Department of Land and Natural Resources
DOA: Department of Agriculture
DOE: Department of Education
DOH: Department of Health
DOT-Air: Department of Transportation Airports
DOT-Harbors: Department of Transportation, Harbors Division
DOTAX: Department of Taxation
HCDA: Hawai‘i Community Development Agency
HHFDC: Hawai‘i Housing Finance and Development Corporation
HHSC: Hawai‘i Health Systems Corporation
HSPLS: Hawai‘i State Public Library System
HTA-CC: Hawai‘i Tourism Authority, Convention Center
NELHA: Natural Energy Laboratory of Hawai‘i Authority
PSD: Department of Public Safety
UH: University of Hawai‘i system

**Consolidated LBE Reports from State of Hawai'i Executive Agencies
Fiscal Year 2008-2009
Relating to the Statutory Requirements of Act 96 and Act 160 of 2006**

Act 96 SLH 2006: Buildings and Facilities

- (1) Design and construct buildings meeting the Leadership in Energy and Environmental Design silver or two green globes rating system or another comparable state-approved, nationally recognized, and consensus-based guideline, standard, or system, except when the guideline, standard, or system interferes or conflicts with the use of the building or facility as an emergency shelter.

The following agencies did not reply to this section: DOD, DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: AG, DCCA, DOA, DOH, HCDA, HTA-CC

This section does not apply to the following agencies because DAGS manages their facilities: B&F, DOTAX, DHRD

DAGS: ASSESSMENT:

The Division of Public Works (PWD) already implemented and constructed a pilot project, Waipahu Intermediate School Cafeteria, which received a LEED Certified rating. Construction of this project was completed under the DOE due to Act 51. However, staff from the Division of Public Works were actively involved in project.

DAGS has already gained experience and learned from the Waipahu Intermediate School Cafeteria project, including just becoming more familiar with LEED or sustainable design. Now, the department has at least one source to identify potential cost impacts from this pilot project.

The project only sought a LEED Certified rating due to budget constraints and to some degree the type of facility, which may not allow or provide for enough points in the LEED rating system without being unreasonable in the design and associated costs.

The PWD currently is working on four designated projects to achieve a LEED Silver rating. The four projects are:

1. Mānoa Public Library - Expansion and Site Improvements, DAGS Job No. 12-36-6364
This project has been bid and a construction contract in the amount of \$8,159,000 has been awarded. The project's building permit approvals were delayed, but finally approved in July 2009 and construction is scheduled to start in November 2009 and be completed in 2010.
2. New Kohala Public Library, DAGS Job No. 11-36-6367
This project has been bid and a construction contract in the amount of \$6,895,900 has been awarded. The project started construction in March 2009 and is scheduled to be completed in early to mid-2010.

3. Keaukaha Military Reservation – Joint Military Center, Phase 1, DAGS Job No. 21-14-7292
This is a design-build project which received design-build proposals on April 10, 2008. An award in the amount of \$50,768,000 to Nan, Inc. was made on June 10, 2008 and the notice to proceed was issued on August 11, 2008. The project has completed the design phase of the contract and started the construction phase in May 2009. Construction is scheduled to be completed in early 2011.
4. Maui Regional Public Safety Complex, DAGS Job No. 15-27-5562
This project is currently under design. Initially the project was planned to be accomplished in two phases, with Phase 1 estimated at approximately \$50 million and Phase 2 estimated at over \$150 million. The project now will be designed and constructed in one phase and the estimated cost is approximately \$234 million.

STRATEGY:

The previously described projects are part of DAGS' developing long term strategy. For the immediate strategy, the Division of Public Works will implement projects in accordance with Act 96, SLH 2006 "to the extent possible."

PWD's general strategy in defining and applying "to the extent possible" is to take the following steps:

- 1st level: Look for and implement sustainable design practices and elements that PWD does already, thus no impact on operation/function and cost.
- 2nd level: Look for and implement sustainable design practices and elements that PWD may not have normally done, but can do without negative impact to cost and negative impact to operation/function of the facility.
- 3rd level: Look for and possibly implement sustainable design practices and elements that PWD may not currently do that are not very costly and improve operation/function of the facility. Associated costs, benefits, budget and maybe even schedule will start to become factors in deciding whether to implement.
- 4th level: Look for and possibly implement requirements that PWD may not currently do and will impact cost and will improve operation/function of the facility. Associated costs, benefits, budget and schedule will be factors in deciding whether to implement.

Part of the strategy also includes knowing what not to do:

PWD shouldn't implement sustainable design practices and elements that do not offer any real value. We definitely do not want to implement sustainable design requirements to get LEED points just to achieve a rating that does not provide a real value even if the project budget would allow it.

As PWD gains the experience and knowledge from the projects that will occur over the year, PWD intends to develop a LEED or generically stated, Sustainable Design and Commissioning application guideline and programmatic support for PWD and possibly other State agencies.

DBEDT: DBEDT/SID staff completed Final Report for the State Capitol's – U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design for Existing

Building (LEED EB) Assessment of the historic building that houses the Governor, Lt. Governor, Legislative Reference Bureau, Auditorium, State Legislature and the offices for State legislators was completed by Green Building Services. The LEED EB Assessment indicates what improvements need to be made in order for the building to achieve LEED EB Silver rating.

Sponsored and coordinated two-day LEED EB Operations and Maintenance and Training program and Building Assessment for State of Hawai'i agency representatives. The speakers and topics were well-received by over 40 State of Hawai'i representatives from over 5 State of Hawai'i agencies. Trainees received a training binder and conducted a simulated walk-thru and assessment of the State of Hawai'i's State Office Tower. Opportunities and challenges were discussed for future capital improvements and policy development for State of Hawai'i facilities.

Provided green building and LEED-related documentation and technical assistance via Green Building Services, consultant to the State of Hawai'i and DOT-Airports in particular, for a LEED Commercial Interior Lounge Project at Honolulu International Airport. This project is targeting LEED silver level and should be completed by the end of 2009. This will be the State of Hawai'i's first LEED-CI Silver level certification and DOT-Airports project.

Provided testimony at the State of Hawai'i's Land Use Commission hearings in support of a LEED Silver level requirement for new large scale commercial and residential developments on O'ahu, Maui, and the Big Island that requested a land use reclassification from agriculture to urban. This was in support of the State of Hawai'i Clean Energy Initiative and the goal to achieve 70% clean energy by 2030.

On behalf of the State of Hawai'i, DBEDT renewed its membership with the USGBC. DBEDT continues to cosponsor many LEED training sessions and continues to serve on the USGBC Hawai'i Provisional Chapter's Education Committee. There are now more than 20 State of Hawai'i LEED projects completed, under construction and formal consideration. This fiscal year, two additional DBEDT staff received LEED Accredited Professional status, in the Existing Buildings and New Construction tracks. DBEDT has helped coordinate LEED workshops to prepare additional state personnel and others to take the USGBC examination and become LEED accredited professionals.

Lead By Example Leadership and Building working groups were convened to discuss best practices and share information on the USGBC LEED rating system, and to increase awareness of workshops, webinars and other training opportunities sponsored by DBEDT.

Energy Division staff met with consultants and the project manager for the Pacific Regional Biosafety Laboratory, UH-Mānoa, to hear a briefing on the lab in conjunction with DBEDT's role as a Consulting Party on the environmental impact statement process for the lab. The facility will be located adjacent to JABSCOM in Kaka'ako, and will be a Level 3 BioSafety Laboratory (works with infectious diseases such as SARS and dengue). Funding for this project is from the National Institutes of Health (\$32.5 million) and State of Hawai'i and UH funds (\$15 million). The lab will be designed to meet LEED Silver Certification, in compliance with HRS 196. SID's review of the project focuses on Chapter 344, HRS (State Environmental Policy), and Chapter 226 (Hawai'i State Planning Act).

DBEDT staff participated in 10 meetings of the International Energy Conservation Code (IECC) Subcommittee of the Hawai'i Building Code Council. The subcommittee passed out a modified IECC that includes stringent commissioning requirements for all commercial buildings, very tight envelope requirements including windows with a maximum solar heat gain coefficient of 0.40.

The new code also includes higher SEER ratings for air conditioning systems and mandatory heat recovery from central air conditioning systems.

Staff organized and conducted a lighting efficiency award program that featured five entries that included lighting the exterior of 'Iolani Palace for a total of 1,960 watts and reducing wattage in commercial parking garages by up to 70% while improving visibility.

DHHL: DHHL's Land Development Division has started several projects this past year with BuiltGreen and ENERGY STAR® program.

1. The 403-unit Kanehili Subdivision in East Kapolei has the following: solar water heating with a HECO-approved 120 gallon water heater with automatic timer; 16 SEER air conditioner; a programmable humidistat to control humidity in the home for maximum energy savings; Icynene open cell spray foam insulation in the attic and R-11 insulation in the exterior walls, which protects the entire home from outside noise, air infiltration, dust pollens, and allergens; dual glazed/low E high performance vinyl windows, offering extreme durability and superior UNV protection; a compact fluorescent system providing a longer bulb life span, lower operating costs, and lower temperature output; dual flush toilets; ENERGY STAR® rated appliances complement the energy savings program. Phase 1 of this project is currently in construction, with approximately 30+ families already moved in.
2. A DHHL Sustainable Community, Kaupuni Village, is being planned now in Wai'anae. This project consists of 18 affordable, net zero energy homes on 3.3 acres of land in Wai'anae, O'ahu. The project will include a number of green building features throughout the residences and community center. Among them are photo voltaic systems, efficient water and electrical fixtures, natural day lighting, ENERGY STAR® appliances, low e dual glaze windows and ceilings, green building materials and resources, recycling centers, community gardens and aquaculture.
3. All future home developments will focus on being energy efficient.

DHHL's Land Management Division continues to encourage general lessees and licensees to plan and design their facilities to meet the same energy efficient programs. One of the DHHL licensees, the Boys & Girls Club in Nānākuli, has just completed its YET Center with LEED certification.

The Hawai'ian Homes Commission has adopted the Department's Ho'omaluo Energy Policy in January 2009. This policy enables native Hawai'ians and the broader community working together to lead Hawai'i's effort to achieve energy self-sufficiency and sustainability. The DHHL Newsletter "Ka Nuhou" has dedicated the entire winter 2009 edition on Going Green.

DHS: The Department of Human Services (DHS) will continue to coordinate all building and facility projects with the Department of Accounting and General Services (DAGS) to ensure that all construction, repairs and alterations projects are in compliance with the applicable standards and guidelines.

DLIR: The Department of Labor and Industrial Relations (DLIR) does not own or manage any buildings. The majority of DLIR personnel are housed in building facilities constructed and managed by the Department of Accounting and General Services (DAGS). The remaining DLIR personnel are out-stationed in privately-owned buildings. The DAGS Leasing Branch secures all

rental lease agreements for DLIR occupants housed in privately-owned buildings. In addition, DLIR does not have any plans to design or construct new buildings or facilities at this time.

DLIR will continue to learn about energy efficiency and environmental designs. As DLIR staff gains more knowledge in energy efficiency and environmental designs, appropriate steps will be taken to incorporate these standards into our DLIR standards. DLIR will work with the appropriate DAGS agencies to incorporate energy efficiency measures to reduce energy consumption.

DLNR: DLNR continues to work with the Department of Business, Economic Development, and Tourism (DBEDT) in a statewide collaboration on energy efficiency, as a member of DBEDT's Lead By Example Leadership Group. DLNR will continue to work with the Leadership Group on ideas to implement energy savings across the state. As department staff learns more about such initiatives, they will incorporate such guidelines into DLNR standards.

DLNR's facility portfolio is limited. Most buildings owned by DLNR are composed of base yards, harbor facilities, and park restrooms. DLNR incorporates energy saving concepts into all of its owned facilities as appropriate. Energy saving concepts includes the use of solar water heaters, natural ventilation and lighting, use of energy efficient lights, and water savings using waterless urinals or low flush toilets. Additionally, DLNR has begun to incorporate energy savings practices into design projects such as recycling existing asphalt and concrete pavement into backfill material.

DLNR evaluates the feasibility of implementing energy conservation measures when capital improvement projects are designed. As DLNR staff learn more about energy efficiency and environmental design, they will incorporate these concepts into building and facility design and renovations.

DOE: The Department of Education (DOE) now designs all new buildings or facilities to meet the LEED silver standard. In addition, all architectural and engineering consultants who prepare the design specifications are required to have a LEED certified AP on their project team. 'Ewa Makai Middle School, which is now under construction, will be the first new DOE school to seek formal LEED Silver certification. Other on-going designs that adhere to LEED Silver or better standards include the Wailuku Elementary II and Kihei High School.

During the past fiscal year, the Department has initiated a number of significant projects valued between \$7-\$10 million dollars that are designed to LEED standards. These include a new gymnasium under construction for Pahoehoe High School; new classroom buildings at Na'alehu Elementary, Kea'au Middle School, and Campbell High School; a new administration building for Kalāheo Elementary; and finally, a new library for Baldwin High School and a new cafeteria for Lahainaluna High School, both of which are presently in the bidding process.

Although not specifically covered by Act 96, the DOE is moving toward the application of LEED standards to enhance sustainability and user comfort for major renovation and upgrade projects in existing buildings. These efforts include: (1) requirement for all new portable classrooms to comply with guidelines set by the California High Performing Schools (CHPS) program; (2) installation of "cool roofs" through the use of various coating and reflective materials, whenever roof repairs and replacement occurs; and (3) installation of solar powered lights in parking lots, solar powered night security lights on building exteriors and walkways, and solar powered attic fans in teacher housing units. The DOE has also begun to implement web-based controls for air conditioning systems to allow for centralized control of these systems, which lead to a higher

efficiency, while lowering user intervention. Proven technologies such as desiccant wheels that remove moisture from air condition spaces more efficiently are being deployed with chilled water systems or separately to supplement packaged air conditioning systems. Solar tubes have been retrofitted for some classroom spaces in an effort to reduce lighting loads and to bring more natural daylight promoting student performance.

DOT-Harbors: DOT-Harbors trains staff on LEED methodology, requires design consultants and construction contractors to be knowledgeable of and able to comply with Act 96 SLH 2006, ensures that all designs for new construction meet LEED silver certification and develop program milestones to encourage 100% implementation over a period of time.

HHFDC: HHFDC staff continues to attend Webinar training and informational seminars sponsored by the Institute of Real Estate Management to gain knowledge about LEED qualifications for existing buildings. HHFDC also uses Building Energy Performance News online at (www.bepinfo.com) as a daily input of sustainability news from around the world.

HHSC: East Hawai'i Region

Hale Ho'ola Hamakua (HHH) - In FY 2009, HHH started construction on a new 25-bed wing. The design of the new wing started prior to FY 2009.

O'ahu Region

Lē'ahi Hospital / Maluhia - O'ahu Region did not have any new building construction in FY09. The repair and maintenance type projects that exist look at using energy saving equipment. HHSC is aware of the standards and will consider the standards for future projects.

Maui Region

Maui Memorial Medical Center (MMC) / Kula Hospital / Lāna'i Community Hospital - No projects were initiated in FY 2009. Members of the project team were made aware of the Environmental Design Standards. For new construction/renovations, Maui Region will assess and comply wherever possible.

HSPLS: 2 new public libraries are being constructed in North Kohala and Mānoa. HSPLS fully expects both to be meeting the LEED silver certification. Construction has already started on the North Kohala Public Library and should be completed by early 2010. The Mānoa Public Library should be starting before the end of 2009 and completed by mid-2011.

NELHA: NELHA is home to a LEEDS Platinum-rated building, the recipient of numerous international and national awards for its greenness. Study groups from around the world visit it to gain knowledge and understanding of how they can implement green technologies as exemplified by this building into their designs. As yet, no Hawai'ian groups come to see or visit for the same purpose except for a few very small ones led by the original architects. NELHA has not built any buildings since Gateway. It is in continuing discussions with private investors to build a LEED Platinum office structure at the Gateway.

PSD: Departments of Public Safety and Accounting and General Services are currently in the process of designing a 300,000 square-foot replacement complex for the Maui Community Correctional Center to meet LEED-Silver guidelines. Additionally, said departments are providing directions to design consultants involved with major repair and alteration projects to seek operating systems improvements that meet or exceed model energy code requirements.

UH: ASSESSMENT:

- a. UH Mānoa – Campus Center Renovation and Addition currently under design with goal for LEED Silver.
- b. UH Mānoa – Gartley Hall Renovation currently under design with goal for LEED Silver.
- c. UH Mānoa – New Classroom Building currently under planning with goal for LEED Silver.
- d. UH West O‘ahu – New campus development in Kapolei currently under design; and registered as a LEED project with the USGBC with goal for LEED Silver.
- e. UH Hilo – Student Life Center has been completed; and LEED Gold pending USGBC approval.
- f. UH Hilo – Hawai‘ian Language Building currently under design with goal for LEED Silver.
- g. UH Hilo – Sciences and Technology Building currently under construction with goal for LEED Silver.
- h. UH Hilo – Student Services Building Addition and Renovation currently under design with goal for LEED Silver.
- i. UH Hilo – College of Pharmacy
- j. Hawai‘i CC – UH Center at West Hawai‘i
- k. Maui CC – Science Facility currently under design with goal for LEED Silver; but with possibility to achieve LEED Gold.
- l. Kapi‘olani CC – Culinary Institute of the Pacific facilities at the former Cannon Club site along Diamond Head currently under design with the goal of LEED Silver.
- m. Leeward CC – Education and Innovation Instructional Facility currently under design with goal for LEED Silver.
- n. Windward CC – Library and Learning Center facility currently under design with goal for LEED Silver.
- o. Honolulu CC – Advanced Technology Training Center funded for design with a goal for LEED Silver.
- p. Systemwide – Information Technology Center currently under design with goal for LEED Silver.

STRATEGY:

The University of Hawai‘i will continue to apply the LEED rating system in all Capital Improvement Program new and major renovation projects. Sustainability guidelines are being included in the development for all campus long range development plans and project development reports. In general the goal is for LEED Silver rating certification and if the goal cannot be attained due to budget constraints, other sustainable design principles will be incorporated into the new or major renovation projects.

Act 96 SLH 2006: Buildings and Facilities

- (2) Incorporate energy-efficiency measures to prevent heat gain in residential facilities up to three stories in height to provide R-19 or equivalent on roofs, R-11 or equivalent in walls, and high-performance windows to minimize heat gain and, if air conditioned, minimize cool air loss. R-value is the constant time rate resistance to heat flow through a unit area of a body induced by a unit temperature difference between the surfaces. R-values measure the thermal resistance of building envelope components such as roof and walls. The higher the R-value, the greater the resistance to heat flow. Where possible, buildings shall be oriented to maximize natural ventilation and day-lighting without heat gain and to optimize solar for water heating. This provision shall apply to new residential facilities built using any portion of state funds or located on state lands.

The following agencies did not reply to this section: DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: B&F, DHRD, DLNR, DOA, DOH, DOT-Harbors, HCDA, HSPLS, HTA-CC, NELHA

This section does not apply to the following agencies because DAGS manages their facilities: AG, DCCA, DLIR, DOTAX

DAGS: The PWD is very rarely involved in residential facilities; however, energy-efficiency measures to prevent heat gain can apply to any facility. These measures are already taken into design consideration when applicable.

STRATEGY:

The strategy for PWD on these measures is finding ways to improve, starting just simply by being more aware of these energy-efficiency measures, doing better review of designs, and considering new products and technologies.

DBEDT: With support from National Governor's Association, State of Hawai'i representatives from DBEDT and DHHL traveled to Washington, DC in January 2009 and to Chicago in June 2009, to participate in the 2009 Energy Policy Academy with representatives from other states. The primary topics of discussion for the State of Hawai'i's delegates were: the State of Hawai'i's Energy Action Plan and projects to support: ENERGY STAR® for Waikiki hotels, Updates to the State of Hawai'i's Energy Code and planning, design and construction of the DHHL's Ka'upuni Net Zero Home development in West O'ahu.

DBEDT coordinated the May 2008 Build & Buy Green Conference & Expo at the Hawai'i Convention Center, which was attended by about 500 people, including many from state agencies. The topics of R-19 insulation, radiant barriers, orientation, natural lighting, and natural ventilation were discussed at length.

DBEDT staff conducted 10 meetings of the International Energy Conservation Code Subcommittee of the Hawai'i Building Code Council. The subcommittee agreed to:

- Include, rather than exempt, non-air conditioned residences and commercial buildings. Required a free vent area of 14% of the floor area in order to ensure adequate cross breezes.
- Delete the requirement for R-30 in residential roofs and substitute the existing residential energy code for Honolulu and Maui counties which offers 5 paths to achieving R-19 equivalent.
- Loosen the air filtration requirements for jalousie windows in order to permit state of the art jalousies. This permits homeowners to leave jalousies open during the day so they return to cooler homes at night.
- Require that windows have a maximum solar heat gain coefficient of 0.40.
- Require R-13 in walls. Hawai'i county adopted IECC 2006 on May 18, 2009 and the remaining counties and the State of Hawai'i is in the process of adoption.

DHHL: DHHL will continue to promote, design, and build new affordable homes using the green technologies to ensure building of new energy and resource efficient homes in Hawai'i.

DHS: As applicable, DHS will continue to coordinate these activities with DAGS to effect energy efficient measures.

DOE: The DOE designs all roofs on new facilities to meet the R-19 or equivalent insulation standard. The DOE also installs additional insulation when re-roofing older roofs to meet the R-19 standard or equivalent insulation standard where feasible. New schools are designed to meet LEED Silver standards and combine the use of insulation with proper building orientation to maximize natural ventilation, day light use, and solar water heating applications as appropriate.

The DOE designs all new schools and facilities to meet the R-11 or equivalent insulation standard but does not retrofit walls of existing buildings unless there is a clear cost benefit or requirement for the health and safety of occupants. However, facilities with large air conditioning systems that serve multiple classrooms are being retrofitted through insulation and energy efficient windows to minimize heat gain and cool air loss where feasible.

In addition, the DOE has begun a number of pilot projects to look into the feasibility of various heat abatement strategies other than air conditioning. These efforts include a heat abatement project at 'Ewa Beach Elementary School which has just completed construction and a heat abatement pilot project at Kahuku High School that is presently under construction. These projects have taken advantage of various heat reduction strategies to lower operating costs, while increasing comfort levels. Specific strategies deploy the use of ceiling fans, heat reflective paint, cool roofs, insulation, thermal walls, landscaping, solar light tubes, larger window spaces, etc. Appropriate heat related measurements will be taken and once analysis of these pilot projects is completed, the DOE will have a better idea of which combination of applications would be most beneficial to address those situations where heat reduction is a significant and immediate concern.

HHFDC: HHFDC has three high rise buildings. Recently two of our buildings, Pohulani Elderly in 2008, and Kamake'e Vista in 2009, have undergone some major renovations with the roof top membranes being replaced.

Two factors were applied when designing the jobs.

- A new foam insulation board was cut for slope applied as has the base for the single ply membrane.
- The color was changed from a light gray to a highly reflective white.

HHFDC's third building, Ka'ūhale Kaka'ako, is being evaluated and scheduled for renovation in the near future, with the same roof top membrane replacement planned.

HHSC: East Hawai'i Region

- Hilo Medical Center (HMC) - HMC began a design project to replace its back-up 400-ton chiller with a more efficient model. HMC will continue to include energy efficiency measures in all future projects, as it has done in the past.
- Hale Ho'ola Hamakua (HHH) - Ceiling tile insulation minimizes loss of cool air in the building & new wing. HHH will research solar & other energy efficiency for the entire facility.

O'ahu Region

- Lē'ahi Hospital / Maluhia - One of our ongoing projects is replacing window air conditioning units with an energy efficient split system.

PSD: Department of Public Safety is now focused on initiating “investment-grade” surveys throughout its correctional system. Additionally, it intends to build an Energy Savings Management Information System and will collect, analyze and report specifics of energy savings over the coming years.

UH: ASSESSMENT:

- UH Mānoa – The only resident hall air-conditioned is the new Frear Resident Housing, with individual unit controls to minimize energy consumption and operable windows to minimize use of air-conditioning.
- UH Hilo – Existing resident halls are not air-conditioned.
- Maui CC – Existing resident halls are not air-conditioned.

STRATEGY:

The University of Hawai‘i System will continue to apply the LEED rating system in all Capital Improvement Program new and major renovation projects. The design principles for energy-efficiency measures to prevent heat gain will be incorporated into the building to the extent possible.

Act 96 SLH 2006: Buildings and Facilities

- (3) Install solar water heating systems where it is cost-effective, based on a comparative analysis to determine the cost-benefit of using a conventional water heating system or a solar water heating system. The analysis shall be based on the projected life cycle costs to purchase and operate the water heating system. If the life cycle analysis is positive, the facility shall incorporate solar water heating. If water heating entirely by solar is not cost-effective, the analysis shall evaluate the life cycle, cost-benefit of solar water heating for preheating water. If a multi-story building is centrally air conditioned, heat recovery shall be employed as the primary water heating system. Single family residential clients of the Department of Hawai‘ian Home Lands and any agency or program that can take advantage of utility rebates shall be exempted from the requirements of this paragraph so they may continue to qualify for utility rebates for solar water heating.

The following agencies did not reply to this section: DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: DCCA, DOH, DOT-Harbors, HCDA, HSPLS

This section does not apply to the following agencies because DAGS manages their facilities: AG, B&F, DHRD, DLIR, DOTAX

DAGS: ASSESSMENT:

Typical DAGS-managed State Office Buildings do not utilize enough hot water to make installation of solar water heating systems “cost-effective.”

STRATEGY:

The DAGS overall strategy is to continue encouraging its “clients” (other State agencies that seek technical support and assistance from DAGS) to consider using solar water heating systems in their projects, whenever feasible or advantageous to the State.

DBEDT: DBEDT does not design, construct or operate any facilities. However, DBEDT continues to provide technical assistance, including assistance on solar water heating, to the Hawai‘i Public Housing Authority through its staff and a nationally-known expert on energy performance contracting for public housing authorities, David Birr. Under a competitive procurement, the Hawai‘i Public Housing Authority (HPHA) has hired AMERESCO Pacific LLC, a partnership between a large national Energy Services Company and a Hawai‘i firm, Pacific Energy Strategies, to perform an investment-grade audit of the Housing Authority’s 67 federally-funded projects (5,363 units) in order to cut down on energy costs and install efficient energy and water saving measures. The project is estimated to save up to \$80 million in utility costs over the next 20 years, or about \$4.5 million annually. Following acceptance of the audit by the HPHA, the project will be implemented through an Energy Savings Agreement (ESA). The HPHA currently spends approximately \$10 million annually on utilities. The project would be carried out under HUD requirements and would use third party financing. HUD is monitoring the project and approves various implementing documents such as the RFP, the audit, and any contractual agreements.

DHHL: Even though the Department of Hawai‘ian Home Lands is exempted, wherever possible, DHHL will encourage its beneficiaries to take advantage of the utility rebates to install solar water heating systems.

DHS: As applicable, DHS will continue to coordinate these activities with DAGS to maximize energy efficiency and cost effectiveness.

DLNR: DLNR’s facility portfolio is limited. Most buildings owned by DLNR are composed of base yards, harbor facilities, and park restrooms. DLNR incorporates energy saving concepts into all of its owned facilities as appropriate. Energy-saving concepts include the use of solar water heaters. DLNR evaluates the feasibility of implementing energy conservation measures such as use of solar water heaters when capital improvement projects are designed. As DLNR staff learns more about energy efficiency and solar water heating design, they will incorporate these concepts into building and facility design and renovations.

Kaho‘olawe Island Reserve Commission (KIRC)

To reduce the electrical demands on Kaho‘olawe, the KIRC has converted two of its four residential water heaters on Kaho‘olawe to solar-power.

- Kaho‘olawe Island Reserve Commission – Base Camp, Honokania‘a, Kaho‘olawe
- Project description: A second solar water heating system was installed in FY09. This system consists of one 80-gallon tank with a solar panel designed with a photovoltaic panel and DC pump to drive the circulation of the system. This supports Base Camp contractor personnel living quarters.
- Estimated Savings: Meters were recently installed to monitor usage, therefore current data is incomplete.
- Positive environmental impact of the project: Using the sun’s power to heat water instead of electricity generated by a diesel generator provides a very direct positive environmental impact. Not only is less diesel burned, it is anticipated that with less fuel consumption the cost savings will be high. In essence there will be a trickledown effect on cost savings i.e. with less demand for fuel, there will be less fuel runs thus lowering overall transportation costs.

DOA: May not be applicable since very few HDOA facilities have a need for water heating systems; however, as part of its retro-commissioning projects DOA will review the cost-benefit of converting to a solar water heating system.

DOE: The DOE school cafeteria kitchens use gas water heaters and boilers. Gas water heating is economically more efficient than electric water heating, thus limiting opportunities. However, the DOE will start a pilot study to determine the life-cycle costs for solar water heating for a school cafeteria and/or locker rooms, either to replace gas water heating or to preheat water. Other water heating opportunities will be looked at, such as heat recovery from existing walk-in refrigeration compressors, both to preheat water and to increase efficiencies of the walk-in cooling.

HHFDC: On most of its nine (9) affordable housing properties HHFDC has individual billing of utilities to the tenants from the respective utilities companies.

Presently, HHFDC has solar water heating systems installed on all 200 affordable (townhouse) housing units at Lailani in the Kailua-Kona area of the Big Island. The original installations are considered first generation types that have been in operation for nearly 20 years. Upon failure they are replaced with better quality, more efficient units, thus lowering the tenant's utility bill, making their final total housing budget more affordable.

The five (5) remaining low rise apartment buildings on the Big Island (2), Maui (1), O'ahu (2), and two (2) of the high rise apartment buildings on O'ahu, have been surveyed for hot water heating alternatives. Because of the initial monetary outlay and space constraints, it has been determined that the best immediate solution is to insure that the best ENERGY STAR® replacement products are installed.

The one (1) remaining high rise building, Pohulani Elderly on O'ahu, is in the Request For Proposal (RFP) development stage for replacement of the commercial A/C plant with a functioning heat recovery system to preheat hot water for the residential apartments.

HHSC: East Hawai'i Region

- Hilo Medical Center (HMC) - HMC did not install solar water heating systems in FY 2009 due to funding constraints, and has no plans to do so in the immediate future. However, HMC will consider it and will do a cost-benefit analysis when appropriate, to determine whether or not solar water heating is appropriate for the hospital and its ancillary facilities.
- Hale Ho'ola Hamakua (HHH) - HHH does not have solar water heating systems at this time; however, it will be part of the research for energy efficiency.
- Ka'ū Hospital - Ka'ū Hospital did not install a solar water heating system in FY09. However, given the fact that it is a hospital that uses adequate amounts of hot water, installing a solar water heater would be cost-effective. However, there are no current plans to do so as there are a number of life safety projects that take higher priority.

O'ahu Region

- Lē'ahi Hospital / Maluhia – O'ahu Region did not have any projects to install solar water heating systems. If a solar water heater is determined to be cost-effective, it will be considered in any new construction.

Maui Region

- Maui Memorial Medical Center (MMMC) / Kula Hospital / Lāna'i Community Hospital - Funds are not available to perform solar water heating audit. No solar water heating systems

were installed in FY 2009. For future renovations/construction, Maui Region will include a feasibility study on use of solar water heating systems where applicable.

West Hawai'i Region

- Kona Community Hospital - Kona Community Hospital did not have any projects for installing solar water heating system. If a cost-effective alternative could be presented, it can then be implemented pending funding.
- Kohala Hospital - Kohala Hospital did not install a solar water heating system in FY09. Given the fact that the hospital uses adequate amounts of hot water, installing a solar water heater would be cost-effective however, funding levels are scarce.

Kaua'i Region

- Kaua'i Veterans Memorial Hospital / Samuel Mahelona Memorial Hospital - Kaua'i Region did not have any projects to install solar water heating systems. If a solar water heater is determined to be cost-effective, it will be considered in any new construction.

HTA-CC: HTA has reviewed with the Hawai'i Convention Center management its existing hot water systems to see if solar hot water could be added. Based on the limited frequency the hot water is needed and the large quantities that are needed on short notice during those periods of time, solar hot water isn't practical for their application. There would be no cost savings, only added cost.

NELHA: NELHA installed solar water heating systems many years ago. NELHA has also air-conditioned all of its buildings for many years using cold deep seawater. NELHA is the world leader in implementing this strategy, which has been neglected by other agencies and private businesses in Hawai'i that prefer to use electricity for air conditioning requirements. Current estimate is that for four relatively small buildings, the use of seawater air conditioning saves \$20,000 - \$25,000/month in electricity expense.

NELHA and the Kona International Airport continue to be in discussion about NELHA providing the airport with "cold" when its new enclosed terminals are opened in several years. The architects and engineers working on that project recognize the tremendous cost savings that can be garnered through use of this strategy. This vital project will save the state awesome amounts of money that otherwise will be spent buying electricity to air condition the airport, as seawater A/C has been shown to save 50% to 80% of the cost of electric A/C.

PSD: Departments of Public Safety and Accounting and General Services have instructed the design team of the Maui Regional Public Safety Complex (MRPSC) to incorporate into the design the use of both solar and photovoltaic systems to significantly reduce overall utility expenditures. Moreover, with the incorporation of an ESM system to monitor energy consumption, PSD will be able to furnish, in great detail, the metrics of such actions on a timely basis.

UH: Assessment:

- a. UH-Hilo Athletics Shower/Locker room has had solar water heating since construction in 1980. The backup system utilizes propane gas, and the gas tank isn't filled even once a year.
- b. UH-Hilo's Student Life Center has a heat pump water heating system with a natural gas backup system. Data logs show the natural gas back up system was activated only one time for 2 hours in a year's time frame.
- c. The University of Hawai'i System will continue to apply the LEED rating system in all Capital Improvement Program new and major renovation projects. The design principles for

solar water heating systems where it is cost effective will be incorporated into the building to the extent possible.

Act 96 SLH 2006: Buildings and Facilities

(4) Implement water and energy efficiency practices in operations to reduce waste and increase conservation.

The following agencies did not reply to this section: DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies because DAGS manages their facilities: DOTAX

AG: All departmental staff have been provided tips on energy efficient practices and information on the benefits of energy efficiency. With the assistance of DAGS, signs have been posted to remind staff to turn off computers, lights, and other equipment when exiting. Water leaks are to be reported to the Administrative Services Office immediately, including sprinkler systems and outdoor faucets.

B&F: The Department encourages employees to initiate and implement energy efficient practices (i.e. turning off office lights when not in use or when leaving for the day, turning off computer terminals at the end of the day, distributing ENERGY STAR® saving tips, etc.). The Department stresses the importance of energy saving efforts initiated by DAGS and DBEDT.

DAGS: As funding has become available, the department has initiated various energy conservation/efficiency projects for DAGS facilities statewide. The projects are in various stages of design and construction. These projects include: the replacement of aging air conditioning and elevator equipment; retrofitting with energy efficient electronic ballasts and super T-8 lamps; delamping; the installation of light sensor switches; the installation of protective tinting on building windows to reduce heat gain; the installation of low-flow plumbing fixtures; and the installation of electric hand dryers. Some of these projects are in various stages and include:

1. De-lamping (removing fluorescent lamps while providing adequate lighting as recommended by industry standards). Over 13,000 lamps have already been removed.
2. Replacing 32W lamps with high efficiency 25W lamps. Over 50,000 lamps are anticipated to be replaced.
3. Replace existing 40W exit signs with 1W LED exit signs. Over 1,000 signs have been replaced.
4. Installing occupancy sensors in conference rooms and break rooms to turn off the lights when the room is vacant.
5. Modifying operating procedures to ensure lights in common areas are turned off at the end of the day.
6. Replacing existing urinals (minimum 1 gallon per flush) with ultra low flow urinals (1 pint per flush) which will provide 89% water savings. Over 200 urinals are anticipated to be replaced.
7. Replacing existing faucets with low flow sensor faucets that only turn on when needed and reduce the water flow rate. Over 500 faucets are anticipated to be replaced.
8. Replacing existing water closets (minimum 3 gallons per flush) with low flow water closets (1.6 gallons per flush). Over 700 water closets are anticipated to be replaced.

9. Installation of rain sensors to the irrigation systems at Ke‘elikōlani, Hale Auhau, Kekūānao‘a, Hawai‘i State Library, ‘Iolani Palace, State Capitol, No. 1 Capitol District, Leiopapa A Kamehameha, and Eternal Flame. Submeters that measure the water usage for irrigation purposes have also been installed at Ke‘elikōlani, Hale Auhau, Kekūānao‘a, No. 1 Capitol District, Kīna‘u Hale, Vineyard Parking Structure, Washington Place CSD Base Yard and Waipahu Civic Center.

A major pilot project that was initiated in FY 2008 is the Central Services Division Photovoltaic (PV) System. A Request for Proposal was solicited to provide PV/solar power via a Power Purchase Agreement (PPA). The power provider, through a PPA, would design, install, operate, maintain and sell power to the State at a rate that is anticipated to be lower than the HECO rate and the PV system would also reduce the consumption of energy generated by fossil fuels. Proposals were received and were negotiated unsuccessfully. It is DAGS’ understanding that Power Purchase Providers were having difficulty in financing the project due to limited or insufficient tax liabilities available to take advantage of tax credits. DAGS was also informed that the local banks were no longer interested in financing this type of project. This project has been suspended indefinitely.

A major project initiated in FY 2009 is the Energy Savings Performance Contract for 10 Facilities in the Capitol District, which include the State Capitol. This project is anticipated to provide over \$35 million worth of improvements and services, with a guaranteed annual savings of at least \$3 million in utility and operating costs over a 20 year period.

During fiscal year 2008 and 2009, eleven pilot retro-commissioning projects has been initiated on O‘ahu, Hawai‘i, Maui and Kaua‘i to develop strategies that would result in energy savings. Most of these projects have completed the investigation phases with some minor repair being implemented. The implementation phase of the retro-commissioning process has been put on hold for now. Instead of proceeding with retro-commissioning, DAGS-PWD is performing the ESPC. Recommended work from the retro-commissioning investigations not covered by the ESPC projects will need to be included in future CIP budget requests.

In addition to DAGS facilities, DAGS Central Services Division and PWD has worked with the Hawai‘i State Public Library System (HSPLS) in implementing energy efficiency practices. Projects being accomplished by DAGS for the HSPLS include the retrofitting with energy efficient electronic ballast and super T-8 lamps. As of the end of FY 2009, DAGS has 34 library lighting retrofit projects under construction or completed construction. They also have 11 projects with bids open that are pending an award and notice to proceed as of July 28, 2009.

DAGS, on behalf of the HSPLS, intended to implement retro-commissioning on all libraries statewide during FY 2009; however, due to limitations in keeping up with the retro-commissioning process, the retro-commissioning has been deferred.

DAGS, on behalf of the Department of Public Safety (PSD), has initiated an energy conservation/efficiency project for their correctional facilities, statewide.

DBEDT: DBEDT established the Green Government Challenge in fall 2008, a new statewide certification and recognition program for agencies that are implementing programs to reduce energy, water and waste in their offices and building operations. The program uses checklists that also double as a tool to guide agencies toward office sustainability. The program is jointly administered by DBEDT and DOH. For more details, see:

<http://hawaii.gov/dbedt/info/energy/efficiency/greengovernment/>

Two State of Hawai'i agencies, DAGS and DBEDT, were recognized in spring 2009 under the Hawai'i Green Business Program. Both agencies also received the Governor's Innovation Award in March 2009 for their efforts under this program. DBEDT worked closely with the industry to develop a Green Restaurant and Food Service Program that will be piloted in August 2009. This extends the program beyond offices and retail, hotel and resort to other business and government sectors. A significant portion of the certification programs are dedicated to water and energy efficiency.

The 2008 Efficient Electro-Technology Expo and Conference, conducted by Hawai'ian Electric Company (HECO) and co-sponsored by DBEDT, was held on September 18, 2008, at the Hawai'i Convention Center, Honolulu. The event focused on energy technologies as well as renewable energy solutions, sustainability, and energy management practices. Over 600 people attended the event, including 58 from the mainland and 5 from Guam/American Samoa/Northern Marianas. HECO estimates that to date the use of energy efficient technologies have saved enough energy to serve 31,511 residences.

DBEDT received a Best Practices Guide for Selected LEED for Existing Building Operations and Maintenance (EB/OM) Water Efficiency, Energy & Atmosphere and Indoor Environmental Quality Prerequisites and Credits from KBA. This document was developed at the request of DAGS to provide a non-technical overview and best practices to assist State agencies to understand and comply with various selected requirements of LEED EB/OM, primarily focused on building commissioning.

As a result of a challenge issued by a Rebuild Hawai'i Consortium affiliate member, The Limtiaco Company, 24 Consortium members and friends, including the State Energy Office, County of Kaua'i and the City & County of Honolulu, supported a world-wide effort to turn off lights for one hour on Saturday, March 28, to show commitment to energy conservation.

DCCA: Implemented a schedule whereby the landscape is watered during the evening hours and water time reduced from 10 minutes to 5 minutes at each station.
Participated in DAGS energy projects:

- Replaced sinks with low-flow fixtures and installed sensor faucets
- Replaced single sheet paper towel dispensers with roll paper towel dispensers
- De-lamped hallways
- Retrofitted lighting fixtures for energy-efficient lamps

DCCA continued to monitor cost and consumption data for air-conditioning usage. The agency also reviewed temperature data and made adjustments to correct areas of inefficiencies. The main office building has a lighting system that utilizes motion sensors. In coordination with DAGS, DCCA completed a project to inspect and adjust sensors for optimum levels of operation. The agency also continued practice of using compact fluorescents for all exterior lighting and disseminated DAGS memorandum on energy and other conservation measures.

DHHL: DHHL plans to develop and circulate educational pamphlets to homesteaders and staff on water and energy efficiency practices to encourage waste minimization and increase conservation.

DHRD: DHRD encourages all employees to implement energy conservation practices. Examples include turning off the lights in offices and in all other areas that are not in use during the day; turning off office lights and the lights in the restrooms, hallways, and elevator entry area at the end of the day; and turning off copier machines and computers rather than leaving the equipment on sleep mode. To address increasing energy costs, for 3 months (August – October) DHRD piloted a 4-day work week program. During the three-month pilot period, the department was open 4 days a week (Monday through Thursday), 10 hours a day, and closed on Friday.

The Department of Accounting and General Services (DAGS) implemented the following water and energy conservation initiatives for the Leiopapa A Kamehameha building, which DHRD occupies:

1. Installed low energy hand dryers.
2. Reduced the number of light bulbs in light fixtures located in the elevator entry area and in some offices (by request).
3. Installed new sensor-activated water faucets in the restrooms.
4. Solicited proposals from Energy Service Companies to evaluate various electrical components in the building and identify methods of reducing energy consumption.
5. De-lamped fluorescent light fixtures.

DHS: DHS continues to issue water and energy conservation procedures for buildings and offices, in coordination with procedures issued by DAGS.

DLIR: An assessment of electricity usage was completed for seven of the Department of Labor and Industrial Relations (DLIR) offices that are not maintained by DAGS Central Services. The assessment of the seven offices covered the period July 1, 2005 through June 30, 2009. Based on DLIR's review, seven offices utilized a total of 1,674,758 kilowatt hours resulting in a total cost of \$554,744.65.

Based on the energy usage, the DLIR plans to do the following:

1. DLIR will work with DAGS to insure that best energy saving practices are incorporated into reminder memoranda as required to address energy conservation.
2. DLIR will work with DAGS to incorporate some of the following conservation measures:
 - Replace old toilets and sinks with low flow fixtures (toilets and sinks).
 - Replace old lighting fixtures.
 - Request that DAGS Leasing Branch conduct energy efficiency analyses in privately-leased buildings and work with landlords to replace old toilets, sinks, air conditioners, and lights.
 - Replace light switches with motion sensors.
 - Replace paper towel dispensers with hand blowers.

DLNR: DLNR installs low-flow fixtures (toilets and sink faucets) to replace older fixtures that use more water, as department facilities are renovated. Additionally, some remote restrooms use composting toilets, which require very little water. The department has installed waterless urinals in some boat harbor improvements. Additionally, the Commission on Water Resource Management (CWRM) recently received a donation of low-flush toilets from the Board of Water Supply. CWRM provided this donation to DLNR Engineering Division to replace any damaged units that will allow DLNR facilities to continue to increase water efficiency.

Staff are reminded to turn off equipment when not in use, keep blinds closed, and report equipment malfunctions. Energy efficient light bulbs are used where feasible and timed sensors have been installed to allow automatic shutoff of lights. Additionally, natural ventilation and lighting are used in most comfort stations/restrooms. When purchasing new equipment the Department tries to purchase energy efficient machines when available, such as energy efficient copiers, etc. The Department also tries to remind staff to turn off computers and other appliances that are not in use or at the end of the day.

Division of Boating and Ocean Recreation

- Facility Information: Lahaina Small Boat Harbor Comfort Station, Maui
- Project Description: Comfort station with waterless urinals completed in 2007.
- Estimated Savings: Information not available at this time.
- Positive environmental impact of the project: Reduced water consumption.

Kaho‘olawe Island Reserve Commission (KIRC)

Energy Conservation Demo Project

- Facility Information: Hut 10 Renovations, Honokanai‘a, Kaho‘olawe, one of its six berthing facilities
- Project description: KIRC is planning to implement an energy conservation demonstration project by remodeling one of its six berthing facilities to reduce energy consumption. Through improved ventilation and innovative design features, the KIRC hopes to improve the building’s natural air circulation, improve shielding from the hot, desert-like conditions of Kaho‘olawe, thus reducing cooling cost significantly. If this project is successful, plans will then be developed to convert all remaining berthing facilities to this new design and significantly reduce energy requirements and cost. Kaho‘olawe presents a unique opportunity for alternatives to reduce energy consumption due in part to the Island’s small population and isolation.
- Estimated Savings: Information not available at this time.
- Positive environmental impact of the project: Less electrical demand from a diesel fueled generator and less consumption of fossil-fuel.

Alternative Water Systems

- Facility Information: Reverse Osmosis System, Honokanai‘a, Kaho‘olawe, shower facility
- Project description: Because of the Island’s unique status as a cultural and environmental preserve, the use of alternative water systems and energy resources is believed to be most appropriate and necessary. As part of KIRC’s mandated requirements under HRS 6-K, the restoration program brings 15 to 20 volunteers, adults and students, to the island on Mondays to assist in planting native plants as part of the restoration program. The volunteers normally leave Kaho‘olawe on Thursday afternoon. To achieve the conservation of water and energy, KIRC recaptures all the water from the shower facilities. The Reverse Osmosis system uses water from the ocean and produces about 1,500 gallons per day of fresh water, which is more than adequate for the demand.
- KIRC has also converted from single usage bottled drinking water to re-usable larger water bottles, and volunteers provide their own personal water container.
- Estimated Savings: The only cost is for fuel consumption for the generator that furnishes power for all of Base Camp’s facilities.
- Positive environmental impact of the project: Less waste to remove from the island and less plastic to recycle which adds to removal and transportation costs.
- Projected output of onsite renewable energy facilities: The Reverse Osmosis system produces about 1,500 gallons per day of fresh water, which is more than adequate for the demand.

DOA:

1. Continued to identify energy efficiency projects and related costs.
2. The Legislature appropriated general obligation bond funds in the amount of \$350,000 in FY10 and \$1,000,000 in FY11 for the design and construction of a Hydropower Plant in Waimea, Hawai'i, which will reduce electrical pumping costs when completed.
3. Continued to retrieve information electronically on gas consumption and odometer readings from DAGS Automotive Management Division, Tesoro and Hawai'i Petroleum. Continue to use vehicle refueling log for programs that have vehicles that refuel at places other than DAGS, Tesoro and Hawai'i Petroleum.
4. Continued to retrieve information electronically on gas consumption and odometer readings for each vehicle from DAGS Automotive Management Division, Tesoro and Hawai'i Petroleum.
5. Monitored and compiled kWh consumption data and cost for electricity for FY09.
6. Distributed DAGS memo requesting employees to conserve energy and to report any water waste from open faucets, leaky plumbing fixtures, and broken and/or inefficiently run irrigation systems.
7. Developed spreadsheet to compare FY 2009 data to FY 2007, FY 2008 on electricity kWh consumption and percentage increase/decrease from previous year and distributed to program managers for their review and information.

DOE: The DOE has an internal system that enables the comprehensive managing of all utilities – electricity, water, sewage disposal, and gas – for all schools through a central office with the anticipated goal to monitor and track utilities for high usage.

As of July 1, 2007 a School Energy Conservation Program has been in effect for all DOE schools. The Program takes a school's historical average of electrical energy use and compares this average to actual electrical consumption monthly. Adjustments are made to the historical average (baseline) to account for any new load changes such as new facilities, equipment, and/or energy conservation measures. Schools pay for ½ of the energy cost for energy consumption above the baseline and receive a "rebate" for ½ the energy cost energy consumption below the baseline biannually.

Immediate steps for conservation programs continue and are listed as follows:

1. Continue with implementation of LEED Silver for new and major construction projects.
2. Continue training for LEED New Construction and LEED for Schools as updated by USGBC.
3. Continue with installation of low-flow bathroom fixtures whenever fixtures require replacement.
4. All incandescent lamps will be replaced with compact fluorescent lamps (CFL).
5. Continue meetings with vendors seeking new energy conserving technologies. Continuation with pilot (test) studies of new promising technologies.
6. Establishment of a Water Conservation "Steering Committee" or "Task Force" within the Office of Business Services School Facilities and Support Services to expedite conservation activities between branches and within the DOE as a whole.
7. Open discussion with the Board of Water Supply to seek innovation water conservation concepts, projects, and/or studies such as Irrigation Management Control System, plant species, drip irrigation, and captured rainwater.

Immediate steps for school conservation (Electricity) are listed below:

- Set air conditioning so that the room temperature is 76 degrees.

- Air conditioning is not turned on until 7:00 a.m. or (if the air conditioning unit is turned on and off manually) until the room temperature reaches 74 degrees, whichever comes later, and turned off no later than 4:30 p.m.
- Use timers to turn off 75 percent of night lights between the hours of 10:00p.m. and 6:00a.m.
- By June 15, 2009, replace all appliances (refrigerators, microwave ovens, toasters, coffee makers, rice cookers, etc.) in classrooms and offices with ENERGY STAR® rated appliances. Personal appliances should be limited to no more than one of each on each floor of a building. All other personal appliances were removed by December 31, 2008.
- Purchase or lease only ENERGY STAR® rated computers, copiers, printers, and servers.
- Turn off computers, printers, and copiers at the end of the day.
- As of July 1, 2009, all schools with central chiller A/C will need to reduce their energy usage by 16% via baseline reduction. All other schools will have their baseline reduced by 6%.

Immediate steps for school conservation (Water) are listed below:

- All schools and offices shall cut back on water usage by at least 10 percent. Water lawns early in the morning or late in the afternoon or evening.
- Timers on automatic sprinklers shall be adjusted to water the lawns on Sundays, Tuesdays, and Thursdays, either before 9:00 a.m. or after 5:00 p.m.
- Manually water lawns on Mondays, Wednesdays, and Fridays, either before 9:00 a.m. or after 5:00 p.m.
- Car wash fundraisers shall be curtailed.
- Flooding water beds or shooting down lanai areas is highly discouraged.
- Planned development of a water usage tracking system that overlaps high water usage tracking system employed by the Board of Water Supply. This tracking system will identify slow developing leaks that can go undetected by BWS under their tracking system.

DOH: Air conditioning hours restricted from 7:30 AM- 4:30 PM. A/C is shut down on weekends and holidays. Super T-8 installation is in several buildings, with projections to convert all DOH buildings statewide. Fixtures have been delamped to allow for the minimum lumens, per code.

DOT-Harbors: Water efficiency:

- Install, where practical, low flow toilets, low flow shower heads, and faucet aerators as practical
- Install timers or require staff to conduct irrigation and watering of plants during early morning or evenings to reduce water lost to evaporation.
- Develop program milestones to encourage 100% implementation over a period of time.

Energy efficiency:

- Install timers onto HVAC and/or motion detectors onto lighting systems and other equipment facilities as appropriate.
- Install tinting to windows and glass doors as appropriate.
- Monitor lighting levels and use natural window/skylight lighting as if sufficient.
- Turn off lights in room not in use.
- Installed more energy efficient AC unit for the Harbors Division Administration building.
- Develop program milestones to encourage reduction of energy consumption over a period of time.

HCDA: HCDA is installing surfactant injection system within Kaka‘ako Waterfront and Makai gateway parks that should result in savings of water consumption of up to 60%.

HHFDC: As discussed before, all site managers have been directed to adhere to watering restriction hours and days per week for irrigating the green belt areas. In conjunction the management staff, in house, and vendors are monitoring all utilities used: water, electric, and gas. Any and all abnormal movements are asked to be investigated and explained.

HHSC: East Hawai‘i Region

- Hilo Medical Center (HMC) - In 2001-2003, HMC embarked on an Energy Conservation Project that included changes to its facilities to make it more energy efficient. The measures included: Chiller plant upgrades, an energy management control system, replacement of smoke dampers and actuators, replacement of steam traps, lighting system improvements, use of premium efficiency motors, installation of solar window film, VFD control of VAV air handlers, and low-flow plumbing fixtures. HMC's intent is to continue along this path to make its plant more energy efficient.
- Hale Ho'ola Hamakua (HHH) - In previous years, HHH had energy efficient lighting installed.
- Ka‘ū Hospital - In FY09, Ka‘ū Hospital installed fluorescent bulbs, left grass cuttings on the lawn and cut back on watering the lawn.

O‘ahu Region

- Lē‘ahi Hospital / Maluhia - Majority of the lighting fixtures for O‘ahu Region were replaced with energy saving type fixtures prior to FY09. Low flushing toilets will be installed when funds become available.

Maui Region

- Maui Memorial Medical Center (MMMC) / Kula Hospital / Lāna‘i Community Hospital - Lawn/grounds irrigation watering cycles were adjusted to early morning to help reduce water evaporation. Replaced gaskets for leaking irrigation valves and water faucets. Replaced water faucets with hands free faucet, added low flow aerators on faucets and showers. Installed low flush toilets/bowls where applicable. NORESKO, an energy efficiency performance contractor, was tasked with upgrading interior light fixtures with T8 bulbs and T5 fixtures where applicable. Installed infrared sensors where applicable.

West Hawai‘i Region

- Kona Community Hospital - Irrigation systems have been terminated. Plans are in effect to reduce potable water usage for linear accelerator by cooling the equipment using chilled water loop. Currently, the system for the linear accelerator is cooled using potable water that is immediately dumped to the water treatment plant, taxing the water treatment plant. By including the system in the loop, water usage is estimated to be twenty-five percent savings. Also, on-going reviews of energy efficiency audits by NORESKO are on-going verifying use of t-8 lamps, CFL lamps, and window film.
- Kohala Hospital - In FY09, Kohala Hospital monitored water and energy usage via budget vs. actual reporting. Lawn is not watered during any time of the day.

Kaua‘i Region

- Kaua‘i Veterans Memorial Hospital / Samuel Mahelona Memorial Hospital - The Kaua‘i Region has made adjustments on the current irrigation system at KVMH. HHSC is also looking into the possibility of sub-metering water that does not go through the sewage system but is evaporated. This requires approval from the local water board. They are still awaiting approval.

HSPLS: HSPLS has almost completed the retrofit of light fixtures at all 51 public libraries. They have instituted energy saving practices, water conservation, and other reminders at all libraries and staff offices. These practices are in addition to the actions recommended by the State Comptroller in his May 1, 2008 memorandum to all occupants of DAGS Facilities.

HTA-CC: Water conservation practices continue to be in place at the Hawai'i Convention Center and HTA-CC continues to look into other methods including rain catchment. Landscaping has converted gardens to xeriscape planting for water conservation. Additionally, new super T-8 retrofits and replacement bulb and ballast packages have been installed in the exhibition halls, ballroom, administrative areas, and the fire stairwells.

NELHA: NELHA uses seawater air conditioning wherever practicable, even in its pump station control rooms. The cost of installing such equipment, most of which is built in NELHA's own shops, is negligible compared to the savings it can generate. NELHA uses timed irrigation systems, produces much of its own drinking water, and turns off lights in unoccupied rooms. Computers are shut down when not in active use. In some areas, seawater is used to water grass areas instead of potable water.

To the extent practicable, NELHA uses a flexible work week schedule – 4x10's for the water quality control laboratory and a similar schedule for CEROS employees. This has greatly reduced employee fatigue and helped to generate energy savings in terms of motor vehicle fuel for the island. NELHA is definitely capable of introducing even more flexible hours for approximately one-half of its staff.

NELHA's average monthly HECO electrical bill is about \$135,000. The only items in that bill over which NELHA has control are lights, computers, and A/C in its own buildings (all other electricity is used to pump and distribute seawater to the commercial tenants at NELHA and NELHA has no control over their usage, which results in demand charges since use of water is unrestricted). NELHA can influence only about \$20,000 per month of the total energy consumption at the facility. The practices NELHA instituted years ago and follows include: turning off bathroom lights when the room is not in use, turning off office lights during the lunch hour and whenever outside light is adequate by which to see, turning off computers when not in use, operating the Gateway buildings without inside lighting and relying on ambient outside light to the greatest possible extent.

PSD: The Department is in the process of implementing a "pilot" project that will "re-cycle" gray water effluent at a significantly reduced temperature delta. This project will install energy saving equipment at the Halawa Medium Security Facility and will not only reduce the fuel gas consumption associated with heating water for laundry purposes, but will also reduce the actual water being used in the laundering process. Moreover, the Department will also conduct a "pilot" project which regulates incoming voltages to ensure equipment downstream receives an optimal share of power, specific with their respective needs. This, it is hoped, will provide adequate current to equipment for the facility operating systems to ensure optimal life expectancy on the equipment as well as more effectively consuming the power being sent to the facility and thereby staying within the rate structure negotiated with the utility company.

UH: ASSESSMENT:

- Systemwide – Energy and water-efficient retrofits in routine renovations are applied where feasible.

- No new plans for UH Mānoa, UH West O‘ahu, Hawai‘i CC, Honolulu CC, Kapi‘olani CC, Kaua‘i CC, Maui CC, Windward CC
- Leeward CC – Currently in planning stages of a rainwater recovery system whereby the campus would convert an existing dive tank pool to a water catchment basin to irrigate the lower campus.
- UH-Hilo’s new construction includes dual flush valves on the toilets (1 gal for grey water, 3 gal for solids). Also, all the faucets and showers have low flow heads.
- UH-Hilo’s existing facilities have been and are continuing to be converted to these same low use devices in campus restrooms, locker rooms, and dormitory shower facilities.
- UH-Hilo does not irrigate the landscapes, as it is located in a rainforest that averages 140” of rain a year. Only new installations are irrigated until the plants develop the necessary root structure.

STRATEGY:

The University of Hawai‘i Systemwide will continue to implement water conservation and energy efficiency practices in operations through its repairs and maintenance programs.

Act 96 SLH 2006: Buildings and Facilities

- (5) Incorporate principles of waste minimization and pollution prevention, such as reducing, revising, and recycling as a standard operating practice in programs. This includes programs for waste management in construction and demolition projects, and office paper and packaging recycling programs.

The following agencies did not reply to this section: DOT-Airports, DOT-Highways, FTZ, HPHA

AG: All purchasing staff have been advised to first consider recycled materials, especially paper, when reviewing and processing purchase requisitions. AG’s offices continue to utilize the recycle bins in the copier rooms, and within each division boxes are provided for recycling paper. Staff have also been trained to save and transmit documents electronically, whenever possible.

B&F: The Department participates in an office paper recycling program.

DAGS: A recycling program for office paper and cardboard has been started at the Waipahu Civic Center, making a total of 14 major state office buildings with recycling programs in place.

- If funds are available, the recycling of discarded computers and related electronic equipment will be continued.
- The installation of high efficiency hand dryers in restrooms is currently in progress. The operating cost of the hand dryers is 94% less than the cost of hand towels and highly reduces the waste produced at each facility. About 230 hand dryers are anticipated to be installed.
- The installation of Large Roll Hand Towel Dispensers has been completed for locations where DAGS was not able to install hand dryers. These produce less waste due to reduced towel usage.

DBEDT: In fall 2008, DBEDT established the Green Government Challenge, a new statewide certification and recognition program for agencies that are implementing programs to reduce energy, water and waste in their offices and building operations. The program uses checklists which also double as a tool to guide agencies toward office sustainability. The program is jointly

administered by DBEDT and DOH. For more details, see:

<http://hawaii.gov/dbedt/info/energy/efficiency/greengovernment/>.

DBEDT facilities in the Capitol District offer paper, cardboard and beverage container recycling.

DCCA: DCCA continues to implement waste minimization and recycling procedures. The department encourages the use of recycled paper and places blue recycle bins in the building to facilitate recycling. Recycled paper is picked up weekly by a vendor contracted through DAGS.

DHHL: Staff has been encouraged to recycle office paper and other recyclables whenever possible. The Land Development Division is encouraged to incorporate waste management programs in their development/construction contracts to minimize waste and pollution prevention.

DHRD: The department recycles office paper and used printer cartridges. In October DHRD participated in the DAGS recycling and disposal program for computer and electronic equipment, as well as the UH/Apple sponsored Government e-waste disposal program for computer equipment. In January, as part of Hawaiian Telcom's phone book recycling campaign, DHRD coordinated with DAGS and Hawaiian Telcom to have a special pick up of old phone books from offices located in the LAK, Capitol Center, and Hemmeter buildings.

DHS: DHS continues to implement waste minimization and recycling procedures, consulting with the appropriate agencies, such as DAGS and DOH.

DLIR: In FY09, DLIR received an Environmental Preferable Purchasing (EPP) survey and the results of the consolidated survey results will be forwarded to the Department of Health in accordance with the required deadline. The following are the mandated Federal and State laws, and the applicable Administrative Directives. DLIR will be submitting the results of the survey to the Department of Health during the month:

1. Resource Conservation and Recovery Act (RCRA), Section 6002, 42 U.S.C. 6962. The RCRA requires state and local government agencies and their contractors receiving appropriated federal funds to purchase EPA-designated recycled content products.
2. Section 103D-1005(b) of the Hawai'i Revised Statutes. Section 103D-1005(b) requires state purchasing agencies and encourages county purchasing agencies to:
 - Apply preferences to purchase of products with recycled content.
 - Be consistent with RCRA Section 6002, E/O. 13101 and its progeny.
 - Ensure, to the maximum extent economically feasible, the purchase of materials that may be recycled or reused when discarded and to avoid the purchase of products deemed environmentally harmful.
3. Administrative Directive 06-01, signed by Governor Lingle in January, 2006, requires State agencies to purchase environmentally preferable products that reduce their impact on the environment and improve indoor environmental quality. Also included are ENERGY STAR® and low toxicity products.

DLIR will continue to utilize the SPO price list and require all programs to purchase recycled and environmentally preferable products.

DLNR: DLNR encourages its staff to implement office paper recycling, and such a program is in place. DLNR has begun to incorporate energy savings practices into design projects, such as the recycling of existing asphalt and concrete pavement into backfill material.

DOA:

1. Continued to work with DAGS to have Island Recycling on O‘ahu pick up 2 bins of white paper once a month that employees place in recycling bins.
2. Continued to use container next to vending machine to collect empty soda cans for recycling.

DOE: Construction projects which incorporate LEED standards require strategies for waste management and recycling of construction materials. The recycling of office paper and packaging is being explored, however, the additional cost of such programs do not make recycling feasible at this time due to budget restrictions. More schools on O‘ahu participated in the Honolulu City and County community recycling bin program for 2009. In addition, schools are incorporating recycling activities into their fundraising programs.

DOH: Office paper is recycled. Two sided copying is mandated. Not applicable for construction and demolition projects.

DOT-Harbors: DOT-Harbors requires double-sided printing from copiers and printers as practical, provides recycling bins for aluminum cans, bottles, plastic and papers where convenient, and develops program milestones to encourage 100% implementation over a period of time.

DOTAX: DOTAX's standard operating practices includes monthly paper recycling.

HCDA: HCDA has incorporated recycling of bottles, cans, plastic and paper within its office. In demolition projects, contractor is encouraged to separate and recycle materials whenever practical.

HHFDC:

- a. HHFDC continues to use standard office paper labeled “30% post-consumer content.”
- b. Throughout the office spaces there are boxes for the depositing of paper for proper disposal.
- c. HHFDC has an industrial strength shredder for the disposal of sensitive information papers.
- d. All restroom paper towels and toilet tissue are labeled as being recycled paper.
- e. All portfolio properties are instructed and inspected to make certain the same guidelines listed above are followed.
- f. All construction vendors are given directions by the associated architects and engineers in their specifications to conserve, recycle, and preserve during demolitions and construction projects.

HHSC: East Hawai‘i Region

- Hilo Medical Center (HMC) - HMC implemented the recycling of 1, 2, and 5 plastics in August 2009 on its nursing units, with the intent to methodically integrate recycling throughout all of its operations. Already in place since FY08 was the recycling of HI-5 bottles and plastics. HMC also recycles its confidential documents through vendor Access Information Management. Steps are being taken to procure future contracts with recycle friendly waste disposal vendors that separate mixed recyclables, according to Hawai‘i County standards.
- Hale Ho‘ola Hamakua (HHH) - HHH recycles shredded material.
- Ka‘ū Hospital - Recycling is a standard practice at Ka‘ū Hospital and the program is growing. Items recycled include: recycle paper, phone books, envelopes, aluminum cans, plastic bottles, etc. Whenever possible, printing is discouraged.

O‘ahu Region

- Lē‘ahi Hospital / Maluhia - O‘ahu Region already recycles office paper, phone books, etc. Metals from in-house demolition projects are also recycled.

Maui Region

- Maui Memorial Medical Center (MMMC) / Kula Hospital / Lāna‘i Community Hospital - MMC minimizes waste and pollution prevention by recycling paper, packed recycle program computer and electronics, construction material, heavy metals, green waste, biohazard waste removal, cardboard, paints, batteries and phone books.

West Hawai‘i Region

- Kona Community Hospital - Recycling is a standard practice for the region. Some of the items recycled include batteries, office paper via Shred EX, and cardboard shipping materials. Recycling copier cartridges with the manufactures. We are also in negotiations with the copier vendor to replace color cartridges with "solid ink technology" by Xerox, which is estimated to reduce waste by 90% over four years.
- Kohala Hospital - Kohala Hospital has a designated area to recycle cardboard boxes; however, it doesn't have a formal recycling program. Envelopes are re-used when doing mail-outs and paper items are re-used as scratch/note pads.

Kaua‘i Region

- Kaua‘i Veterans Memorial Hospital / Samuel Mahelona Memorial Hospital - Recycling is a standard practice in the Kaua‘i Region and the program is growing. Items recycled include: recycle paper, phone books, envelopes, aluminum cans, plastic bottles, etc. Whenever possible, printing is discouraged.

HSPLS: HSPLS works through DAGS and their neighbor island offices in recycling all waste paper through their privately contracted disposal companies.

HTA-CC: The Hawai‘i Convention Center continues to have an extensive recycling program for both administrative areas and events. They partner with show management to maximize the recycling of event material and donate excess food to charities that use it to feed the homeless. Items collected for recycling include paper, cardboard, plastic, aluminum, glass, telephone books, foam core boards, toner cartridges, batteries, copper, metal, computer e-waste, pallets, and construction waste. Purchasing decisions support sustainable practices such as purchasing product in bulk to minimize individual packaging and purchasing from suppliers who recycle delivery containers such as cardboard boxes and plastic trays.

NELHA: NELHA recycles everything that is recyclable. Recyclable trash from beach park trash containers is stolen on a nightly basis by human scavengers. NELHA stores old equipment (including computers, software, pipe, pump parts, old vehicles, etc.) for potential re-use in view of how difficult it is to obtain authority for the purchase of new equipment. Everything that can be rebuilt and re-used is done so (rebuilding motors and pumps saves quite literally thousands of dollars annually – when one considers that a simple impeller for a 200 hp pump costs \$18,000, one can image the cost to have the overhaul done through outside services). NELHA’s boneyard is a source of much valuable material that can be used for patches, repairs, and other needs, as in many instances replacement parts of much of NELHA’s equipment cannot even be purchased any longer as the manufacturers have ceased servicing the equipment.

PSD: All correctional facilities within the Hawai‘i system have made both staff and residents aware of the need to intelligently address waste management issues.

UH: Systemwide

- From May 4 to August 31, 2009, UH Informational Technology Services (ITS) assisted Apple Computer in promoting a free electronics recycling program for any accredited K-12 or Higher Education institutions throughout the state. 70,500 pounds of electronics were collected from UH campuses alone for earth-friendly recycling, preventing the dumping of toxic materials into Hawai'i's waste system. Please see information about this recycling program in Appendix 2.
- ITS administers the web-based UH Online Swap Meet, allowing transfer of equipment and materials between UH departments; minimizing waste and fostering procurement savings. Please see information on Online Swap Meet in Appendix 2.
- ITS maintains the UH Disposal Guidelines for Unused Computer Equipment webpage which lists re-use/donation/recycling options for electronics, along with links to the four County recycling offices in the state. The webpage is accessible to the general public, extending UH's awareness of the importance of responsible recycling to all Hawai'i residents. Please see the UH Disposal Guidelines in Appendix 2.
- ITS monitors local electronics recycling options and communicates information concerning commercial recycling businesses, collection events, and other recycling opportunities via the ITS homepage, e.g., the Best Buy recycling program. Please see information on the Best Buy Recycling Program in Appendix 2.

UH West O'ahu – faculty, staff and students do an informal voluntary recycling of HI-5 aluminum cans, and plastic bottles are recycled by the janitorial staff. UHWO continues to recycle white and mixed color paper collected in the mailroom. Paper is recycled at the Community Recycling Center Program bin located at Leeward Community College.

University of Hawai'i at Mānoa – 1018.56 tons of waste went to H-Power, 384.33 tons went to the landfill, 286.94 tons of greenwaste went to Hawai'ian Earth, 573.88 tons of greenwaste was turned into mulch by the grounds crew and used in the landscape, 135.39 tons of paper and cardboard were recycled, 64.89 tons of metal was recycled, and 157 tons of e-waste was recycled. UH Mānoa disposed of a total 2620.99 tons of waste, 1218.10 of which was recycled, meaning that 46.47% of the campus waste collected was recycled. This does not include the UH volunteer HI-5 recycling program which is open to Registered Independent Organizations, and UH staff and faculty implementing workplace recycling programs on campus. The program has sponsored more than 150 bins and technical support to organizations on campus that are interested in recycling as a fund raiser or community service.

UHM Building and Grounds Management is collaborating with the College of Tropical Agriculture and Human Resources on a worm bin project to look at reducing food waste in UHM cafeterias and food service locations on campus and is actively looking for better ways to recycle. Campus food service vendors are making the switch to compostable take out trays and utensils.

UH Hilo

- Waste paper actively reused for internal non-official communications. UH system has adopted a policy that all official communication with students is by e-mail, greatly reducing the paper mail being generated and sent.
- Implemented a new and active MIXED recycling process, where all types of paper, plastic #1,2,5, clean metal cans, and glass are all recycled vs. taken to the land fill. The old program involved SORTED recycling, and the new mixed recycling process should more than double the amount of recycled to an estimated 132,000 cubic feet of waste now being diverted from the land fills.

- Active beverage redemption program where HI-5 containers are collected and managed by the student clubs and service organizations on campus.
- Practice is to buy recycled goods that meet the EPA's current guidelines, including reduction in packaging and buying in bulk quantities where practical.
- Just completed another round of e-waste recycling, sending back 9 pallets of computers at an estimated weight of 4,500 pounds.

UH Community Colleges – See Appendix 2 for a detailed report on individual campus efforts to minimize waste and prevent pollution.

Leeward CC – Campus-wide paper recycling program initiated during the 2008-09 academic year with the placement of paper recycling containers and bins in every office and classroom across campus.

Act 96 SLH 2006: Buildings and Facilities

(6) Use life cycle cost-benefit analysis to purchase energy efficient equipment such as ENERGY STAR® products and use utility rebates where available to reduce purchase and installation costs.

The following agencies did not reply to this section: DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: DOH

AG: All staff involved in purchasing equipment have been advised of the ENERGY STAR® program and must document reasons for not purchasing ENERGY STAR®, when available.

B&F: The Department will include the use of life cycle cost-benefit analysis where applicable.

DAGS:

- Mechanical equipment (i.e. A/C, pumps, etc.) have long been required by DAGS to be of the high efficiency type and utility rebates have been used to help offset installation and higher pricing costs for the energy efficient products. In FY 2008, DAGS worked with HECO to improve internal procedures to insure utility rebates are not missed and currently have those procedures in place.
- DAGS considers cost/benefit analysis for replacing existing A/C systems with new, more efficient systems even prior to the existing systems reaching their expected life span.
- ENERGY STAR® equipment, where available, will be a standard requirement for all construction.

DBEDT: DBEDT continues to advocate ENERGY STAR® Product Promotion and Procurement, which included the following activities:

- a. Conducting ENERGY STAR® product procurement workshops to promote purchasing of ENERGY STAR® products by State of Hawai'i and local government housing as well as other state, federal agencies, and the territories.
- b. Providing technical assistance to housing, local government, state and/or federal agency representatives in purchasing ENERGY STAR® products.
- c. Promoting other training opportunities such as on-line ENERGY STAR® webcasts in areas such as ENERGY STAR® Procurement and Products, and Computer Power Management.

- d. Providing technical assistance to support labeling three ENERGY STAR® State of Hawai‘i buildings.
- e. Coordinating participation and attendance of various state agency representatives at the training sessions.

DCCA: DCCA continues its practice of purchasing ENERGY STAR® products for all available computer equipment, and as applicable will purchase ENERGY STAR® products when replacing office equipment. Life cycle cost-benefit analysis was used to purchase computer equipment such as servers and PCs.

DHHL: Fiscal Office and staff involved in purchasing equipment for the office and development projects are encouraged to look at ENERGY STAR® products and use rebates where available to reduce purchase and installation costs.

DHRD: The department uses the State Procurement Office price/vendor lists for procurement of most of its equipment. Copiers that are leased and computers that are purchased are ENERGY STAR® products.

DHS: DHS procurement procedures include requirements for purchasing energy efficient products such as ENERGY STAR®, and as applicable will utilize available utility rebates.

DLIR: DLIR programs are required to purchase ENERGY STAR® products and will continue to check whether utility rebates are available and can be utilized in the purchase of the products as part of the procurement procedure/policy.

DLNR: DLNR uses life cycle cost-benefit analysis to purchase energy efficient equipment such as ENERGY STAR® products, and uses utility rebates where available to reduce purchase and installation costs.

DOA: ASO sent reminder to staff in July 2008 of department’s Energy and Water Conservation and Resource Efficiency Program which provides policies, guidelines, and practices with goal to minimize energy, fuel, and water consumption and implement resource-efficient operations including purchasing energy efficient equipment such as ENERGY STAR® products and use utility rebates where available. HDOA purchased 17 ENERGY STAR® Dell computers and one copier.

DOE: The DOE is encouraging all schools and offices to purchase ENERGY STAR® or any energy efficient alternative equipment that passes life cycle cost-benefit analysis. The DOE applies for and receives utility rebates for various energy efficient equipments being installed during construction projects. The total rebates the DOE received for equipments installed during FY 2008-2009 was about \$93,625 with an annual kWh reduction of 1,719,300. DOE will continue to seek utility rebates for on-going project work and seek establishment of utility rebates for new energy efficient technologies.

DOT-Harbors: DOT-Harbors trains staff on Life Cycle Cost Analyses and on available ENERGY STAR® technologies and replaces existing equipment with comparable ENERGY STAR® equipment.

DOTAX: DOTAX uses life cycle costs to evaluate equipment procurements and will use utility rebates where available to reduce purchase and installation costs.

HCDA: HCDA has instructed property manager in projects where HCDA is general partner to replace light fixtures, air conditioners, stoves and refrigerators with energy efficient fixtures.

HHFDC: HHFDC continues to require all property / site managers to purchase ENERGY STAR® products whenever applicable. When ENERGY STAR® products are not available their substitutes are evaluated on a cost / efficiency basis.

HHSC: East Hawai'i Region

- Hilo Medical Center (HMC) - Wherever possible, the purchase of equipment includes a requirement in the procurement process that the products purchased are ENERGY STAR® compliant. In addition, all benefits (e.g., utility rebates, etc.) are exercised when offered as a part of the purchase program.
- Hale Ho'ola Hamakua (HHH) - This will be part of the energy efficient research.
- Ka'ū Hospital - Purchasing ENERGY STAR® products is part of the hospital's procurement process. Ka'ū Hospital purchased an energy efficient front loading washer for resident's clothing and also obtained a rebate on the installation of a new A/C unit.

O'ahu Region

- Lē'ahi Hospital / Maluhia - O'ahu Region did purchase energy efficient air conditioning units and received rebates. As a standard practice, all window air conditioning units that require replacements are replaced with ENERGY STAR® window units.

Maui Region

- Maui Memorial Medical Center (MMC) / Kula Hospital / Lāna'i Community Hospital - MMC has applied and received rebates from our local electricity company. Purchasing ENERGY STAR® products is part of our acquisition process for applicable equipment and other related products.

West Hawai'i Region

- Kona Community Hospital - Whenever available in commercial grade, ENERGY STAR® products are selected for procurement. Some commercial grade equipment is not ENERGY STAR® designated, but all equipment purchases are evaluated for energy efficiency.
- Kohala Hospital - In FY 2009, Kohala Hospital purchased ENERGY STAR® products such as a front-loading washer for the laundry department, window air conditioning units, and computer products. Whenever possible, ENERGY STAR® products are purchased as part of the procurement process.

Kaua'i Region

- Kaua'i Veterans Memorial Hospital / Samuel Mahelona Memorial Hospital - When at all possible, all replacement equipment that the Kaua'i Region purchases will be ENERGY STAR® rated.

HSPLS: HSPLS has been procuring ENERGY STAR® equipment such as fax machines, computers, monitors, printers, etc. over the past two Fiscal Years through the State pricelists.

HTA-CC: Currently ENERGY STAR® lighting products have been installed in the exhibition halls, ballroom, administrative areas and fire stairwells. New ENERGY STAR® pumps have been installed on the potable cold water system. All five projects have received HECO rebates. Priority is given to ENERGY STAR® ratings when purchasing small appliance products.

NELHA: These steps have been taken by NELHA for many years. NELHA recently, in spare staff time, installed wireless monitoring equipment at their three pump stations, and staff wrote a complex computer program to enable remote monitoring of the stations' activities. This has helped NELHA to schedule maintenance on a much more efficient schedule and eliminate much

downtime. In time, being able to remotely control the operation of the pump stations may result in energy savings for the island through less staff travel to and from NELHA during non-working hours to restore service when a station(s) goes off line due to power interruptions or other causes. Utility rebates have been used whenever available.

PSD: All correctional facilities, as well as other PSD operational programs, are being encouraged to take full advantage of potential energy savings being offer by energy efficient equipment.

UH: Systemwide

In all new and major renovation projects a life cycle cost-benefit analysis for mechanical and electrical systems are included in the project basis of design report. Campuses continue to work with the local electric company in their rebate program to purchase energy efficient air-conditioning and lighting through the campuses repairs and maintenance programs.

The University continues to purchase ENERGY STAR® products from the SPO vendor lists for copier and facsimile machines and personal computers and printers. UH ITS coordinated publication of an “InfobITS” newsletter article, “Sustainability in the Workplace”, with Earth Day 2009 events, April 22, 2009. Advice in the article focused on conservation of energy/resources while reducing negative indoor environmental impact and improving environmental quality via:

- Purchase/management of ENERGY STAR® rated products
- Efficient use of lighting/cooling resources (natural/purchases)
- “Smart” power strips for regulation of “phantom” power usage
- Effective power management of general office equipment (computers, photocopiers, scanners, fax machines, cordless phones, PDAs, battery chargers). Please see the InfobITS article in Appendix 2.

The University of Hawai‘i systemwide will continue to apply the LEED rating system in all Capital Improvement Program new and major renovation projects.

UH Community Colleges

All vendors are required to utilize, and where appropriate, replace and upgrade all appliances and refrigeration devices with equipment that is ENERGY STAR® rated. They are in the process of contracting with Energy Savings Companies (ESCOS) to reduce overall campus consumption of electricity over the next several years by increasing the energy efficiency of campuses through improvements in monitoring, maintenance systems, and installing new energy efficient devices, as well as in the use of installing renewable energy projects in photovoltaic, wind, and possibly bio-fuel technologies. ESCOS will be required to provide a cost benefit analysis in the replacement of all HVAC systems, electrical monitoring equipment and installation of new energy efficient devices, as well as in the purchase of equipment versus power purchase agreement approach for the installation of renewable energy projects to insure overall cost savings over the length of their contracts.

UH Hilo

- Practice is to decommission old inefficient refrigerators, air conditioners, ice makers, dehumidifiers, and replace them with energy efficient models that meet the ENERGY STAR® criteria.

- Participates in HECO rebates for energy efficiency involving air conditioning, efficient lighting, building management computerized controls, motion sensors, at a combined value of over \$100,000 in rebates thus far.
- Continues to work with HECO in their rebate program to purchase energy efficient air-conditioning and lighting through the campuses repairs and maintenance programs.

Act 96 SLH 2006: Buildings and Facilities

(7) Procure environmentally preferable products, including recycled and recycled-content, bio-based, and other resource-efficient products and materials.

The following agencies did not reply to this section: DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: HCDA

AG: Recycled paper is required, unless previously approved by the Administrative Services Office. Staff are aware of the policy to utilize environmentally friendly products; however, there is very minimal use of hazardous materials within the department.

B&F: The Department currently purchases environmentally preferred products as contained in the SPO price lists.

DAGS: Cleaning products with the Green Seal or equal certification are being integrated into the custodial program.

The State Procurement Office (SPO) continues to provide to Executive Departments, other jurisdictions, and the counties the SPO Price and Vendor List utilizing ENERGY STAR®, recycled, or environmentally preferred products. Prior to re-solicitation for new contract terms, assessments of current contract specifications and review of market availability are conducted to ensure energy efficient products and supplies are made available through the SPO Price and Vendor lists.

For products and supplies not covered by SPO Price and Vendor list, purchasing agencies are required to utilize the following preferences:

- Recycled Products, HRS 103D-1005
- Biofuel preference, HRS 103D-1012
- Preference for oil products with greater recycled content, HRS Chapter 103D, Part XIII

DBEDT: DBEDT continues to encourage compliance with, and encourage other agencies to comply with, environmentally preferable purchasing guidelines set forth in Ch 196-9, HRS.

DBEDT convened the Lead By Example initiative's Environmentally Preferable Purchasing (EPP) Working Group to brief agency and departmental managers about how 'green purchasing' helps minimize waste and offers cost, energy, and resource efficiency benefits. DBEDT staff are working with the State Procurement Office to add more EPP products to the procurement list.

DBEDT staff gave training on Environmentally Preferable Purchasing to state employees through the State Procurement Office training series. Over 30 staff from different agencies attended to learn best practices for identifying and purchasing "green" office and institutional products

through state procurement methods and quantifying the savings in terms of energy costs, and resource efficiency. More training is planned for the future.

DBEDT procured office and copy paper with 35% post-consumer recycled content, and other office products with recycled content.

DBEDT provided input into the EPP Survey sent out by DOH and DAGS SPO to assess the FY 2009 environmental purchasing efforts of the state agencies. DBEDT has disseminated results of past surveys via EPP workshops to improve awareness of purchasing patterns between agencies.

Information and resources on EPP including price lists, certification programs, fuel-efficient vehicle models, and EPP-related nonprofit organizations are listed on www.lbehawaii.com (Lead By Example initiative webpage) for state agencies and consumers.

DCCA: DCCA purchases energy efficient products and supplies available through the SPO Price and Vendor lists whenever possible. They will be analyzing the results of the Environmentally Preferable Purchasing Survey for FY 2009 to determine the amount of recycled goods purchased for the year and if needed, develop guidelines for the purchase of environmentally preferred products.

DHHL: The Fiscal Office has been requested to look into buying environmentally preferred products and material whenever available.

DHRD: The department purchases environmentally preferable products as contained in the State Procurement Office price/vendor lists. Office paper and toner cartridges are examples of items purchased that are recycled content products.

DHS: DHS continues to coordinate with the State Procurement Office (SPO) to ensure that price list products satisfy environmentally preferable product requirements.

DLIR: The DLIR policy mandates the purchase of recycled paper and the utilization of the State Procurement Offices (SPO) price list for all purchases where products are available through the SPO. DLIR issued a departmental instructional memo to insure conformance with the results of the EPP Survey.

DLNR: DLNR encourages the use of recycled products with contractors. DLNR also adheres to the allowed 10% price preference for bids using recycled products in accordance with Section 103D-1005, Hawai'i Revised Statutes.

Division of Aquatic Resources (DAR)

DAR purchases and uses biodegradable soaps. In particular, DAR uses these products in the Northwest Hawai'ian Islands, where there are strict policies on this and any other discharge of durable wastes.

DOA: ASO sent reminder to staff in July 2008 of department's Energy and Water Conservation and Resource Efficiency Program which provides policies, guidelines, and practices with goal to minimize energy, fuel, and water consumption and implement resource-efficient operations including promoting 4 Rs – reduce, recycle, reuse and re-buy, and encouraging use of the Department of Business, Economic Development and Tourism Environmental Product Guide for listing of environmentally preferred products. As a result HDOA purchased all recycled copy

paper (approximately 300 cases), other purchases of supplies constructed of recycled materials included approximately 200 binders, 12 cases of plastic trash bags, 48 toner cartridges, 20 cases of sanitary tissue, 100 paperboards, 30 cases of paper towels and 125 vehicle parts.

DOE: Recycled copier paper is an option for schools to purchase. Joint effort with DBEDT for pilot testing of environmentally preferable cleaning products has resulted with testing at one school. More effort is planned to introduce more testing at more locations with eventual changes to cleaning products procurement as determined effective.

DOH: Environmental Division staff in the process of creating a tracking system to monitor the procurement of environmentally preferred products.

DOT-Harbors: DOT-Harbors implements said procurement, uses recycled copier paper, and develops program milestones to encourage 100% implementation over a period of time.

DOTAX: DOTAX coordinates with the State Procurement Office in the purchase of environmentally preferable products including recycled and recycled-content, bio-based, and other resource-efficient products and materials.

HHFDC: It continues to be HHFDC's goal to recycle and use recycled paper whenever possible. Not only is paper a priority, but the simple recycling of plastic bottles and aluminum cans from the lunchroom reduces impact at the landfill. HHFDC is continuing to evaluate new cleaning products for their effectiveness and assurance that they are bio-degradable.

HHSC: East Hawai'i Region

- Hilo Medical Center (HMC) - HMC procurement process incorporates the acquisition of environmentally preferable, recycle and recycled-content bio-based, resource efficient products and materials where the expense to obtain these products is cost efficient for the organization.
- Hale Ho'ola Hamakua (HHH) - This will be part of the energy efficient research.
- Ka'u Hospital - Ka'u Hospital procurement process incorporates the acquisition of environmentally preferable, recycle and recycled-content bio-based, resource efficient products and materials where the expense to obtain these products is cost efficient for the organization.

O'ahu Region

- Lē'ahi Hospital / Maluhia - O'ahu Region currently purchases recycled paper products.

Maui Region

- Maui Memorial Medical Center (MMC) / Kula Hospital / Lāna'i Community Hospital - The use of State Price List for environmentally safe products are reviewed prior to purchasing, i.e. toilet tissue, paper goods, luau benches and tables, toner cartridges, chemicals, cleaning products, paints and lighting products.

West Hawai'i Region

- Kona Community Hospital - The hospital is constantly looking for ways to procure recycled paper products. Medical supplies are limited as to recycled content, but are evaluated when available.
- Kohala Hospital - Kohala Hospital procurement process incorporates the acquisition of environmentally preferable, recycle and recycled-content bio-based, resource efficient products and materials where the expense to obtain these products is cost efficient for the organization.

Kaua'i Region

- Kaua'i Veterans Memorial Hospital / Samuel Mahelona Memorial Hospital - The Kaua'i Region has been in the practice of purchasing environmentally products as long as the price is within reason.

HSPLS: HSPLS has been trying a variety of environmentally preferable cleaning products with mixed success, especially for public restrooms. They will continue to explore newer products as they become available.

HTA-CC: The Hawai'i Convention Center continues to mandate that sustainable products be given preference in procurement so as to be environmentally friendly at all times. They currently use napkins and box lunch bags made from recycled material. Plates, food containers utensils and cups are made from bio-degradable products.

NELHA: NELHA purchases recycled content paper products and has for many years. NELHA also has looked at refilling its own printer cartridges and/or changing out printers (when current ones are worn out) for models that require less ink. NELHA has cannibalized old computers for RAM and DRAM memory units in order to keep outdated equipment functional and avoid replacement of it.

NELHA personnel are extremely environmentally conscious and highly motivated to contribute to a better environment. Staff in some departments has asked for 4x10 workdays in order to economize on transportation fuel and reduce carbon emissions on the island. Staff are encouraged to re-use paper, by printing on the back side of previously printed paper for draft reports and the like. Likewise, using the back sides of accounting tapes and other savings moves are encouraged.

NELHA is looking at purchasing just bio-diesel to run its fleet of trucks and electrical generators, although the bio-diesel will be quite a bit more expensive in the large quantities NELHA requires. Fortunately, one existing tenant and one prospective tenant intend to produce bio-diesel for commercial testing purposes and production. This means in the near future NELHA may have a source of this environmentally friendly product for use in generators and diesel equipment such as front end loaders, standby truck-mounted generators, and pump station stand-by generation equipment.

PSD: PSD uses the price lists issued by the State Procurement Office for its office supplies and coarse paper product requirements. These price lists incorporate products that are environmentally preferable.

UH: Systemwide

- LEED (Leadership in Energy & Environmental Design) requirements are included in all new University construction projects.
- The University continues to participate in various SPO price and vendor lists that include recycled products.
- The University continues to participate in the SPO price list for bulk gasoline and gas credit card services.
- The University is a participant in the WSCA Industrial Supplies vendor list from which many environmentally preferable products have been purchased.
- All Invitations for Bids issued by the University of Hawai'i include a Recycled Products Preference (Reference: Section 103D-1005, HRS, and Subchapter 4, Chapter 3-124, HAR).

UH West O‘ahu - The school is currently leasing a Xerox copier that is an ENERGY STAR® product.

Leeward CC – As part of campus-wide effort to replace the entire inventory of aging outdoor furniture, LCC procured 39 recyclable benches and tables during the 2008-09 academic year. This is part of a multi-phase effort to have all outdoor seating be of recyclable materials.

UH-Hilo

- Toilet paper and hand towels that are purchased meet current EPA guidelines of 40% post consumer recycled content.
- Plastic benches and picnic tables purchased are made from recycled plastic.

Act 96 SLH 2006: Transportation Vehicles and Fuel

(1) Comply with Title 10, Code of Federal Regulations, Part 490, Subpart C, “Mandatory State Fleet Program”, if applicable.

The following agencies did not reply to this section: B&F, DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies because they do not have a fleet: AG, DBEDT, DCCA, DHRD, DLIR, DLNR, DOTAX, HCDA, HHFDC, HSPLS, HTA-CC

The following agencies are in compliance, with no additional comments necessary: DHHL, DOA, DOH

DAGS: ASSESSMENT:

Agencies must be in compliance with federal regulations.

STRATEGY:

DAGS Automotive Management Division (AMD) has determined it is compliance with federal requirement by purchasing only new alternative fuel vehicles. Vehicle purchases continue to comply with 10 CFR, Part 490, on alternative fuel E85 vehicles. The SPO shall continue to comply with 10 CFR, Part 490, on alternative fuel E85 vehicles and Non-Covered Fleet Act 96 Part IV, HRS §103D-412, when purchasing Covered Fleet Vehicles for various agencies.

DHS: DHS continues to coordinate with DAGS-Automotive Management Division to ensure that vehicle purchases comply with the applicable requirements.

DOE: The DOE has organized its fleet program by complex areas and offices. Based on this organization, only the Office of School Facilities and Support Services meet the requirements to be designated as a “covered fleet.”

DOT-Harbors: More work needs to be done in this area. Attempt to purchase alternative energy vehicle ran into budget problems as these vehicles cost more than conventionally powered vehicles.

HHSC: In compliance with Title 10, when purchasing vehicles through DAGS, energy efficient models (such as hybrids and four cylinder models) will be acquired whenever possible.

NELHA: NELHA does not have funding to replace two ancient diesel trucks. They have updated the fleet (the youngest of which was a 1995 gasoline-powered truck) with 2005 and 2006 gasoline powered vehicles. However, it should be noted that as an operating entity, NELHA has need of heavy equipment, most of which is not yet even manufactured to meet the above specifications and would, if available, be very cost-prohibitive to purchase.

PSD: While the Department of Public Safety is a law enforcement entity that is exempt from Title 10, they have in past procurements followed the intent of Act 96 (2006) where applicable. One example is the purchase of vehicles that are “Flex Fuel” capable (can run properly on either regular gas or E-85). For fiscal year ending 2009, the Department of Public Safety did not purchase any new vehicles for its facilities.

UH: UH-Hilo complies with the Federal Regulation for Mandatory State Fleet Program. UH-Hilo has only one vehicle on O‘ahu where these requirements apply, and that vehicle is equipped to run off “flex fuel,” per regulations.

Act 96 SLH 2006: Transportation Vehicles and Fuel

(2) Comply with all applicable state laws regarding vehicle purchases.

The following agencies did not reply to this section: B&F, DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies because they do not purchase vehicles: AG, DCCA, DHRD, HHFDC

This section does not apply to the following agencies because DAGS manages their vehicle purchases: HCDA, HTA-CC

The following agencies are in compliance with no additional comments necessary: DHHL, DHS, DOA, DOE, DOH, DOTAX, HHSC, HSPLS, PSD

DAGS: ASSESSMENT:

AMD and SPO review departmental request to purchase passenger vehicles.

STRATEGY:

HAR §3-122-13, Development of specifications and HRS §103D-412, light-duty motor vehicle requirement, (Act 156/SLH 2009 amended HRS §103D-412) provides guidance to State and county purchasing agencies on the purchase and leasing of vehicles. The SPO, DAGS-AMD, and DBEDT developed guidelines for the purchase of vehicles including energy-efficient vehicles. The ‘Departmental Guidelines for Acquisition of New Vehicles’ is available on the DBEDT website at <http://hawaii.gov/dbedt/info/energy/efficiency/state/>

DBEDT: DBEDT is aware of and complies with vehicle purchasing requirements. Amendments to vehicle purchasing requirements related to efficiency are disseminated to other agencies through the Lead By Example working groups.

DLIR: DLIR does not have immediate plans to purchase another vehicle in the near future; however, the DLIR will adhere to the applicable state laws regarding vehicle purchases.

DLNR: DLNR will continue to work with the Department of Business, Economic Development, and Tourism (DBEDT) in a statewide collaboration on energy efficiency, as a member of DBEDT's Lead By Example Leadership Group. DLNR continues to seek the advice of other state agencies through DBEDT's Lead By Example Leadership Group and will implement internal procedures as appropriate.

DOT-Harbors: SPO procedures are followed including purchasing using HePS.

NELHA: All vehicles have been purchased in compliance with state laws. When NELHA purchases any operating vehicles, they always check with DAGS, SPO, DBEDT, etc. to ascertain the very latest requirements and procedures that must be used, thus saving personnel time and cost. Further, DBEDT procurement procedures are followed in the purchase of vehicles, as the DBEDT Director must approve all NELHA purchases.

UH: UH-Hilo complies with all State Laws regarding vehicle purchases. As UH-Hilo is on the Big Island, there are exemptions allowed due to the unavailability of alternative fuels. UH-Hilo's gasoline contract keeps track of all fuel purchases and mileage to provide an ongoing assessment of fuel efficiency. UH-Hilo also keeps mileage logs in all vehicles.

Act 96 SLH 2006: Transportation Vehicles and Fuel

(3) Once federal and state vehicle purchase mandates have been satisfied, purchase the most fuel-efficient vehicles that meet the needs of their programs; provided that life cycle cost-benefit analysis of vehicle purchases shall include projected fuel costs.

The following agencies did not reply to this section: B&F, DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: AG, DCCA, DHRD, HCDA, HHFDC, HTA-CC

The following agencies are in compliance, with no additional comments necessary: DOH, HHSC, HSPLS

DAGS: ASSESSMENT:

The AMD and SPO review will provide opportunity to comply with the policy to procure the most fuel-efficient vehicles.

STRATEGY:

This review will mandate agencies to be compliant with law.

DBEDT: DBEDT is aware of and complies with vehicle purchasing requirements and is seeking models to simplify life-cycle cost benefit analysis for purchasing purposes. EIA fuel cost projections researched by DBEDT for use in LCC analysis have been distributed to other agencies via the Lead By Example initiative.

DHHL: DHHL shall consider all aspects, such as fuel consumption, capacity, and need, in addition to price, to reach the decision on the purchase.

DHS: DHS continues to coordinate with AMD and SPO to ensure that vehicle purchases meet fuel efficiency requirements in relation to operational needs.

DLIR: DLIR's two vehicles are in sound operational condition, and thus DLIR has no plan to replace the vehicles in the near future. Prior to purchasing a vehicle in the future, DLIR will insure that any vehicle purchase satisfies federal and state mandates. In addition, DLIR will purchase the most fuel-efficient vehicle that meets the needs of our program.

DLNR: DLNR will continue to work with the Department of Business, Economic Development, and Tourism (DBEDT) in a statewide collaboration on energy efficiency, as a member of DBEDT's Lead By Example Leadership Group. DLNR continues to seek the advice of other state agencies through DBEDT's Lead By Example Leadership Group and will implement internal procedures as appropriate.

DOA: ASO reminded staff of the department's Energy and Water Conservation and Resource Efficiency Program which provides policies, guidelines and practices with the goal to minimize energy, fuel and water consumption and implement resource-efficient operations including purchasing the most fuel efficient vehicle that meets the needs of the program once federal and state vehicle purchase mandates have been met. HDOA did not purchase any vehicles during FY09.

DOE: The DOE is complying with all state laws regarding vehicle purchases through our Procurement and Contracts Branch. It is anticipated fuel-efficient hybrids will be purchased when available to meet the needs of their programs.

DOT-Harbors: Current budget constraints mean that replacement of older, less fuel-efficient cars is being postponed.

DOTAX: DOTAX will purchase the most fuel-efficient vehicle that meets the needs of its programs and will include a life cycle cost-benefit analysis, including projected fuel costs, in vehicle procurements.

NELHA: See [Act 96 SLH 2006: Transportation Vehicles and Fuel \(1\)](#) above. No change from the past two years in this regard.

PSD: PSD awards to the lowest responsive, responsible bidder for its agencies.

UH: UH-Hilo has a "Vehicle Acquisition Request" process that includes an analysis of considering alternative transportation methods as well as life cycle costs (purchase, fuel, maintenance). UH uses a 10-year useful life cycle per APMs.

[Act 96 SLH 2006: Transportation Vehicles and Fuel](#)

[\(4\) Purchase alternative fuels and ethanol blended gasoline when available.](#)

The following agencies did not reply to this section: B&F, DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: AG, DCCA, DHRD, HCDA, HHFDC, HTA-CC

The following agencies are in compliance, with no additional comments necessary: DBEDT, DOH, DOTAX, HHSC

DAGS: SPO Price List No. 07-20 Gasoline Fueling and Credit Card Services – Hawai‘i, Kaua‘i, Maui, O‘ahu, includes the requirement to establish monthly reports from the vendors of purchases by each cardholder.

SPO Price List contract for Gasoline & Diesel Fuel, Bulk Delivery (09-16 Hawai‘i, 09-17 Maui, 09-18 O‘ahu, and 09-19 Kaua‘i) are for purchases of ethanol-blended gasoline, E-10, and ultra low sulfur diesel fuel, by all agencies on a statewide basis. The available information will be used to determine total gasoline purchases and expenditures by each purchasing agency. In each contract, the State has the option to convert from petroleum diesel fuel to biodiesel blended fuel at one or more locations by providing ninety (90) days written notice to the Contractor. Prior to re-solicitation, review of market availability of biodiesel fuels are conducted to ensure alternative fuels are made available through the SPO Price and Vendor lists contracts.

DHHL: DHHL shall continue to use gasoline from Tesoro to fuel our vehicles.

DHS: DHS continues to coordinate with SPO on purchasing alternative fuels from established price lists.

DLIR: The assessment performed by DLIR indicates that all alternative fuels were purchased from DAGS Automotive Management Division. The DAGS Automotive Management motor pool alternative fuel meets the alternative fuel ethanol blend requirement.

DLNR: DLNR purchases fuel from vendors as selected by the State Procurement Office in compliance with the Procurement Code. This often includes gas stations that offer ethanol 10 blended gasoline. DLNR is not aware of adequate vehicles that operate on alternative fuel effectively for the type of performance needed. DLNR continues to seek the advice of other state agencies through DBEDT’s Lead By Example Leadership Group and will implement internal procedures as appropriate.

DOA: ASO reminded staff of department’s Energy and Water Conservation and Resource Efficiency Program which provides policies, guidelines and practices with goal to minimize energy, fuel and water consumption and implement resource-efficient operations including the purchase of alternative fuels and ethanol blended gasoline when available.

DOE: For light duty vehicles, only ethanol-blended gasoline is currently available. For diesel fuel vehicles, bio-diesel fuel is being considered where practical.

DOT-Harbors: DOT-Harbors purchases environmentally friendly fuels when available and practical. DOT-Harbors also needs to purchase vehicles capable of using alternative fuels.

HSPLS: Comptroller Memorandum No. 2005-13 dated May 17, 2005 requires all State departments to purchase only regular 87 octane gasoline.

NELHA: Ethanol blended gasoline is the only gasoline available on this island. NELHA is looking at purchasing bio-diesel from its tenants who will be manufacturing it in the near future in great quantities.

PSD: Due to the nature of the correctional facilities and law enforcement divisions these vehicles are exempt from Title 10. When available vehicles capable of utilizing ethanol based fuels are specified.

UH: Kapi'olani CC

With its students in its STEM program, demonstrated the creation of bio-diesel fuel from used waste cooking oil. The cooking oil was waste oil from the cafeteria. The fuel has been successfully used on campus in a reconfigured gas powered cart. The demonstration project involved the STEM students, culinary arts students and maintenance staff. Based upon current estimates, enough bio-diesel fuel can be created to run the cart for the entire year.

UH-Hilo

Purchases "regular" grade gasoline 87% octane, which includes up to 10% man made gas in the blend.

Fleet use of biodiesel (gallons purchased) and total cost (\$):

The following agencies did not reply to this section: AG, B&F, DBEDT, DHHL, DHS, DOH, DOT-Airports, DOT-Highways, DOTAX, FTZ, HHSC, HPHA

This section does not apply to the following agencies: DCCA, DHRD, DLIR, HCDA, HHFDC, HTA-CC

The following agencies reported that no biodiesel fuel was purchased in FY09: DAGS, DLNR, DOA, DOT-Harbors, HSPLS

DOE: Biodiesel is not available due to state fuel pricelist. Also, limited locations for biodiesel purchasing make it very difficult to establish a purchasing program.

NELHA: None available for purchase.

PSD: Cannot determine whether biodiesel is being utilized.

UH: UH-Hilo has no specific data on biodiesel purchases.

Act 96 SLH 2006: Transportation Vehicles and Fuel

(5) Promote efficient operation of vehicles.

The following agencies did not reply to this section: B&F, DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies because they do not own any vehicles: AG, DCCA, DHRD, HHFDC

The following agencies are in compliance, with no additional comments necessary: DOH

DAGS: ASSESSMENT:

DAGS provides guidelines in the general operation of vehicles including a comprehensive Preventive Maintenance (PM) Schedule for its vehicles.

STRATEGY:

DAGS Motor Pool offers PM services to all state vehicles under 8500 GVW.

DBEDT: DBEDT distributes guidelines for energy-efficient operations to among members of the department and to other agencies, along with a mileage and fuel tracking log.

DHHL: Drivers are reminded to follow posted speed limit signs and practice safe driving. Recommended Driving and Vehicle Maintenance Tips are attached with each mileage log.

DHS: DHS continues to coordinate with AMD on the issuance of vehicle operation procedures.

DLIR: The DLIR vehicles are serviced by the DAGS Automotive Management Division Motor Pool on a regular basis. Both of the DLIR vehicles are in sound condition and they operate at maximum efficiency. The vehicles' operational efficiency can be certified and recertified by the DAGS Automotive Management Division.

DLNR: DLNR encourages maintenance and regular service of vehicles. DLNR continues to seek the advice of other state agencies through DBEDT's Lead By Example Leadership Group and will implement internal procedures as appropriate.

DOA: ASO reminded staff of department's Energy and Water Conservation and Resource Efficiency Program which provides policies, guidelines and practices with goal to minimize energy, fuel and water consumption and implement resource-efficient operations including tips on efficient operation of vehicles.

DOE: No formal programs have been developed by the Department of Education.

DOT-Harbors: DOT-Harbors needs to do more research and develop an implementation plan.

DOTAX: DOTAX will promote efficient operation of vehicles through an educational campaign.

HCDA: HCDA encourages staff to walk to properties/appointments whenever possible.

HHSC: HHSC facilities perform required maintenance of vehicles conforming to manufacturer's recommendation.

HSPLS: All HSPLS drivers employ practices to improving gas mileage and safety. We follow the manufacturer's recommended maintenance and servicing schedules for all our vehicles.

HTA-CC: HTA encourages car pooling when using the State of Hawai‘i vehicle and HCC specifically logs all trips and mileage for its (3) assigned vehicles.

NELHA: Not applicable. We believe this was superseded by Act 240 of 2006, which established a 5¢ gallon preference for biodiesel. One of the strategies used is having employees use their own vehicles for travel around NELHA, into town and back on business, and so forth. This eliminates the use of state vehicles and saves money as it has been found most employees are not willing to fill out the necessary paperwork to get reimbursement for their travels. When it comes to work vehicular use, NELHA encourages the use of solar powered golf carts whenever possible. Use of trucks is encouraged only when long trips to Gateway or the 55” pump station are required or heavy equipment parts need to be transported. The solar-powered golf carts are not adequate for these types of trips. When trucks are used, NELHA asks that as many people fit into the cab of the truck as there are seatbelts, thus saving on multiple vehicular usage to the greatest extent possible. One good practice is to put notices on the driver’s side dash board: “Is this trip necessary?”

PSD: In an effort to comply with this Act, PSD has issued a department wide memorandum promoting the efficient use of vehicles.

UH: UH-Hilo’s “Vehicle Acquisition Request” process includes an analysis of vehicle sharing as a viable alternative.

UH-Hilo also has a small motor pool operation where any UH program can “rent” a vehicle for official use; thus 5 vans are shared by all programs, including Hawai‘i Community College at times.

Act 96 SLH 2006: Transportation Vehicles and Fuel

(6) Use the most appropriate minimum octane fuel; provided that vehicles shall use 87-octane fuel unless the owner’s manual for the vehicle states otherwise or the engine experiences knocking or pinging.

The following agencies did not reply to this section: B&F, DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: AG, DCCA, DHRD, HHFDC

The following agencies are in compliance, with no additional comments necessary: DAGS, DBEDT, DHS, DLIR, DLNR, DOE, DOH, DOTAX, HCDA, HHSC, HSPLS, HTA-CC

DHHL: Twenty-five out of DHHL’s twenty-seven vehicles use 87-octane gasoline. The other two (cargo and a dump truck) on Moloka‘i require diesel fuel. DHHL shall enforce this policy and confirm that all vehicles use 87-octane gasoline.

DOA: ASO reminded staff of department’s Energy and Water Conservation and Resource Efficiency Program, which provides policies, guidelines and practices with the goal to minimize energy, fuel and water consumption and implement resource-efficient operations, including using the 87 octane fuel unless the owner’s manual for the vehicle states otherwise or the engine experiences knocking or pinging.

DOT-Harbors: DOT-Harbors purchases environmentally friendly fuels when available and practical.

NELHA: No vehicles require higher than 87 octane gasoline or 45 cetane diesel fuel. None of NELHA's diesel trucks can pass vehicle safety checks, so are not authorized for use on state or county roads. NELHA's diesel electric generators are stationary units, which with the off-highway trucks, means they purchase off-road diesel, saving a considerable sum as a result.

PSD: The PSD follows Comptroller's Memo 2005-13 which prohibits the use of mid-grade or premium gasoline unless prior approval by the Comptroller's Office is received.

UH: UH-Hilo's practice is to only use 87-octane fuel. The only exceptions are where recommended by manufacturers, and for 2 stroke lawn equipment to reduce premature breakdowns.

Act 96 SLH 2006: Transportation Vehicles and Fuel

(7) Beginning with fiscal year **2005-2006** as the baseline, collect and maintain, for the life of each vehicle acquired, the following data:

The following agencies did not reply to this section: B&F, DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: AG, DCCA, DHRD, HCDA, HHFDC

The following agencies are working toward achieving compliance, or are in the process of creating a system to monitor this data: DOH, DLNR

The following agencies collect and maintain data on their own, and are in compliance: DAGS, DBEDT, DHS, DOA, DOE, DOTAX, HSPLS, HTA-CC, UH

The following agencies provided a spreadsheet that contains specific data: DHHL (Appendix 3), DOE (Appendix 4), DOT-Harbors (Appendix 5), HHSC (Appendix 6), NELHA (Appendix 7), PSD (Appendix 8)

(A) Vehicle acquisition cost:

DLIR: 1999 Ford Windstar acquired on 1-23-01 for \$17,500.00
1994 Chevrolet Astrovan acquired on 5-3-01 for \$5,900.00

(B) United States Environmental Protection Agency rated fuel economy:

DLIR: 1999 Ford Windstar: 17 mpg City and 23 mpg Highway
1994 Chevrolet Astrovan: 17 mpg City and 22 mpg Highway

(C) Vehicle fuel configuration, such as gasoline, diesel, flex-fuel gasoline/E85, and dedicated propane:

DLIR: 1999 Ford Windstar – Gasoline/E85
1994 Chevrolet Astrovan – Gasoline/E85

(D) Actual in-use vehicle mileage:

DLIR: FY 2006

- 1999 Ford Windstar – 2096.1 Miles
- 1994 Chevrolet Astrovan – 248.0 Miles

FY 2007

- 1999 Ford Windstar – 1616.6 Miles
- 1994 Chevrolet Astrovan – 166.3 Miles

FY 2008

- 1999 Ford Windstar – 1541.70 Miles
- 1994 Chevrolet Astrovan – 148.40 Miles

FY 2009

- 1999 Ford Windstar – 1190.2 Miles
- 1994 Chevrolet Astrovan – 504.0 Miles

HSPLS: 130,223 total miles

(E) Actual in-use vehicle fuel consumption:

DLIR: FY 2006

- 1999 Ford Windstar – 226.7 Gallons
- 1994 Chevrolet Astrovan – 21.7 Gallons

FY 2007

- 1999 Ford Windstar – 176.4 Gallons
- 1994 Chevrolet Astrovan – 20.6 Gallons

FY 2008

- 1999 Ford Windstar – 169.00 Gallons
- 1994 Chevrolet Astrovan – 20.8 Gallons

FY 2009

- 1999 Ford Windstar – 129.00 Gallons
- 1994 Chevrolet Astrovan – 60.40 Gallons

HSPLS: 9,915 gallons

(F) Actual in-use annual average vehicle fuel economy:

DLIR: FY 2006

- 1999 Ford Windstar – 9.25 Miles Per Gallon
- 1994 Chevrolet Astrovan – 11.43 Miles Per Gallon

FY 2007

- 1999 Ford Windstar – 9.16 Miles Per Gallon
- 1994 Chevrolet Astrovan – 8.07 Miles Per Gallon

Note: Decrease of 3.36 miles per gallon resulted from mechanical problems with the vehicle. The mechanical problems reduced the vehicle's total miles driven in FY07 by a total of 81.7 miles (248 miles in FY06 to 166.3 in FY07), a 33 percent reduction. The inability to drive the

vehicle accounts for decrease in the miles per gallon of 33 percent. The mechanical problems which prohibited the use of vehicle have been repaired by the DAGS Automotive Division.

FY 2008

- 1999 Ford Windstar – 9.12 Miles Per Gallon
- 1994 Chevrolet Astrovan – 8.87 Miles Per Gallon

FY 2009

- 1999 Ford Windstar – 9.23 Miles Per Gallon
- 1994 Chevrolet Astrovan – 8.34 Miles Per Gallon

HSPLS: 13.13 miles per gallon

Act 96 SLH 2006: Transportation Vehicles and Fuel

(8) Beginning with fiscal year **2005-2006** as the baseline with respect to each agency that operates a fleet of thirty or more vehicles, collect and maintain, in addition to the data in paragraph (7), the following:

The following agencies did not reply to this section: B&F, DOT-Airports, DOT-Highways, FTZ, HPHA

This section does not apply to the following agencies: AG, DBEDT, DCCA, DHRD, DHS, DLIR, DOTAX, HCDA, HHFDC, HHSC, HSPLS, NELHA

The following agencies collect and maintain data on their own, and are in compliance: DAGS, DLNR, DOA, DOE, UH

The following agencies provided a spreadsheet that contains specific data: DHHL (Appendix 3), PSD (Appendix 8)

The following agency is in the process of implementing a system to collect and maintain data: DOH

(A) Information on the vehicles in the fleet, including vehicle year, make, model, gross vehicle weight rating, and vehicle fuel configuration:

See above

(B) Fleet fuel usage, by fuel:

UH: UH-Hilo's gasoline contract provides for usage information. All UH-Hilo vehicles run off 87-octaine gasoline unless recommended by manufacturer or powered by diesel.

(C) Fleet mileage:

UH: UH-Hilo is growing, and so are vehicle needs. But UH-Hilo is more efficient each year, offering more programs for more students, so the average mileage per student is going down due to efficient operations.

(D) Overall annual average fleet fuel economy and average miles per gallon of gasoline and diesel:

UH: UH-Hilo's gas contract provides mileage and gas consumption information. Older vehicles are decommissioned and replaced with new, more fuel efficient vehicles, which increases the fuel efficiency.

Renewable Energy and Resource Development

All affected agencies and programs are directed to **review internal policies, rules, and practices regarding permitting requirements affecting renewable energy development**. To the extent possible, permitting policies and practices should be **streamlined to expedite implementation** of renewable energy projects. It is requested that agencies prepare a report to my office identifying the **specific steps they have taken to expedite** the approval of renewable energy projects.

The following agencies did not reply to this section: AG, B&F, DAGS, DBEDT, DCCA, DHHL, DHRD, DHS, DLIR, DOA, DOE, DOH, DOT-Airports, DOT-Highways, DOTAX, FTZ, HCDA, HHSC, HSPLS, HTA-CC, NELHA, PSD, UH

DLNR: DLNR continues to review internal policies, rules, and practices regarding permitting requirements affecting renewable energy development. To the extent possible, DLNR streamlines permitting policies and practices to expedite implementation of renewable energy projects. Two of these permitting processes are detailed below.

DLNR issuance of Conservation District Use Permits

The Office of Conservation and Coastal Lands (OCCL) oversees activities within the Conservation District. OCCL rules state that "energy generation facilities utilizing the renewable resources of the area (e.g. hydroelectric or wind farms)... and other such land uses which are undertaken by non-governmental entities which benefit the public and are consistent with the purpose of the conservation district." Thus, renewable energy projects can be located within the Conservation District with approval by way of a Conservation District Use Permit.

DLNR issuance of Incidental Take Licenses

In order to be in compliance with both state and federal endangered species laws, energy and resource development projects that impact threatened and endangered species must be issued an Incidental Take License by both DLNR and the United States Fish and Wildlife Service (USFWS). Both agencies require that project proponents complete a Habitat Conservation Plan (HCP) prior to the issuance of the take licenses. In order to minimize procedural burdens on the applicants, DLNR works cooperatively with USFWS in concurrently processing the request for take licenses. After notice in the periodic bulletin of the Office of Environmental Quality Control, a public hearing is held on the islands affected, which is, whenever possible, held jointly with USFWS. The Board of Land and Natural Resources (BLNR) may approve the federal HCP without requiring a separate version if the federal HCP satisfies all the criteria of the state endangered species statutes. All state agencies, to the extent feasible, work cooperatively to process applications for HCPs on a consolidated basis including concurrent processing of any state land use permit application that may be required. In order to further streamline the process of approving an HCP and the issuance of an Incidental Take License, the state established the Endangered Species Recovery Committee that serves as a consultant to the BLNR by reviewing all HCPs and making recommendations regarding whether they should be approved.

DLNR Revised Application to Lease State Lands

For instances when Renewable Energy Producers are interested in leasing state lands, the Application Form has been revised to comply with Section 171-95 (a) (2)(3)(c), HRS. Land Division takes steps to process the request in a timely manner. Staff coordinates the Applicants' request for a lease with OCCL, DOFAW, OHA, and other government agencies. Then, staff obtains approval from the Land Board for the issuance of a direct lease.

HHFDC: HHFDC is still evaluating the possible installation of a “Photovoltaic” system or the vertical wind turbine system at the Pohulani Elderly building to supplement our electrical power supply. Our biggest limitation/restriction is open space.

Act 160

(1) Energy consumption in kilowatt hours for the past year (July 1, 2008, to June 30, 2009) FY '08 (kWh consumption);

Data were received directly from the electric utilities and are presented in Table 2.

FY '08 (paid for kWh consumption);

Data were received directly from the electric utilities and are presented in Table 4.

Act 160

(2) Steps taken to **inventory, investigate, plan, and implement** energy reduction efforts.

The following agencies did not reply to this section: DOT-Airports, DOT-Highways, FTZ, HPHA

AG: The department continues to issue reminders to staff to “Switch it off,” keep blinds closed, and report equipment malfunctions. AG has also instituted a practice to leave off unnecessary hallway lights. All new equipment purchases must be ENERGY STAR®, or approved by Administrative Services Office if not ENERGY STAR®.

B&F: Please see items 4, 5, 6 and 7 under “Act 96 SLH 2006: Buildings and Facilities” above.

DAGS:

1. In 2009, DAGS-PWD entered into an Energy Savings Performance Contract (ESPC). This ESPC uses operational energy savings to partially fund capital improvements to improve energy efficiency through 3rd party financing.
2. During fiscal year 2008 and 2009, eleven pilot retro-commissioning projects has been initiated on O‘ahu, Hawai‘i, Maui and Kaua‘i to develop strategies that would result in energy savings. Most of these projects have completed the investigation phases with some minor repair being implemented. The implementation phase of the retro-commissioning process has been put on hold for now. Instead of proceeding with retro-commissioning, DAGS-PWD is doing an Energy Saving Performance Contracting (ESPC) project.

Recommended work from the retro-commissioning investigations not covered by the ESPC projects will need to be included in future CIP budget requests.

3. DAGS, on behalf of the HSPLS intended to implement retro-commissioning on all libraries statewide during FY 2009. However, due to limitations in keeping up with the retro-commissioning process, the retro-commissioning has been deferred.
4. DAGS, on behalf of the Department of Public Safety (PSD), has initiated an energy conservation/efficiency project for their correctional facilities, Statewide.

DBEDT: DBEDT Energy Efficiency Branch staff and a representative from the Hawai'i Public Housing Authority attended the GovEnergy 2008 conference and exhibit in Phoenix, Arizona, from August 3-6, 2008, to learn about renewable energy financing mechanisms for state agencies. Over 2,500 participants from federal, state and county agencies and more than 200 exhibitors participated in this event. Participants from the State included the Hawai'i Army National Guard; DOE; HPHA; and DAGS, the City and County of Honolulu and the County of Kaua'i. There were more than 100 technical training sessions offered. EEB staff focused on the financing track (alternative financing mechanisms, cutting edge financing mechanisms, renewable energy financing, and lender's perspective on alternative financing (risk and risk mitigation)).

DBEDT, along with DAGS, was recognized in spring 2009 under the Hawai'i Green Business Program, which emphasizes energy efficiency initiatives in building operations and occupant behavior, and verifies the implementation of such efforts. Both agencies also received the Governor's Innovation Award in March 2009 for their efforts under this program.

DBEDT staff wrote and published 3 articles on energy-efficient lighting and reflectivity. Prepared and delivered six presentations on energy efficiency, including to the National Insulation Association and the Hawai'i Association of County Building Officials.

A total of 2,550 people including state agency representatives, attended 55 DBEDT-sponsored energy-related conferences, seminars and meetings. The following are meetings and conferences not discussed above.

Rebuild Hawai'i Consortium: Quarterly meetings of the Consortium, with coordination by DBEDT staff, were held in FY09. Representatives of federal, state, local government, private sector, and community organizations participated. Consortium topics included: US-China Green Business Exchange, State of Hawai'i Facilities Energy Savings Performance Contracting Program; Hydrocarbons in Hawai'i; Alternative-fueled vehicles and transportation issues; LEED for Homes—going for the Gold; Ocean Debris and Plastics; Plastics to Fuel; Update on Marine Corps Base Hawai'i Plastics to Fuel Project, U.S. Coast Guard Energy Program; State Energy Program; Rebuild Hawai'i Coordinator Program Report; Renewable Energy Permitting; Integrated Resource Planning, Power Quality Improvements at Marine Corps Base Hawai'i; Honolulu's Seawater Cools Downtown; State of Hawai'i/Hawaiian Electric Companies Agreement; Community Outreach in Wind Farm Development, Status of 2009 International Energy Conservation Code (IECC); and Dept. of Agriculture Rural Energy for America Program.

HCEI Technical Workshop on Renewable Energy Systems: This was the first of a series of collaborative technical workshops co-sponsored by Rebuild Hawai'i, DBEDT, the Hawai'i Clean Energy Initiative, the U.S. Department of Energy, and the National Renewable Energy Laboratory (NREL). Presentations included Renewable Energy for Buildings, Energy

Conservation vs. Renewable Energy Production: Case Studies from Hawai'i and a panel on Electric Vehicle Battery Storage and Charging Infrastructure: The Next Step.

DCCA: Consulted with DAGS to replace sinks with low-flow fixtures and installed sensor faucets, replace single sheet paper towel dispensers with roll paper towel dispensers, de-lamp hallways and retrofit lighting fixtures for energy-efficient lamps. Reviewed temperature data and made adjustments to air-conditioning system controls to correct areas of inefficiencies, reduced our daily A/C hours and eliminated hours of operation on weekends.

DHHL: DHHL will continue to keep an inventory of department electric meters, departmental operations and construction.

DHRD: The department encourages all employees to implement energy conservation practices. Examples include turning off the lights in offices and in all other areas that are not in use during the day; turning off office lights and the lights in the restrooms, hallways, and elevator entry area at the end of the day; and turning off copier machines and computers rather than leaving the equipment on sleep mode. To address increasing energy costs, for 3 months (August – October) we piloted a 4-day work week program. During the three-month pilot period, the department was open 4 days a week (Monday through Thursday), 10 hours a day, and closed on Friday.

The Department of Accounting and General Services (DAGS) implemented the following water and energy conservation initiatives for the Leiopapa A. Kamehameha (LAK) building, which DHRD occupies:

- installed low energy hand dryers
- reduced the number of light bulbs in light fixtures located in the elevator entry area and in some offices (by request)
- installed new sensor activated water faucets in the restrooms
- solicited proposals from Energy Service Companies to evaluate various electrical components in the building and identify methods of reducing energy consumption
- de-lamping of fluorescent light fixtures.

DHS: DHS is a participating department in the State's Lead By Example program. As a part of this statewide project, DHS is developing a plan to implement energy reduction efforts.

DLIR: An assessment of electricity use was completed for nine of the Department of Labor and Industrial Relations (DLIR) offices that are not maintained by DAGS Central Services. The assessment of the nine offices covered the period July 1, 2005 through June 30, 2009. Based on our review, the nine offices utilized a total of 1,674,758 kilowatt-hours, resulting in a total cost of \$554,744.65.

Based on the energy usage, the DLIR plans to do the following:

1. DLIR will consult with DAGS and issue a department memorandum reminding all offices of the need to adhere to energy efficiency practices such as turning off electrical lights, printers, copier machines, etc. when not in use.
2. Continue to request assistance from DAGS to provide analysis of the nine affected DLIR program offices. Based on DAG'S analysis, develop a plan work to with DAGS and DLIR offices to develop and implement energy saving measures to reduce electricity usage.
3. Assess each office's space need requirements and consider consolidation of offices.

DLIR participated in an Environmental Preferable Purchasing (EPP) survey mandated under the following Federal and State laws, and the applicable Administrative Directives:

1. Resource Conservation and Recovery Act (RCRA), Section 6002, 42 U.S.C. 6962. The RCRA requires state and local government agencies and their contractors receiving appropriated federal funds to purchase EPA-designated recycled content products.
2. Section 103D-1005(b) of the Hawai'i Revised Statutes. Section 103D-1005(b) requires state purchasing agencies and encourages county purchasing agencies to
 - Apply preferences to purchase of products with recycled content
 - Be consistent with RCRA Section 6002, E/O. 13101 and its progeny
 - Ensure, to the maximum extent economically feasible, the purchase of materials that may be recycled or reused when discarded and to avoid the purchase of products deemed environmentally harmful.
3. Administrative Directive 06-01 signed by Governor Lingle in January 2006 requires State agencies to purchase environmentally preferable products that reduce their impact on the environment and improve indoor environmental quality. Also included are ENERGY STAR® and low toxic products as examples of environmentally preferable products.

The DLIR plan includes the following:

- DLIR will continue to utilize the results of the EPP survey to structure and plan for the period July 1, 2009 to June 30, 2010. In addition, DLIR will continue to utilize the SPO price list and require all programs to purchase recycled and environmentally preferable products.
- DLIR programs have not been major users of ENERGY STAR® products; however, DLIR will continue to include ENERGY STAR® products as part of the procurement approval process. In addition, the DLIR will also include in our procurement procedure a policy to check whether utility rebates are available and can be utilized in the purchase of the products.
- The DLIR policy mandates the purchase of recycled paper and utilization of the State Procurement Offices Price List (SPO PL) for all purchase where products are available through the SPO PL. The DLIR will issue a departmental instructional memo to continue to insure conformance with the results of the EPP Survey as an integral part of the procurement policy.

The gasoline usage and cost of fuel for the two vehicles owned by DLIR were derived by manually reviewing all invoices submitted by the DAGS Automotive Management Division and preparing a spreadsheet.

The DLIR plan includes the following:

- The DLIR owns the following vehicles:
 - 1998 Ford Windstar
 - 1994 Chevrolet Astrovan
- DLIR does not have immediate plans to purchase another vehicle in the near future; however, DLIR will adhere to the applicable state laws regarding vehicle purchases.
- The DLIR's two current vehicles are in sound operational condition and thus DLIR has no plan to replace the vehicles in the near future. Prior to purchasing a vehicle in the future, the DLIR will insure that any vehicle purchase satisfies federal and state mandates. In addition, the DLIR will purchase the most fuel efficient vehicle that meets the needs of our program.

DLNR: DLNR continues to work with DBEDT in a statewide collaboration on energy efficiency, as a member of DBEDT's Lead By Example Leadership Group. DLNR will continue to work with the Leadership Group on ideas to implement energy savings across the state.

Act 96, SLH 2006, mandated that each state agency comply with a variety of energy directives involving buildings and facilities, transportation vehicles and fuels. DLNR is seeking the advice of other state agencies through DBEDT's Lead By Example Leadership Group and will implement internal procedures as appropriate.

DLNR evaluates the feasibility of implementing energy conservation measures when capital improvement projects are designed. As DLNR staff learns more about energy efficiency and environmental design, they will incorporate these concepts into building and facility design and renovations. For energy reduction efforts at non-DLNR owned offices and buildings, staff has implemented office paper recycling. Staff are also reminded to turn off equipment when not in use, keep blinds closed, and report equipment malfunctions. Energy efficient light bulbs are used where feasible and timed sensors have been installed to allow automatic shutoff of lights. DLNR uses life cycle cost-benefit analysis to purchase energy efficient equipment such as ENERGY STAR® products and uses utility rebates where available to reduce purchase and installation costs. DLNR further encourages the use of recycled products with contractors. DLNR also adheres to the allowed 10% price preference for bids using recycled products in accordance with Section 103D-1005, Hawai'i Revised Statutes.

Specific information on Division of State Parks (SP)

During FY09, SP started the development of an energy efficiency and conservation strategy for park facilities through the retrofitting of existing lighting fixtures, installation of new fixtures and appliances as funding allows, and design of solar energy sources to power infrastructure facilities such as well pumps, sewer pumps, and base yard facilities. Electricity, water and sewer expenditures have been costing SP over approximately \$500,000 annually. SP's strategy is applied in both immediate/short term and long term responses.

Immediate/short term responses in FY09 and 10

Wailoa River State Recreation Area, Hawai'i in Hilo will replace all older fluorescent fixtures with energy efficient Super T-8 units in the large pavilions, and replace all street lamps in the parking areas to more efficient lamps and fixtures. For the Wailoa Center, the park's art gallery, SP will research the replacement of existing display lighting with energy efficient fixtures and lamps appropriate for this type of application.

Rental cabins at Wainapanapa State Park, Maui will replace existing deteriorated water heaters with cost saving on-demand water heaters and replace kitchen appliances with EnergyStar appliances. Rental cabins at Kalopa State Recreation Area, Hawai'i will install shut off switches for existing water heaters to save energy during periods of non-use; units that are more efficient will eventually replace these heaters.

Water saving measures such as repair/replacement of water lines and water reduction fixtures and waterless urinals are in various stages of implementation. Ongoing FY09 CIP projects for water system improvements at Hapuna Beach State Recreation Area, Hawai'i and Sand Island State Recreation Area, O'ahu will reduce the cost and waste from water leaks and breaks of aging and deteriorated water systems. Water reduction fixtures and waterless urinals are being considered in parks with camping and high day use. Low flush toilets and water reducing faucets will be used to replace existing older fixtures at all parks through maintenance activities.

SP will incorporate energy and water conservation practices for park staff and promote conservation and efficiency practices for users of the rental cabins, camping areas, comfort stations, and pavilions.

Long term responses to start in FY10

SP will assess and design energy reducing measures such as photovoltaic and other renewable sources to power its water and sewer systems. The operation of these systems has required considerable energy expenditures, and alternative power sources will reduce these operational costs and enable improved sustainability of our resources. Potential project areas include, but are not limited to, Kōke'e State Park, Kaua'i; Wailuā River State Park, Kaua'i; Polihale State Park, Kaua'i; and Sand Island State Recreation Area, O'ahu.

The larger park facilities such as base yards, large pavilions, comfort stations, rental cabins, and street lighting will incorporate new and efficient fixtures and appliances as they are repaired, renovated, and replaced. Also, electrical and water systems for these areas will be improved and/or replaced through SP development planning; also improved control and timer systems will be used to reduce unnecessary energy use.

DOA:

1. Continued to work with DAGS Central Services Division in identifying possible energy efficiency projects.
2. Continued to retrieve information electronically on gas consumption and odometer readings from DAGS Automotive Management Division, Tesoro and Hawai'i Petroleum for FY09. Continued to use vehicle refueling log for program that have vehicles that refuel at places other than DAGS, Tesoro and Hawai'i Petroleum.
3. Continued to retrieve information electronically on gas consumption and odometer readings for each vehicle from DAGS Automotive Management Division, Tesoro and Hawai'i Petroleum for FY09.
4. Monitored and compiled kWh consumption data and cost for electricity for FY09.
5. Reminded staff of department's Energy and Water Conservation and Resource Efficiency Program which provides policies, guidelines and practices intended to minimize energy, fuel and water consumption and implement resource-efficient operations. Includes department's target consumption goals for electricity, fuel and environmentally preferred products.
6. Distributed DAGS memo requesting employees to conserve energy and to report any water waste from open faucets, leaky plumbing fixtures, and broken and/or inefficiently run irrigation systems.
7. Developed spreadsheet to compare data in FY 2007, FY 2008, and FY 2009 on electricity kWh consumption and percentage increase/decrease from previous year and distributed to program managers for their review and information.
8. Provided guidelines for staff at each HDOA facility regarding AC hours of operation and to turn off lights and equipment when not in use.

DOE: The DOE has developed an internal system that enables the comprehensive managing of all utilities – electricity, water, sewage disposal, and gas – for all schools through a central office. As of March 1, 2007, the payment for all utilities was centralized into one office. We now are able to track DOE to establish programs that monitor utility use by schools specifically identifying (schools) with higher than anticipated consumption.

Immediate steps for conservation programs continue and are listed as follows:

- Continue with implementation of LEED Silver for new and major construction projects. Continued training for *LEED New Construction* and *LEED for Schools* as up-dated by USGBC.
- Continue with installation of low-flow bathroom fixtures whenever fixtures require replacement.

- All incandescent lamps will be replaced with compact fluorescent lamps (CFL).
- Continue meetings with vendors seeking new energy conserving technologies. Continuation with pilot (test) studies of new promising technologies.
- Establishment of a Water Conservation “Steering Committee” or “Task Force” within the Office of Business Services School Facilities and Support Services to expedite conservation activities between branches and within the DOE as a whole.
- Open discussion with the Board of Water Supply to seek innovation water conservation concepts, projects, and/or studies such as Irrigation Management Control System, plant species, drip irrigation, and captured rainwater.

Immediate steps in DOE Policy for school conservation are listed below:

Electricity:

- Set air conditioning so that the room temperature is 76 degrees.
- Do not turn on any air conditioning until 7:00a.m. or (if the air conditioning unit is turned on and off manually) until the room temperature reaches 74 degrees, which ever comes later, and turn off all air conditioning no later than 4:30p.m.
- Use timers to turn off 75 percent of night lights between the hours of 10:00p.m. and 6:00a.m.
- By June 15, 2009, replace all appliances (refrigerators, microwave ovens, toasters, coffee makers, rice cookers, etc.) in classrooms and offices with ENERGY STAR®-rated appliances. Personal appliances should be limited to no more than one of each on each floor of a building. All other personal appliances shall be removed by December 31, 2008.
- Purchase or lease only ENERGY STAR®-rated computers, copiers, printers, and servers.
- Turn off computers, printers, and copiers at the end of the day.
- As of July 1, 2009, all schools with central chiller air conditioning will need to reduce their energy usage by 16% via baseline reduction. All other school will have their baseline reduced by 6%.

Water:

- All schools and offices shall cut back on water usage by at least 10 percent. Water lawns early in the morning or late in the afternoon or evening.
- Timers on automatic sprinklers shall be adjusted to water the lawns on Sundays, Tuesdays, and Thursdays, either before 9:00 a.m. or after 5:00 p.m.
- Manually water lawns on Mondays, Wednesdays, and Fridays, either before 9:00 a.m. or after 5:00 p.m.
- Car wash fundraisers shall be curtailed.
- Flooding water beds or shooting down lanai areas is highly discouraged.
- Develop a water usage tracking system that overlaps high water usage tracking system employed by the Board of Water Supply. This tracking system will identify slow developing leaks that can go undetected by BWS under their tracking system.

DOH: DOH is aware of energy saving measures. DOH implements and initiates these measures whenever fiscally possible.

DOT-Harbors: A program to ensure that inventorying, investigations, and plans and implementations are effective and in compliance with regards to Act 160 is largely accomplished through our CIP and special maintenance projects.

DOTAX:

- DOTAX continues to follow Energy Conservation best practices as outlined by the Director of Taxation in his memorandum dated March 1, 2006.
- DOTAX continues to monitor and control usage of after hour and weekend air conditioning.

HCDA: There are no plans to expedite approval processes, as HCDA already has Administrative Rules that mandate decisions be made within a set amount of time or else permits are automatically approved; however, HCDA is:

- a. Currently requiring, as a permit condition, private developers to consult with HECO, DBEDT Energy Division, and the Board of Water Supply on ways to conserve/preserve resources.
- b. Considering, as part of its Mauka Area Plan & Rules incorporation of LEED standards as a requirement of all development – public or private – in its Kaka‘ako Community Development District. Same is true at Kalaeloa. Neither will be complete before January 12, 2007, but this policy direction may be incorporated into report.

HHFDC: A cost (material / installation) study has been completed on all O‘ahu island affordable housing projects managed by HHFDC.

The survey encompassed all common area lighting. The results are that these are large ticketed items that will be completed in phases.

All presently installed tube type fluorescent will be converted from T-12 to T-8 size. All screw-in incandescent bulbs will be changed to screw-in CFLs of equivalent size. All EXIT signs will be retro-fitted with LED assemblies. Some of the garage, hard to get to, and exterior lights will be altered or replaced with induction lamps / fixtures.

As many of these phased projects as possible are being expedited towards completion by the end of the year. This is being done so HHFDC can reap the benefits of the HECO rebate program.

Upon completion, it is expected that electrical utility bills could decrease as much as twenty-five percent (25 %) from the original usage. This could bring about a cost payback in just over two (2) years.

HHSC: HHSC is looking into implementing energy audits on all of their facilities when funds are available. The energy audits will assist each facility with recommendations to reduce energy.

HSPLS: See Response to [Act 96 SLH 2006: Buildings and Facilities](#). HSPLS has almost completed the retrofit of light fixtures at all 51 public libraries. They have instituted energy saving practices, water conservation and other reminders at all libraries and staff offices. These practices are in addition to the actions recommended by the State Comptroller in his May 1, 2008 memorandum to all occupants of DAGS Facilities.

HTA-CC: HTA and HCC continue reviewing all CIP projects to implement where possible renewable energy or energy efficient programs and projects wherever available.

NELHA: An RFP for construction of 1 to 3 Mwe of PV power and another RFP for construction of a 1 Mwe of OTEC power were filed two and one years ago respectively with DBEDT. These would significantly reduce NELHA’s cost of power. They have never been released for bidding on the part of the public.

PSD: The Department is currently exploring “Energy-Savings Management” systems that are able to access various facility operating system componentry, collect energy data, transmit same to a “central information hub” for analyses, and; prepare (and share) appropriately formatted reports of the baseline energy data consumed; the current consumption of energy by operating system and facility to ascertain cost savings over time and whether or not the Department is “on track” to meeting the Governor’s policy objectives in this area.

UH:

- **UH Hilo** – The University has completed a project to have night lights remotely monitored and controlled via a computer network to save energy.
- **UH West O‘ahu** – No new initiatives. Lights are turned off when rooms are not in use. Air conditioning and light timers are adjusted during no class periods.
- No new plans for UH Mānoa and UH Community Colleges.

Act 160

(3) A plan or alternatives to reduce energy consumption in the future.

The following agencies did not reply to this section: DOT-Airports, DOT-Highways, FTZ, HPHA

AG: AG is constantly looking to employees and DAGS for further ideas to implement for energy savings. The department is working with DAGS to have air conditioning systems evaluated and updated, if deemed necessary. AG has also worked with DAGS to reduce lighting in lesser used areas and hallways and assisted them to replace lights with energy efficient light bulbs.

B&F: The Department will continue to encourage all employees to initiate and implement energy efficient practices (i.e. turning off office light when not in use or when leaving for the day, turning off computer terminals at the end of the day, distributing ENERGY STAR® saving tips, etc.). The Department, as well as all other departments, is working with DBEDT and DAGS in this effort to identify and implement energy reduction initiatives.

DAGS:

1. Retro-commissioning projects for various DAGS facilities statewide (pending funds), on-going training and partnering with HECO and in conjunction with DBEDT; submetering where feasible and funds available; updating and implementing additional policies; and keeping abreast of the latest energy reducing innovations and practices.
2. Pending ARRA funds, a 100 kilowatt photovoltaic (PV) system is planned for Kalanimoku Building.

DBEDT: Act 207 of 2008 established new responsibilities for the Director of DBEDT as the state's Energy Resources Coordinator. The Coordinator is in the process of creating a streamlined permitting process that includes state and county permits required for the siting, development, construction, and operation of a new renewable energy facility of at least 200 megawatts capacity. Act 208 also established a full-time renewable energy facilitator position in DBEDT. The facilitator reports to the Energy Resources Coordinator. The facilitator’s duties to date have

included facilitating existing permits, proposing changes to the permit process and coordinating energy projects. In FY09, the facilitator met with numerous renewable energy project representatives and commenced work in support of siting an inter-island cable to supply renewable energy to the island of O‘ahu from the neighbor islands.

DCCA: In coordination with DAGS, re-lamping of fluorescent light fixtures with high efficiency lamps. The department will continue to work with DAGS to identify energy efficiency initiatives and will also inform and encourage all employees to implement energy conservation practices whenever practical.

DHHL: DHHL conducts in-house energy programs to inform all staff to reduce energy consumption using guidelines and recommendations from the educational leaflet from the US Department of Energy.

DHRD: The department will continue to encourage all employees to implement energy conservation practices and will work with DAGS to identify energy efficiency initiatives.

DHS: DHS is a participating department in the State’s Lead By Example program. As a part of this statewide project, DHS is developing a plan to reduce future energy consumption.

DLIR: Based on its energy use, DLIR plans to do the following:

1. DLIR will continue to consult with DAGS and issue a department memorandum reminding all offices of the need to adhere to energy efficiency practices such as turning off electrical lights, printers, personal computers, copier machines, etc. when not in use.
2. Continue to request assistance from DAGS to provide analysis for the nine affected DLIR program offices. Based on DAGS’ analysis, DLIR will continue to develop plans to develop and implement energy saving measures to reduce electricity use.
3. Assess each office’s space need requirements and consider consolidation of offices.
4. Conduct self-audits of DLIR offices to identify and reduce energy consumers such as small appliances and electronic equipment.

DLNR: DLNR is currently in the design phase of a large project that began in FY 2008, which will serve as demonstration projects for energy efficiency across the state. Construction is scheduled to begin in October 2009.

‘Iolani Palace

Facility Information: ‘Iolani Palace, Honolulu

Project description: ‘Iolani Palace is not only a Hawai‘ian national treasure but is the only official state residence of royalty in the United States. Built in 1882, the Palace was the official residence of the Hawai‘i kingdom’s last two monarchs. Restoration in the 1970s included the installation of air-conditioning units to help preserve the building as well as the treasures held within. Located in a humid environment, the Palace is highly susceptible to mold growth and other forms of biodeterioration. Inadequate air conditioning systems can lead to variations in relative humidity, which can further lead to chemical reactions. The negative results of these chemical reactions are that: metals may corrode; many dyes may fade; glass collections may be damaged; furniture joints may be loosened; paint chipping may emanate from canvases; and paper may be cockled. Thus, as with any historical site, ‘Iolani Palace’s air conditioning system is of great importance to the environment in which the collections are housed. The existing air-conditioning system has deteriorated and has failed to provide the necessary climate control for uniform temperature and

humidity. The system continues to experience breakdowns and continued system failures will lead to eventual damage and loss of invaluable cultural artifacts. Thus, the entire air-conditioning system needs to be replaced. This creates an opportunity for DLNR to look toward energy efficiency in the development of a new air-conditioning system for the Palace. Staff has begun to look at new technologies in air conditioning systems which utilize photovoltaic technology and recycled water. Additionally, commissioning of the chosen system will be included for optimum performance. Taking into consideration its historic significance, the Palace's façade would not be altered. However, adjoining buildings could be utilized for alternative energy production, which could in turn be used at the Palace. With \$900,000 allocated in FY 2006 (Act 160) for design and construction, DLNR has begun to design an air-conditioning and climate control system for the Palace. In 2007, the project was allocated \$4.5 million to continue and implement the project. The state would benefit greatly from having "Iolani Palace serve as a pilot project for energy efficient air conditioning technology while saving money and preserving Hawai'i's history.

Estimated Savings: A number of potential Energy Conservation Measures (ECMs) were proposed for the "Iolani Palace complex in 2007, for a combined estimated annual savings of \$43,000 in electricity bills and an annual kWh savings of 310,000. These ECMs included retrofitting all HVAC compressors, installing variable primary chilled water flow, installing cooling tower motors and fan coil units with variable frequency drives (VFDs), and upgrading lighting in non-period exhibition rooms.

In addition, The Friends of "Iolani Palace (The Friends) embarked on an aggressive repair and maintenance program for the HVAC system in early 2008, along with re-tinting of all windows to significantly reduce heat from sunlight and eliminate nearly 100% of all UV entering the building. Keeping the HVAC system operating at its optimum has been a priority, requiring keen coordination between the three main contractors: Alaka'i Mechanical, Johnson Controls, and Pural Water Specialties. Combined with upgraded energy efficient lighting (compact fluorescent and LED) in the Palace and Barracks (including a new compact fluorescent exterior lighting system for the Palace at night), turning off lights when not in use. The Friends have worked with a DBEDT energy analyst to reduce its average daily energy consumption by 1,000 kWh and average monthly consumption by 25,000 kWh achieved within a 12-month period.

(Average daily kWh for May 2008 = 4,615.2 versus May 2009 = 3,592.0)

Positive environmental impact of the project: Significant decrease in energy consumption.

Projected output of onsite renewable energy facilities (any net metering agreements?): Unknown what kinds of projects would approved by the State Historic Preservation Division of DLNR.

Green Building rating system being sought or received (if applicable?): LEED certification is not feasible at this time, as the rating system has inherent requirements that conflict with historic preservation and would be too cost prohibitive for small projects.

DOA:

1. As funding allows, initiate lighting and window tinting operating projects and retro-commissioning CIP projects.
2. Send out reminders to employees to practice energy and water conservation measures.
3. As funding allows, replace air conditioning systems and units with energy efficient ones.
4. As funding allows, upgrade to more energy efficient pumps and motors on irrigation systems as funds allow.
5. As funding allows, install timers and other electronic controls on selected irrigation systems.
6. Promote car-pooling and bicycling.
7. Reduce operating hours of all air conditioning systems.

DOE: Plans for future energy consumption reduction include both Energy Conservation Measures and Effort with Renewable Energy.

Energy Conservation Measures

- Energy Audits: The Energy Conservation Coordinator will continue with on-site school assistance for energy audits and educational exchange.
- “School Energy Conservation Program”: Continue with the program that rewards schools who have reduced energy usage as compared to a baseline.
- Facilities Development Pilot Studies: Various types of technologies are available that may reduce energy use for DOE. However, their adaptability, suitability, etc. for use with DOE remains an element of risk management. Certain technologies compete for a desired effect however may be dramatically different in cost and application. Examples could be reflecting solar energy versus insulation, separate dehumidification versus selection more efficient air conditioning. To date multiple technologies have been implemented by DOE that now needs follow-up study and reports to determine Best Practices for future facilities development work – standardization.
- Heat Abatement Testing: Continue with on-going efforts to install and analyze various methods to reduce heat gain and increase comfort for portable classrooms with projects at Lokelani, ‘Ewa Beach and Kahuku. Eventual roll-out of proven and cost effective technologies and methods will be implemented as standard retrofit design in the future.
- Education and Training: More education and training will be sought from energy conservation equipment vendors. There will be continuation with LEED education for DOE employees via on-the-job and USGBC product offerings.
- Energy Service Company (ESCO)-Utility Energy Services Contracts (UESC)-Power Purchase Agreements (PPA) Effort: Investigative work will continue in the areas financing energy conservation equipment retrofitting with the assistance of ESCO, UESC, and PPA.
- DOE Operations and Maintenance Best Practices: DOE internally will in the future hold internal meetings between offices and branches that will align and focus energy conservation efforts. This can include product (material and method) selection by committee based upon maintenance, performance, LEED, and cost benefits. This can be with further education and training for more efficient use of existing technology such as air conditioning and lighting controls, smart utility metering, sub-metering, etc.
- DOE School Best Practices: An investigation for identification of school equipment and/or operations that may best benefit energy conservation with the least amount of negative impact to school operations and functions will be reviewed. This will also include procurement and availability of energy efficient products or products favoring LEED criteria. This can involve school scheduling and selection of facility use or setting of temperatures for air conditioners.

Effort with Renewable Energy

A limited number of schools have had photovoltaic (PV) systems installed either by independent school effort and/or with electric utility support such as “Sun Power for Schools”. Kualapu‘u Public Charter School has had a 22kW system installed. Through federal government support, Kapa‘a HS is planning for a moderate sized PV system to cover operational costs for aquaculture farm pumping in conjunction with DLNR.

The Legislature, through Act 96, SLH 2006, appropriated \$5 million to the DOE for a pilot photovoltaic project. Approximately a sum over \$4 million was return to the State. The specific objectives as set forth in the Act as they relate to this photovoltaic pilot project include:

1. To have, at minimum, a project site at one of the public schools within each of the counties of O'ahu, Hawai'i, Kaua'i and Maui.
2. Installation of photovoltaic (PV) system to be timed in conjunction with substantial roof repairs or roof replacement.
3. To use the application of net energy metering to offset the cost of the system.
4. To recapture system cost within three quarters of the useful life of the PV system.
5. When advantageous, to use energy-savings contract such as third party lease or purchase to maximize the objectives of this section.
6. Report results and recommendations from this project.

The Governor has released the funds for this project and the DOE has selected Energy Industries (EI) as the consultant to implement this program. Energy Industries is a Hawai'i-based lighting and HVAC company that specializes in reducing the energy expenses of its clients by identifying and implementing energy conservation measures (ECMs) that reduce electrical demand load. Energy Industries also specializes in the integration of renewable and distributed energy systems along with energy conservation measures. The contract with EI includes the following deliverables:

1. Rating and selection of project sites (schools) based on a weighted scorecard.
2. Develop basis of design and determine optimal implementation.
3. Project management and quality assurance during construction.
4. Measurement, verification, and reporting of pilot results one year after PV installation.

Based on the data from EI, DOE determined that it is not economically feasible for the Department to purchase and install PV systems without taking advantage of federal and state tax credits. Therefore, a better strategy of obtaining PV systems for schools would be to develop a power purchase agreement (PPA) and have a 3rd party vendor install and maintain the PV systems. The DOE would purchase the kilowatts generated by the system at a discounted rate.

DOE has developed a Request For Proposal (RFP) for this project that will require the installation of one 30 - 50 kW system on the islands of Hawai'i, Maui, and Kaua'i, and four systems on O'ahu. The RFP is currently being reviewed by the Attorney General's Office before the DOE issues it. DOE hopes to get the proposal out by the end of January 2010.

DOE is also in the process of developing guidelines, standards, and best practices to meet new energy efficiency requirements for all CIP and repair and maintenance (R&M) projects.

DOH: DOH will be converting all fixtures to super T-8 lamps. DOH will be delamping. Any air conditioning retrofits will involve more energy efficient equipment.

DOT-Harbors: DOT-Harbors will increase awareness and training for employees on available energy conservation technology or practices and develop program milestones or metrics to encourage reduction of energy consumption.

DOTAX: DAGS is currently working on energy savings measures, including air conditioning retro-commissioning, for the Ke'elikōlani Building in which the DOTAX O'ahu District Office is located.

HCDA: Incorporate energy savings devices and procedures in future developments as well as retrofit where appropriate.

HHFDC: HHFDC's daily plan is to continue monitoring all utility uses in all the common areas so as to reduce consumption and cost. This will not only reduce operating cost, but the common cost shared by commercial and residential tenants.

The end plan is to use every alternative possible to insure HHFDC and tenants receive the best service at the least out of pocket expense on everyone's part.

HHSC: HHSC plans to use the approved ESCO list that DAGS developed to implement energy reduction at all of their facilities.

HSPLS: See Response to [Act 96 SLH 2006: Buildings and Facilities](#).

2 new public libraries are being constructed in North Kohala and Mānoa. Both are expected to meet the LEED silver certification. Construction has already started on the North Kohala Public Library and should be completed by early 2010. The Mānoa Public Library should be starting before the end of 2009 and completed by mid-2011.

HSPLS has almost completed the retrofit of light fixtures at all 51 public libraries. It has instituted energy saving practices, water conservation and other reminders at all libraries and staff offices. These practices are in addition to the actions recommended by the State Comptroller in his May 1, 2008 memorandum to all occupants of DAGS Facilities.]

HTA-CC: Currently HTA and HCC are researching and analyzing the use of photovoltaic panels for alternative energy.

NELHA: None. Approximately 98% of the energy consumed by NELHA is a direct result of economic development activities on the part of tenants. There is no way NELHA can reduce its energy consumption short of initiating and operating its own power projects or having tenants cease business.

PSD: With the Public Works Division of DAGS preparing a short list of ESCO vendors, PSD intends to invite not less than three of the ten "shortlisted" vendors who have extensive auditing work of correctional facilities to respond to a Request for Proposal for the development of an "Investment-Grade" Energy Audit to be performed at all correctional facilities throughout the State. An integral part of this audit will be to develop a plan that will provide project scopes and cost estimates to design and construct the necessary improvements, alterations, modifications and/or retrofits necessary to meet the Governor's target objectives. Further, as said improvements are implemented, a concurrent development of the Energy Savings Management Program will be to bring online an information network to measure and provide timely feedback to the Department of how effective the earlier-described actions have been in meeting the objectives by the time-frame the Governor has envisioned.

UH:

- **UH Hilo**
 - A 30 KW PV system with the new Sciences & Technology Building is currently under construction.
 - A 23 KW PV system over the Campus Center will be under construction.
 - A 30 KW PV system is being planned on PB 11 roof.
 - An 88 KW PV system over the North Hawai'i Education and Research Center currently in the bidding process.
 - An estimated 60 KW PV system will be additive bid alternates in the Student Services Building project.

- UH Hilo has a policy to include PV in all new construction projects.
- **Kaua'i CC** – A 70 KWh PV system will be installed on the south-facing roof of the One-Stop Center building in fall 2009. The College is currently working with the UH Community College Facilities staff to select an ESCO that will determine the best efficiency and renewable energy measures for the college.
- **Maui CC** – Will be soliciting a Request for Proposal to establish a Power Purchase Agreement (PPA) for photovoltaic (PV) in the campus rear parking lot and other feasible areas. The campus has received a donated wind turbine and is currently researching a location to install the wind turbine system. Through the College's Sustainable Construction Program, PV units will be installed on MCC rooftops via a classroom instruction. T-8 fluorescent lights will be replaced with highly efficient LED lights in the Moloka'i Education Center.
- No new plans for UH Mānoa, UH West O'ahu, Hawai'i CC, Honolulu CC, Kapi'olani CC, Leeward CC, and Windward CC.

PROGRAM INITIATIVES TO MINIMIZE WASTE & PREVENT POLLUTION
UNIVERSITY OF HAWAII - COMMUNITY COLLEGES

Campus	Program Title	Description of Program	Vendor (if applicable)	Duration of Program	Materials Recycle	Quantity Recycled (Per Yr)	Any Other Information
Honolulu CC	AMT	Recycle used automobile oil	Commercial	Over 20 years			
	AMT	Recycle used solvents	Commercial	Over 20 years			
	AMT	Recycle coolants	Recycling Machine	1 year			
	AMT	Recycle training cars	Metal recycle	Over 20 years			
	AERO	Recycle engine oil	self cleaning by strainer	Over 10 years			
	Various	Recycle metals	Commercial	Over 20 years			
	Café	Recycle cooking oils & grease traps	Commercial	Over 20 years			
	Telephone Books	The faculty and staff at the college turn in old	Commercial	1 year	Telephone Books		
	Auto Body Diesel	Grease trap	Commercial	Over 20 years			
	Various	Aluminum cans, plastics, white paper, computer ink cartridges	Commercial	Over 10 years			
	Campus	E-waste electronics	Apple Computer	Over 3 years	Computers, electronic equipment		
	Cans/Plastic Recycling	The janitors at the college began recycling cans and plastics.	Janitors	Approximately 7 years	Cans and Plastics		
	Maui County Recycling Site	Maui CC has agreed to allow usage of space on campus for a community recycling site run by Maui County. This site allows MCC a convenient location for the campus to recycle bottles, plastics, and paper waste. This is also a HI-5 redemption center.	Maui County who hires Maui Disposal to operate the recycling center.	Approximately 5 years	Newspaper, plastics, bottles, cardboard, HI-5 redemption		
	Maui CC Campus Recycling Program	A Maui CC student club manages several recycling collection points on campus and transports recyclables from the collection points to the Maui County recycling/redemption site.	Hawaii Institute for Human Rights	Approximately 4 years	Plastic bottles and cans		
Maui CC	Administrative Services shredded paper	Paper generated by the Administrative Services Unit at MCC is shredded and given to a local flower farmer who uses the shredded paper for their business.	Hei'ani Farms Hāna and Maui Floral Farms in Kula	Approximately 4 years	Shredded paper	250 garbage bags a year	

PROGRAM INITIATIVES TO MINIMIZE WASTE & PREVENT POLLUTION
UNIVERSITY OF HAWAII - COMMUNITY COLLEGES

Campus	Program Title	Description of Program	Vendor (if applicable)	Duration of Program	Materials Recycle	Quantity Recycled (Per Yr)	Any Other Information
	Recycled glass chips	Maui CC purchases large quantities of recycled glass chips to use in planter beds located throughout the various parking lots	Aloha Plastic Recycling Company	Approximately 8 years	Glass chips	50 tons of glass chips	
	Recycled Plastic Parking Curbs	Maui CC has constructed parking lot curbs that are molded with recycled plastic.	Aloha Plastic Recycling Company	Approximately 10 years	Recycled Plastics	100 Parking Lot curbs	
	Telephone Books	When the new telephone books are issued, a staff member organizes a collection site on campus to collect the old phone books as part of an annual phone book recycling contest.	Campus Mailroom	5 years	Telephone Books	100-300	
	Reusable Coffee Mugs	When people purchase a MCC plastic reusable coffee mug in the campus cafeteria, they receive a discount on their beverage each time they use it.	Paina/Logo designed on campus	Started Spring 2006	Saves paper product use from landfill and saving for culinary dept. in purchases		
	Culinary Arts- Use of Recyclable Products	MCC Culinary converted to use of recyclable and reusable bags on campus and eliminating poly propylene containers and plastic bags from the MCC Culinary facility	NA	Began approximately 2 years ago	Paper products		
	Culinary Arts - Use of re-usable plates and flatware	MCC Culinary converted to use of re-usable melamine plastic and stainless steel flatware in its Foodcourt dining facility	NA	Began approximately 4 years ago	Plastic wares		
	Culinary Arts - Recycling Program	MCC Culinary recycles all glass, plastic and cardboard food and beverage containers	Maui Disposal	Began approximately 4 years ago	glass, plastic and cardboard containers		
	Culinary Arts - Biodegradable corn bags	MCC Culinary began using biodegradable corn bags in all garbage and compost bins	NA	Began approximately 2 years ago	biodegradable corn bags		
	Culinary Arts - Eliminated use of plastic spoons and utensils in kitchen labs	MCC Culinary eliminated use of plastic spoons and utensils in kitchen labs and educational settings.		Began approximately 2 years ago	plastic wares		

PROGRAM INITIATIVES TO MINIMIZE WASTE & PREVENT POLLUTION
UNIVERSITY OF HAWAII - COMMUNITY COLLEGES

Campus	Program Title	Description of Program	Vendor (if applicable)	Duration of Program	Materials Recycle	Quantity Recycled (Per Yr)	Any Other Information
	Culinary Art- Fine Dining Restaurant - Water	MCC Culinary Fine Dining Restaurant began service water upon request only.	NA	Began approximately 2 years ago	Water conservation and landscaping		
	Culinary Arts - Kitchen Green Waste	MCC Culinary Arts provide their green waste to the local farmer for re-use.	NA	Began approximately 4 years ago	green waste		
	Culinary Arts - Cooking Oils and Fats	MCC Culinary Arts capture cooking oils and fats for local Biodiesel producers	NA	Began approximately 2 years ago	bio-fuels		
	Culinary Arts - Composting	MCC Culinary Arts began a composting program where student learn and practice separating compostable matter in the kitchen labs	NA	Began approximately 2 years ago	composting		
	Islands of the World	MCC hosted and is now an active member of the Small Islands of the World Conference who is consortium of island institutions around the world working towards island sustainability.	NA	Began approximately 4 years ago			
	MCC - MECO Partnership	MCC and MECO signed and executed a partnership to reduce MCC's institutional electrical consumption and to enhance MCC's Sustainable Technology curriculum	NA	Re-signed approximately 2 years ago.	electric savings through reduction in use of fossil fuels		
	MCC New Science Bldg	MCC's new Science Bldg is designed to meet a minimum of LEEDs Silver	Design Partners	Design 99% completed			
	MCC Wind Turbine	MCC received a donation of windturbine. MCC is assessing a location for the installation of the turbine					
	MCC PV Project	MCC has run a Sustainable Tech class to teach students how to assemble and install PV units. This class will be installing these units on to the College's rooftops incrementally, class by class.		Began Fall 2009.			

PROGRAM INITIATIVES TO MINIMIZE WASTE & PREVENT POLLUTION
UNIVERSITY OF HAWAII - COMMUNITY COLLEGES

Campus	Program Title	Description of Program	Vendor (if applicable)	Duration of Program	Materials Recycle	Quantity Recycled (Per Yr)	Any Other Information
Windward CC	MCC PV Rear Parking Lot	MCC RFP to solicit for a PPA for a PV system to cover the MCC rear parking lot	NA	RFP approximately 95% completed			
	MCC - Waterless Urinals	MCC's newly renovated Student Center Bldg was equipped with waterless urinals in both Men's room in the facility	Falcon Waterless Urinals	Opened in 2008		Saves approx 10,000 gallons of water per urinal	
	VerDiem Power Management Software	MCC installed a power management software on to its network to control PC's and apparatus that are left on over night on the campus in labs, classrooms, etc	Ver Diem	Installed approximately 3 years ago			
	MCC - DBEDT Anemometer Loan Program	MCC was contracted by DBEDT to run a State-wide anemometer loan program for entities interested in wind energy and needing to test the wind factors in specific locations around the State.	DBEDT	Contract signed in 2008			
	Cans/Plastic Recycling Program	Various student clubs "adopt" a building to collect materials to be recycled. Containers are placed in buildings to collect materials. Students are responsible to redeem or drop off material. Clubs get to keep funds from redemption centers.	Student Clubs	2009 start date	Cans and Plastics		
	Paper recycling	A part of a paper recycling effort campuswide. Faculty and staff collect used paper and place them in recycling container on campus.	Campus Wide	Approximately 27 years	Paper		
	Green Waste recycling	WCC has designated a site on campus where green waste is collected and used by the grounds crew as mulch.	Groundskeeper	Approximately 27 years	Green waste, i.e., grass, leaves, plant trimmings, tree branches and prunings.		
	Telephone Books	The faculty and staff at the college turn in old telephone books in an effort to recycle the old books.		Approximately 7 years	Telephone Books		

PROGRAM INITIATIVES TO MINIMIZE WASTE & PREVENT POLLUTION
UNIVERSITY OF HAWAII - COMMUNITY COLLEGES

Campus	Program Title	Description of Program	Vendor (if applicable)	Duration of Program	Materials Recycle	Quantity Recycled (Per Yr)	Any Other Information
Kapi'olani CC	Honolulu C&C Community Recycling Program	A container is placed on the campus where anyone can drop off recyclable products.	City and County of Honolulu	2009 start date	bottles, plastics, paper, cardboard, newspaper, aluminum		
	Campus Re-usable Coffee Mugs	E-cycle electronics To cut down on the use of foam cups, KCC will sell thermal mugs for use in purchasing discounted coffee. This is also to encourage the purchase of coffee in the cafeteria rather than have individuals use coffee pots in the offices to reduce power consumption.	Apple Computer None	To start 10/08 Approximately 1 year	Sustainability, energy conservation	Undetermined	Sponsoring group is KCC Sustainability Committee
	Purchase "Green" Products Recycle cooking oil	Purchase carpet meeting LEED standards Together with the STEM students, created bio-diesel fuel from cooking oil for use in reconfigured gas powered carts. Purchase disposable utensils which are biodegradable	Interface FLOR None Undetermined	Approximately 1 year on-going demonstration program Approximately 1 year	Sustainability Used cooking oil Sustainability	Undetermined Undetermined	Administration STEM Faculty & Students KCC Sustainability Committee
	Community Recycling Center Program	Designed to provide convenient recycling drop-off services to campus and neighborhood community	City & County of Honolulu in conjunction with Honolulu Disposal	On-going program	Beverage and assorted cans & glass; newspapers, cardboard, office paper	Undetermined	40-cubic yard roll-off container custom designed for recycling
Leeward CC	Automotive Programs	Automotive program recycles metal, aluminum and oil parts/products/by-products through various recycling companies	Snitzer Steel, metals Lennox, aluminum, Unitek oil	On-going program	Metals, aluminum, oil	Undetermined	
	Cafeteria & Culinary Arts - Recycling	Recycling of beverage bottles and cans in all dining areas		On-going program	Beverage bottles and cans	Undetermined	
	Cafeteria & Culinary Arts - Food Waste	Food waste is separated from regular rubbish and used for compost bin and worm compost purposes		On-going program	Food waste generated by dining operations	Undetermined	
	Cafeteria & Culinary Arts - Cooking Oil	Cooking oil used in kitchens is recycled for use as biofuel	Island Commodities	On-going program	Cooking oil	Undetermined	

PROGRAM INITIATIVES TO MINIMIZE WASTE & PREVENT POLLUTION
UNIVERSITY OF HAWAII - COMMUNITY COLLEGES

Campus	Program Title	Description of Program	Vendor (if applicable)	Duration of Program	Materials Recycle	Quantity Recycled (Per Yr)	Any Other Information
	Cafeteria - Biodegradable Products	Cafeteria use various biodegradable products for dining patrons		On-going program	Biodegradable plates, bowls, take-out containers, coffee cups, cutlery	Undetermined	
	Culinary Arts - Herb Garden	Sustainable herb garden is maintained by culinary arts program for cooking lab purposes as fresh herbs or as dried herb products		On-going program	Sustainable herb garden	Undetermined	
	Information Technology - eWaste Recycling	Statewide electronic waster recycling effort	Apple Computers	August 2009 collection	Computers, printers, monitors, keyboards, cell phones, televisions, video players, and related peripheral equipment	3,000 pounds collected at LCC campus	Program is supported by Apple Computer
	Information Technology - eWaste Recycling	Statewide electronic waster recycling effort	Apple Computers	October 2008 collection	Computers, printers, monitors, keyboards, cell phones, televisions, video players, and related peripheral equipment	451,903 pounds collected at LCC campus (20 containers)	Program is supported by Apple Computer
	Operations & Maintenance Recycling	Various vendors used to recycle materials that are a result of renovation, repairs, and routine maintenance projects	Multiple vendors	On-going program	Light bulbs, ballasts, tires, electric car batteries	Undetermined	
	Operations & Maintenance - Tree Pruning and Wood Chips	Tree and shrub pruning are converted to wood chips & recycled to use as mulch for the Native Hawaiian plant collection and the Halau Lei and Medicinal Garden	Akahi Services	On-going program	Tree & shrub pruning	Undetermined	
	Operations & Maintenance - Sustainable Building Sites	New nursing building required the removal of several mature palm trees which were relocated at another site on campus	Paramount Builders	On-going program	Tree removal and placement	Undetermined	

PROGRAM INITIATIVES TO MINIMIZE WASTE & PREVENT POLLUTION
UNIVERSITY OF HAWAII - COMMUNITY COLLEGES

Campus	Program Title	Description of Program	Vendor (if applicable)	Duration of Program	Materials Recycle	Quantity Recycled (Per Yr)	Any Other Information
	Operations & Maintenance - Water Efficient Landscaping	Abandoned dive tank pool in planning stages of conversion to water catchment basin for rainwater recovery purposes to be used to irrigate lower campus lawns and plantings		On-going program	Water conservation and landscaping	Undetermined	
	Shade House - Compost Program	Materials from the compost bin and worm vermicast used as plant fertilizer, zoo-poo use for field compost pile	LCC Culinary Arts and Honolulu Zoo	On-going program	Various food and green waste and zoo-poo as compost	Undetermined	
	Shade House - Community Mulch Program	Leeward CC is designated as one of the City & County of Honolulu's recycled green waste sites where mulch is available for campus & Community pick-up and use in landscaping and maintaining Native Hawaiian plant collection	City & County of Honolulu in conjunction with Hawaiian Earth Products	Program went into effect in April 2006 & continues	Green waste	Undetermined	
	Shade House - Pili Grass Program	Sustainable pili grass bundles, grown on site, are used for structural weather and sun protection		On-going program	Pili grass	Undetermined	
	Shade House - Water Conservation	Water conservation strategies used in Shade House operations as 90% of Native Hawaiian plant collection is irrigated by a drip water system		On-going program	Water conservation	Undetermined	
	Shade House - Planting Pots	Planting pots used by Shade House are free and recycled products	Army Environmental Nurseries	On-going program	Planting pots	Undetermined	
	Shade House - Planting Media Program	Sustainable coconut coir (fiber) from Sri Lanka is used as the potting media for Shade House plants		On-going program	Coconut coir (fiber) use as potting media	Undetermined	
	Shade House - Xeriscape Planting Program	Native Hawaiian plantings and landscaping utilize xeriscaping practices that reduce the need for irrigation by using dryland native plants		On-going program	Water conservation through xeriscaping practices	Undetermined	
	Student Government - Recycling Practices	Various recycling practices in use include recycled paper for printing and use of electronic communication devices rather than printed materials		On-going program	Paper and electronic media	Undetermined	

PROGRAM INITIATIVES TO MINIMIZE WASTE & PREVENT POLLUTION
UNIVERSITY OF HAWAII - COMMUNITY COLLEGES

Campus	Program Title	Description of Program	Vendor (if applicable)	Duration of Program	Materials Recycle	Quantity Recycled (Per Yr)	Any Other Information
Kauai CC	Theatre - Reused Set Designs	High percentage of set designs are reused and modified to meet current stage and theatrical performances		On-going program	Set designs from theatrical productions	Undetermined	
	Theatre - Reused Set Designs	Clean scrap wood from various theatre set designs is used by ceramics classes for kilns		On-going program	Scrap wood	Undetermined	
	LCC-Waianae - Recycling Programs	Various recycling programs in place for satellite campus at Waianae		On-going program	One-sided printed paper is used for student printing; beverage bottles & cans	Undetermined	
	Recycle cooking oil and grease	Vegetable oil and grease is cleaned out of the grease traps by the vendor; the cooking oil is recycled.	Kauai Grease Trap Maintenance	Approximately 19 years	Vegetable oil and grease	200 gallons	
	Collection of waste oil from vehicles	Kauai CC students bring their cars to the automotive shop to learn how to properly change and collect the vehicle oil. The collection is given to the vendor.	Speedie Lube	Approximately 32 years	Engine Oil	100 gallons from Auto Technology, 25 gallons from Operations & Main.	
	White paper recycling program	Kauai CC faculty started a program recycling white paper. Facilities; the maintenance staff transports the paper to a collection dumpster where the vendor collects the paper to be recycled.	Garden Island Disposal	Approximately 8 years	White paper	1000 lbs.	
	Recycling paper, cardboard, bottles, cans and food waste products	The college is recycling paper, cardboard, bottles and cans daily. Also collecting food waste products for composting on the college's farm.		First year	Paper, cardboard, bottles, cans and food waste products		

PROGRAM INITIATIVES TO MINIMIZE WASTE & PREVENT POLLUTION
UNIVERSITY OF HAWAII - COMMUNITY COLLEGES

Campus	Program Title	Description of Program	Vendor (if applicable)	Duration of Program	Materials Recycle	Quantity Recycled (Per Yr)	Any Other Information
	Conserve energy and reduce waste	Kauai CC has formed a sustainability committee to initiate ideas to conserve energy and reduce waste. Last semester, in conjunction with Earth Day, the committee sponsored an event on campus to promote conservation. Partners included the County of Kauai, Farm Bureau, Outdoor Circle, Sierra Club and various alternative energy vendors.		First year			
	Construction materials are being reused to reduce waste being deposited into the landfill.	The Carpentry Department of the Trade Technology Division has implemented a program where construction materials are reused in a variety of projects to reduce the amount of waste being deposited in the landfill.		First year	Wood, metal, plastics		
	Started purchasing and using bio-diesel fuel.	The college has started purchasing and using bio-diesel fuel produced by a company on Kauai. The bio-diesel is used to operate the college's tractor mower and farm equipment.		First year	Commercial grade cooking oil		

FREE eWaste Recycling for Educational Institutions



Apple is offering a free electronics recycling program FOR EDUCATIONAL INSTITUTIONS during Summer 2009. All accredited K-12 and Higher Education institutions with at least 25 systems to recycle are eligible. No purchase is required.

Requests must be submitted online to Apple by July 31, 2009 and pickups will be completed by August 31, 2009. Complete details are available on Apple's website at: <http://www.apple.com/education/recycle/index.php>

All brands of the following equipment are accepted: computers, monitors, laptops, printers, fax machines, scanners, desktop-size copy machines, CD drives, hard drives, TVs, VCRs, projectors, overhead projectors, networking equipment, cables, keyboards, and mice.

Any brand of electronics are eligible for free recycling but the systems must be palletized and shrink wrapped before pickup. For instruction on proper palletizing and shrink wrapping go to: <http://www.apple.com/education/recycle/shrinkwrap.html>

All of the electronic waste collected through the program is processed domestically in the United States.

University of Hawaii Info

For assistance with palletization or aggregation of units with other departments, faculty and staff at UH Manoa may submit Work Orders by email to [Roxanne Adams](mailto:Roxanne.Adams@uhm.edu) in the UHM Facilities Management Work Coordination Office.

Faculty and staff at Windward CC may contact the WCC IT Helpline at 235-7314 or wcc-help@hawaii.edu

On other UH campuses you may contact your local IT support staff or Facilities Management office to determine whether the campus is coordinating palletization and pickup activities.

Please initiate any requests for assistance to your campus by July 24, 2009 so that they can ensure meeting Apple's July 31 deadline.

As always, you should ensure that any hard drives being recycled have been cleansed of all sensitive data. And if you are disposing of a working computer, please note the options for re-use by a non-profit or charity rather than recycling listed at: <http://www.hawaii.edu/askus/750>

The UH Swap Meet

[The Swap Meet](#) | [Help](#) | [Login](#)

Transfer Equipment and Materials between Departments at the University of Hawai'i

Available Items

Date Posted	Item	Type	Quantity
Nov 17	HP Color LaserJet Printer Cartridge	Other	4
Nov 16	Tables, Holga 72" x 36"	Furniture	4
Nov 3	nalgene bottles (various sizes)	Other	500+
Oct 28	Canon imageClass D320 toner - New	Other	1
Oct 28	Xerox WorkCentre Pro412 toner - New	Other	1
Oct 28	Xerox WorkCentre Pro215 toner - New	Other	2
Oct 27	TLPL1 replacement lamp for Toshiba LCD projector	Other	1
Oct 22	HP LaserJet Cartridge 15A	Computer Equipment	2
Oct 22	HP LaserJet Cartridge 92A	Other	2

Wanted Items

Date Posted	Item	Type	Quantity
Nov 12	Free Standing Divider Panels	Office Equipment	Up to twelve
Nov 1	Laptop computer	Computer Equipment	any
Oct 23	Flammable cabinet	Other	1

NOTE:

- Click on "Help" for an overview of the Swap Meet.
- To post items, click on "Login" and complete all fields using your UH username and password.
- This page will not work on IE 5 on a Mac



Use of this site implies consent with our [Usage Policy](#)
 The University of Hawai'i is an [Equal Opportunity Employer](#)

• [Contact ITS](#)

• This page last modified on



copyright ©2006 University of Hawai'i

Disposal Guidelines For Unused UH Computer Equipment

This document is intended to assist University of Hawai'i departments who wish to dispose of computer equipment that may still be useful to others. These guidelines are not intended to replace any Administrative Procedures, so be sure to consult with your Administrative Officer (AO) or Fiscal Officer (FO) for specific procedures to facilitate the disposal.

Before initiating any disposal effort, you must verify ownership using the state decal number (or serial number if no decal is found) against the departmental inventory records. If the item cannot be found on the inventory records, it may be necessary for your AO or FO to research the original purchase before the disposal process can begin.

PROTECT YOUR INFORMATION

Before donating or recycling a computer you should erase all files containing personal information. Simply deleting files isn't enough; you should overwrite the disc files. UH Information Technology Services (ITS) has compiled tips for "[Securely Deleting Electronic Information](#)."

DISPOSAL OF UH EQUIPMENT BY TRANSFER

The preferred method of disposing of computer equipment is to find another University department, state department, or agency that can use the equipment.

1. First, send out email or internal memos to see if there is anyone within your department or college that would want the equipment.

2. If no one within your unit is interested, advertise the item on the [UH Electronic Swap Meet](#).

Before adding your notice, be sure to search the current database of available or wanted items to see if anyone has already posted a request for a similar item. (You may also click the button on the right side of the main page to be added to an email list that will notify you when new items are added to the Swap Meet database.)

3. Contact the State of Hawaii Surplus Property Branch at (808) 831-6757, or other state departments or agencies you know of that may have use for the equipment.

If another University unit agrees to the equipment, your department will have to complete the [FMIS Equipment Transfer Form 74](#) to transfer the equipment within the University.

If the equipment is being transferred out of the University to another state agency, additional forms such as [FMIS Disposal Application Form 76](#) and DAGS Form 18 (State of Hawaii Intra and Inter Departmental Transfer of Property) may be required.

These forms and instructions are available at: www.fmo.hawaii.edu/FMIS/formfair.html

DISPOSAL BY DONATION

If there is no department interested in your surplus equipment, the organizations listed below will accept used computers and peripherals to be placed in schools or other non-profit areas. While newer, working equipment is preferred, older or non-working pieces may also be accepted. In all cases, be sure to complete UH Form 76 (Disposal Application) before finalizing the donation.

While we have made a best effort to provide a comprehensive list that includes current contact information please [contact ITS](#) if you encounter an outdated link or have additional options to share.

[The Freecycle Network](http://www.freecycle.org) is a nonprofit Yahoo Groups' movement of people who are offering items for free in their own towns. Membership is free; use the list at your own risk. <http://www.freecycle.org>

[Friends of Hawaii Volcanoes National Park](#) (Volcano, HI) accepts donations primarily on a need basis. They are a 501(c)3, not-for-profit organization. Donations are either brought to the office in the Volcanoes National Park, or picked up by a volunteer close to your area. For more information, contact ainahou2@aol.com or (808) 985-7373.

[Hawaii Computers for Kids Program](#) takes surplus equipment and software and distributes it to grade schools and high schools statewide. Email: ken@catii.com Phone: (808) 521-2259

[Hawaiian Hope](#) provides technology service to other non-profits; primarily uses donated hardware to build classrooms in homeless shelters. Email: mail@hawaiianhope.org Phone: (808) 352-8800

[Hawaii Open Source Software Foundation](#) (HOSEF) provides refurbished computers to Hawaii's schools and other nonprofit organizations. Email: scott@hosef.org Phone: (808) 689-6518

[HDOE Computer Recycling site](#) - The Hawaii Department of Education Computer Recycling Program facilitates transfer of HDOE computer equipment for classroom use and accepts corporate and community donations for distribution to support instructional programs.

[National Cristina Foundation](#) gives computer equipment and software a second productive life by placing these technology resources with charities, schools, and public agencies, to provide training to students at risk, the economically disadvantaged, and people with disabilities. Email: ncf@cristina.org Phone: 1-800-274-7846

[UsedComputer.com](#) is dedicated to helping you donate old machines; also lists commercial companies that recycle computers and electronics.

MANUFACTURER'S DISPOSAL AND RECYCLING PROGRAMS

Trade-ins

[Gateway Trade-in Center](#)

[Hewlett-Packard Trade-in Program](#)

[IBM Asset Recovery Solutions](#)

[Sony Take Back Recycling Program](#)

[Toshiba Trade-in and Recycle Program](#)

Recyclers (some free with purchase of new, some charge a fee)

[Apple Recycling Program](#)

[Best Buy "Greener Together"](#)

[Dell Recycling](#)

[Hewlett-Packard Product Recycling](#)

[National Center For Electronics Recycling](#)

[Office Depot](#)

[Radio Shack](#)

[Sam's Club](#)

COMPUTER RECYCLING FOR BUSINESSES

[Enviroservices](#) (808) 839-7222

[Haztech Environmental Services](#) (808) 671-1985

[Pacific Commercial Services](#) (808) 545-4599

[Pacific Corporate Solutions](#) (808) 722-3931

[SD Systems Inc.](#) (808) 836-7950

ADDITIONAL SOURCES OF RECYCLING INFORMATION

[Consumer Electronics Association \(CEA\)](#)

[County of Hawai'i – Department of Environmental Management & Recycle Hawai'i](#)
(808) 961-8083

Drop Off Locations (Please Call First):

- * East Hawai'i (Hilo) - Bayside Computer Shop (808) 934-7748
- * West Hawai'i (Kona) – Kona CompuCycle (808) 987-4818

[County of Honolulu - Department of Environmental Services](#)

Recycling Information: (808) 768-3200

[Kaua'i County Recycling Office](#)

Email: eishida@kauai.gov
(808) 241-4841

[County of Maui - Department of Environmental Management](#)

Email: recycle.maui@mauicounty.gov
Recycle Maui County Hotline: (808) 270-7880

eWASTE DISPOSAL DAYS ARCHIVE PAGE

Our eWaste Disposal Days program was a one-time event and is no longer available. At the archive page for the event you will find documentation on the successful [Education & Government eWaste Disposal Days 2008](#) program.

INFOBITS: Sustainability In The Workplace

Information Technology Services, University of Hawaii System

http://www.hawaii.edu/its/

Most Visited Customize...

Information Technology Services, ...

Information Technology Services

UH Home | Search UH

Information for Students Information for Faculty & Staff

HOME SERVICES STATUS ABOUT

ASK US
Got a question? Ask us:
Enter keywords **GO**

Quick Links
Get a UH Username
ITS Help Desk
Manage your UH Username
Email Account practices
UH Username practices
Virus information
ITS Documents
ITS Labs
Supported Software
MyUH
Laulima (Learning & Collaboration)
Webmail
ITS Telecom Engineering
Email Tech Support

ITS News

- [ITS Computer Lab at Keller 213 to Close](#)
- [Oahu Best Buy Participating in Recycling Program](#)
- [New Manoa Wireless Network - UHM](#)
- [Be Net-Savvy About IT](#)
- [UH](#)

Current Outages
No outages have been reported.

Scheduled Outages

Summary	Scheduled Start Time	Scheduled End Time

Hot Topics

- [Reg](#)
- [Har](#)
- [Lus](#)
- [IT S](#)
- [Wh](#)
- [RAV](#)
- [Fol](#)

InfobITS (Archived)

- [N](#)
- [Tw](#)
- [Ma](#)
- [Per](#)
- [Tro](#)
- [Dal](#)
- [ITS](#)

Information Technology Services
UNIVERSITY OF HAWAII SYSTEM

Oahu Best Buy Participating in Recycling Program

Reprinted from: Minneapolis / St. Paul Business Journal

Best Buy Co. Inc. has expanded its electronics-recycling program to all of its 1,006 U.S. stores, the company announced Tuesday. The Richfield-based consumer-electronics retailer started testing the program at 117 stores in eight states last June, including all of its Minnesota locations.

The program allows consumers to bring up to two units per day, per household, to any U.S. Best Buy store for recycling. Stores will accept most consumer electronics, including televisions and monitors up to 32 inches, desktop and notebook computers, small electronics, VCRs, DVD players and phones, as well as accessories such as keyboards, mice and remotes.

Best Buy charges a \$10 recycling fee for items with screens, including televisions, laptops and monitors. However, customers with those items will receive a \$10 Best Buy gift card in exchange for the recycling fee. The fee does not apply to units recycled in California or for Best Buy store-branded products, such as Insignia, Dynex and VPR Matrix.

Best Buy does not accept televisions or monitors larger than 32 inches; console televisions; items that contain Freon, including air conditioners, dehumidifiers and mini refrigerators; microwaves; and large appliances.

The program now is available in all 50 states, and Best Buy (NYSE: BBY) hopes to extend the program to Puerto Rico soon, spokeswoman Kelly Groehler said.

by Editor



To “sustain” is to provide relief or support; “ability” is the power or capacity to do or act competently. Combining the two words forms the buzzword “sustainability”; which in its contemporary use implies that something is, “capable of being continued with minimal long-term effect on the environment.” During the downturn in our economy it’s as important as ever for everyone to embrace sustainability by conserving energy and resources, not only in our personal lives but in our workplaces as well.

Observances of the 39th annual [Earth Day](#) will be held internationally on Wednesday April 22, 2009 including a Sustainability Fest organized by [Sustainable Saunders](#) on the UH Manoa

campus. These observances are excellent sources of information for evaluating all levels of energy use. To prepare for attending an Earth Day event review this Top 10 list and then read on for more details concerning implementation of the suggested energy conservation steps that you can put into practice.

WORKSPACE ENERGY EFFICIENCY TOP 10

1. Turn on power management options within your computer.
2. Disable screen savers.
3. Use “smart” power strips.
4. Purchase ENERGY STAR equipment.
5. Recycle old equipment.
6. Turn off all equipment and lights when not in use.
7. Use available sunlight; remove light bulbs wherever possible; replace incandescent bulbs with CFLs.
8. Conserve Printer use; print double-sided; use recycled paper.
9. Unplug your adapters and chargers when not in use.
10. Use multifunctional (all-in-one) devices.

Estimates of energy savings resulting from prudent use of resources in the workplace vary widely; even so, any small strides in reducing consumption can add up to monetary savings and also result in less negative impact on our environment. Here are a few detailed practical suggestions to consider in the use of computers and other resources in your workplace.

COMPUTERS

Leaving a computer on around the clock will not only increase your energy usage but fans in the computer can draw dust into the machine which makes your computer more vulnerable to power surges. Completely shutting down your computer when you leave the office is the best option; however if you must leave your computer on for off-campus access, or use your computer sporadically throughout your workday, take advantage of the power management options built into your operating system to automatically reduce energy use. Power management options have been incorporated into modern operating systems for several years and they are identified by several names: hibernate, sleep, standby, or suspend. Hibernate is distinctly different than the other three options in a few ways:

Standby / Sleep / Suspend =

- Computer's info is stored in RAM.
- Minimal amount of power is still applied to the RAM. (Requiring battery or AC)
- Display is turned off.
- Fans might turn off.
- Hard drive is stopped.
- Starting the computer is almost instantaneous. (Computer is still keeping in active memory everything that was running and open just prior to being put in a low power mode.)
- If you lose power the RAM is wiped, you will lose any work not saved.

Hibernate =

- Computer's info is stored on the hard drive.
- Hard drive does not require power to hold on to information. (Allows you to turn off the computer completely and unplug from power)
- Computer can turn off power to everything.
- Typically takes more time to start up. (Requires starting up the computer and loading everything into memory from the hard drive.)
- Computer is restored to exactly where it was before.
- If power is cut, the computer's state is still stored.

It's suggested that you should configure your monitor to turn off after 10 minutes (or less) of inactivity, your hard drive to turn off after 20 minutes of inactivity, and your desktop computer or laptop to go into a standby/sleep/suspend mode after 60 minutes of inactivity.

Newer monitors do not suffer from burn-in or permanent image etching like earlier monitors. So keep in mind that screensavers are not necessarily energy savers; they continue to draw full power to use the monitor. In some cases screensavers may not be compatible with a computer's power management features and may prevent the machine from powering down. Consider disabling your screensaver altogether, however if you prefer to use it then ensure that it's compatible with your equipment and allows the system to enter power saver modes.

COMPUTER PURCHASES

When purchasing new equipment look for products displaying an [Energy Star](#) (ES) label. [The U.S. Environmental Protection Agency](#) (EPA) launched ES in 1992 as a voluntary labeling program designed to promote and recognize energy-efficiency in monitors, climate control equipment, and other technologies. Australia, Canada, Japan, New Zealand, Taiwan and the European Union have subsequently adopted the ES program. The EPA has expanded the program to include endorsement of computers, monitors, printers, fax machines, copiers, home appliances, and even entire buildings. Devices carrying the ES logo can save 20% to 50% of energy resources on average; however, they save energy only when the power management features are activated, so make sure that any power management options in your equipment are turned on. For specific details on activation of the power management features of your type of operating system read the ITS AskUS article "[PC Energy Savings Guidelines](#)."

Even if you are running an older computer, Energy Star offers several free tools that can work with your operating system to conserve energy; Monitor Power Management (MPM), or Computer Power Management (CPM). MPM places active monitors into a lower power sleep mode after a period of inactivity; while CPM places the computer itself (CPU, hard drive, etc.) into a lower power sleep mode. You are encouraged to check out all the free tools offered by [ES at their webpage](#) on General Technical Overview of Power Management. It's best to consult with your local departmental or campus IT specialist before implementing any ES power management measures.

One of the major decisions in a computer purchase is desktop vs. laptop. While laptops may be a bit pricier than a desktop of similar specifications they're a good investment when considering energy consumption. Estimates in electrical cost savings from using a laptop over a desktop range from 50% to 90%. Laptops also require less office space for operation, are portable, and can run on batteries that can be recharged via solar sources. Besides being a bit cheaper in price, desktops do have their advantages, they're easier to upgrade, generally have more power, more comfortable keyboards, and they're less appealing to thieves. If you prefer a desktop keep a few factors in mind: Consider a flat panel monitor, they use only 1/3 the energy; LCD monitors (liquid crystal display) provide up to 70% power savings and have up to twice the lifespan of a CRT (cathode

ray tube) monitor; LCD monitors also run cooler, which helps save on air conditioning costs; the bigger the monitor the more energy it uses, so consider a flat panel screen that's the appropriate size for your needs.

Always check into manufacturer's donate/recycle programs for your used equipment when upgrading to newer models. If you have University of Hawaii equipment refer to the [UH Disposal Guidelines for Unused Computer Equipment](#) webpage; you may be able to transfer the equipment to someone within the UH system, and the webpage lists local/national donate/recycling options too.

PRINTERS

Printers are used periodically but are powered up for extended periods of time, wasting a significant amount of energy. When purchasing a printer select a model with power management capabilities; printers with automatic "power down" features can reduce electricity use by over 65%. It's also a wise choice to set your machine for two-sided printing to reduce paper and energy usage; if possible choose double-sided printing as your default. And using recycled paper is always a plus.

LIGHTING

Lighting efficiency is a major factor in conserving energy. Fluorescent bulbs are much more efficient than incandescent bulbs. Even though compact fluorescent bulbs (CFLs) are more expensive than incandescents they can last 6 to 10 times longer, paying for themselves in energy savings over their lifetime. By replacing 25% of the bulbs in your workspace with CFLs you can save 50% on energy. 90% of the energy used to burn an incandescent is given off as heat rather than light; by using CFLs you'll not only save energy but your workplace will also be cooler. To further energy savings make the most of natural daylight by turning off or dimming lights when sunlight is sufficient for your workspace. Installing lighting occupancy sensors that turn lights on or off depending on occupancy of your workspace is also a plus.

GENERAL POINTERS

- Whenever practical choose multifunctional devices (all-in-ones); a typical MFD may perform the tasks of a printer, scanner, photocopier, or fax machine. MFDs save energy compared to several products working in parallel.
- Use power strips that include surge protection and are "smart." Smart strips sense the difference between when computers and other devices are on or off, they shut off the power when no longer needed which cuts down on idle "phantom" power usage. If using regular power strips turn the strip off at night; be sure to turn off all equipment connected to the power strip first.
- Adjust your computer's data backup and software update schedules to run during the workday so you won't need to leave your computer on at night.
- Using rechargeable batteries for products like cordless phones and PDAs is more cost effective than disposable batteries. Many retailers of office equipment routinely offer drop boxes in their store locations for disposable batteries. If you must use throwaways use these retailer services or check with your trash removal company about their battery safe disposal suggestions.
- Always unplug battery chargers when the batteries are fully charged or the chargers are not in use.

DHHL Vehicle Inventory

Oahu Vehicles

	License Plate	Model	Vehicle Description	Serial Number	Model Year	Acquisition Cost	Mileage	As of Date	gallons per 100 miles (fuel economy)	average	actual fuel consum. (gal)	fuel
1	SH7297	Chevy	Van passenger - astro	2GNEG25H8N4132080	1992	\$17,053.04	176,037	8/27/2009	6.667/5	5.84	10280.56	gasoline87
2	SH9412	Chevy	Corsica	1G1L055MISY264061	1995	\$5,900.00	73,923	8/18/2009	4.762/3.448	4.11	3038.24	gasoline87
4	SHB577	Ford	Explorer 4x4 4WD 4door	1FMZU62K75ZA32343	2005	\$24,460.42	53,489	8/19/2009	7.143/5	6.07	3246.78	gasoline87
5	SHB268	Chevy	Tahoe	3GNEK18RXVG164830	1997	\$8,000.00	83,556	8/19/2009	7.692/5.882	6.79	5673.45	gasoline87
6	SHD 358	Dodge	Caravan	1B4GP25301B158589	2001	\$4,500.00	35,367	8/18/2009	5.556/4.167	4.86	1718.84	gasoline87
7	SHD 359	Dodge	Stratus	1B3EL36104N341974	2004	\$7,200	24,971	8/18/2009	4.545/3.333	3.94	983.86	gasoline87
8	SHD 319	Ford	E-350 12psgr	1FBNE31L88DA59307	2008	\$27,996.23	16,296	8/18/2009	no fuel rating available on vehicle			gasoline87

Maui Vehicles

	License Plate	Model	Vehicle Description	Serial No.	Model Year	Acquisition Cost	Mileage	As of date	gallons per 100 miles (fuel economy)	average	actual fuel consum. (gal)	fuel
1	SH8652	Jeep	Cherokee SUV 4-door	1J4FJ28S3VL578912	1997	\$23,812.35	69,408	8/12/2009	6.667/5	5.84	4,053	gasoline 87

Kauai Vehicles

	License Plate	Model	Vehicle Description	Serial Number	Model Year	Acquisition Cost	Mileage	As of Date	gallons per 100 miles (fuel economy)	average	fuel consum. (gal)	fuel
1	SH9218	Ford	Ford MPVH Explorer 4x4	1FMZU34X9XZA90464	1999	\$24,943.59	35,457	8/12/2009	6.667/5.263	5.97	2116.78	gasoline-87

Molokai Vehicles

	License Plate	Model	Description	Serial No.	Model Year	Acquisition Cost	Mileage	As of Date	gallons per 100 miles (fuel economy)	average	fuel consum. (gal)	fuel
1	SH8310	Ford	Explorer 4x4 4WD	1FMDU34X8SJC34215	1995	\$24,424.04	115,446	8/25/2009	6.667/5.263	5.97	6892.1	gasoline
3	SH8558	GMC	GMC dump truck	1GDP7H1J0VJ501905	1997	\$55,434.00	28,381	8/24/2009	n/a		0.0	diesel
4	SHA305	Chevy	Silverado 4x4	1GBHK24U52E113017	2002	\$32,490.00	115,249	8/24/2009	7.143/5.882	6.52	7514.2	gasoline
5	SHA907	Ford	Explorer 4x4 4WD	1FMZU72K24ZA03031	2004	\$26,051.43	57,301	8/24/2009	5.263/5	5.13	2939.5	gasoline
6	SHC230	Ford	Ford pick up F250	1FTNF21568EC86474	2006	\$24,355.97	31,136	8/24/2009	6.667/5	5.84	1818.3	gasoline
7	SHD719	Chevy	Pick up Truck S-10 (green)	1GCCS145718206292	2001	\$4,500.00	31,103	8/24/2009	5.26/4	4.63	1440.1	gasoline
8	SHD720	Chevy	Pick up Truck S-10 (red)	1GCCS145118204862	2001	\$4,500.00	29,153	8/24/2009	5.26/4	4.63	1349.8	gasoline

DHHL Vehicle Inventory

West Hawaii Vehicles

	License Plate	Model	Vehicle Description	Serial No.	Model Year	Acquisition Cost	Mileage	As of Date	gallons per 100 miles (fuel economy)	average	fuel consum. (gal)	fuel
1	SHC612	Ford	Escape	IFMCU93167KA15624	2007	\$24,999.95	9,664		7.143/5.556	6.35	613.664	gasoline
2	SH9064	Chevy	4x4 pick up truck	1GCGK24R9WE252855	1998	\$25,088.95	93,558		6.667/5	5.84	5463.7872	gasoline
3	SH9054	GMC	Dump truck auto car	1WBUCJF8GH	1986	\$13,166.04	55,319		6.667/5	5.84	3230.6296	gasoline
4	SHB591	Chrysler	1500 Quad cab pickup	1D7HU18N45J516396	2005	\$26,568.59	79,520		7.143/5.556	6.35	5049.52	gasoline
5	SH8514	Chevy	Flatbed truck	1GBHK34J4VF008123	1997	\$30,449.95	53,625				0	gasoline
6	SH847	SnowBr	Trailer	2SWUW11456260072	2005		no mileage		n/a			gasoline

East Hawaii

	License Plate	Model	Description	Serial No.	Model Year	Acquisition Cost	Mileage	As of Date	gallons per 100 miles (fuel economy)	average	fuel consum. (gal)	Fuel
1	SHA154	Mercury	Mountaineer	4M2ZU76E11UJ09823	2002	\$24,999.01	76,116	8/17/2009	6.667/5.263	5.97	4544.1252	gasoline -87
2	SHB897	Toyota	Tacoma 4x4 v6	5TEUUA2N55Z122690	2005	\$24,778.06	25,367	8/18/2009	5.882/4.762	5.32	1349.5244	gasoline -87
3	SH 337	Dodge	Ram 1500	1D7HU18218J178398	2008	\$31,381.05	38,546	8/17/2009	7.692/5.882	6.79	2617.2734	gasoline -87

2008-2009 State of Hawaii Department of Education Vehicle Fuel Report															
Make	Model	Year	License Plate #	VIN	GVWR	EPA Hwy Fuel Econ	EPA City Fuel Econ	Acq. Cost	Fuel Type	In-use Mileage	In-use Fuel Consum.	In-use Avg Fuel Econ	Annual Mileage	Annual Fuel Consum	Annual Avg Fuel Econ
Fuel Type:		DIESEL													
INTL	XXXX	1992	SH4208	1HTSCNPL5NH409720	19000			\$0.00	DIESEL	2766.00	357.70	7.73	2766.00	357.70	7.73
FORD	XXXX	2008	SHC741	1FDSX20R98EA28954	XXXX			\$0.00	DIESEL	20460.00	1550.24	13.20	12012.00	857.31	14.01
FORD	XXXX	2008	SHC749	1FDSX20R38EA28951	XXXX			\$0.00	DIESEL	15508.00	344.30	45.04	15508.00	344.30	45.04
FORD	XXXX	2008	SHC762	1FDWX36R28EA24355	XXXX			\$0.00	DIESEL	10830.00	1072.48	10.10	4686.00	497.99	9.41
CHEV	XXXX	2008	SHD163	1PDXF46R98EA09249	XXXX			\$0.00	DIESEL	2687.00	324.16	8.29	2520.00	298.52	8.44
CHEV	XXXX	1999	SHD164	1GBHGG31F3X1153760	XXXX			\$0.00	DIESEL	5605.00	490.79	11.42	4036.00	336.38	12.00
FORD	PICKUP	2009	SHD789	1FDSF30R29EA00827	7440			\$0.00	DIESEL	1031.00	95.57	10.79	1031.00	95.57	10.79
FORD	PICKUP	2009	SHD790	1FDSF30R49EA00828	7280			\$0.00	DIESEL	1279.00	86.21	14.84	1279.00	86.21	14.84
FORD	XXXX	2009	SHD792	1FDSF30R29EA00830	7160			\$0.00	DIESEL	2524.00	190.47	13.25	2524.00	190.47	13.25
Fuel Type:		GAS													
CHEV	XXXX	1992	SH4061	1GBGC24K3NE197466	8000			\$0.00	GAS	15622.00	1394.68	11.20	7284.00	666.00	10.94
CHEV	XXXX	1992	SH4063	1GBGC24K9NE198136	8600	17	13	\$0.00	GAS	8529.00	743.11	11.48	3276.00	262.65	12.47
CHEV	XXXX	1992	SH4065	1GBGC24K1NE196882	7200			\$0.00	GAS	4103.00	394.70	10.40	1717.00	153.00	11.22
CHEV	XXXX	1990	SH4138	1GBGC24KXLE229696	8600	13	10	\$0.00	GAS	2873.00	227.71	12.62	918.00	60.23	15.24
CHEV	XXXX	1990	SH4140	1GBGC24K2LE229689	8600			\$0.00	GAS	8282.00	420.10	19.71	7533.00	393.10	19.16
CHEV	XXXX	1990	SH4142	1GBGC24K4LE229709	8600			\$0.00	GAS	9331.00	695.14	13.42	7416.00	551.37	13.45
GMC	XXXX	1986	SH4153	1GTDC14HXGJ525747	5200			\$0.00	GAS	746.00	94.30	7.91	410.00	52.00	7.88
DODGE	XXXX	1991	SH4207	1B6ME3656MS327606	10000			\$0.00	GAS	6147.00	847.50	7.25	3241.00	360.40	8.99
CHEV	XXXX	1990	SH4212	1GBHC34K1LE232934	10000			\$0.00	GAS	9433.00	1129.60	8.35	5622.00	625.10	8.99
FORD	XXXX	1988	SH4219	1FDJF37G1JKA14207	8800			\$0.00	GAS	1941.00	255.34	7.60	1270.00	241.34	5.26
CHEV	XXXX	1992	SH4229	1GBGC24KXNE196864	7200			\$0.00	GAS	5996.00	579.60	10.35	2067.00	156.00	13.25
CHEV	XXXX	1992	SH4230	1GBGC24K2NE196907	8600			\$0.00	GAS	13828.00	405.92	34.07	13196.00	355.44	37.13
CHEV	XXXX	1993	SH5748	1GBJ7H1M7P1J05062	24980			\$0.00	GAS	2964.00	468.60	6.33	223.00	42.20	5.28
CHEV	XXXX	1993	SH7750	1GCFC24H2PZ139484	7200			\$0.00	GAS	19404.00	1540.14	12.60	9803.00	754.46	12.99
CHEV	Prizm	1995	SH8078	1Y1SK5267SZ101581	2500			\$0.00	GAS	9136.00	324.23	28.18	5645.00	215.50	26.19
CHEV	Cavalier	1996	SH8411	1G1JC524XV7123532	2470			\$0.00	GAS	3636.00	153.26	23.72	2169.00	73.88	29.36
CHEV	XXXX	1993	SH8667	1G1BL537XPR133210	5258			\$0.00	GAS	4072.00	383.40	10.62	1674.00	164.30	10.19
CHEV	XXXX	1991	SH8870	1GCFC24H1MZ162749	7200			\$0.00	GAS	9968.00	822.90	12.11	5445.00	436.10	12.49

2008-2009 State of Hawaii Department of Education Vehicle Fuel Report															
Make	Model	Year	License Plate #	VIN	GVWR	EPA Hwy Fuel Econ	EPA City Fuel Econ	Acq. Cost	Fuel Type	In-use Mileage	In-use Fuel Consum.	In-use Avg Fuel Econ	Annual Mileage	Annual Fuel Consum	Annual Avg Fuel Econ
HYUN	Elantra	1998	SH8961	KMHJF24M3WU699195	2830			\$0.00	GAS	15938.00	683.50	23.32	8993.00	356.83	25.20
HYUN	Elantra	1998	SH8965	KMHJF24M8WU697555	2830			\$0.00	GAS	4174.00	126.40	33.02	3004.00	71.42	42.06
HYUN	Elantra	1998	SH8967	KMHJF24M2WU691251	2830			\$0.00	GAS	10491.00	465.16	22.55	6929.00	301.03	23.02
CHEV	XXXX	1991	SH8977	1GCFC24H6163749	6000			\$0.00	GAS	1360.00	57.59	23.62	1360.00	57.59	23.62
DODGE	XXXX	1994	SH8978	2B4HB25Y4RK548003	8600			\$0.00	GAS	11004.00	1010.06	10.89	5039.00	436.17	11.55
FORD	XXXX	1991	SH8980	1FDNK64P9MVA06555	19660			\$0.00	GAS	10601.00	286.00	37.07	10113.00	213.00	47.48
CHEV	XXXX	1991	SH9042	1GCFC24H6MZ163394	8600			\$0.00	GAS	10089.00	703.72	14.34	4235.00	190.12	22.28
GMC	XXXX	1991	SH9069	1GDHC34K1ME5532840	10000			\$0.00	GAS	3072.00	230.79	13.31	1522.00	69.49	21.90
CHEV	Cavalier	2000	SH9527	3G1JC5240YS118569	2700			\$0.00	GAS	4279.00	192.54	22.22	2285.00	102.67	22.26
CHEV	Cavalier	2000	SH9528	3G1JC5243YS118212	2700			\$0.00	GAS	3335.00	140.80	23.69	2795.00	99.08	28.21
CHEV	Cavalier	2000	SH9535	3G1JC5249YS118117	2700			\$0.00	GAS	4934.00	175.02	28.19	1678.00	61.84	27.13
CHEV	XXXX	1994	SH9769	1GDCD14Z2R2236018	5600			\$0.00	GAS	1511.00	92.20	16.39	752.00	45.80	16.42
CHEV	XXXX	1993	SH9770	1GCFC24H3PZ139347	5060			\$0.00	GAS	18335.00	1657.00	11.07	10054.00	837.90	12.00
TOYOTA	Echo	2001	SH9804	JTDBT123810110695	2160			\$0.00	GAS	2913.00	97.08	30.01	2145.00	81.55	26.30
TOYOTA	Echo	2001	SH9809	JTDBT123X10110617	2160			\$0.00	GAS	19154.00	596.20	32.13	10066.00	310.93	32.37
TOYOTA	Echo	2001	SH9810	JTDBT123510110492	2160			\$0.00	GAS	5203.00	157.15	33.11	2761.00	65.93	41.88
TOYOTA	Echo	2001	SH9811	JTDBT123510110380	2160			\$0.00	GAS	6887.00	246.05	27.99	2760.00	98.74	27.95
TOYOTA	Echo	2001	SH9812	JTDBT123110110473	2160			\$0.00	GAS	3715.00	117.73	31.56	2029.00	65.21	31.11
TOYOTA	Echo	2001	SH9814	JTDBT123610110713	2160			\$0.00	GAS	7784.00	271.44	28.68	4560.00	154.53	29.51
TOYOTA	Echo	2001	SH9815	JTDBT123910110480	2160			\$0.00	GAS	18414.00	551.14	33.41	11590.00	325.07	35.65
CHEV	XXXX	1994	SH9841	1GCFC24H1R2266816	7200			\$0.00	GAS	10887.00	973.17	11.19	5548.00	493.63	11.24
DODGE	DAKOTA	1996	SH9842	1B7HL26X2TS682625	6150			\$0.00	GAS	6421.00	432.80	14.84	3291.00	221.30	14.87
FORD	XXXX	1997	SH9843	1FTDF172XVKD55847	6000			\$0.00	GAS	12102.00	1018.50	11.88	6782.00	535.80	12.66
CHEV	S-10	1994	SH9921	1GCCS14Z9R8226557	5300			\$0.00	GAS	19637.00	1310.90	14.98	9593.00	681.20	14.08
CHEV	S-10	1994	SH9922	1GCCS19Z0R8226181	5300			\$0.00	GAS	9743.00	648.30	15.03	4554.00	286.20	15.91
CHEV	XXXX	1994	SH9923	1GDCD14Z9R2223993	5600			\$0.00	GAS	3635.00	265.30	13.70	1202.00	98.80	12.17
CHEV	XXXX	1994	SH9928	1GCEC14Z2R2267791	6000			\$0.00	GAS	10709.00	724.01	14.79	2258.00	148.35	15.22
CHEV	XXXX	1994	SH9977	1GNDM15Z6RB232081	5700			\$0.00	GAS	3127.00	218.60	14.30	679.00	42.00	16.17
CHEV	XXXX	1994	SHA120	1GCCS14Z9R8225523	5300			\$0.00	GAS	2347.00	120.30	19.51	1439.00	73.90	19.47

2008-2009 State of Hawaii Department of Education Vehicle Fuel Report															
Make	Model	Year	License Plate #	VIN	GVWR	EPA Hwy Fuel Econ	EPA City Fuel Econ	Acq. Cost	Fuel Type	In-use Mileage	In-use Fuel Consum.	In-use Avg Fuel Econ	Annual Mileage	Annual Fuel Consum	Annual Avg Fuel Econ
CHEV	XXX	1994	SHA121	1GFCF24ZXRZ245435	7200	22	16	\$0.00	GAS	9159.00	703.56	13.02	5848.00	415.02	14.09
FORD	Taurus	1997	SHA138	1FALP224VG223165	4722			\$0.00	GAS	3243.00	174.30	18.61	597.00	30.50	19.57
FORD	Taurus	1997	SHA174	1FALP5226VG223166	4722			\$0.00	GAS	9516.00	413.30	23.02	5238.00	230.20	22.75
CHEV	XXX	1993	SHA220	1GCGG35KOPF340875	8600			\$0.00	GAS	11778.00	1106.80	10.64	4315.00	416.00	10.37
CHEV	XXX	1993	SHA221	1GFGG35K8PF240704	5600			\$0.00	GAS	15888.00	1450.20	10.96	8888.00	825.50	10.77
CHEV	XXX	1994	SHA222	1GBGC24KORE260917	5600			\$0.00	GAS	12807.00	1121.61	11.42	6325.00	559.19	11.31
CHEV	XXX	1994	SHA229	1GBGC24K3RE261673	5600			\$0.00	GAS	10947.00	951.62	11.50	6392.00	550.37	11.61
CHEV	XXX	1993	SHA249	1GFCF24H8PZ137190	7200			\$0.00	GAS	15241.00	1262.60	12.07	7181.00	598.80	11.99
CHEV	XXX	1993	SHA297	1GCGG35K0PF339354	8600			\$0.00	GAS	7985.00	744.18	10.73	4064.00	388.68	10.46
CHEV	XXX	1994	SHA333	1GBHC34K2RE313546	8800			\$0.00	GAS	14534.00	1292.74	11.24	8630.00	799.17	10.80
FORD	XXX	1995	SHA334	1FTEF15Y5SLB50325	6250			\$0.00	GAS	8604.00	566.96	15.18	849.00	64.38	13.19
CHEV	XXX	1994	SHA337	1GBHC34K5RE176621	10000			\$0.00	GAS	16153.00	1726.44	9.36	8252.00	831.33	9.93
CHEV	XXX	1994	SHA338	1GBGC24K6RE302619	8600			\$0.00	GAS	7189.00	701.60	10.25	3392.00	342.17	9.91
CHEV	XXX	1994	SHA339	1GBHC34K3RE176973	10000			\$0.00	GAS	12493.00	1284.10	9.73	7077.00	673.00	10.52
CHEV	XXX	1994	SHA340	1GFCF24H6RZ267679	7200			\$0.00	GAS	9272.00	711.93	13.02	4563.00	313.87	14.54
CHEV	XXX	1994	SHA352	1GFCF24H8RZ266579	7200			\$0.00	GAS	20149.00	1546.60	13.03	10227.00	774.20	13.21
GMC	XXX	1994	SHA383	1GTF24H3RE549494	7200			\$0.00	GAS	5540.00	541.00	10.24	2835.00	285.60	9.93
CHEV	XXX	1994	SHA384	1GBHC34KXRE177120	8600			\$0.00	GAS	16821.00	1830.70	9.19	9399.00	1002.40	9.38
FORD	XXX	1998	SHA447	1FAFP522WG216116	4722			\$0.00	GAS	8429.00	412.40	20.44	6086.00	288.40	21.10
FORD	XXX	1998	SHA449	1FAFP5226WG216118	4722			\$0.00	GAS	10613.00	552.10	19.22	7493.00	385.10	19.46
FORD	XXX	1995	SHA547	1FTEF15Y7SLB50326	6250			\$0.00	GAS	11721.00	834.27	14.05	4969.00	340.59	14.59
FORD	XXX	1997	SHA548	1FTDF1721VKD5817	6000			\$0.00	GAS	8944.00	703.78	12.71	2062.00	157.52	13.09
CHEV	XXX	1995	SHA549	1GCGG35K2SF146082	8600			\$0.00	GAS	18002.00	1573.53	11.44	9948.00	853.06	11.66
CHEV	XXX	1995	SHA674	1GCGG35K1SF147496	8600			\$0.00	GAS	11498.00	1170.50	9.82	7971.00	869.00	9.17
CHEV	XXX	1995	SHA675	1GBHC34K6SE240588	10000			\$0.00	GAS	3606.00	385.00	9.37	1419.00	134.47	10.55
FORD	XXX	195	SHA676	1FTEF15YXSLB50319	6250			\$0.00	GAS	9106.00	609.10	14.95	2773.00	183.50	15.11
CHEV	XXX	1995	SHA717	1GBHC34K9SE240665	10000			\$0.00	GAS	6024.00	745.35	8.08	3953.00	455.23	8.68
CHEV	XXX	1995	SHA820	1GBHC34K4SE203233	10000			\$0.00	GAS	13737.00	1287.66	10.67	7131.00	667.17	10.69
CHEV	XXX	1994	SHA821	1GBHC34K9RE311406	5960			\$0.00	GAS	13516.00	1443.29	9.36	7797.00	850.29	9.17

2008-2009 State of Hawaii Department of Education Vehicle Fuel Report															
Make	Model	Year	License Plate #	VIN	GVWR	EPA Hwy Fuel Econ	EPA City Fuel Econ	Acq. Cost	Fuel Type	In-use Mileage	In-use Fuel Consum.	In-use Avg Fuel Econ	Annual Mileage	Annual Fuel Consum	Annual Avg Fuel Econ
CHEV	XXX	1995	SHA822	1GBHC34K8SE117729	10000			\$0.00	GAS	2173.00	250.76	8.67	439.00	55.29	7.94
CHEV	XXX	1995	SHA839	1GBHC34K2SE204476	10000			\$0.00	GAS	16188.00	1657.56	9.77	7629.00	758.13	10.06
CHEV	XXX	1991	SHA840	1GBHC34K7RE311047	5260			\$0.00	GAS	13677.00	1506.00	9.08	8431.00	963.70	8.75
CHEV	XXX	1995	SHA841	1GBHC34K8SE203428	10000			\$0.00	GAS	8672.00	885.50	9.79	4430.00	460.18	9.63
FORD	XXX	1999	SHA869	1FAFP5220XG290362	4722			\$0.00	GAS	5961.00	269.60	22.11	300.00	12.20	24.59
GMC	XXX	1999	SHA896	1GTGC33R3XF094531	9000			\$0.00	GAS	11226.00	1148.90	9.77	5891.00	562.00	10.48
FORD	XXX	1998	SHA897	1FTRF27Z9WKB88228	6930			\$0.00	GAS	4879.00	390.20	12.50	2951.00	293.10	10.07
TOYOTA	Echo	2001	SHA929	JTDBT123910109989	2160			\$0.00	GAS	2317.00	81.07	28.58	1842.00	60.30	30.55
CHEV	XXX	1996	SHA999	1GBGC24R5TE125582	8600			\$0.00	GAS	17686.00	1734.60	10.20	7254.00	727.30	9.97
NISSAN	Sentra	2003	SHB130	3N1CB51D63L782093	2760			\$0.00	GAS	15107.00	603.26	25.04	8178.00	295.31	27.69
NISSAN	Sentra	2003	SHB131	3N1CB51D43L715136	2760			\$0.00	GAS	4988.00	192.02	25.98	2963.00	113.82	26.03
NISSAN	Sentra	2003	SHB132	3N1CB51D53L713783	2760			\$0.00	GAS	25357.00	932.12	27.20	12618.00	460.50	27.40
NISSAN	Sentra	2003	SHB133	3N1CB51D33L711417	2760			\$0.00	GAS	6217.00	243.85	25.50	2081.00	76.94	27.05
NISSAN	Sentra	2003	SHB134	3N1CB51D03L712850	2760			\$0.00	GAS	2954.00	156.55	18.87	1959.00	94.40	20.75
NISSAN	Sentra	2003	SHB135	3N1CB51D93L775266	2760			\$0.00	GAS	16865.00	485.02	34.77	9090.00	245.59	37.01
CHEV	XXX	1996	SHB191	1GBGC24ROTE122590	8600			\$0.00	GAS	9207.00	828.50	11.11	2416.00	188.20	12.84
CHEV	XXX	1996	SHB192	1GBGC24R5TE125033	8600			\$0.00	GAS	14185.00	1249.70	11.35	7989.00	688.80	11.60
FORD	XXX	1996	SHB197	1FDHF25H8TEB77037	5600			\$0.00	GAS	11167.00	1025.18	10.89	4942.00	459.98	10.74
CHEV	XXX	1996	SHB198	1GBGC24R9TE125648	9360			\$0.00	GAS	15785.00	1305.01	12.10	7919.00	646.20	12.25
FORD	XXX	1996	SHB199	1FDHF25H8TEB77044	8600	16	15	\$0.00	GAS	9160.00	907.89	10.09	4000.00	402.35	9.94
CHEV	XXX	1996	SHB200	1GBGC24R7TE130380	8600	19	15	\$0.00	GAS	10300.00	927.73	11.10	5152.00	461.92	11.15
FORD	Taurus	2004	SHB226	1FAFP52U74G124840	3300			\$0.00	GAS	12796.00	501.38	25.52	8645.00	316.96	27.27
FORD	XXX	1996	SHB305	1FDHF25H8TEB77040	5260			\$0.00	GAS	14224.00	1439.30	9.88	7295.00	739.10	9.87
CHEV	XXX	1996	SHB306	1GBJK34R3TE184368	10000			\$0.00	GAS	8826.00	902.97	9.77	4445.00	445.44	9.98
FORD	XXX	1997	SHB473	1FTJE34L9VHC12562	9500			\$0.00	GAS	15944.00	1560.42	10.22	9685.00	865.48	11.19
FORD	XXX	1997	SHB474	1FTJE34L7VHC12561	9500			\$0.00	GAS	15789.00	1286.96	12.27	8551.00	712.25	12.01
TOYOTA	Camry	2004	SHB943	JTDBF30K240157478	3420			\$0.00	GAS	6519.00	327.91	19.88	4182.00	201.21	20.78
TOYOTA	Camry	2004	SHB944	JTDBF30K140157942	3219			\$0.00	GAS	7704.00	388.76	19.82	3902.00	196.10	19.90
TOYOTA	Camry	2004	SHB945	JTDBF30K740157184	3219			\$0.00	GAS	10944.00	564.86	19.72	5184.00	270.31	19.18

2008-2009 State of Hawaii Department of Education Vehicle Fuel Report															
Make	Model	Year	License Plate #	VIN	GVWR	EPA Hwy Fuel Econ	EPA City Fuel Econ	Acq. Cost	Fuel Type	In-use Mileage	In-use Fuel Consum.	In-use Avg Fuel Econ	Annual Mileage	Annual Fuel Consum	Annual Avg Fuel Econ
TOYOTA	Camry	2004	SHB946	JTDBF30K140157956	3420			\$0.00	GAS	4531.00	247.75	18.29	2222.00	87.37	25.43
TOYOTA	Camry	2004	SHB949	JTDBF30KX40157230	3420			\$0.00	GAS	8137.00	405.43	20.07	4172.00	191.55	21.78
TOYOTA	Camry	2004	SHB950	JTDBF32K440157897	3219			\$0.00	GAS	29253.00	1168.59	25.03	11326.00	438.80	25.81
TOYOTA	XXXX	2005	SHC330	JTDBE32K653007292	XXXX			\$0.00	GAS	18502.00	690.20	26.81	9601.00	349.23	27.49
TOYOTA	XXXX	2005	SHC331	JTDBE32K553007557	XXXX			\$0.00	GAS	5766.00	245.11	23.52	3359.00	144.76	23.20
TOYOTA	XXXX	2005	SHC332	JTDBE32K753007852	XXXX			\$0.00	GAS	20947.00	866.19	24.18	10727.00	431.24	24.87
TOYOTA	XXXX	2005	SHC335	JTDBE32K253008228	XXXX			\$0.00	GAS	1981.00	86.46	22.91	1622.00	62.65	25.89
TOYOTA	XXXX	2005	SHC336	JTDBE32K853009612	XXXX			\$0.00	GAS	7487.00	290.45	25.78	2367.00	64.29	36.82
DODGE	XXXX	1999	SHC350	3B6KC26Z0XM580704	8800			\$0.00	GAS	16156.00	1758.20	9.19	8450.00	927.52	9.11
DODGE	XXXX	1999	SHC351	3B6KC26Z7XM580702	8800			\$0.00	GAS	9794.00	1103.40	8.88	5074.00	590.30	8.60
DODGE	XXXX	1999	SHC352	3B6KC26Z8XM580708	8800			\$0.00	GAS	12516.00	1048.17	11.94	6284.00	533.15	11.79
DODGE	XXXX	1999	SHC353	3B6KC26Z5XM580701	8800			\$0.00	GAS	12979.00	1170.95	11.08	5240.00	542.84	9.65
DODGE	XXXX	1999	SHC354	3B6KC26Z2XM580705	8800			\$0.00	GAS	12886.00	1307.29	9.86	7230.00	729.33	9.91
FORD	XXXX	1999	SHC378	2B7KB31Z1MK431016	1000			\$0.00	GAS	12486.00	1773.00	7.04	7340.00	897.40	8.18
DODGE	RAM	1999	SHC383	3B6KC26Z6XM580707	8800			\$0.00	GAS	12644.00	1221.49	10.35	5676.00	547.26	10.37
CHEV	XXXX	2005	SHC397	1FAHP53U65A265636	XXXX			\$0.00	GAS	8242.00	363.09	22.70	4675.00	184.95	25.28
DODGE	XXXX	1999	SHC449	3B6KC26Z7XM580697	XXXX			\$0.00	GAS	12757.00	1264.74	10.09	5845.00	579.82	10.08
DODGE	XXXX	1999	SHC450	3B6KC26Z6XM580710	XXXX			\$0.00	GAS	14832.00	1349.24	10.99	6920.00	628.82	11.00
DODGE	XXXX	1999	SHC451	3B6KC26Z3XM580714	XXXX			\$0.00	GAS	5292.00	494.80	10.70	2397.00	221.70	10.81
DODGE	XXXX	1999	SHC452	3B6MF3654XM572026	XXXX			\$0.00	GAS	8743.00	955.90	9.15	2787.00	277.00	10.06
DODGE	XXXX	1999	SHC453	3B6KC26Z9XM579034	XXXX			\$0.00	GAS	10639.00	1062.00	10.02	5836.00	589.40	10.25
DODGE	XXXX	2000	SHC454	2B7KB31Y7YK147516	XXXX			\$0.00	GAS	14555.00	1216.51	11.96	9011.00	726.93	12.40
DODGE	XXXX	1998	SHC580	3B6KF26Z5WM269551	XXXX			\$0.00	GAS	16245.00	1617.50	10.04	7439.00	683.40	10.89
FORD	XXXX	2008	SHC742	1FDSX20R58EA28952	XXXX			\$0.00	GAS	10417.00	920.50	11.32	4816.00	377.00	12.77
FORD	XXXX	2008	SHC749	1FDSX20R38EA28951	XXXX			\$0.00	GAS	5844.20	371.00	15.75	4201.00	257.70	16.30
FORD	XXXX	2000	SHC761	2FTFR725YCA40773	XXXX			\$0.00	GAS	13094.00	1034.70	12.85	6521.00	452.20	14.42
FORD	XXXX	1999	SHC800	1FTYR10V5XPB66509	XXXX			\$0.00	GAS	12971.00	662.80	19.57	6906.00	346.30	19.94
FORD	XXXX	2002	SHC801	1FAFP53262A202988	XXXX			\$0.00	GAS	6283.00	326.20	19.26	4723.00	238.90	19.77
FORD	XXXX	2001	SHC802	1FAFP53221A226171	XXXX			\$0.00	GAS	3684.00	246.90	14.92	1926.00	122.30	15.76

2008-2009 State of Hawaii Department of Education Vehicle Fuel Report															
Make	Model	Year	License Plate #	VIN	GWR	EPA Hwy Fuel Econ	EPA City Fuel Econ	Acq. Cost	Fuel Type	In-use Mileage	In-use Fuel Consum.	In-use Avg Fuel Econ	Annual Mileage	Annual Fuel Consum	Annual Avg Fuel Econ
CHEV	XXXX	2000	SHC876	1GDDS1455Y8298268	XXXX			\$0.00	GAS	6372.00	386.10	16.50	4525.00	277.40	16.31
CHEV	XXXX	2000	SHC877	1GCHK33J0YF488233	XXXX			\$0.00	GAS	11812.00	981.58	12.03	7101.00	451.79	15.72
CHEV	XXXX	2000	SHC878	1GCCS1450Y8301593	XXXX			\$0.00	GAS	6710.00	277.18	24.21	3749.00	209.80	17.87
CHRY	XXXX	2007	SHC915	1C3LC46R17N676511	XXXX			\$0.00	GAS	3346.00	151.40	22.10	3209.00	139.49	23.01
CHRY	XXXX	2007	SHC916	1C3LC46R17N676508	XXXX			\$0.00	GAS	8436.00	419.83	20.09	3965.00	190.61	20.80
CHRY	XXXX	2007	SHC917	1C3LC46R37N676512	XXXX			\$0.00	GAS	5363.00	252.63	21.23	3988.00	189.11	21.09
CHRY	XXXX	2007	SHC919	1C3LC46R77N676514	XXXX			\$0.00	GAS	10667.00	511.91	20.84	6197.00	285.90	21.68
CHRY	XXXX	2007	SHC921	1C3LC46R57N676513	XXXX			\$0.00	GAS	19649.00	851.75	23.07	11985.00	511.47	23.43
CHEV	XXXX	2008	SHD163	1PDXF46R98EA09249	XXXX			\$0.00	GAS	201.00	25.64	7.84	201.00	25.64	7.84
CHEV	XXXX	1999	SHD164	1GBHG31F3X1153760	XXXX			\$0.00	GAS	612.00	25.01	24.47	612.00	25.01	24.47
CHEV	XXXX	2000	SHD165	1GCHG35RSY1270788	XXXX			\$0.00	GAS	8392.00	741.30	11.32	6640.00	566.90	11.71
DODGE	XXXX	2000	SHD166	3B6KC26Z31M558641	XXXX			\$0.00	GAS	8614.00	798.92	10.78	6837.00	623.39	10.97
DODGE	XXXX	1999	SHD307	3B6MC3653XM579249	XXXX			\$0.00	GAS	1600.00	118.73	13.48	1600.00	118.73	13.48
DODGE	XXXX	2004	SHD352	1B3EL36T24N341619	XXXX			\$0.00	GAS	1627.00	64.10	25.38	1627.00	64.10	25.38
DODGE	STRATUS	2004	SHD353	1B3EL36T94N341973	XXXX			\$0.00	GAS	3806.00	155.70	24.44	3806.00	155.70	24.44
DODGE	XXXX	2002	SHD433	XXXX	XXXX			\$0.00	GAS	2404.00	204.40	11.76	2404.00	204.40	11.76
DODGE	XXXX	2001	SHD434	2B7KB31Y91K537877	XXXX			\$0.00	GAS	3102.00	322.53	9.62	3102.00	322.53	9.62
XXXX	XXXX	1999	SHD435	XXXX	XXXX			\$0.00	GAS	7025.00	605.00	11.61	7025.00	605.00	11.61
CHEV	XXXX	2001	SHD518	1GCC5145918211302	XXXX			\$0.00	GAS	2659.00	153.83	17.29	2659.00	153.83	17.29
DODGE	XXXX	2001	SHD519	3B6KC26Z31M271011	XXXX			\$0.00	GAS	2398.00	199.70	12.01	2398.00	199.70	12.01
DODGE	XXXX	2001	SHD520	3B6KC26Z91M271014	XXXX			\$0.00	GAS	3675.00	448.13	8.20	3675.00	448.13	8.20
DODGE	XXXX	2001	SHD521	3B6KC26Z1M558636	XXXX			\$0.00	GAS	3481.00	311.53	11.17	3481.00	311.53	11.17
CHEV	XXXX	2001	SHD522	1GCC5145218206863	XXXX			\$0.00	GAS	5566.00	270.87	20.55	5566.00	270.87	20.55
CHEV	XXXX	2001	SHD523	XXXX	XXXX			\$0.00	GAS	4406.00	206.42	21.34	4406.00	206.42	21.34
DODGE	XXXX	2001	SHD524	3B6KC26Z6M271018	XXXX			\$0.00	GAS	1988.00	216.01	9.20	1988.00	216.01	9.20
DODGE	XXXX	2001	SHD579	3B6KC25Z51M555191	XXXX			\$0.00	GAS	1126.00	98.66	11.41	1126.00	98.66	11.41
DODGE	XXXX	2001	SHD581	3B6KC26Z71M583901	XXXX			\$0.00	GAS	6210.00	619.00	10.03	6210.00	619.00	10.03
DODGE	XXXX	2001	SHD582	3B6KC26791M271000	XXXX			\$0.00	GAS	4268.00	412.80	10.34	4268.00	412.80	10.34
DODGE	XXXX	2001	SHD634	3B6KC26Z61M558603	XXXX			\$0.00	GAS	2485.00	211.21	11.77	2485.00	211.21	11.77

2008-2009 State of Hawaii Department of Education Vehicle Fuel Report															
Make	Model	Year	License Plate #	VIN	GVWR	EPA Hwy Fuel Econ	EPA City Fuel Econ	Acq. Cost	Fuel Type	In-use Mileage	In-use Fuel Consum.	In-use Avg Fuel Econ	Annual Mileage	Annual Fuel Consum	Annual Avg Fuel Econ
CHEV	XXXX	2000	SHD635	1GCHG35RXY1269278	XXXX			\$0.00	GAS	3650.00	314.42	11.61	3650.00	314.42	11.61
DODGE	XXXX	2001	SHD639	3B6KC26Z0117271D01	XXXX			\$0.00	GAS	5010.00	521.90	9.60	5010.00	521.90	9.60
CHEV	XXXX	2009	SHD672	1G1ZG57B59F131550	XXXX			\$0.00	GAS	2196.00	104.81	20.95	2196.00	104.81	20.95
CHEV	PICKUP	2003	SHD715	1GNEK13V23J271404	5300			\$0.00	GAS	2623.00	198.00	13.25	2623.00	198.00	13.25
DODGE	STKE	2001	SHD740	3B6MC365X1M561192	7480			\$0.00	GAS	168.00	22.92	7.33	168.00	22.92	7.33
FORD	PICKUP	2009	SHD788	1FDSF30R09EA00826	7340			\$0.00	GAS	2299.00	166.50	13.81	2299.00	166.50	13.81
FORD	PICKUP	2009	SHD791	1FDSF30R69EA00829	7300			\$0.00	GAS	1837.00	122.43	15.00	1837.00	122.43	15.00

HARBORS DIVISION
ACT 96 Vehicle Baseline Data
FY 2007 (July 2007 - June 2008)

LIC. NO.	DESCRIPTION	VIN	YR	Class	Island	Vehicle Acquisition Cost (\$)	EPA Rated Fuel Economy (MPG) (city/hwy)	Type of Fuel	Milage (Miles)	Fuel Consumption (GAL)	Actual Fuel Economy (MPG)
SH 4070	P/U TRUCK CHEV FLEETSIDE	1GCCS14R9J2175844	88	Truck (0 - 10,000 GVW)	HAWAII	\$10,094	no listing	unleaded	295	33.66	8.76
SH 4078	P/U TRUCK 92 FORD F-150	2FTDF15N1NCA39867	92	Truck (0 - 10,000 GVW)	HAWAII	\$15,556	no listing	unleaded	578	110.57	5.23
SH 6901	P/U CHEV FLATBED	1GBG6H1P9RJ040067	94	Truck (20,000 - 45,000 GVW)	HAWAII	\$30,871	no listing	unleaded	132	73.47	1.80
SH 7027	P/U TRUCK CHEV	1GDC14H6RZ207273	94	Truck (0 - 10,000 GVW)	HAWAII	\$13,595	no listing	unleaded	1,099	105.68	10.40
SH 9716	SUV ISUZU MPVH	4S2DM58W0Y4331777	00	Truck (0 - 10,000 GVW)	HAWAII	\$22,362	17/22	unleaded	11,012	619.31	17.78
SH A865	P/U TRUCK 250 FORD F-250	1FTNW21L73ED60351	03	Truck (0 - 10,000 GVW)	HAWAII	\$24,673	15/19	unleaded	7,325	550.65	13.30
SH B632	SUV FORD ESCAPE	1FMYU93135KC92881	05	Truck (0 - 10,000 GVW)	HAWAII	\$26,924	21/25	unleaded	5,027	337.74	14.88
SH C815	PRERUNNER TOYOTA	5TEJU62NX7Z408584	07	Truck (0 - 10,000 GVW)	HAWAII	\$25,099	16/20	unleaded	11,576	557.78	20.75
SH C893	P/U DODGE DAKOTA	1D7HE22K67S152786	07	Truck (0 - 10,000 GVW)	HAWAII	\$18,726	18/23	unleaded	7,424	468.40	15.85
SH D655	SUV FORD ESCAPE	1FMCU93G09KA28943	09	Truck (0 - 10,000 GVW)	HAWAII	\$24,814	21/25	unleaded	2,648	192.43	13.76
SH 4007	P/U TRUCK FORD	1FTEX15H8NKB27063	92	Truck (0 - 10,000 GVW)	MAUI	\$19,621	12/17	Gas	1,616.00	169.02	9.56
SH 4261	INTL STAKE	1HTLBD4K2EHA61438	84	Truck (10,000 - 20,000 GVW)	MAUI	\$20,661	N/A	diesel	790.00	192.18	4.11
SH 4265	P/U FORD	1FTEF15YXGPA10688	86	Truck (0 - 10,000 GVW)	MAUI	\$9,550	18/24	Gas	Not in use	0.00	Not in use
SH 4267	P/U TRUCK GMC SONOMA	1GTCT19Z9M8509359	91	Truck (0 - 10,000 GVW)	MAUI	\$17,405	18/24	Gas	1,313.00	134.55	9.76
SH 7090	SDN OLDS CUTLASS CRUISER	1G3AJ85M3R6428263	95	Sedan, Coupe, Station wagon, SUV	MAUI	\$14,765	19/29	Gas	6,362.00	347.36	18.32
SH 7596	TRUCK GMC	1GTFC24Z0S2511129	95	Truck (0 - 10,000 GVW)	MAUI	\$20,182	16/21	Gas	3,470.00	482.67	7.19
SH 7597	TRUCK GMC	1GTEC14Z3S2511132	95	Truck (0 - 10,000 GVW)	MAUI	\$15,954	16/21	Gas	7,079.00	509.60	13.89
SH 8408	P/U CHEV	1GCCS14XXVK115298	97	Truck (0 - 10,000 GVW)	MAUI	\$15,625	17/23	Gas	1,500.00	152.20	9.86
SH 8954	SUV CHEV BLAZER	1GNCS13W8W2228884	98	Truck (0 - 10,000 GVW)	MAUI	\$31,100	16/20	Gas	3,655.00	648.98	5.63
SH C447	P/U FORD	1FTSF20P77EA42016	07	Truck (0 - 10,000 GVW)	MAUI	\$26,940		diesel	1,851.00	228.31	8.11
SH C611	P/U FORD	1FTSF20P47EA67844	07	Truck (0 - 10,000 GVW)	MAUI	\$37,239		diesel	1,604.00	189.11	8.48
SH 4004	SDN FORD TAURUS	1FACP57U5PA115878	93	Sedan, Coupe, Station wagon, SUV	OAHU	\$18,148	19/27	unleaded	784.0	72.3	10.8
SH 4005	SDN FORD TAURUS	1FACP57U7PA115879	93	Sedan, Coupe, Station wagon, SUV	OAHU	\$18,148	19/27	unleaded	1088.0	109.6	9.9
SH 4055	VAN CHEV	1GCGG35K4N7101482	92	Van (passenger, cargo)	OAHU	\$23,799	14/18	unleaded	2641.0	397.5	6.6
SH 4239	P/U GMC	1GTDC14N0GF706090	86	Truck (0 - 10,000 GVW)	OAHU	\$9,006	no listing	unleaded	404.0	47.0	8.6
SH 4244	P/U CHEV	1GBGC24M4EJ146308	84	Truck (0 - 10,000 GVW)	OAHU	\$12,785	no listing	unleaded	vehicle was disposed of		
SH 4246	P/U TRUCK 91 GMC	1GDR33KXMF701050	91	Truck (0 - 10,000 GVW)	OAHU	\$21,443	15/19	unleaded	vehicle was idle		
SH 4253	P/U CHEV	1GBGC24M8EJ146277	84	Truck (0 - 10,000 GVW)	OAHU	\$12,785	no listing	unleaded	vehicle was disposed of		
SH 4254	P/U CHEV	1GBGC24MXEJ146300	84	Truck (0 - 10,000 GVW)	OAHU	\$12,785	no listing	unleaded	vehicle was disposed of		
SH 4262	TRUCK INT'L FTBD	1HTSHNHROMH354189	91	Truck (over 45,000 GVW)	OAHU	\$62,857	no listing	diesel	n/a	86.2	n/a
SH 4269	P/U DODGE D250	1B6KD2455HS446454	87	Truck (0 - 10,000 GVW)	OAHU	\$16,026	11/13	unleaded	n/a	19.6	n/a
SH 4270	TRUCK GMC TC 10703	1GTDC14ZXLZ544867	90	Truck (0 - 10,000 GVW)	OAHU	\$13,724	18/21	unleaded	376.0	90.7	4.1
SH 4325	TRUCK AERIAL LADDER INTL	1HTAA17B2BHB25932	81	Truck (20,000 - 45,000 GVW)	OAHU	\$36,381	no listing	unleaded	n/a	n/a	n/a
SH 4326	TRUCK FORD F600 W/LIFT	1FDMF60KXLVA39248	90	Truck (10,000 - 20,000 GVW)	OAHU	\$47,618	11/15	unleaded	455.0	165.3	2.8

HARBORS DIVISION
ACT 96 Vehicle Baseline Data
FY 2007 (July 2007 - June 2008)

LIC. NO.	DESCRIPTION	VIN	YR	Class	Island	Vehicle Acquisition Cost (\$)	EPA Rated Fuel Economy (city/hwy)	Type of Fuel	Milage (Miles)	Fuel Consumption (GAL)	Actual Fuel Economy (MPG)
SH 4330	P/U GMC FLATBED	1GDJ7D1F8GV505206	86	Truck (10,000 - 20,000 GVW)	OAHU	\$28,576	no listing	diesel	vehicle was idle		
SH 4331	TRUCK INT'L 4900 W/BM & JIB	1HTSDZ3R9LH280523	90	Truck (20,000 - 45,000 GVW)	OAHU	\$95,229	no listing	diesel	vehicle was idle		
SH 5483	TRUCK INT'L AERIAL LIFT	1HTAA19580HAZ1017	82	Truck (20,000 - 45,000 GVW)	OAHU	\$97,017	no listing	diesel	n/a	12.6	n/a
SH 5485	TRUCK FLATBED GMC	1GDGR33K9MF701055	91	Truck (0 - 10,000 GVW)	OAHU	\$21,443	15/19	unleaded	broken	646.6	n/a
SH 6822	TRUCK CHEV FLTSIDE	1GFCF24HXRE121390	94	Truck (0 - 10,000 GVW)	OAHU	\$16,838	14/19	unleaded	2102.7	252.1	8.3
SH 6823	VAN CHEV	1GCDG15HORF115936	94	Truck (0 - 10,000 GVW)	OAHU	\$13,687	14/19	unleaded	3391.1	352.4	9.6
SH 7031	VAN CHEV ASTRO	1GNDM15Z9JB193006	88	Van (passenger, cargo)	OAHU	\$5,900	17/22	unleaded	484.6	59.7	8.1
SH 7244	TRUCK CHEV CAB	1GBGC24K9RE303358	94	Truck (0 - 10,000 GVW)	OAHU	\$18,192	13/17	unleaded	175.4	45.5	3.9
SH 7245	TRUCK CHEV CAB	1GBGC24K5RE306404	94	Truck (0 - 10,000 GVW)	OAHU	\$18,192	13/17	unleaded	3476.0	451.1	7.7
SH 7246	TRUCK CHEV CAB	1GBGC24K5RE304040	94	Truck (0 - 10,000 GVW)	OAHU	\$18,192	13/17	unleaded	3600.1	482.4	7.5
SH 8249	P/U CHEV	1GBHC33R8TF004193	96	Truck (0 - 10,000 GVW)	OAHU	\$25,187	15/19	unleaded	4963.0	705.9	7.0
SH 9328	INT'L MSTR KOMATSU PAY LDR	1HTSCABL4XH683803	99	Truck (20,000 - 45,000 GVW)	OAHU	\$69,695	no listing	diesel	1029.0	151.3	6.8
SH 9419	SDN CHEV CORSICA	1G1LD55M9SY273574	95	Sedan, Coupe, Station wagon, SUV	OAHU	\$6,300	21/29	unleaded	used by OCG		
SH 9420	SDN CHEV CORSICA	1G1LD55M3SY267785	95	Sedan, Coupe, Station wagon, SUV	OAHU	\$6,300	21/29	unleaded	1189.0	98.1	12.1
SH 9421	SDN CHEV CORSICA	1G1LD55M2SY272900	95	Sedan, Coupe, Station wagon, SUV	OAHU	\$6,300	21/29	unleaded	n/a	n/a	n/a
SH 9650	P/U CHEV	1GBHC33J6XF003240	99	Truck (0 - 10,000 GVW)	OAHU	\$36,145	12/16	unleaded	4264.0	705.0	6.0
SH 9739	TRUCK PETERBILT	1NPGN08X2Y0527575	00	Truck (20,000 - 45,000 GVW)	OAHU	\$81,932	no listing	diesel	n/a	113.5	n/a
SH 9899	VAN CARGO CHEV	1GCHG39F911133293	01	Van (passenger, cargo)	OAHU	\$56,655	no listing	diesel	2791.0	330.8	8.4
SH D103	TRUCK CHEV	1GFCF24K5PE221052	93	Truck (0 - 10,000 GVW)	OAHU	\$15,450	15/20	unleaded	448.0	63.8	7.0
SH D272	TRUCK FORD	2FTPF17Z63CA80280	03	Truck (0 - 10,000 GVW)	OAHU	\$8,000	11/15	unleaded	3891.0	433.7	9.0
SH D273	TRUCK FORD	2FTPF17Z73CA80286	03	Truck (0 - 10,000 GVW)	OAHU	\$8,000	11/15	unleaded	1656.0	212.8	7.8
A830	FORD P/U TRUCK	1FTYR10U41PA92546	01	Truck (0 - 10,000 GVW)	KAUAI	\$15,375	21	unl	1,519.44	155.00	9.8
C901	TOYOTA HIGHLANDER H BRID	JTEGW21A470015	07	SUV (0 - 10,000 GVW)	KAUAI	\$35,989	32	unl/Hybrid	3,108.00	135.10	23.0
C294	TOYOTA TACOMA P/U	5TENX22N66Z	06	Truck (0 - 10,000 GVW)	KAUAI	\$17,682	19	unl	3,403.00	212.10	16.0
SH 7091	TRUCK FORD STYLESIDE	1FTJW36H3RE444107	94	Truck (0 - 10,000 GVW)	KAUAI	\$29,036	13	GAS	2,486.00	410.70	6.1
SH 7094	TRUCK CHEV STYLESIDE	1GCCS19Z2R8199520	94	Truck (0 - 10,000 GVW)	KAUAI	\$16,249	19	GAS	No Longer in use		
SH 8084	SUV CHEV BLAZER	1GNCS13W1S2243585	95	Truck (0 - 10,000 GVW)	KAUAI	\$22,769	17	GAS	1,660.00	129.20	12.8
SH 9245	P/U CHEV FLATBED	1GBHC34R7XFO16843	99	Truck (0 - 10,000 GVW)	KAUAI	\$26,680	14	GAS	2,328.00	297.40	7.8
SH 9260	SUV CHEV BLAZER	1GNCS13W2XK159671	99	Truck (0 - 10,000 GVW)	KAUAI	\$32,019	16	GAS	3,091.00	205.90	15.0
SH 9261	P/U TRUCK CHEV	1GBGC24R1CF015029	99	Truck (0 - 10,000 GVW)	KAUAI	\$27,350	14	GAS	4,707.00	473.50	9.9
SH 9671	TRUCK CHEV	1GBGC24R2XF067253	99	Truck (0 - 10,000 GVW)	KAUAI	\$26,817	14	GAS	3,946.00	338.50	11.7
SH 9902	P/U TRUCK FORD	1FTYR10U41PA92546	01	Truck (0 - 10,000 GVW)	KAUAI	\$15,375	21	GAS	6,470.00	450.70	14.4

License Plate	Year	Make	Model	7 (A) Acquisition Cost	7 (B) Rated Fuel Economy	7 (c) Actual In-use Vehicle Mileage	7 (D) Actual In-use Fuel Consumption	7 (E) Actual In-use Fuel Consumption	7 (F) Actual In-use Annual Average Fuel Economy
Hilo Medical Center									
4686	1987	Chevrolet	Van	\$ 12,793.00	14 to 16 MPG	gas	111,396	46 GALS	15 MPG
6480	1988	Dodge	Ambulance	\$ 34,717.00	12 to 14 MPG	gas	47,567	26 GALS	14 MPG
7003	1984	Chevrolet	Truck	\$ 1,783.00	14 to 16 MPG	gas	65,733	208 GALS	14 MPG
7109	1994	Ford	Van	\$ 36,911.00	14 to 16 MPG	gas	55,454	922 GALS	13 MPG
8131	1989	Ford	Van	\$ 5,765.00	14 to 16 MPG	gas	76,019	77 GALS	15 MPG
9265	1992	Dodge	Truck	\$ 5,643.00	14 to 16 MPG	gas	63,972	183 GALS	15 MPG
B536	2000	Dodge	Stratus	\$ 5,447.00	20 to 28 MPG	gas	67,924	331 GALS	20 MPG
B538	2000	Dodge	Stratus	\$ 5,447.00	20 to 28 MPG	gas	81,014	245 GALS	20 MPG
B617	1998	Chevrolet	Van	\$ 6,241.00	14 to 16 MPG	gas	58,450	331 GALS	15 MPG
B703	1997	Chevrolet	Van	\$ 9,495.00	14 to 16 MPG	gas	37,176	89 GALS	16 MPG
B704	1997	Chevrolet	Van	\$ 9,495.00	14 to 16 MPG	gas	29,103	12 GALS	46 MPG
C414	2002	Oldsmobile	Alero	\$ 6,883.00	21 to 32 MPG	gas	50,112	703 GALS	20 MPG
C415	2002	Oldsmobile	Alero	\$ 6,883.00	21 to 32 MPG	gas	64,050	467 GALS	29 MPG
C732	2002	Ford	Van	unknown	14 to 16 MPG	gas	50,347	133 GALS	16 MPG
C846	2001	Dodge	Stratus	\$ 4,992.00	20 to 28 MPG	gas	34,426	405 GALS	28 MPG
C847	2002	Oldsmobile	Alero	\$ 6,883.00	21 to 32 MPG	gas	48,479	320 GALS	21 MPG
C848	2002	Dodge	Intrepid	\$ 6,392.00	18 to 26 MPG	gas	27,395	413 GALS	27 MPG
D144	2003	Oldsmobile	Alero	\$ 6,205.00	21 to 32 MPG	gas	47,564	190 GALS	25 MPG
D183	1992	Chevrolet	Caprice	\$ 16,758.00	14 to 16 MPG	gas	126,401	68 GALS	52 MPG
Maui Memorial Medical Center									
SH6098	1993	Ford	F-150	\$ 27,000.00	12 to 16 MPG	gas	106,604	90 GALS.	10 MPG
SH7742	2002	Toyota	Van-Sienna	\$ 24,000.00	18 to 26 MPG	gas	59,129	156 GALS.	17 MPG
D574	2002	Oldsmobile	Alero	\$ 5,000.00	18 to 26 MPG	gas	19,643	67 GALS.	19 MPG
MRT095	2007	Ford	E450 van	\$ 24,730.00	8 to 12 MPG	gas	36,163	4,900 GALS.	8 MPG
C536	1999	Chevy	Van	\$ 4,500.00	12 to 16 MPG	gas	23,894	252 GALS.	12 MPG
C537	2002	Oldsmobile	Alero	\$ 5,000.00	18 to 26 MPG	gas	25,865	127 GALS.	19 MPG
C627	1998	Toyota	Camry	\$ 24,000.00	18 to 26 MPG	gas	71,916	156 GALS.	17 MPG
D572	2000	Ford	150	\$ 6,000.00	12 to 16 MPG	gas	14,544	332 GALS.	10 MPG
D573	2001	Chevy	S-10 pickup	\$ 4,700.00	18 to 26 MPG	gas	28,005	42 GALS.	18 MPG
D575	2003	Oldsmobile	Alero	\$ 5,500.00	18 to 26 MPG	gas	11,071	100 GALS.	19 MPG
D576	2003	Oldsmobile	Alero	\$ 5,500.00	18 to 26 MPG	gas	17,205	74 GALS.	19 MPG

License Plate	Year	Make	Model	7 (A) Acquisition Cost	7 (B) Rated Fuel Economy	7 (c) gas	7 (D) Actual In-use Vehicle Mileage	7 (E) Actual In-use Fuel Consumption	7 (F) Actual In-use Annual Average Fuel Economy
Kauai Veterans Memorial Hospital									
KYR 470	2005	Ford	Bus	leased	13 to 18 MPG	gas	2,941	140 GALS	21 MPG
KYS 891	2007	Nissan	Altima (6018)	leased	19 to 27 MPG	gas	12,833	640 GALS	21 MPG
KYS 901	2007	Nissan	Altima (0960)	leased	19 to 27 MPG	gas	10,500	520 GALS	21 MPG
KYS 893	2007	Nissan	Quest	leased	16 to 23 MPG	gas	9,297	460 GALS	21 MPG
Leahi Hospital									
C626	2001	Dodge	Stratus	\$ 5,200.00	20 to 28 MPG	gas	21,619	960 GALS	22 MPG
C771	2001	Dodge	Stratus	\$ 5,000.00	20 to 28 MPG	gas	15,478	960 GALS	16 MPG
D391	2004	Chevy	Malibu	\$ 8,200.00	22 to 30 MPG	gas	24,898	960 GALS	25 MPG
D392	2001	Dodge	Caravan	\$ 4,500.00	16 to 23 MPG	gas	19,797	1440 GALS	13 MPG

Appendix 6: HHSC Vehicle Data 2009

NELHA VEHICLE INVENTORY AND FUEL ECONOMY

Make: Chevy (Cost @ \$22,500)	Year: 2007	Model: Pick-up
Description: 1500 Silverado 4WD	Color: White	
Vin # 1GCEK14C97Z526482	License # C666	State I.D. #
Engine Type: 4.8 LITERV8		

Date	Mileage	Date	Mileage	Total Miles	Avg. Miles per Gallon
09/25/07	4058	10/13/09	20346	16288	13.4

Make: Chevy (Cost @ \$20,390)	Year: 2006	Model: Pick-up
Description: 1500 Silverado 4WD	Color: White	
Vin # 3GCEK14V56G159435	License # C202	State I.D. #
Engine Type: 4.8 LITERV8		

Date	Mileage	Date	Mileage	Total Miles	Avg. Miles per Gallon
09/25/07	8940	10/13/09	17381	8441	14.0

Make: Chevy (Cost @ \$00)	Year: 1994	Model: Lumina Van
Description: 7 Passenger Van	Color: WHT	
Vin # 1GNDUGL2RT158012	License # A540	State I.D. #
Engine Type: 3.8 L V-6 GAS		

Date	Mileage	Date	Mileage	Total Miles	Avg. Miles per Gallon
09/25/07	93010	10/13/09	105716	12706	16

Make: Chevy (Cost \$12,500)	Year: 1992	Model: Pick-up
Description: ¾ Ton 4x2	Color: Tan	
Vin # 1GCF24K8N2198404	License # 6129	State I.D. #
Engine Type: 5.7 350 V-8 Gas		

Date	Mileage	Date	Mileage	Total Miles	Avg. Miles per Gallon
09/25/07	65634	9/25/07	73621	7987	13.5

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Vehicle Weight Rating	Vehicle Fuel Configuration	Actual In-Use Vehicle Mileage	Fuel		City MPG	Highway MPG	Actual Mileage
						Consumption (Gal)	MPG			
JEEP CHEROKEE	98	\$6,000.00	1	Gasoline	9,090	478	18	20	19	
VAN CHEVY ASTRO PASSENGER	93	\$8,000.00	1	Gasoline	3,817	225	15	19	17	
VAN CHEVY ALUM CUBE	93	\$22,581.00	1	Gasoline	5,355	255	18	24	21	
VAN CHEVY ALUM CUBE	93		1	Gasoline	23,667	1,127	18	24	21	
VAN CHEVY ALUM HIGH CUBE	99	\$20,862.00	1	Gasoline	30,685	1,427	18	25	21.5	
VAN CHEVY 15 PASSENGER	6	\$38,737.00	3	Gasoline	20,854	1,159	16	20	18	
VAN CHEVY 15 PASSENGER	6	\$38,737.00	3	Gasoline	32,697	1,817	16	20	18	
VAN CHEVY 15 PASSENGER	7	\$28,925.00	3	Gasoline	22,102	982	19	26	22.5	
VAN FORD 15 PASSENGER	1		3	Gasoline	9,765	434	19	26	22.5	
VAN CHEVY 15 PASSENGER	8		3	Gasoline	6,782	301	19	26	22.5	
VAN FORD 15 PASSENGER	99	\$5,000.00	3	Gasoline	39,263	1,745	19	26	22.5	
VAN DODGE 12 PASSENGER	97		2	Gasoline	16,996	755	19	26	22.5	
P/U CHEVY S-10	84		1	Gasoline	9,611	549	15	20	17.5	
VAN FORD ECONOLINE CARGO	99	\$22,654.00	1	Gasoline	8,285	473	15	20	17.5	
VAN FORD	97	\$8,984.00	1	Gasoline	4,020	230	15	20	17.5	
P/U DODGE	98		2	Gasoline	8,238	549	13	17	15	
VAN FORD	99		1	Gasoline	4,020	230	15	20	17.5	
VAN FORD 15 PASSENGER	97	\$17,985.00	3	Gasoline	7,811	473	14	19	16.5	
VAN DODGE	0		2	Gasoline	12,358	549	19	26	22.5	
CHEVY VAN	97	\$5,000.00	2	Gasoline	8,520	473	16	20	18	
CHEVY VAN	97		2	Gasoline	4,134	230	16	20	18	
SDN TOYOTA COROLLA 4DR	3	\$2,314.00	1	Gasoline	2,730	80	30	38	34	
FORD TAURUS 4DR	5	\$15,338.00	1	Gasoline	519	22	20	27	23.5	
VAN DODGE	90	\$800.00	2	Gasoline	21,893	973	19	26	22.5	
P/U TRUCK FORD F-250	91	\$14,698.00	2	Gasoline	6,912	512	11	16	13.5	
SDN CHEVY CAPRICE	92	\$5,000.00	1	Gasoline	2,012	91	18	26	22	
VAN FORD CLUBWAGON	97	\$17,985.00	1	Gasoline	15,658	979	14	18	16	
VAN FORD AEROSTAR	97	\$4,000.00	1	Gasoline	21,480	1,074	17	23	20	
VAN DODGE	91	\$750.00	2	Gasoline	6,928	308	19	26	22.5	
P/U DODGE RAM	91		2	Gasoline	879	59	13	17	15	
SUV CHEV BLAZER	93	\$8,500.00	2	Gasoline	621	43	13	16	14.5	
VAN FORD 3 DR E-350 15 PASSENGER	3	\$22,739.00	3	Gasoline	19,072	1,192	14	18	16	
P/U TRUCK CHEVY	91	\$2,000.00	1	Gasoline	5,216	298	15	20	17.5	
CHEVY IMPALA 4DSD	7	\$15,847.00	1	Gasoline	6,706	268	20	30	25	

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Weight Rating	Vehicle Configuration	Actual In-Use Vehicle Mileage	Fuel		City MPG	Highway MPG	Actual Mileage
						Consumption (Gal)				
VAN CHEVY	7	\$30,820.00	1	Gasoline	41,998	3,000		12	16	14
VAN CHEVY	7	\$30,820.00	1	Gasoline	47,253	3,375		12	16	14
P/U DODGE	86		2	Gasoline	6,840	456		13	17	15
VAN CHEV 12 PASSENGER	92	\$27,865.00	2	Gasoline	6,216	336		16	21	18.5
P/U TRUCK DODGE	82	\$3,000.00	2	Gasoline	7,560	504		13	17	15
VAN CHEVY	98		2	Gasoline	8,208	456		16	20	18
VAN CHEVY	98		2	Gasoline	42,120	2,340		16	20	18
VAN GMC	89	\$11,281.00	2	Gasoline	5,712	408		13	15	14
SDN CHEVY 4DR	88		1	Gasoline	10,890	396		23	32	27.5
P/U TRUCK CHEVY	78		1	Gasoline	8,280	360		20	26	23
BUS DODGE 15 PASSENGER	87	\$13,000.00	3	Gasoline	4,350	300		13	16	14.5
P/U CHEVY	87	\$11,000.00	1	Gasoline	6,900	300		20	26	23
SDN CHEVY 4DR	91		1	Gasoline	7,590	276		23	32	27.5
SDN CHEVY 4DR	87	\$12,000.00	1	Gasoline	26,070	948		23	32	27.5
CHEVY BUS 20 PASSENGER	94	\$10,000.00	3	Gasoline	N/A	1,008		N/A	N/A	
FORD ECONOLINE VAN	98		1	Gasoline	9,660	552		15	20	17.5
CHEVY IMPALA	2	\$2,500.00	1	Gasoline	10,080	420		19	29	24
CHEVY IMPALA	3	\$3,200.00	1	Gasoline	36,570	1,380		21	32	26.5
CHEVY ASTRO VAN	98	\$16,737.00	2	Gasoline	31,320	1,740		16	20	18
OLDS ALERO	2		1	Gasoline	8,848	316		24	32	28
CHEVY IMPALA 4DSD	4	\$8,500.00	1	Gasoline	7,818	295		21	32	26.5
FORD TAURUS 4DSD	6	\$11,670.00	1	Gasoline	5,628	268		18	24	21
DODGE INTREPID	2	\$2,500.00	1	Gasoline	1,622	69		20	27	23.5
CHEVY IMPALA 4DSD	4	\$8,300.00	1	Gasoline	80	3		21	32	26.5
VAN CHEVY ASTRO	92	\$6,880.00	1	Gasoline	54,090	3,005		16	20	18
FORD EXPLORER XLT	5	\$19,875.00	1	Gasoline	35,280	1,907		16	21	18.5
CHEVY IMPALA	7	\$15,847.00	1	Gasoline	2,942	111		21	32	26.5
DODGE CARAVAN	7	\$13,396.00	1	Gasoline	3,956	172		20	26	23
CHEVY CAPRICE SDN	93	\$4,850.00	1	Gasoline	396	18		18	26	22
VAN CHEVY 12 PASSENGER	97	\$5,000.00	2	Gasoline	3,708	206		16	20	18
TRUCK CHEVY CREW CAB	98	\$28,600.00	2	Gasoline	3,857	266		13	16	14.5
VAN CHEVY 15 PASSENGER	98	\$28,810.00	3	Gasoline	6,827	369		16	21	18.5
VAN CHEVY 12 PASSENGER	97	\$28,344.00	2	Gasoline	3,571	193		16	21	18.5
SDN SR5 TOYOTA 2 DR	86		1	Gasoline	4,541	239		18	20	19

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Vehicle Weight Rating	Vehicle Fuel Configuration	Actual In-Use Vehicle Mileage	Fuel		City MPG	Highway MPG	Actual Mileage
						Consumption (Gal)				
SUV CHEVY BLAZER 2DR	90	\$17,994.00	2	Gasoline	7,961	549		13	16	14.5
BUS FORD 15 PASSENGER	91	\$5,415.00	3	Gasoline	N/A	562		N/A	N/A	
S/W FORD 2DR	87	\$16,166.00	1	Gasoline	10,176	424		21	27	24
S/W FORD	89		1	Gasoline	8,472	353		21	27	24
P/U TRUCK FORD	84	\$11,356.00	1	Gasoline	1,908	109		15	20	17.5
TRUCK CHEVY FLTBD	87	\$16,569.00	2	Gasoline	N/A	124		N/A	N/A	
TRUCK FORD CHAS. AERIAL	90	\$10,759.00	1	Gasoline	N/A	23		N/A	N/A	
P/U CHEVY 3/4T	82	\$12,884.00	1	Gasoline	3,675	210		15	20	17.5
P/U FORD F150	82	\$1,000.00	1	Gasoline	15,854	813		17	22	19.5
P/U FORD	80	\$2,000.00	1	Gasoline	5,012	257		17	22	19.5
BUS CHEVY 60 PASSENGER	87		N/A	Gasoline	N/A	549		N/A	N/A	
SUV CHEVY BLAZER	2		1	Gasoline	5,438	375		13	16	14.5
SUV CHEVY BLAZER	91	\$900.00	1	Gasoline	8,555	590		13	16	14.5
SUV CHEVY BLAZER	84	\$7,669.00	1	Gasoline	1,117	77		13	16	14.5
S/W CHEVY	94	\$11,770.00	1	Gasoline	6,288	262		21	27	24
SUV CHEVY BLAZER	84	\$7,721.00	1	Gasoline	7,961	549		13	16	14.5
VAN FORD CARGO	87	\$12,000.00	1	Gasoline	7,455	426		15	20	17.5
VAN FORD CARGO	87	\$13,763.00	1	Gasoline	9,608	549		15	20	17.5
P/U TRUCK FORD	95		2	Gasoline	7,479	554		11	16	13.5
P/U TRUCK FORD	95		2	Gasoline	4,577	339		11	16	13.5
P/U CHEVY UTILITY	90		1	Gasoline	4,498	257		15	20	17.5
SUV FORD BRONCO 2DR	92	\$11,000.00	2	Gasoline	8,448	528		14	18	16
BUS INTL 72 PASSENGER	78	\$22,381.00	N/A	N/A	N/A	31		N/A	N/A	
P/U TRUCK CHEVY	92	\$18,353.00	1	Gasoline	16,765	958		15	20	17.5
BUS FORD 15 PASSENGER	0		3	Gasoline	N/A	549		N/A	N/A	
BUS FORD 15 PASSENGER	0		3	Gasoline	N/A	3,650		N/A	N/A	
TRUCK CHEVY 1/2T	93	\$13,198.00	1	Gasoline	9,608	549		15	20	17.5
VAN CHEVY 15 PASSENGER	1	\$28,875.00	3	Gasoline	18,778	1,295		13	16	14.5
VAN FORD CARGO	81	\$1,000.00	1	Gasoline	1,820	104		15	20	17.5
VAN CHEVY 10	94		1	Gasoline	9,608	549		15	20	17.5
VAN CHEVY 15 PASSENGER	3		3	Gasoline	9,295	641		13	16	14.5
VAN SIENNA TOYOTA	5	\$24,036.00	1	Gasoline	2,482	118		18	24	21
TOYOTA CAMRY	7	\$21,822.00	1	Gasoline	3,257	112		24	34	29
FORD F-350 PICKUP	1		2	Gasoline	N/A	584		N/A	N/A	

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Vehicle Weight Rating	Vehicle Fuel Configuration	Actual In-Use Vehicle Mileage	Fuel		City MPG	Highway MPG	Actual Mileage
						Consumption (Gal)	MPG			
FORD F-350 PICKUP	3	\$23,838.00	2	Gasoline	N/A	679	N/A	N/A	N/A	
FORD F-350 PICKUP	3	\$27,855.00	2	Gasoline	N/A	875	N/A	N/A	N/A	
P/U TRUCK FORD	92		1	Gasoline	1,353	69	17	22	22	19.5
TRUCK CHEVY	93		1	Gasoline	4,620	264	15	20	20	17.5
VAN CHEVY EXPRESS 15 PASSENGER	98	\$28,810.00	3	Gasoline	4,465	235	16	22	22	19
SDN CHEVY MALIBU	99	\$18,453.00	1	Gasoline	1,062	39	23	32	32	27.5
VAN CHEVY EXPRESS	99	\$33,000.00	2	Gasoline	3,105	173	16	20	20	18
SDN FORD MERCURY 4DR	99	\$18,373.00	1	Gasoline	6,850	232	25	34	34	29.5
VAN CHEVY 15 PASSENGER	1		3	Gasoline	15,618	822	16	22	22	19
TOYOTA TACOMA	6	\$22,942.00	1	Gasoline	1,793	76	20	27	27	23.5
SUV FORD EXPEDITION	98	\$30,042.00	2	Gasoline	3,393	219	13	18	18	15.5
VAN TOYOTA SIENNA 7 PASSENGER	4	\$26,000.00	1	Gasoline	2,884	125	19	27	27	23
P/U FORD F-150	98	\$6,525.00	1	Gasoline	1,533	79	17	22	22	19.5
HONDA ACCORD	1	\$10,820.00	1	Gasoline	8,048	304	23	30	30	26.5
P/U FORD F-150	2	\$12,965.00	1	Gasoline	8,414	431	17	22	22	19.5
HONDA ODYSSEY	7	\$32,240.00	1	Gasoline	4,265	237	16	20	20	18
MINI COOPER S	5	\$21,725.00	1	Gasoline	4,568	160	25	32	32	28.5
TOYOTA 4RUNNERMPVH	6	\$33,419.00	1	Gasoline	13,936	697	18	22	22	20
SDN TOYOTA COROLLA	98	\$9,995.00	1	Gasoline	7,190	211	30	38	38	34
SUV CHEVY TAHOE	99	\$31,600.00	2	Gasoline	3,533	252	12	16	16	14
SUV CHEVY BLAZER	98	\$23,600.00	2	Gasoline	21,104	1,455	13	16	16	14.5
P/U FORD RANGER	99	\$18,000.00	1	Gasoline	1,867	96	17	22	22	19.5
SUV CHEVY BLAZER SILVER	92	\$5,000.00	2	Gasoline	12,416	856	13	16	16	14.5
SUV CHEVY BLAZER	91	\$4,500.00	2	Gasoline	851	59	13	16	16	14.5
SUV CHEVY BLAZER AUTUMNWOOD	96	\$25,500.00	2	Gasoline	6,392	441	13	16	16	14.5
INFINITI G35	3	\$3,177.00	1	Gasoline	7,421	330	19	26	26	22.5
SDN TOYOTA COROLLA	3	\$14,896.00	1	Gasoline	3,156	93	30	38	38	34
FORD TAURUS	5	\$14,942.00	1	Gasoline	2,891	131	19	25	25	22
TRUCK STAKE INTL	93		N/A	N/A	N/A	0	N/A	N/A	N/A	
VAN CHEVY	92		2	Gasoline	2,403	134	16	20	20	18
P/U CHEVY 1/2	93		1	Gasoline	623	36	15	20	20	17.5
VAN FORD	90	\$35,617.00	1	Gasoline	8,295	474	15	20	20	17.5
SDN CHEVY CELEBRITY 4DR	89	\$5,400.00	1	Gasoline	1,672	63	23	30	30	26.5
VAN CHEVY ASTRO WHITE	92	\$14,630.00	2	Gasoline	1,696	94	16	20	20	18

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Weight	Vehicle Rating	Vehicle Fuel Configuration	Actual In-Use Vehicle Mileage	Fuel		City MPG	Highway MPG	Actual Mileage
							Consumption (Gal)				
P/U TRUCK FORD	0			1	Gasoline	5,845	334		15	20	17.5
SDN CHEVY	86	\$11,304.00		1	Gasoline	1,109	50		18	26	22
VAN DODGE	87			2	Gasoline	20,268	901		19	26	22.5
P/U FORD	88			1	Gasoline	1,568	90		15	20	17.5
VAN CHEVY ASTRO WHITE	88	\$13,495.00		1	Gasoline	2,020	119		15	19	17
VAN CHEVY	87	\$3,000.00		2	Gasoline	3,821	212		16	20	18
VAN GMC MODEL G39K	91	\$20,921.00		2	Gasoline	15,399	906		15	19	17
P/U TRUCK DODGE	91	\$5,600.00		2	Gasoline	641	43		13	17	15
VAN CHEVY 15 PASSENGER	98	\$27,740.00		3	Gasoline	28,238	1,526		16	21	18.5
VAN CHEVY 15 PASSENGER	98	\$24,995.00		3	Gasoline	34,403	1,860		16	21	18.5
VAN CHEVY 15 PASSENGER	98	\$24,995.00		3	Gasoline	23,713	1,282		16	21	18.5
VAN GMC 15 PASSENGER	0	\$2,500.00		3	Gasoline	31,348	1,695		16	21	18.5
VAN CHEVY 15 PASSENGER	2	\$16,000.00		3	Gasoline	2,063	112		16	21	18.5
VAN CHEVY 15 PASSENGER	98	\$24,995.00		3	Gasoline	12,158	657		16	21	18.5
VAN FORD 15 PASSENGER	95	\$5,800.00		2	Gasoline	17,026	1,032		14	19	16.5
VAN FORD	90			1	Gasoline	3,001	172		15	20	17.5
CHEVY LUMINA	99	\$4,000.00		1	Gasoline	2,599	106		20	29	24.5
CHEVY BUS 20 PASSENGER	94	\$2,500.00		N/A	N/A	N/A	730		N/A	N/A	
SUV CHEVY S10 BLAZER	92	\$1,000.00		2	Gasoline	4,031	278		13	16	14.5
VAN CHEVY ASTRO PASSENGER	94			2	Gasoline	4,644	258		16	20	18
FORD BRONCO	92	\$20,195.00		1	Gasoline	546	30		17	20	18.5
SDN CHEVY IMPALA 4 DR	0			1	Gasoline	N/A	30		19	29	
SDN CHEVY IMPALA 4 DR	0			1	Gasoline	N/A	30		19	29	
VAN CHEVY	99			1	Gasoline	N/A	30		17	20	
SDN DODGE 4DSD	4	\$6,700.00		1	Gasoline	N/A	30		17	20	
SDN DODGE 4DSD	4	\$6,700.00		1	Gasoline	N/A	30		17	20	
SDN OLDSMOBILE 4DSD	2	\$4,500.00		1	Gasoline	N/A	30		17	20	
VAN FORD 7 PASSENGER	1	\$7,000.00		1	Gasoline	N/A	30		17	20	
P/U CHEVY	1			1	Gasoline	N/A	30		17	20	
SDN CHEVY CORSICA	90	\$5,500.00		1	Gasoline	10,010	364		24	31	27.5
VAN CHEVY ASTRO	88	\$5,400.00		2	Gasoline	13,832	728		18	20	19
BUS CHEVY 15 PASSENGER	91	\$18,200.00		3	Gasoline	4,810	260		16	21	18.5
VAN FORD WINDSTAR	98	\$18,846.00		1	Gasoline	N/A	0		18	25	
VAN FORD WINDSTAR	98	\$18,846.00		1	Gasoline	16,770	780		18	25	21.5

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Weight Rating	Vehicle Configuration	Actual In-Use Vehicle Mileage	Fuel		City MPG	Highway MPG	Actual Mileage
						Consumption (Gal)	MPG			
P/U CHEVY	0	\$20,890.00	1	Gasoline	N/A	0	15	20		
P/U CHEVY	0		1	Gasoline	15,470	884	15	20		17.5
VAN DODGE 15 PASSENGER	1		3	Gasoline	N/A	0	13	16		
VAN FORD FORD 15 PASSENGER CLUB V	5		3	Gasoline	3,264	192	15	19		17
BUS FORD CHAMPION 14 PASSENGER	97	\$3,500.00	3	Gasoline	N/A	180	N/A	N/A		
FORD TRUCK	6	\$13,898.00	1	Gasoline	4,794	204	21	26		23.5
MAZDA TRUCK	0	\$11,101.00	1	Gasoline	6,630	390	15	19		17
VAN FORD	7		1	Gasoline	7,280	416	15	20		17.5
VAN CHEVY 12 PASSENGER	8		2	Gasoline	N/A	N/A	16	20		
VAN CHEVY 7 PASSENGER	8		2	Gasoline	N/A	N/A	16	20		
VAN DODGE 12 PASSENGER	1		2	Gasoline	N/A	N/A	19	26		
VAN FORD 7 PASSENGER	3		2	Gasoline	N/A	N/A	18	25		
VAN CHEVY 15 PASSENGER	6		3	Gasoline	N/A	N/A	18	20		
CHEVY SUBURBAN	96	\$1,275.00	1	Gasoline	N/A	N/A	17	23		
CHEVY SUBURBAN	99		1	Gasoline	N/A	N/A	17	23		
P/U CHEVY S-10	84	\$16,060.00	1	Gasoline	N/A	N/A	15	20		
VAN FORD 138 ECONLINE	97		1	Gasoline	N/A	N/A	14	18		
VAN FORD 138 ECONLINE	97		1	Gasoline	N/A	N/A	14	18		
P/U FORD	8		1	Gasoline	N/A	N/A	13	17		
VAN FORD	9		1	Gasoline	N/A	N/A	19	26		
VAN FORD F-150	83		1	Gasoline	N/A	N/A	12	16		
SDN BUICK 4DR	92		1	Gasoline	N/A	N/A	16	26		
SDN CHEVY CAPRICE	90	\$2,500.00	1	Gasoline	N/A	N/A	18	26		
SDN CHEVY CAPRICE	92	\$3,000.00	1	Gasoline	N/A	N/A	15	24		
VAN CHEVY ALUM MODEL G31K	90	\$20,862.00	1	Gasoline	N/A	N/A	11	16		
SDN OLDS CIERA	96	\$13,436.00	1	Gasoline	N/A	N/A	18	26		
VAN DODGE	91	\$6,100.00	1	Gasoline	N/A	N/A	19	26		
SDN CHEVY CORSICA	95	\$6,500.00	1	Gasoline	N/A	N/A	25	32		
P/U CHEVY	94	\$5,000.00	1	Gasoline	N/A	N/A	21	26		
VAN FORD - 12 PASSENGER	8		2	Gasoline	N/A	N/A	19	26		
P/U CHEVY	82		1	Gasoline	N/A	N/A	21	26		
VAN CHEVY	93	\$18,592.00	2	Gasoline	N/A	N/A	19	26		
VAN FORD 12 PASSENGER	97		2	Gasoline	N/A	N/A	19	26		
VAN FORD 7 PASSENGER	97		2	Gasoline	N/A	N/A	19	26		

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Vehicle Weight Rating	Vehicle Fuel Configuration	Actual In-Use Vehicle Mileage	Fuel			City MPG	Highway MPG	Actual Mileage
						Consumption (Gal)	Consumption	City			
VAN CHEVY 12 PASSENGER	8		2	Gasoline	N/A	N/A		16	20		
VAN CHEVY 12 PASSENGER	8		2	Gasoline	N/A	N/A		16	20		
CHEVY MALIBU SDN	9		1	Gasoline	N/A	N/A		22	30		
P/U FORD	92		1	Gasoline	N/A	N/A		13	17		
TRUCK FORD CREWCAB	92		2	Gasoline	N/A	N/A		12	16		
FORD BRONCO	91	\$13,621.00	2	Gasoline	N/A	N/A		11	16		
VAN CHEVY	95		2	Gasoline	N/A	N/A		16	20		
SUV CHEVY BLAZER	86	\$12,234.00	2	Gasoline	N/A	N/A		14	19		
VAN FORD	97		2	Gasoline	N/A	N/A		19	26		
P/U CHEVY	92		1	Gasoline	N/A	N/A		14	17		
VAN FORD	8		1	Gasoline	N/A	N/A		16	22		
VAN FORD	8		1	Gasoline	N/A	N/A		16	22		
VAN CHEVY EXPRESS	99	\$29,432.00	2	Gasoline	N/A	N/A		13	16		
VAN CHEVY EXPRESS	8		2	Gasoline	N/A	N/A		13	16		
VAN CHEVY EXPRESS	8		2	Gasoline	N/A	N/A		13	16		
P/U FORD	9		2	Gasoline	N/A	N/A		14	19		
P/U FORD	9		2	Gasoline	N/A	N/A		14	19		
S/W FORD	92		1	Gasoline	N/A	N/A		12	16		
SDN CHEVY CELEBRITY	89	\$5,500.00	1	Gasoline	N/A	N/A		17	27		
SDN OLDS CIERA	94	\$14,720.00	1	Gasoline	N/A	N/A		18	26		
SDN OLDS	95		1	Gasoline	N/A	N/A		18	26		
P/U CHEVY	80		1	Gasoline	N/A	N/A		11	16		
VAN DODGE CARAVAN	90	\$2,000.00	2	Gasoline	N/A	N/A		14	20		
VAN FORD 12 PASSENGER	8		2	Gasoline	N/A	N/A		19	26		
SDN CHEVY CELEBRITY	89	\$7,880.00	1	Gasoline	N/A	N/A		17	27		
SDN CHEVY CAPRICE	92	\$15,039.00	1	Gasoline	N/A	N/A		15	24		
SDN CHEVY CAPRICE	92	\$17,500.00	1	Gasoline	N/A	N/A		15	24		
SDN CHEVY CAPRICE	92	\$17,500.00	1	Gasoline	N/A	N/A		15	24		
SDN CHEVY CAPRICE	92	\$17,500.00	1	Gasoline	N/A	N/A		15	24		
P/U CHEVY 2500	88	\$13,922.00	1	Gasoline	N/A	N/A		15	20		
P/U CHEVY S-10	91	\$61,817.00	2	Gasoline	N/A	N/A		15	20		
SUV CHEVY BLAZER	93	\$18,500.00	2	Gasoline	N/A	N/A		13	16		
HUMMER H2	3		2	Gasoline	N/A	N/A		N/A	N/A		
SDN CHEVY LUMINA	93	\$7,713.00	1	Gasoline	N/A	N/A		17	26		

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Weight	Vehicle Rating	Vehicle Fuel Configuration	Actual In-Use Vehicle Mileage	Fuel		City MPG	Highway MPG	Actual Mileage
							Consumption (Gal)				
P/U TOYOTA TACOMA	98		1	1	Gasoline	N/A	N/A		19	25	
FORD TAURUS	5		1	1	Gasoline	N/A	N/A		18	25	
BUICK LESABRE	1		1	1	Gasoline	N/A	N/A		17	27	
P/U TOYOTA TACOMA	4		1	1	Gasoline	N/A	N/A		19	25	
LINCOLN NAVIGATOR	3		2	2	Gasoline	N/A	N/A		11	17	
NISSAN MAXIMA	3		1	1	Gasoline	N/A	N/A		17	24	
VAN DODGE	90	\$2,000.00	2	2	Gasoline	N/A	N/A		19	26	
SDN CHEVY	90		1	1	Gasoline	N/A	N/A		17	25	
SDN CHEVY	90		1	1	Gasoline	N/A	N/A		17	25	
SDN CHEVY	90		1	1	Gasoline	N/A	N/A		17	25	
VAN CHEVY	83		2	2	Gasoline	N/A	N/A		13	17	
FORD TAURUS	93	\$15,714.00	1	1	Gasoline	N/A	N/A		19	25	
SDN PONTIAC GRAND PRIX	94	\$825.00	1	1	Gasoline	N/A	N/A		15	24	
SDN PONTIAC GRAND PRIX	94	\$825.00	1	1	Gasoline	N/A	N/A		15	24	
SDN FORD CROWN VICTORIA	95	\$17,450.00	1	1	Gasoline	N/A	N/A		15	23	
SDN FORD CROWN VICTORIA	95		1	1	Gasoline	N/A	N/A		15	23	
VAN FORD CARGO	86	\$1,284.00	2	2	Gasoline	N/A	N/A		19	26	
SDN FORD CROWN VICTORIA	95		1	1	Gasoline	N/A	N/A		15	23	
SDN FORD CROWN VICTORIA	95		1	1	Gasoline	N/A	N/A		15	23	
SDN CHEVY CAPRICE	93	\$13,821.00	1	1	Gasoline	N/A	N/A		15	24	
SDN CHEVY CAPRICE	91	\$300.00	1	1	Gasoline	N/A	N/A		15	24	
VAN FORD AEROSTAR	93	\$825.00	1	1	Gasoline	N/A	N/A		17	23	
VAN FORD AEROSTAR	93	\$825.00	1	1	Gasoline	N/A	N/A		17	23	
VAN CHEVY 12 PASSENGER	1		2	2	Gasoline	N/A	N/A		16	20	
VAN CHEVY 12 PASSENGER	1		2	2	Gasoline	N/A	N/A		16	20	
FORD TAURUS	1	\$14,791.00	1	1	Gasoline	N/A	N/A		18	25	
SDN FORD CROWN VICTORIA	2	\$22,364.00	1	1	Gasoline	N/A	N/A		15	23	
SDN FORD CROWN VICTORIA	2	\$22,364.00	1	1	Gasoline	N/A	N/A		15	23	
P/U FORD RANGER	2	\$14,000.00	1	1	Gasoline	N/A	N/A		17	22	
P/U FORD RANGER	0	\$13,720.00	1	1	Gasoline	N/A	N/A		17	22	
VAN CHEVY	3	\$37,770.00	2	2	Gasoline	N/A	N/A		13	17	
SDN FORD CROWN VICTORIA	0	\$31,877.00	1	1	Gasoline	N/A	N/A		15	23	
CHEVY IMPALA	1	\$7,739.00	1	1	Gasoline	N/A	N/A		20	30	
SUV CHEVY TAHOE	93		2	2	Gasoline	N/A	N/A		11	15	

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Weight	Vehicle Rating	Vehicle Fuel Configuration	Actual In-Use Vehicle Mileage	Fuel			City MPG	Highway MPG	Actual Mileage
							Consumption (Gal)	Actual In-Use Vehicle Mileage	Consumption (Gal)			
VAN DODGE	98		2	2	Gasoline	N/A	N/A	N/A	19	26		
VAN DODGE	0		2	2	Gasoline	N/A	N/A	N/A	19	26		
VAN DODGE	0		2	2	Gasoline	N/A	N/A	N/A	19	26		
VAN CHEVY	95	\$22,172.00	2	2	Gasoline	N/A	N/A	N/A	16	20		
CHEVY IMPALA	1	\$7,739.00	1	1	Gasoline	N/A	N/A	N/A	20	30		
CHEVY IMPALA	1	\$7,739.00	1	1	Gasoline	N/A	N/A	N/A	20	30		
SDN FORD CROWN VICTORIA	2		1	1	Gasoline	N/A	N/A	N/A	15	23		
OLDS ALERO	2		1	1	Gasoline	N/A	N/A	N/A	24	32		
CHEVY IMPALA	2		1	1	Gasoline	N/A	N/A	N/A	20	30		
CHEVY IMPALA	2		1	1	Gasoline	N/A	N/A	N/A	20	30		
SDN FORD CROWN VICTORIA	7		1	1	Gasoline	N/A	N/A	N/A	15	23		
SDN FORD CROWN VICTORIA	7		1	1	Gasoline	N/A	N/A	N/A	15	23		
SDN FORD CROWN VICTORIA	7		1	1	Gasoline	N/A	N/A	N/A	15	23		
SDN FORD CROWN VICTORIA	7		1	1	Gasoline	N/A	N/A	N/A	15	23		
SDN FORD CROWN VICTORIA	7		1	1	Gasoline	N/A	N/A	N/A	15	23		
SDN FORD CROWN VICTORIA	7		1	1	Gasoline	N/A	N/A	N/A	15	23		
SDN FORD CROWN VICTORIA	7		1	1	Gasoline	N/A	N/A	N/A	15	23		
SUV CHEVY TAHOE	2		2	2	Gasoline	N/A	N/A	N/A	11	15		
OLDS ALERO	3	\$7,000.00	1	1	Gasoline	N/A	N/A	N/A	24	32		
P/U FORD	99		1	1	Gasoline	N/A	N/A	N/A	17	22		
VAN CHEVY	4		2	2	Gasoline	N/A	N/A	N/A	16	20		
VAN CHEVY	3		2	2	Gasoline	N/A	N/A	N/A	16	20		
SDN FORD CROWN VICTORIA	99	\$33,736.00	1	1	Gasoline	N/A	N/A	N/A	15	23		
SUV CHEVY TAHOE	99	\$44,828.00	2	2	Gasoline	N/A	N/A	N/A	11	15		
VAN FORD ECONOLINE CLUB	5	\$22,355.00	2	2	Gasoline	N/A	N/A	N/A	15	19		
SDN FORD CROWN VICTORIA	5	\$34,635.00	1	1	Gasoline	N/A	N/A	N/A	15	23		
SDN FORD CROWN VICTORIA	4	\$8,000.00	1	1	Gasoline	N/A	N/A	N/A	15	23		
SDN FORD CROWN VICTORIA	9		1	1	Gasoline	N/A	N/A	N/A	15	23		
VAN FORD ECONOLINE CLUB	5	\$32,873.00	2	2	Gasoline	N/A	N/A	N/A	15	19		
SDN FORD TAURUS	5	\$14,942.00	1	1	Gasoline	N/A	N/A	N/A	18	25		
SUV FORD EXPLORER	5	\$22,185.00	1	1	Gasoline	N/A	N/A	N/A	13	18		
SDN FORD CROWN VICTORIA	99	\$35,745.00	1	1	Gasoline	N/A	N/A	N/A	15	23		
SDN FORD CROWN VICTORIA	3	\$30,238.00	1	1	Gasoline	N/A	N/A	N/A	15	23		
P/U DODGE RAM	91	\$5,200.00	2	2	Gasoline	N/A	N/A	N/A	13	17		

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Weight	Vehicle Rating	Vehicle Fuel Configuration	Actual In-Use Vehicle Mileage	Fuel			City MPG	Highway MPG	Actual Mileage
							Consumption (Gal)	Consumption	City			
SDN FORD CROWN VICTORIA	0			1	Gasoline	N/A	N/A		15	23		
SDN FORD CROWN VICTORIA	5	\$38,774.00		1	Gasoline	N/A	N/A		15	23		
SSDN FORD CROWN VICTORIA	5	\$38,774.00		1	Gasoline	N/A	N/A		15	23		
SDN FORD CROWN VICTORIA	99	\$38,774.00		1	Gasoline	N/A	N/A		15	23		
SDN FORD CROWN VICTORIA	0			1	Gasoline	N/A	N/A		15	23		
SDN FORD CROWN VICTORIA	97	\$8,000.00		1	Gasoline	N/A	N/A		15	23		
VAN FORD 12 PASSENGER	8			2	Gasoline	N/A	N/A		19	26		
SUV CHEVY BLAZER	92	\$4,972.00		2	Gasoline	N/A	N/A		13	16		
VAN CHEVY ASTRO	94			1	Gasoline	N/A	N/A		15	18		
SUV FORD BRONCO	92	\$19,793.00		2	Gasoline	N/A	N/A		14	18		
SDN CHEVY IMPALA	0			1	Gasoline	N/A	N/A		20	30		
SDN CHEVY IMPALA	0			1	Gasoline	N/A	N/A		20	30		
VAN CHEVY	99	\$29,432.00		2	Gasoline	N/A	N/A		16	20		
VAN FORD 7 PASSENGER	1			2	Gasoline	N/A	N/A		19	26		
SDN OLDSMOBILE 4DSD	2			1	Gasoline	N/A	N/A		17	20		
SDN DODGE	4			1	Gasoline	N/A	N/A		17	20		
SDN DODGE	4			1	Gasoline	N/A	N/A		17	20		
P/U CHEVY	1			2	Gasoline	N/A	N/A		15	20		
VAN CHEVY 7 PASSENGER	9			2	Gasoline	N/A	N/A		16	20		
VAN CHEVY 7 PASSENGER	3			2	Gasoline	N/A	N/A		16	20		
VAN GMC RALLY	92	\$39,750.00		1	Gasoline	N/A	N/A		12	16		
VAN GMC RALLY	92	\$39,750.00		1	Gasoline	N/A	N/A		12	16		
VAN FORD CLUBWAGON	86	\$969.00		1	Gasoline	N/A	N/A		14	18		
SUV CHEVY	92			2	Gasoline	N/A	N/A		16	20		
P/U DODGE	72			2	Gasoline	N/A	N/A		13	17		
P/U CHEVY	80			1	Gasoline	N/A	N/A		15	20		
VAN CHEVY	92	\$5,000.00		2	Gasoline	N/A	N/A		19	26		
P/U CHEVY	87	\$1,500.00		1	Gasoline	N/A	N/A		15	20		
P/U DODGE W/CREWCAB	85			2	Gasoline	N/A	N/A		13	17		
VAN CHEVY 12 PASSENGER	93	\$22,581.00		2	Gasoline	N/A	N/A		16	21		
VAN FORD AEROSTAR	94	\$5,000.00		1	Gasoline	N/A	N/A		17	23		
P/U CHEVY	73	\$2,500.00		1	Gasoline	N/A	N/A		15	20		
S/W GMC	86	\$5,000.00		2	Gasoline	N/A	N/A		14	20		
VAN FORD 16 PASSENGER	88	\$19,438.00		3	Gasoline	N/A	N/A		17	23		

Appendix 8: PSD Vehicle Data 2009

Vehicle Description	Model Year	Acquisition Cost	Gross Weight Rating	Vehicle Configuration	Actual In-Use Vehicle Mileage	Fuel		City MPG	Highway MPG	Actual Mileage
						Consumption (Gal)	MPG			
VAN FORD 16 PASSENGER	88		3	Gasoline	N/A	N/A	17	23		
P/U DODGE RAM	87	\$3,000.00	1	Gasoline	N/A	N/A	13	16		
SUV FORD BRONCO	88	\$15,000.00	2	Gasoline	N/A	N/A	11	16		
P/U CHEVY	98	\$24,125.00	2	Gasoline	N/A	N/A	14	18		
P/U CHEVY	98	\$24,125.00	2	Gasoline	N/A	N/A	14	18		
P/U CHEVY	98	\$5,000.00	2	Gasoline	N/A	N/A	14	18		
P/U CHEVY S-10	98	\$15,440.00	2	Gasoline	N/A	N/A	15	20		
P/U CHEVY S-10	98	\$15,440.00	2	Gasoline	N/A	N/A	15	20		
P/U CHEVY S-10	98	\$15,440.00	2	Gasoline	N/A	N/A	15	20		
VAN CHEVY EXPRESS	98	\$26,380.00	2	Gasoline	N/A	N/A	16	22		
VAN CHEVY EXPRESS	98	\$24,995.00	2	Gasoline	N/A	N/A	16	22		
SDN CHEVY LUMINA	93	\$12,998.00	1	Gasoline	N/A	N/A	20	29		
TOYOTA CAMRY	5		1	Gasoline	N/A	N/A	21	31		
VAN DODGE 15 PASSENGER	0		3	Gasoline	N/A	N/A	19	26		
P/U FORD	8		1	Gasoline	N/A	N/A	15	20		
FORD FLAT BED	9	\$19,498.00	N/A	N/A	N/A	N/A	N/A	N/A		
Totals					1,520,275	91,439				16.6
TRUCK CHEVY/VAN DIESEL	91	\$5,000.00	2	Diesel	7,574	473	16	21		16.0
TRUCK INT'L HARVESTER	80	\$8,849.00	2	Diesel	2,478	177	N/A	N/A		14.0
TRUCK INT'L	87	\$15,677.00	2	Diesel	20,275	6,352	N/A	N/A		3.2
TRUCK FORD CREWCAB	92		1	Diesel	401	25	16	20		16.0
TRUCK GMC DUMP	83	\$21,355.00	8	Diesel	3,294	549	N/A	N/A		6.0
TRUCK FORD DUMP	89		8	Diesel	1,254	66	N/A	N/A		19.0
TRUCK FORD DUMP	89		8	Diesel	650	26	N/A	N/A		25.0
BUS INT'L 72 PASSENGER	88	\$22,381.00	N/A	Diesel	11,296	549	N/A	N/A		20.6
BUS INT'L 72 PASSENGER	84	\$2,000.00	N/A	Diesel	855	57	N/A	N/A		15.0
BUS INT'L 72 PASSENGER	82		N/A	Diesel	6,588	549	N/A	N/A		12.0
TRUCK TRAC PETERBILT	83	\$12,947.00	N/A	Diesel	9,483	6,564	N/A	N/A		1.4
Totals					64,148	15,387				4.2