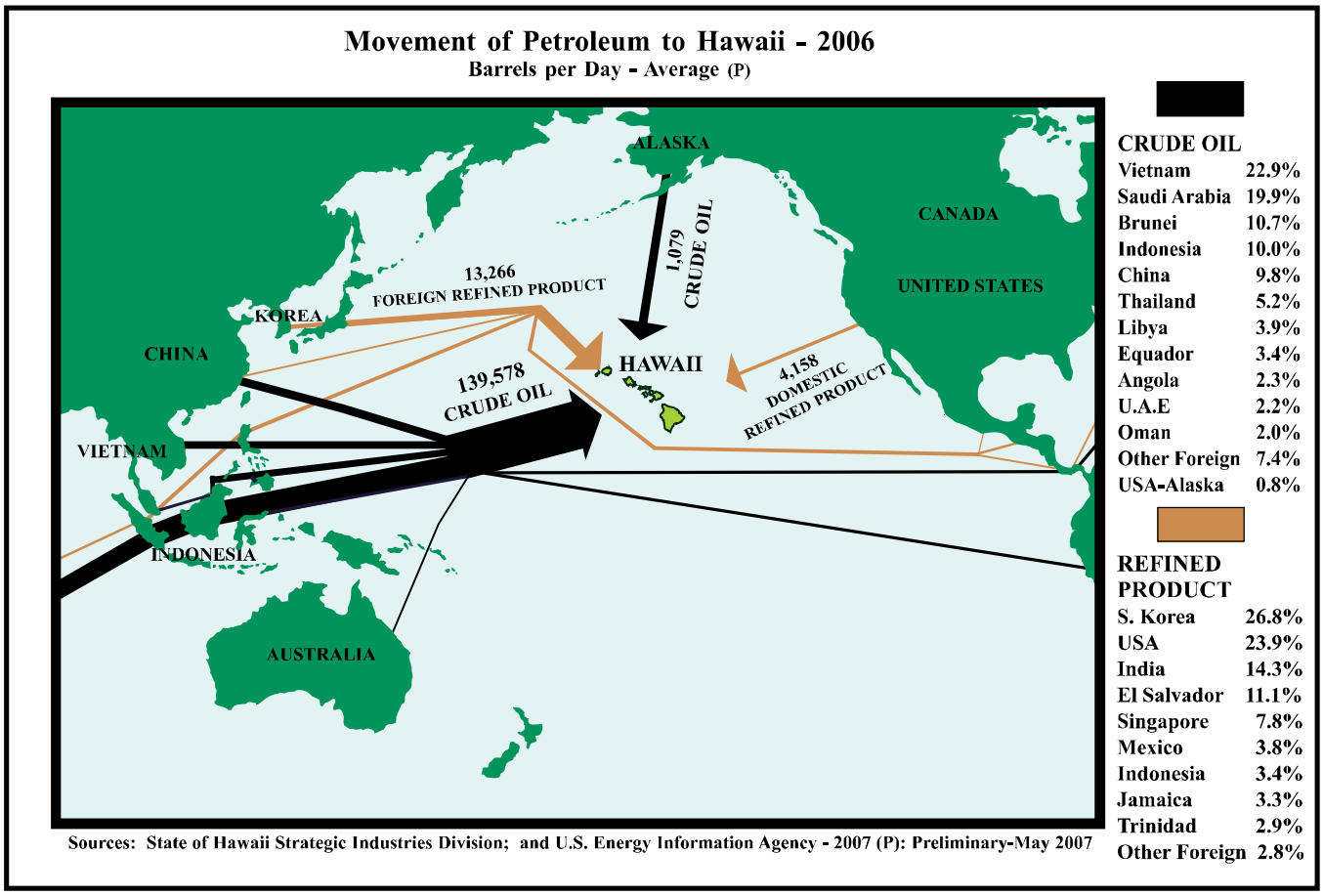
State of Hawaii
Energy Resources Coordinator
Annual Report
2007



State of Hawaii
Department of Business, Economic Development & Tourism

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Hawaii's Energy Security Faces Challenges

The economic security and stability of the State of Hawaii continue to remain extremely vulnerable to threats due to Hawaii's over dependence on imported oil. This vulnerability is exacerbated since nearly 77% of the state's electricity and over 99% of its transportation fuels are produced from petroleum fuels.

Experts believe that the cost of petroleum has reached a new plateau and will stay high.

Energy is critical to Hawaii's economy. How much fuel is imported and how efficiently it is used impacts each resident's personal life and business activities.

The Energy Resources Coordinator, whose staff works to enhance energy security, improve the state's economy, and reduce dependence on imported energy, faces many challenges, including:

- Hawaii relies on imported petroleum for about 89% of its primary energy. Most oil is from foreign nations, with a growing percentage from the Middle East.
- The islands' electricity grids are not interconnected.
- Hawaii residents pay among the nation's highest prices for electricity and fuel.

In 1974, the Legislature created the position of Energy Resources Coordinator. It is held by the Director of the Department of Business, Economic Development, and Tourism (DBEDT).

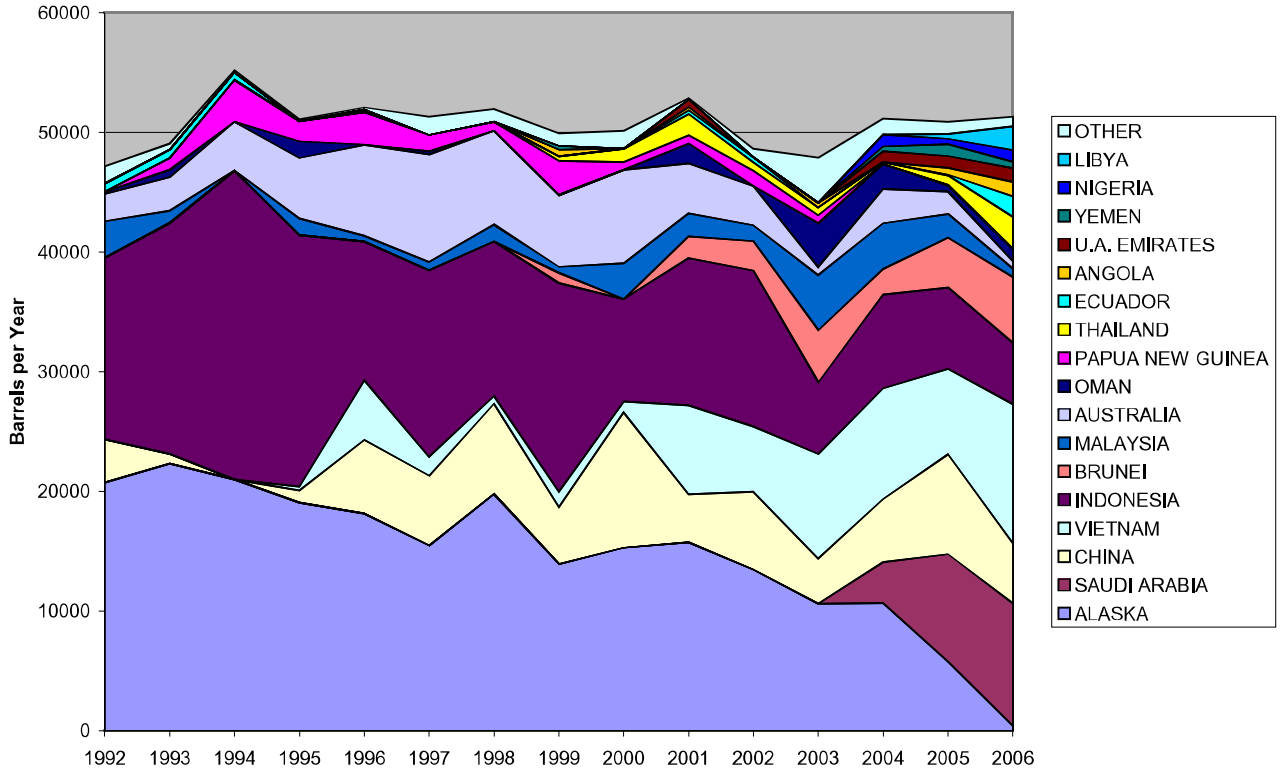
By law, the state's energy program considers these objectives:

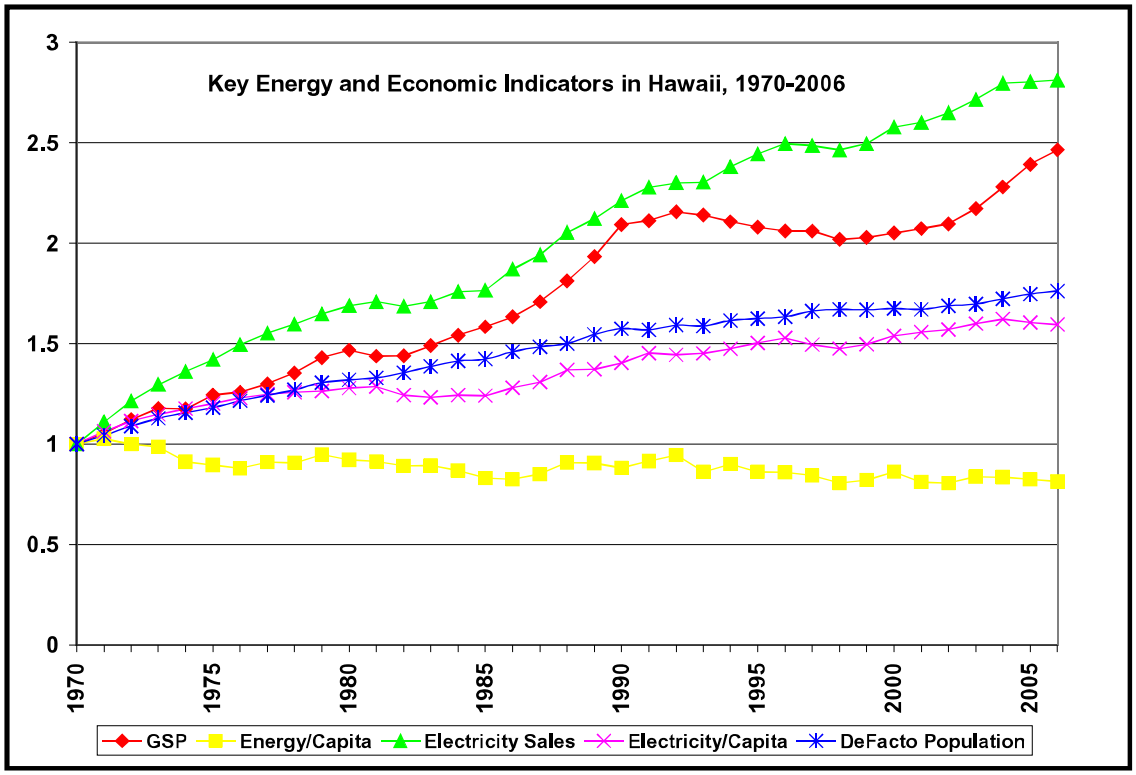
- dependable, efficient, and economical statewide energy systems capable of meeting the needs of the people;
- increased energy self-sufficiency;
- greater energy security; and
- reduction, avoidance, or sequestration of greenhouse gases.

The state's energy policy also requires that the total costs and benefits of all energy options—including efficiency—be compared. Alternative transportation fuels and efficient transportation must also be promoted.

The Strategic Industries Division (SID) of DBEDT implements programs to meet these goals. Achievements for 2007 are detailed in the following pages.

Hawaii's Crude Oil Sources 1992-2006





Oil Use Down in 2006; Renewables Up

Hawaii's economy continued its trend toward increased energy efficiency while efforts to replace fossil fuel imports with indigenous renewable resources advanced.

Hawaii's primary energy consumption in 2006 was 318.7 trillion Btu, down 1.8% from 2005.

Petroleum use decreased slightly, down 2.7% from 2005 to 2006. Petroleum consumption totaled 283.7 trillion Btu in 2006, somewhat less than the 291.5 trillion Btu in 2005.

Coal consumption increased slightly, up 1.8% from 2005.

Together, the imported fossil fuels—coal and oil—represent almost 94% of Hawaii's energy consumption. Nearly 89% of Hawaii's total energy is imported petroleum.

Renewable energy production increased by 9.8% during 2006. This increase can be attributed primarily to generation from municipal solid waste, hydroelectricity and wind, which increased by about 12%, 13% and 1,123%, respectively, over 2005 figures.

The huge increase in wind production is due to electricity from new wind facilities, Kaheawa Wind Power and Hawaii Renewable Development. Wind generated the equivalent of 69 billion Btu in 2005, rising to 846 billion Btu in 2006—which is still less than 1% of total primary energy.

In total, renewables provided nearly 19.2 trillion Btu in 2006.

Consumers spent an estimated $6.17 billion for energy in 2006—12% more than in 2005—primarily due to high oil prices. This was about 11% of Hawaii's $58.31 billion (current dollars) Gross State Product (GSP).

Hawaii's economy is significantly more energy efficient than it was in 1970. Hawaii residents use 19% less energy per capita (based on de facto population) than they did 36 years ago. The trend toward efficiency has been flattening, however; overall energy use per capita decreased by only 2.7% in 2006 compared to the previous year.

In 2006, electricity sales per capita were 59% more than 1970, while de facto population grew 76% and real GSP increased 146%.

Electricity sales in 2006 increased 0.28% over 2005. This resulted in a modest 0.62% decrease in electricity sales per capita.

Improving Preparedness for Energy Emergencies

Hawaii's comprehensive update of its Energy Emergency Preparedness program and plan is due for completion at the end of 2007. Initiated in 2004, the effort has involved DBEDT, State Civil Defense, the U.S. Department of Energy (USDOE) and many other Hawaii organizations.

The update incorporates evolving federal and state initiatives and the attendant plans to prepare for, respond to, recover from, and mitigate risk and the negative effects of an energy emergency.

DBEDT is also managing a $300,000 assessment of energy security and fuels vulnerability statewide. Recommendations will be developed to address the economic impacts and risks associated with the state's petroleum dependence.

Additionally, issues pertinent to the transition from petroleum-based liquid fuels to biofuels such as ethanol and biodiesel—and, ultimately, renewable hydrogen—will be examined.

This federally-funded, two-year study will be undertaken in cooperation with the State Department of Transportation, Harbors Division.

The project will develop forecasts of demand and supply under different combinations of imported fuel products and local production of feedstocks. It will assess the impacts of disrupting imports, whether of petroleum or biofuels.

Hawaii's ability to prevent, manage and respond to any future fuel supply disruptions will improve as a result of the study. First, however, DBEDT requires current information about the physical infrastructure and about the use of fuel feedstocks and fuel products in Hawaii.

Other issues to be addressed include trends which will affect various fuel products. For instance, the state's mandate to use E10 Unleaded blended ethanol fuel, as well as federal air quality regulations regarding diesel fuel, will both influence the mix of transportation fuels statewide.

In a continuing effort to prepare for emergencies, DBEDT and USDOE coordinated an exercise modeling a drawdown of the national Strategic Petroleum Reserve (SPR). The training focused on teaching Hawaii refinery and SID staff the procedures for accessing the SPR.

Due to its isolation, Hawaii can follow a unique, non-bidding process and is guaranteed emergency access to the SPR. The July event, conducted via video conference, involved 21 participants and was specifically designed for Hawaii stakeholders.

The state responded to the threat of Hurricane Flossie in August by activating the State Emergency Response Team's emergency management system. The team supports State Civil Defense, providing operational status and situation reports relating to critical energy, gas and oil infrastructure.

Greenhouse Gas Reduction Efforts Initiated

By January 1, 2020, Hawaii's greenhouse gas emissions must be reduced to 1990 levels or below, as mandated by Act 234, SLH 2007. The Act calls for three steps to reach the goal.

First, DBEDT and the Department of Health (DOH) will update, by December 2008, an inventory of greenhouse gas (GHG) emissions originally published in 1997 to serve as a baseline for establishing emissions limits.

Second, a ten-member Greenhouse Gas Emission Reduction Task Force has been formed, co-chaired by DBEDT and DOH. Other members are stakeholders from Hawaii's electric utilities, marine and ground transportation sectors, oil refineries, the UH Climate Change Commission and environmental organizations.

The Act sets thirteen objectives and specifies that, before the 2010 regular legislative session, the Task Force shall submit to the legislature a work plan and proposed regulatory scheme, along with any proposed legislation, for achieving the maximum GHG reductions in a practical, technically feasible, and cost effective manner.

The third major element of the effort is for DOH to adopt administrative rules based on the recommendations of the work plan. The rules, to be established before Dec. 31, 2011, must also require the verification of statewide GHG emissions and must monitor and enforce compliance.

What Role for Biofuels?

Two efforts coordinated by DBEDT will help address the state's objective to have 20% of its transportation fuels from renewable resources by the year 2020.

A two-year project to conduct a statewide, multi-fuel biofuels production assessment kicked off in July 2007. Potential feedstocks and technologies, economics, and possible contributions to Hawaii's energy needs by ethanol, biodiesel and renewable hydrogen are being examined.

Funds for the project were appropriated by Act 240 of 2006.

The legislature also appropriated funds for a complementary effort—the creation of a Bioenergy Master Plan. The Request for Proposals has been developed for the plan, which will address water and land resources, labor, technology, permitting, financial incentives, barriers, policy requirements and environmental concerns.

The master plan is expected to encourage strategic partnerships for the research, development, testing and deployment of renewable biofuels technologies and the production of biomass crops. A major result will be an evaluation of Hawaii's potential to rely on biofuels as a significant renewable energy resource.

This master planning effort was established by Act 253 of 2007.

Act 159, SLH 2007, specifically allows biofuels processing facilities in agricultural districts and creates a feedstock program.

Researchers Explore Local Crops for Biodiesel

Local researchers will test whether avocados make a cleaner burning biodiesel than coconuts, and whether kukui nuts are superior to the Caribbean jatropha plant as a feedstock.

This research will be conducted by the Honolulu Clean Cities coalition with a grant from the U.S. Environmental Protection Agency (EPA). The Biodiesel Fuel From Crops Project kicked off in March 2007. Results are expected in a year.

Partners include the University of Hawaii at Hilo and the Hawaii Agriculture Research Center. Grace Pacific will perform emissions tests and Pacific Biodiesel will test the fuels. The oil itself will be extracted at the Oceanic Institute in Waimanalo, which will investigate the use of the by-products of oil extraction as fish food.

The State Department of Agriculture believes that Hawaii could produce enough biodiesel to reduce imported diesel by 20%. A report released in 2006 said it might take five to 10 years to determine the best crops and locations for production.

A separate research effort, funded through the National Defense Center of Excellence for Research in Ocean Sciences, will study the genetic adaptation of marine algae to improve the yield of biodiesel. HR Biopetroleum, Inc., will conduct the research.

Construction of Ethanol Plant Delayed

Delays in permitting Hawaii's first ethanol fuel production facility have pushed the start-up date to mid-2009 or later.

The planned plant at Kaumakani, on Kauai, would produce 12 million gallons, about 30% of the fuel needed to satisfy the state's requirement that ethanol be mixed with gasoline. Imported ethanol is currently being blended to form E10 Unleaded fuel.

Kauai Ethanol's plant would be the first in the nation to produce ethanol fuel from sugarcane.

During its 2007 session, the state legislature restored a general excise tax exemption on gasoline blended with ethanol.

Renewable Hydrogen Pursued

Act 240, 2006, established a $10 million hydrogen investment capital special fund, $9.5 million of which is intended for project cost share and for seed and venture capital investment. A request for proposals to implement the program has been issued.

A hydrogen power park project is also pending. It will receive $800,000 in state funds from Act 240 and an equivalent match from USDOE. The project will install hydrogen production, storage and a fueling station on the Big Island.

A new internet site (http://www.hi-hydrogen.com) complements these efforts.

Plans Advance for Biodiesel Production

Three companies are developing biodiesel "refineries" on separate islands while the Hawaiian Electric Company (HECO) has announced plans for a 110-MW biodiesel-fueled power plant.

Kauai biodiesel plant

The Local Biofuels company expects to break ground on its first production plant, on Kauai, in early 2008. The 250,000 gallon-per-year (gpy) facility, located at Puhi, could produce enough fuel to meet roughly 10% of Kauai's current diesel fuel needs.

The company plans to manufacture biodiesel from a combination of used grease and virgin oils. A use permit has been obtained from Kauai County.

BlueEarth on Maui

The BlueEarth Maui Biodiesel LLC plant proposed for central Maui is expected to begin service in 2009, producing 40 million gpy of biodiesel from imported palm oil, until local feedstocks are available. Additional phases would bring the plant's capacity to 120 million gpy by 2011.

The legislature approved $59 million in special purpose revenue bonds for the project, which includes a subsidiary of HECO as a partner. The fuel would be used in Maui Electric's 215-megawatt Maalaea Power Plant.

Before the bonds can be issued, DBEDT must certify the company's documentation that sustainable sources are used.

Because of HECO's involvement, approval by the state Public Utilities Commission (PUC) is also needed.

HECO plans to create a Hawaii Biofuels Public Trust, which will receive profits from the utility subsidiary which is a partner in the plant. The Trust will fund research and provide other support.

Maui Electric already uses biodiesel to start up and shut down some generating units at the Maalaea power plant because it burns more cleanly than petroleum during those processes.

Imperium Renewables

Imperium Renewables, Inc. has announced plans for a biodiesel plant at Kalaeloa Harbor on Oahu which could provide fuel for commercial applications, consumer vehicles, and possibly HECO's new power plant.

The facility would produce 100 million gpy of biodiesel from imported vegetable oils, or from locally-grown sources when available. An environmental assessment notice has been filed with the state. Once approvals, a lease and permits are obtained, the company expects to produce biodiesel in 2009.

The Imperium biodiesel plant would be one of the country's largest.

HECO solicits biofuels

HECO has obtained PUC approval for a 110-MW power plant to be located in Campbell Industrial Park. The plant, projected to begin commercial production in 2009, would provide electricity during periods of peak use and would be HECO's first substantial new generation in 17 years.

The utility has committed to fueling the plant entirely with biodiesel. In October 2007, HECO selected Imperium Services LLC as the supplier; between 5 and 12 million gpy of biodiesel will be needed. HECO is seeking PUC approval of the contract.

Sustainability addressed

Members of the public and environmental organizations have expressed concern over the environmental impacts and sustainability of certain imported feedstocks, including palm oil.

In response, HECO formed a partnership with the National Resource Defense Council and has developed policies to ensure that only locally-grown sustainable feedstocks or palm oil that complies with international standards established by the Roundtable on Sustainable Palm Oil are used. Local sources are preferred.

Currently, there are no locally-grown biodiesel crops. However, with up to 173,000 acres of fallow agricultural land in the state and a number of enterprises pursuing local production of feedstocks, it is hoped that fuel crops will soon be raised locally.

The only existing biodiesel facilities in Hawaii are two plants on Maui and Oahu operated by Pacific Biodiesel, which together can produce 1.5 million gpy, mostly from waste cooking oil.

Hawaii a Leader in Building Efficiency

Hawaii is setting the pace for energy savings in buildings, says the U.S. Environmental Protection Agency (EPA). The state ranks fifth in the nation in total energy cost savings for ENERGY STAR® buildings, more than $22 million annually.

This averages about $1.6 million saved per building. Buildings which earn ENERGY STAR® ratings use about 30% less energy than average buildings.

Hawaii's high ranking is despite only having 18 ENERGY STAR® buildings. California, in comparison, has 779 buildings but only saves about $191,000 per building.

Four state buildings have received ENERGY STAR® awards. Three are managed by the state Department of Accounting and General Services (DAGS) and one by the Judiciary.

Three of the buildings were certified for the first time. The Leiopapa A Kamehameha Building (the State Office Tower) and Abner Paki Hale Courthouse in Kaneohe qualified in 2006. The Hilo State Office Building received its ranking in 2007.

The fourth, the Kakuhihewa Building (Kapolei State Building) was first certified in 2005 and won recertification for 2006.

Three of the state buildings which have received ENERGY STAR® certifications from EPA. Above: Abner Paki Hale courthouse. Below left: Kapolei State Building. Below right: State Office Tower.

Hawaii has been a member of EPA's Energy Star® Challenge since October 2005. The program identifies buildings where energy efficiency improvements could reduce energy use by 10%, and then implements those changes.

Other state buildings are being recognized for their efficiency features. The new Waipahu Intermediate School cafeteria was the first Department of Education facility to be LEED certified. The facility also won an Excellence Award from the American Council of Engineering Companies' Hawaii Chapter.

The cafeteria design features natural lighting which significantly reduces the need for electric lighting in the dining area during school hours, a 16.5% reduction in annual electricity costs, a 50% reduction in irrigation water costs, and natural ventilation.

The innovative Hawaii Gateway Energy Center in Kona was named one of the 10 best green buildings in the USA for 2007.

The recognition came from the Committee on the Environment of the American Institute of Architects, who announced the honor on Earth Day.

Operating since 2004, Gateway Center is cooled by deep ocean water and ventilated with a natural chimney effect. Utility-owned photovoltaic arrays generate 90 kilowatt-hours per day.

Businesses Embrace Green Building

Enthusiasm for efficiency is spreading statewide.

Six hundred attendees gathered at the Hawaii Build & Buy Green Conference & Expo held during May at the Hawaii Convention Center. Participants included engineers, builders, developers, city and state officials, and members of the general public.

The event explored environmentally friendly advances in construction and city planning, including affordable housing, residences, commercial construction, photovoltaics, and waste management and reuse.

The conference and expo received cosponsorships from more than 20 public and private entities, including DBEDT.

DBEDT supported the attendance of 69 state personnel from various agencies.

Winners of the 2006 Hawaii Green Business Awards in April 2007.

DBEDT is also a sponsor of the annual Hawaii Green Business Awards. Lt. Governor Aiona presented the 2006 awards to the Hilton Hawaiian Village Beach Resort and Spa, Waikiki Beach Marriott Resort and Spa, and the Sheraton Kauai Resort.

This was the second win for the Hilton.

The hotels have adopted innovative "green" practices to conserve energy, water and other resources, and to reduce pollution and waste. They have also hosted informative public workshops.

The program is a partnership of DBEDT, the state Department of Health, and the Chamber of Commerce of Hawaii.

State Facilities Designed for Energy and the Environment

The State of Hawaii has a number of public buildings which have achieved recognition by the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) program.

The Hawaii Gateway Energy Center is one of only two LEED Platinum buildings in Hawaii, and the only one at a state facility.

LEED Silver (or equivalent) status is now required, to the extent possible, for new state government facilities. More than two dozen public buildings are funded, under design, being constructed, or awaiting designation as LEED Silver. These will be on campuses, correctional facilities and hospitals on the four major islands.

In addition, the UH Coconut Island Biology Research Laboratories are being designed with the objective of achieving a LEED Gold rating.

Two buildings have achieved LEED Certified status to date: the Waipahu Intermediate School cafeteria and the Mauna Kea Astronomy Education Center. A third, the new John A. Burns School of Medicine, is awaiting confirmation of LEED certification.

On behalf of the State of Hawaii, DBEDT renewed its membership in the USGBC for 2007.

During the last fiscal year, the Department of Transportation and the Department of Education have joined DBEDT in having LEED-accredited professionals on staff. DBEDT helped coordinate three LEED Study Sessions to prepare other State personnel for the USGBC examination in order to become LEED-accredited professionals.

Through the Lead by Example effort, DBEDT has facilitated state agency prioritization of building projects based in part on the potential for energy efficiency and achieving LEED designation.

State Facilities' Energy Improvements

DBEDT and other state agencies are actively pursuing energy efficiency opportunities and considering renewable energy generation at state facilities.

Public Schools

The Department of Education (DOE) was appropriated $5 million by the 2006 legislature to fund photovoltaic (PV) installations on public school property. Approximately eight schools will receive PV arrays this fiscal year.

Efficiency upgrades in lighting, windows, ENERGY STAR® equipment, and motors continue throughout the school system.

Three new schools are expected to achieve LEED Silver rating after construction, and two more are already awaiting LEED Silver ranking. Other facilities will be designed to meet LEED standards but, due to cost constraints, will not be formally certified.

DBEDT completed a cost/benefit analysis of "green" versus conventional construction for DOE which shows clearly that new air-conditioned elementary schools can be designed to be sustainable. The economic benefits include reducing operational costs by 30%, saving approximately $60,000 annually.

Two case studies were developed as part of this project. One was of Waipahu Intermediate School's cafeteria, a project with benefits which include a 13.5% reduction in operating costs.

The second study examined passive heat abatement strategies in a hypothetical retrofit of a classroom at Campbell High School. The model indicated that the benefits of passive design in this particular case were very limited due to the building's orientation and envelope design.

Improved air conditioning at the historic Iolani Palace will reduce costs while protecting irreplaceable cultural artifacts.

The report also identified strategies that DOE can use to effectively integrate sustainable design and best practices into its existing planning processes when building public schools.

Building Commissioning

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. Both ensure functionality.

DBEDT hired a consultant to develop the commissioning process for state agencies. Standardized documentation and training will be provided. A number of facilities, including a planned lounge at the Honolulu International Airport and the U.H. Coconut Island laboratory, are to be commissioned.

DBEDT continues to assist other executive agencies with commissioning procedures.

Energy audits of the State Capitol building and Iolani Palace have been completed. Efficiency opportunities at the Capitol include improvements in lighting, air conditioning, and motors. DBEDT is also assisting the Dept. of Land and Natural Resources with chiller plant improvements at the Palace.

DAGS has selected five buildings for retrocommissioning: the State Capitol, Keelikolani Building, and the state office buildings in Hilo, Lihue and Wailuku.

Renewables Pursued

State agencies are seriously pursuing renewable energy.

A multi-megawatt PV installation is under consideration for airports across Hawaii, and wind power is also being explored.

Competitive requests for proposals are anticipated for ocean thermal energy conversion and solar electricity at the Natural Energy Laboratory of Hawaii. The legislature authorized $10 million in special purpose revenue bonds to Sopogy, Inc., for a concentrating solar power plant.

Renewables Expected to Increase

The state has set a goal of generating 20% of its electricity from renewable energy by 2020.

A number of projects are planned or have been proposed to attain that goal. These projects will ameliorate the escalating costs of electricity due to the high price of oil, and will also reduce greenhouse gas emissions.

Among other actions, HECO issued a request for proposals for up to 100 MW of non-firm renewable energy.

Solar

What would be the largest solar power plant in Hawaii was proposed for the island of Lanai in 2007. A contract to build the 1.5-MW PV facility has been signed and approvals are being sought. The plant could provide 30% of Lanai's electricity.

Rooftop PV systems for thousands of military homes are being installed on Oahu; combined, they will total 6 MW over the next decade.

A 10.4-kW PV system installed on Niihau in 2007 now provides power for the isolated school.

Wind

The Pakini Nui wind farm at South Point on the Big Island began exporting electricity to HELCO in 2007. The facility is capable of generating 20 MW.

Wind data were collected above Kahuku by HECO pursuant to a possible wind installation there. On Maui, data were gathered to support the possible expansion of the Kaheawa wind farm.

The state's largest renewable energy plant—a wind farm of up to 400 MW—has been proposed for Lanai. Electricity from the facility would be exported to Oahu via submarine cable; the wind turbines could provide up to 20% of Oahu's power requirements.

Wood

The Kauai Island Utility Cooperative signed a 20-year agreement to purchase electricity from a proposed 6.4-MW power plant fueled with wood.

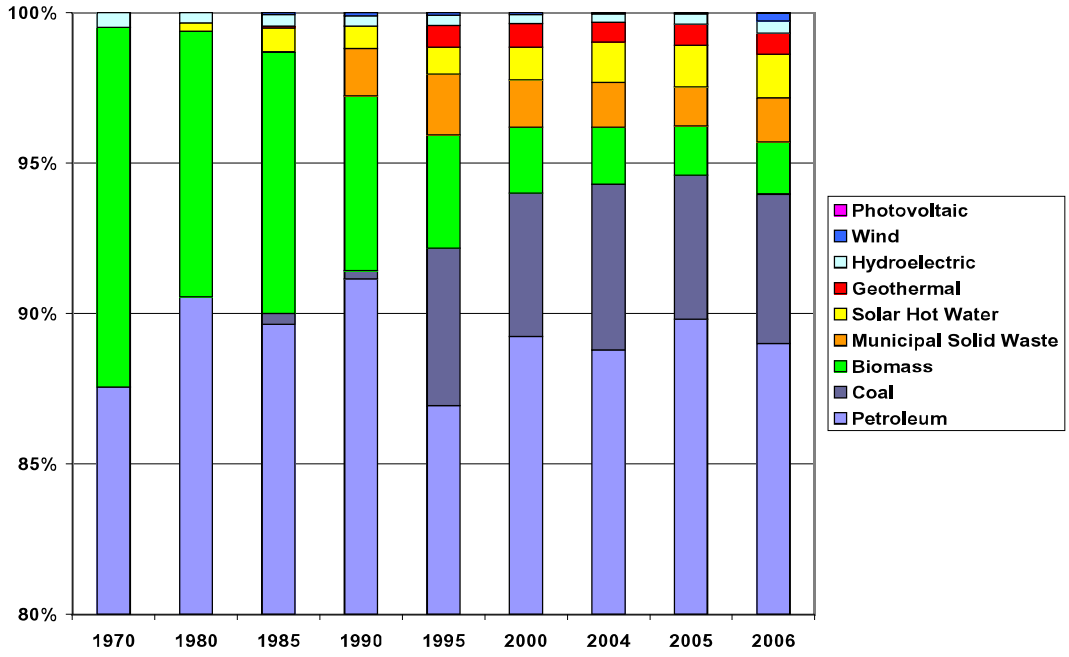
On the island of Hawaii, HELCO inked a 20-year contract to purchase electricity from a veneer mill planned for Ookala. The 2.0-3.6 MW plant, fired by wood waste, would increase the utility's renewable portfolio to 35%.

Ocean

DBEDT cosponsored the EnergyOcean conference on Oahu, attracting several hundred people.

Oceanlinx, an Australian wave energy developer, is actively pursuing a pilot plant off Maui.

Primary Energy Sources in Hawaii, 1970-2006, Selected Years



Leading by Example

The State's Lead by Example (LBE) initiatives advanced considerably during 2007. DBEDT, which coordinates several LBE working groups, is producing a separate report to the legislature covering achievements in the 2006-07 fiscal year.

During that period, DBEDT sponsored or facilitated 89 events. This included training or technical assistance sessions, case studies and meetings to gather data or inventory state energy use.

Some of these events, such as statewide energy efficiency seminars for businesses, were open to the public. Others were targeted for specific professionals.

A total of 3,433 people attended these activities, including a high percentage of personnel from state executive agencies. Representatives from the four county governments also participated.

DBEDT also developed spreadsheets and materials to help DAGS and other agencies prioritize energy conservation measures for the building envelope, air conditioning, lighting, motors, and other energy systems.

Through the LBE Environmentally Preferable Procurement Working Group meetings, DBEDT provided information to executive agency leadership on green purchasing.

Information was also disseminated through LBE's Transportation Working Group on best practices to maximize efficiency in vehicle operation. Mileage logs will be distributed to executive agencies through the Working Group.

Agencies Adopt Performance Contracting

DBEDT has helped the Hawaii Public Housing Authority prepare a request for proposals for performance contracting, and has briefed other agencies on how to implement similar contracts. The HPHA effort is unique in Hawaii because it involves federal funding and also addresses federal housing requirements.

Major performance contracts statewide have already saved millions of dollars.

DAGS is leading the state's efforts in performance contracting and has formed an inter-agency task force to develop a statewide request for proposals.

Possible Regulatory Changes

In response to both an Administrative Directive and a legislative resolution, agencies are examining the permitting processes required for renewable energy projects.

Individual agencies' responses are recorded in a separate Lead by Example report to the legislature. In addition, DBEDT examined alternative regulatory models implemented by other states.

Interagency "wheeling" of electricity, now under consideration by the PUC, is a potentially significant change which could result in new renewable generation on state property. DBEDT, county governments and other entities are participating in the discussion.

Efforts continue to update building codes for energy efficiency. DBEDT, with USDOE funding, is spearheading the development of a model code specifically suited for tropical climates.

Oil Industry Data Key to Analyses

Both DBEDT and the Public Utilities Commission (PUC) require energy and fuels data to accomplish their statutory functions. In 2006, Act 78, which focused on increasing transparency in the petroleum industry and fuels market, assigned the analysis of fuel prices and industry profits to the PUC.

In 2007, the legislature provided $2.1 million to support the PUC's analyses. Regular detailed data reports began to be filed in August.

Act 78 also provided that DBEDT and a few other specified state agencies be given access to the data obtained by the PUC. The information is essential for DBEDT's long-term energy policy planning, energy emergency preparedness, and other programs.

Act 182, SLH 2007, clarified DBEDT's role in energy data analysis, pertinent to the responsibilities of the Energy Resources Coordinator to systematically analyze, develop and coordinate achievement of the state's energy policies. However, a lack of resources to implement these data functions remains a challenge for DBEDT.

Energy Programs Supported by $12.5 Million in State and Federal Funds

Significant support for energy initiatives by the state legislature resulted in $10.9 million of state funds being appropriated for energy projects in the fiscal year ending June 30, 2007. The emphasis was on the administration's Lead by Example effort, a biofuels assessment, and investment in hydrogen.

In addition, $570,000 in Federal funds were obtained through competitive nationwide solicitations offered by USDOE. Other efforts are funded through USDOE's State Energy Program (SEP), which provides a consistent foundation for Hawaii's energy initiatives.

The greatest amount of funding went to Electric Power and Renewable Energy programs. Ten million dollars from state general funds were appropriated for the Hydrogen Investment Capital Special Fund. The Fund will support the Hawaii Renewable Hydrogen Program, to be managed by DBEDT.

An additional $200,000 was designated for the Hawaii Energy Policy Forum, a multi-stakeholder group which has provided guidance for policy initiatives.

General funds also supported a homeland security summit and the JUSTSAP space science program.

Federal funding for this sector included $426,475 for energy emergency planning, $400,000 for a hydrogen power park, $250,000 for planning and policy activities, $100,000 for an assessment of the implications of Hawaii's oil dependence, $59,507 to develop a road map for hydrogen production from geothermal energy, and $10,000 for technology innovation.

The Buildings program was the second largest component of SID's efforts in 2007, with a major appropriation of $500,000 in general funds to support the administration's Lead by Example initiative.

The Buildings sector also received most of the federal funds: $304,869. This supported development of tropical energy codes, the Rebuild Hawaii and Rebuild America efforts, and building guidelines. Strong private-sector partnerships extended the impact of funding support in this area.

Within the Education sector, $200,000 in general funds were appropriated for a multi-fuel biofuels production assessment, while $19,950 in federal monies supported the Science Bowl and the State Science and Engineering Fair.

Transportation programs focusing on alternative fuels received $25,000 in federal funds.

Activities in resource efficiency such as recycling were supported by $12,500 in federal funds under the Industrial component of the SEP.

Description	State Funds	Federal Grants	Total
Education	$ 200,000	$ 19,950	$ 219,950
Transportation	0	25,000	25,000
Buildings	500,000	304,869	804,869
Industrial	0	12,500	12,500
Power/Renewables	10,241,000	1,245,982	11,486,982
Totals	$ 10,941,000	$1,608,301	$12,549,301