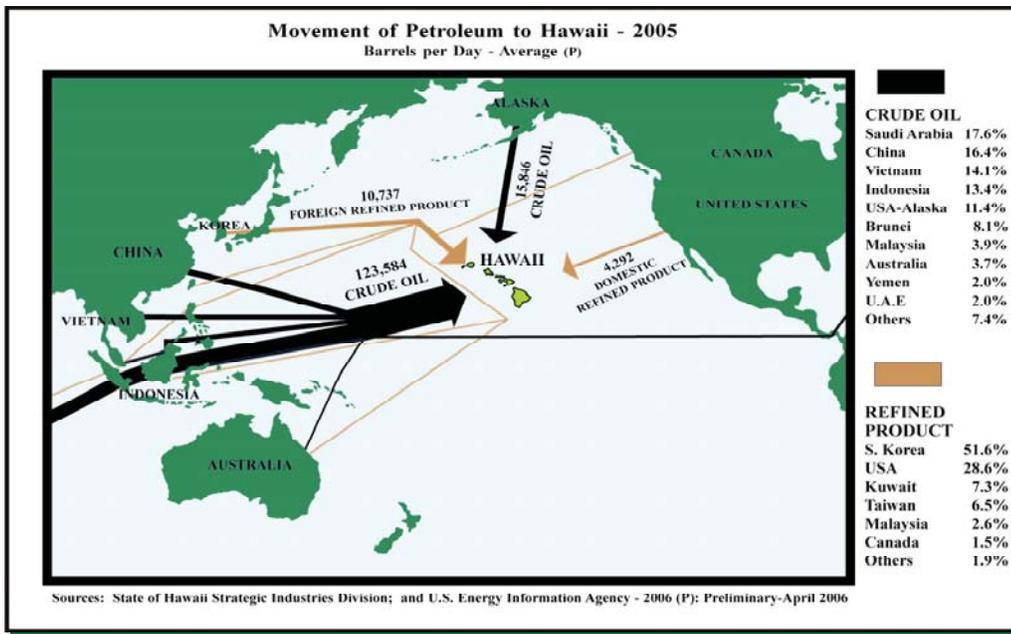


State of Hawaii Energy Resources Coordinator Annual Report 2006

Hawaii's Petroleum Imports 2005



NOTE: Arrows' width are roughly proportionate to percentages of oil imports from sources.

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Energy is Essential to Hawaii's Economy

Energy—its supply and use—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. A stable energy supply is essential to continued prosperity.

Every barrel of oil saved translates to more dollars available in the local economy, in addition to the many environmental benefits.

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

- Hawaii, the most oil-dependent of the 50 states, relies on imported petroleum for about 90%

of its primary energy. Most of this 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 to address economic, environmental and energy security issues. 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

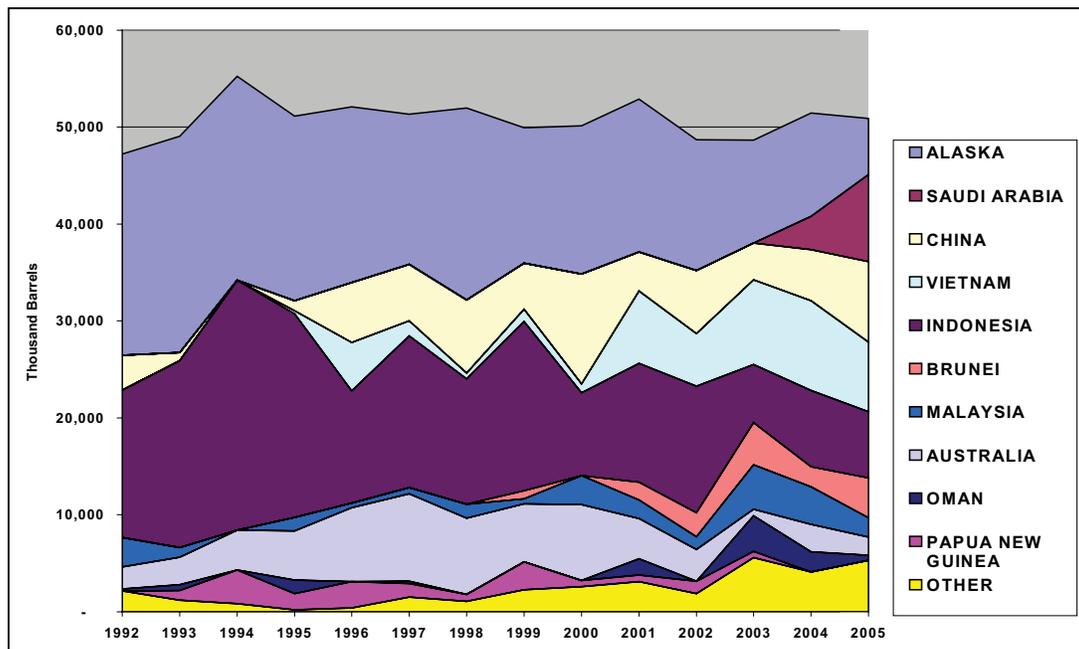
capable of meeting the needs of the people;

- increased energy self-sufficiency;
- greater energy security; and
- reduction, avoidance, or sequestration of greenhouse gas emissions.

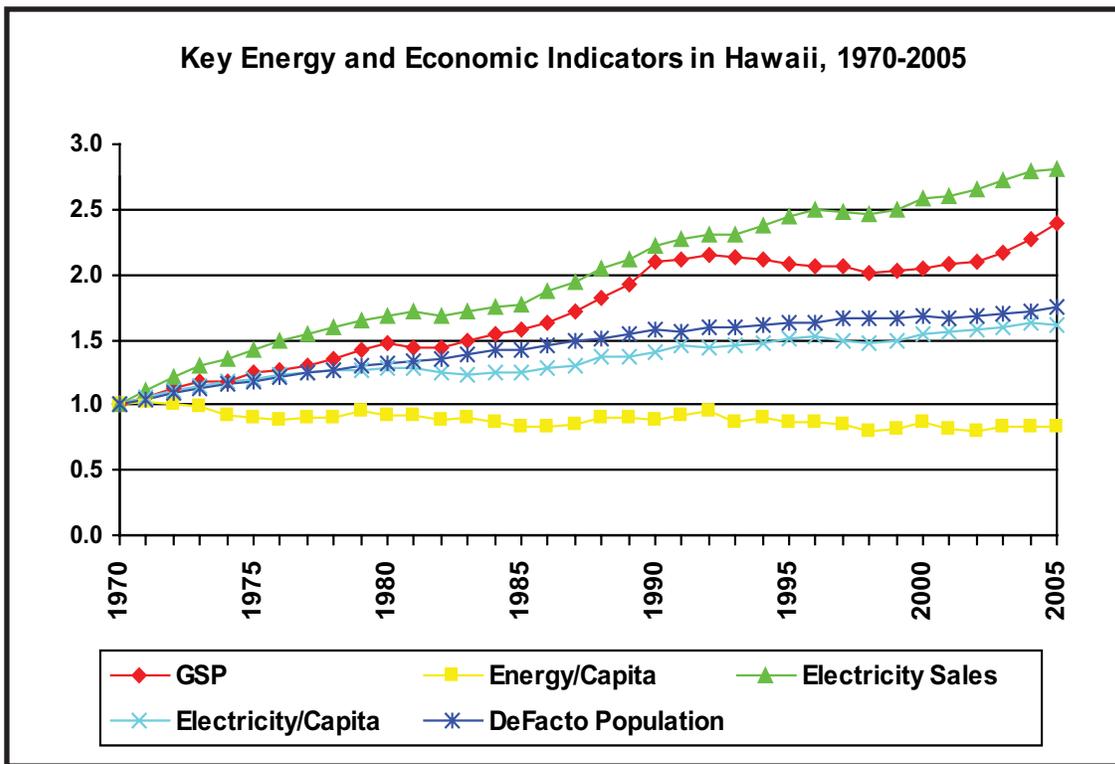
The state's energy policy also requires that the total costs and benefits of all energy options—including efficiency—be compared. Alternative transportation fuels and efficient transportation must also be promoted.

The Strategic Industries Division (SID) of DBEDT implements programs to meet these goals. Achievements and milestones for 2006 are detailed in the following pages.

Changes in Origins of Hawaii's Crude Oil



Sources: State of Hawaii – DBEDT, 2006; and U.S. Energy Information Administration (USEIA), 2006.



Efforts Continue to Displace Fossil Fuels

Hawaii's economy continued its trend toward increased energy efficiency while efforts to replace imported fossil fuels with indigenous renewable energy resources proceeded.

Hawaii's primary energy consumption in 2005 was 324.6 trillion Btu, up 0.16% over 2004.

Petroleum use increased slightly, rising 1.3% from 2004 to 2005. Petroleum consumption totaled 291.5 trillion Btu in 2005; it was somewhat more than 288 trillion Btu in 2004.

Coal consumption decreased 12.7% from 2004 levels, due primarily to the closure of a coal-fired independent power producer on the Big Island.

Together, the imported fossil fuels—coal and oil—represent

almost 95% of Hawaii's energy consumption. Nearly 90% of Hawaii's total energy is imported petroleum.

Renewable energy production decreased by 5.24% during 2005. This drop can be attributed to reduced generation from municipal solid waste and biomass, which each decreased by about 13% from 2004.

Consumers spent an estimated \$4.26 billion for energy in 2005—33% more than in 2004—primarily due to high oil prices. This was about 7.9% of Hawaii's \$53.71 billion (current dollars) Gross State Product (GSP).

Despite the slight increase in 2005 energy use, Hawaii's economy is significantly more energy efficient than it was in 1970. Ha-

waii residents use 18% less energy per capita (based on de facto population) than 35 years ago. The trend toward efficiency has been flattening, however; overall energy use per capita decreased by only 1.2% in 2005 compared to the previous year.

Consumers' increasing use of electrotechnologies has meant electricity sales continue to rise faster than the de facto population and GSP.

In 2005, electricity sales per capita were 161% more than 1970, while de facto population grew 75% and real GSP increased 139%.

2005 electricity sales increased 0.28% over 2004. This resulted in a modest 1.07% decrease in electricity sales per capita.

“Gas Cap” Suspended

In early 2006, DBEDT continued its analysis of diesel and gasoline markets, working with the PUC to monitor the impact of the gasoline price cap. DBEDT designed reports to collect additional data on petroleum products such as imports, exports, inventory, sales, refinery activity and storage capacity.

However, during its 2006 session, the legislature replaced the “cap” with a different price control formula, along with different criteria for its activation.

Act 78, Session Laws of Hawaii 2006, suspended indefinitely the maximum pre-tax wholesale gasoline price provision while giving the Governor the authority to reinstate it.

The Governor has the authority to reinstate the weekly maximum pre-tax wholesale gasoline price for 30 days upon the publication of a statewide notice that the reinstatement would be beneficial to Hawaii’s citizens’ economic well-being, health and safety.

Act 78 also made refinements to the calculation of the maximum pre-tax wholesale gasoline price.

In addition, the law provides for increased monitoring of the petroleum industry.

This monitoring and data collection aims to increase the “transparency” of operations within the state’s petroleum industry, which is intended to help Hawaii consumers determine competitive gasoline prices.

Mideast Now Major Source of Hawaii’s Petroleum

The sources of Hawaii’s imported petroleum are changing significantly.

The chart on page 1 depicts the countries of origin of Hawaii’s crude oil imports and how the state’s import volumes and sources have changed from 1992 through 2005.

In 1987, 52% of Hawaii’s crude oil imports were from Alaska’s North Slope. The decline of this field has been anticipated for many years, so it was not unexpected when by 2005 only 11% of Hawaii’s crude oil originated from Alaska.

While the origin of crude oil imports overall have been centralizing—a trend that is expected to continue—2005 did yield a bit of a surprise for Hawaii.

From 1992 to 2004, Hawaii’s crude oil imports from the Middle East averaged less than 1% annually. In 2005, Saudi Arabia became the largest supplier of Hawaii’s crude oil, totaling 17% of annual imports. The total percentage from the Mideast in 2005 was over 25%.

Hawaii’s Energy Strategy Updated

Three public meetings added stakeholder input to the 2006-2007 update of the Hawaii Energy Strategy (HES), an ongoing comprehensive energy planning and modeling project.

Initiated in 1992 to increase understanding of Hawaii’s energy situation, formulate state energy objectives and make recommendations toward achieving goals, HES was last revised in 2000.

HES 2007 will build upon previous work and Gov. Lingle’s Energy for Tomorrow initiative to:

- reduce Hawaii’s dependence on oil;
- protect the environment;
- reduce the negative impacts

related to using imported fuels;

- enhance renewable energy use and energy efficiency; and
- improve the security and reliability of Hawaii’s energy system.

An initial public stakeholder meeting was held in July. The project description and approach were outlined by DBEDT-SID and its contractor, the Rocky Mountain Institute.

Subsequent meetings provided progress reports and continued discussion, which will be continued into 2007.

For further information, visit the HES website at <http://www.hawaii.gov/dbedt/info/energy/planning/hes>.

Major Energy Initiatives Become Law

Three progressive energy bills, containing most of the “Energy for Tomorrow” program introduced by Gov. Lingle, were passed with bipartisan support by the 2006 legislature, then signed by the Governor during a series of ceremonies held across the state.

The bills include projects ranging from installing photovoltaic arrays on public schools to providing funds for biofuels.

Act 96 includes the following provisions:

- Funding for at least four public school photovoltaic systems on different islands;
- Updating policies to promote efficiency in state buildings and vehicles; and
- Hiring staff at DBEDT and the Dept. of Education to coordinate energy efficiency projects.

Act 162 directs the Public Utilities Commission to:

- Consider establishing a public benefits fund to promote efficiency and renewables;
- Share the risk of escalating fossil fuel costs between the utility and its customers; and
- Penalize utilities which do not achieve the goals of the Renewable Portfolio Standards law, while modifying definitions for renewable energy.

Act 240 emphasizes energy self-sufficiency by:

- Increasing the dollar caps on tax credits for solar thermal, photovoltaic and wind installations;
- Making these tax credits permanent;
- Establishing a pilot project to



Gov. Linda Lingle signed landmark energy legislation into law.

fund residential solar water heaters with savings from utility bills;

- Creating a statewide alternative fuel standard, to reach 20% by 2020 and including a biodiesel purchasing preference for state vehicles;
- Providing venture capital

and other support to manage the state’s transition to a renewable hydrogen economy; and

- Funding biofuels projects, including a statewide production assessment.

Act 163 provided continued funding for the Hawaii Energy Policy Forum, a diverse group whose deliberations formed the basis for many of the provisions in the Energy for Tomorrow legislative package.

The greater emphasis on renewable energy embodied in the new laws will have both environmental and economic benefits. It is expected to significantly reduce the amount of oil burned within the state, thereby keeping billions of dollars in the state economy instead of using it to buy oil.

Hawaii will receive assistance from a top expert from the U.S. Department of Energy (USDOE), who will be on loan to DBEDT for two years to help implement renewable energy goals.

State Administration Leads by Example

All state agencies have been directed by Governor Lingle to outline their activities which comply with the new energy legislation as well as previous Administrative Directives.

Emphasizing the importance for the state to “lead by example,” agencies are expanding their efforts to construct buildings which meet LEED standards, purchase energy-efficient vehicles and Energy Star office equipment, and streamline permits for renewable energy projects, among other activities.

Agency efforts will be detailed in a separate report.

Focus on Biofuels Attracts Ag Partners

One approach to moderating Hawaii's traditionally high transportation fuel costs is to seek alternatives to petroleum-based fuels. In August, Gov. Lingle convened the Hawaii Biofuels Summit, attended by 50 top-level business executives, lawmakers, landowners, government officials and academics to identify strategies for implementation by the public and private sectors.

The Summit was supported by DBEDT and its consultant, the

Rocky Mountain Institute.

Participants representing each component of the biofuels value chain (agriculture, conversion, distribution, and end use) offered their views on existing barriers to biofuels development as well as potential solutions.

The following suggestions received the highest priority:

- provide incentives for in-state production;
- streamline permitting and secure County cooperation;

- bolster and coordinate research and development on agricultural fuel crops, processing, and conversion;

- develop infrastructure to move biofuels to market;

- clarify water access issues; and

- coordinate investment across the value chain.

A later event also focused on the potential for producing biofuels in Hawaii.

In October, about 170 participants at the 2006 Hawaii Agriculture Bioenergy Workshop considered increased markets and new opportunities for local production of ethanol, biodiesel and biopower. DBEDT, HECO and the Hawaii Energy Policy Forum sponsored the event, held in cooperation with the agriculture community.

E10-Unleaded Fills Pumps as Firms Plan Production

In the spring of 2006, Hawaii's gasoline dealers, obeying a legislative mandate, began statewide marketing of E10-Unleaded, a fuel blend containing 90% unleaded gasoline and 10% ethanol.

In support of this transition to a more renewable fuel, DBEDT distributed tens of thousands of informative brochures, conducted media interviews, and answered public questions on a hotline.

Hawaiian Electric Company, Inc. (HECO), the utility serving Oahu, is interested in using biofuels at some of its existing and proposed generation stations.

Several private firms are planning to produce ethanol from Hawaii-grown feedstocks such as sugarcane and cellulosic waste. Financing, engineering designs, and permits are proceeding, and the first locally-produced ethanol is expected to be available before

the end of 2007.

The state offers the most generous ethanol tax incentives in the country, including an incentive of 30 cents per gallon of production capacity for up to eight years, not to exceed the facility's cost of construction.

Three of the state's major landowners—Grove Farm Co., Maui Land & Pineapple Co. and Kamehameha Schools—have joined with other partners to form Hawaii BioEnergy LLC. Hawaii BioEnergy will research the types of crops to use, processing systems, cost and timetable to bring biofuels to Hawaii consumers.

The U.H. Hawaii Natural Energy Institute is estimating ethanol production potential by county. The study takes into consideration both available and probable feedstocks and production technologies.

First Hydrogen Fueling Station in Hawaii

The state achieved a milestone in November: its first operating hydrogen fueling station, at Hickam Air Force Base.

The \$1.5 million system is the first portable and deployable hydrogen production and dispersing station in the Air Force and the Department of Defense.

The three-module system, which can be airlifted in a cargo jet transport, consists of a two-electrolyzer hydrogen processor, a pressure management system, and nine pressurized storage tanks.

Efficiency Initiatives Reap Results

From Hilo to Kapolei, energy efficiency is improving.

State Buildings

In February, the Kapolei State Office Building was recognized as an Energy Star building, acknowledging that it met the U.S. Environmental Protection Agency (EPA) requirements for energy performance, thermal comfort, indoor air quality and lighting levels. The Kapolei State Office Building is one of 14 buildings in Hawaii to achieve this status.

The University of Hawaii at Manoa has set goals of cutting its energy consumption in half by 2015 and to have 25% of its energy supplied by renewable resources by 2020. The campus is currently the second-largest consumer of energy on Oahu.

DBEDT is providing technical assistance for other energy efficiency projects, include upgrading the Hawaii Air National Guard compressor system at Hickam Air Force Base, developing a performance contract for the Hawaii Public Housing Authority, and analyzing the costs and benefits of green versus conventional construction for K-12 schools.

A performance contract at the University of Hawaii at Hilo has saved \$6.6 million since 1996.

Local businesses, working with the faculty and students of Waipahu High School, are experimenting with solar fans and reflective roof coatings to reduce temperatures in portable classrooms. A white elastomeric ceramic coating appears to be very effective.



Governor Linda Lingle congratulated the recipients of 2005's Green Business Awards during a ceremony in March 2006.

On behalf of the State of Hawaii, DBEDT has joined the U.S. Green Building Council. The Council administers the Leadership in Energy and Environmental Design (LEED) rating system. There are now several State of Hawaii LEED projects completed and more are under construction.

DBEDT has executed a contract to develop a Tropical Energy Code, updating the previous Model Energy Code for improved efficiency in tropical climates.

County Buildings

The City and County of Honolulu has implemented energy savings performance contracts for the Honolulu Municipal Building and Police Department headquarters. Energy conservation measures include lighting and air conditioning plant renovations.

The Hawaii County Building's performance contract is in its ninth year; cumulative savings total \$713,500. A planned remodeling will encompass energy

efficiency measures. On the other side of the island, the West Hawaii Civic Center is planned to be LEED Silver certified.

An additional performance contract for the Hilo Public Safety Building and Kona Police Station has saved \$889,023 to date.

Green Businesses

Governor Linda Lingle presented the Annual Green Business Awards to the Hilton Waikoloa Village, the Hawaii Prince Hotel-Waikiki, and the Hawaii Hotel and Lodging Association in recognition of their commitment to improving the environment and conserving energy and resources.

The Hawaii Green Business program has focused on resorts because of the visitor industry's cumulative impact on the environment.

In a separate effort, the Waikiki Beach Marriot was named Energy Star 2006 partner of the year, the only lodging company to get EPA's highest honor.

New Wind Farms Online, Others Planned

Two new wind farms began generating electricity in 2006, while another is set for completion in early 2007. With planning underway for additional projects, wind power is making rapid progress in the islands.

On a ridge above Maalaea Harbor on Maui, Kaheawa Wind Power's 20 1.5-MW GE turbines, with a total capacity of 30 MW, began generating power in the middle of the year. The farm is expected to generate about 9% of the island's electricity, averaged over a year.

Most of the project's wind-generated electricity will sell for about 8 cents per kWh, significantly less than the utility's avoided cost, which was over 20 cents per kWh in the third quarter of 2006.

The state Board of Land and Natural Resources has agreed to negotiate a lease for expansion of the plant. Kaheawa has proposed adding 18 more turbines at the site.

The same partnership has won the right to build 10 to 15 MW of wind capacity on Kauai at a location still to be determined.

Shell Oil Co. plans to build a 40-MW wind farm in Auwahi, on Ulupalakua Ranch property. The first phase of the 20-turbine project, which will also incorporate pumped storage hydroelectricity, is expected to be completed by 2008. The entire project will require three to five years to build.

On the northern tip of the Big Island, Hawi Renewable Development, Inc. has completed a 10.5-MW wind farm on 200 acres of agricultural land at Upolu Point.

Cattle continue to graze around the bases of the 16 600-kW Vestas V47 turbines, which began generating electricity for sale to the Hawaii Electric Light Co. (HELCO) in the spring.

The wind-generated electricity will cost between 7.47 and 9.2 cents per kWh, depending on when it's generated; these prices,

however, will fluctuate with the cost of oil. HELCO's average avoided cost for the third quarter of 2006 was 19.32 cents per kWh, so customers are not paying full price for the oil-fired generation.

The project also provides voltage regulation and low voltage ride-through capability which will enhance power quality.

On the southern point of the Big Island, the Pakini Nui Wind Project is replacing ageing turbines with 14 new 1.5-MW GE machines having a combined capacity of 21 MW. These turbines can remain in operation during a 100% voltage drop and are equipped with other "grid-friendly" features.

Project completion is expected by March 2007.

An Oregon company wants to build Hawaii's most powerful wind farm in Kahuku, site of attempts to harness the tradewinds' energy in the 1980s.

West Wind Works LLC has proposed erecting 20 turbines capable of generating 50 MW on 1,100 acres on both sides of Kamehameha Highway. Sites are being discussed, and plans to collect wind data are proceeding.

In early 2006, a trailer-sized PureWave Electronic Shock Absorber was installed at the 2.3-MW Lalamilo Wind Farm, owned by HELCO. The equipment was demonstrating its ability to smooth out the fluctuations in power typically produced by wind turbines, but was damaged in October by an earthquake.



A new 10.5-MW wind farm at Upolu Point, island of Hawaii, began generating electricity in 2006.

DBEDT Honored

In 2006, DBEDT received several national awards.

USDOE presented a Certificate of Appreciation to DBEDT-SID in February “in recognition of superior achievement as partners in the implementation of the State Energy Program.” At the same time, USDOE’s Rebuild America program acknowledged the outstanding leadership of SID staff member Elizabeth Raman, who coordinates the Rebuild America and Rebuild Hawaii programs locally.

One of DBEDT’s most unusual projects, which has resulted in the recovery of more than 280 tons of marine debris, including drift nets, from the Northwestern Hawaiian Islands, was named one of the “Top 50” programs in the Innovation in American Government Awards competition sponsored by Harvard University’s John F. Kennedy School of Government. The collaborative project, which involves 14 public agencies and private businesses, delivers the collected marine debris to Oahu’s H-POWER municipal solid waste facility, where it is burned to generate electricity.

This project also received the prestigious 2007 Surfrider Foundation Award.

Focus on Conserving, Reusing Resources

State agencies are making a concerted effort to reduce, reuse and recycle. DBEDT supported the annual environmentally preferable purchasing survey distributed by the Department of Health and the Department of Accounting and General Services. Results for the FY 2006 survey are forthcoming.

The 112 surveys returned with data for FY 2004 reported that the purchase of recycled office paper by state agencies alone resulted in an environmental savings of 1,628 trees, 488,460 gallons of water, 286,089 kWh of electricity and 4,187 pounds of air pollution.

The new John A. Burns School of Medicine is an example of applying waste-reduction techniques during the construction of a world-class research facility.

The new 338,000 square foot facility replaced post-war buildings, concrete slabs and steel-framed warehouses. The major demolition waste was concrete, nearly 83% of total waste by weight. Concrete was either crushed and reused onsite as aggregate, or hauled offsite for reuse.

Metal and miscellaneous other items, such as paving, landscape, cardboard and paper waste, were collected and recycled offsite.

State Maintains Preparations for Emergencies

In 2006, DBEDT was involved in several energy emergency preparedness exercises designed to maintain readiness to face natural or human-caused disasters.

These included: Dark Mountain Western States Energy Assurance Exercise; ‘A Kele, an Improved Nuclear Device Exercise; and Makani Pahili, the annual statewide Hurricane Exercise.

Lessons learned from these exercises help train and prepare staff to handle real-world disasters and events, such as the flooding in early 2006 caused by 43 days of rain which resulted in loss of life and a refinery outage.

Other emergencies encountered during 2006 included fuel shortages and an earthquake which caused electrical blackouts as well as structural damage on several islands.

In late 2006, DBEDT co-sponsored the 4th annual Asia-Pacific Homeland Security Summit & Exposition. This event attracted speakers of international reputation to address topics such as terrorism, Hurricane Katrina, pandemic community response, the media’s role in the war on terror, and the impact of the Middle East’s conflicts on the Asia-Pacific region.

DBEDT-SID is in the final stages of updating the state’s Energy Emergency Preparedness Plan and Reference Book and continues to support the Energy Council’s emergency preparedness.

Ramping Up Renewable Resources

In order to meet the state's legislated goal of 20% renewables by 2020, additional renewable energy capacity is needed.

To assist with planning and siting, DBEDT helped the Dept. of Land and Natural Resources produce a catalog of renewable energy sites in Hawaii, using past resource assessments as well as current data and GIS mapping layers.

Also, for the first time in decades, an ocean thermal energy conversion (OTEC) plant has been proposed for Hawaii. Ocean Engineering and Energy Systems, a private company, is planning a 1.2-MW power plant at the Natural Energy Laboratory of Hawaii Authority (NELHA) site in Kona. Approximately one-third of the energy produced will be used to run pumps and operate the system. It is expected to be opera-

tional in 2008.

Hawaii continues to attract interest from international wave energy companies, hosting representatives from Energetech Australia Pty Ltd in 2006. A summary of permitting requirements and maps outlining marine management areas and zones of military concern in Hawaiian waters were prepared to assist with planning.

The Kauai Island Utility Cooperative (KIUC) has issued letters of intent to negotiate purchase power agreements to three biomass energy projects and a wind farm. If all are built, they will increase KIUC's renewable energy portfolio to approximately 45%.

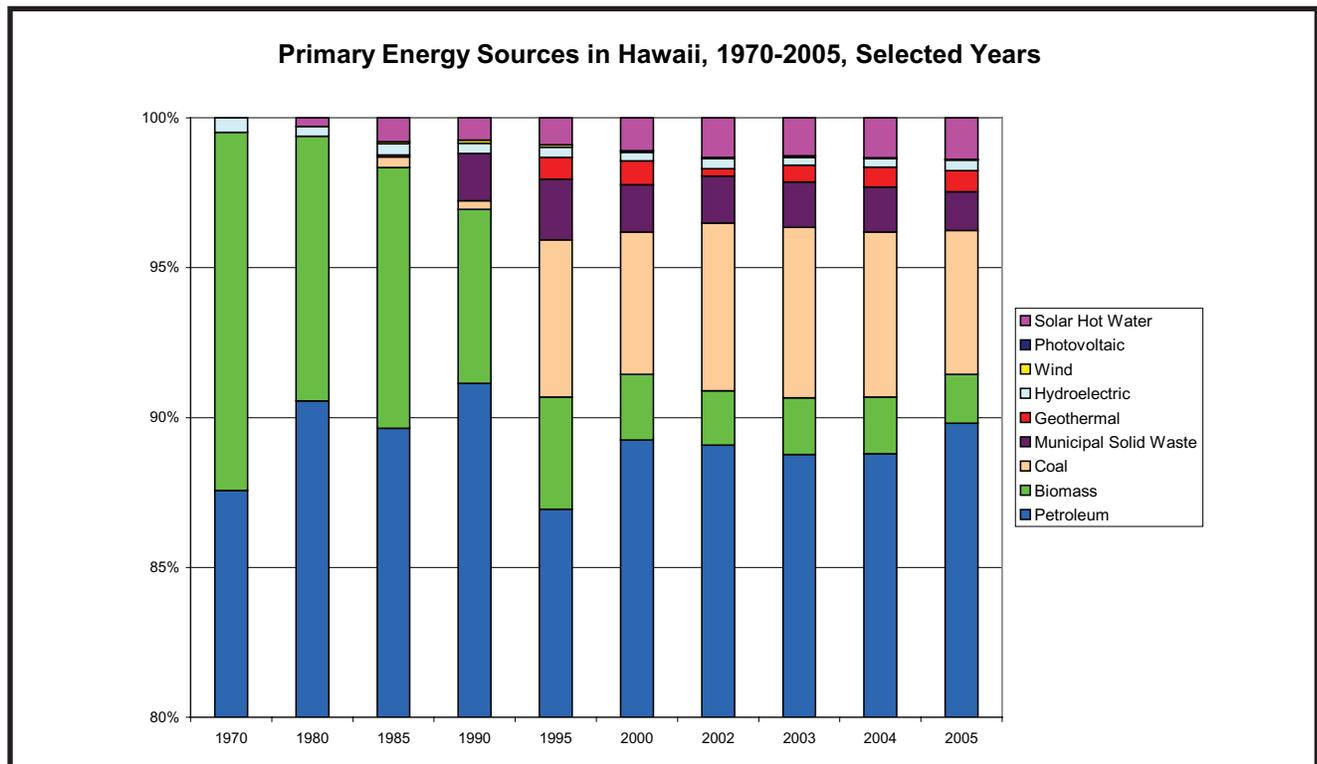
A major third-party owned photovoltaic (PV) system was dedicated in Hilo in July 2006; it provides electricity to the Big Island Toyota and Big Island Suzuki

car dealerships for 20-40% less than the cost of utility electricity without any out-of-pocket expenses. The two systems are 64.5 kW and 22 kW respectively.

Kua O Ka La Public Charter School in Puna completed Phase One of its PV project. The school, which primarily serves the Native Hawaiian community, hopes to become the first off-grid public school in Hawaii.

A PV system will be installed at Niihau School, and another has been proposed for the Kauai County Civic Center. A concentrating solar project was approved for NELHA.

Meanwhile, data collected by PowerLight Corp. indicate that performance targets were exceeded at large-scale PV installations such as Mauna Lani Resort, Pearl Harbor, and JN Auto Group.



Workshops Reach Broad Audiences

DBEDT-SID fulfilled its mandate to bring information on energy technologies and energy-saving techniques to government agencies and the general public throughout 2006.

Numerous specific seminars on topics such as Energy Star, environmentally preferable purchasing, LEED, residential development and construction, sustainability and retrofitting, photovoltaics, and building management were offered to state, county and federal agencies.

Staff from agencies including the Hawaii Public Housing Authority, the Department of Transportation, the University of Hawaii system, the Department of Education, and the Department of Accounting and General Services, among others, were trained at these sessions.

Some of DBEDT's cosponsored events were also major opportunities to educate members of the public and the private sector. For instance, the Hawaii Build &

Buy Green Conference and Expo attracted over 430 attendees.

Smaller-scale workshops and presentations were also scheduled, tailored to the specific needs of various audiences. DBEDT-SID staff spoke on home energy efficiency measures to Molokai consumers, presented information on climate-appropriate housing to Habitat For Humanity members, promoted efficiency with the High Technology Development Corporation, and offered workshops on E-10 Unleaded fuel for service station owners and operators, among other topics.

Other major public events included the Building Industry Association of Hawaii's annual Remodel It Right Expo, the Governor's Hawaii Biofuels Summit, HECO's Efficient Electro-Technology Exposition and Conference, and a variety of events for October, Energy Awareness Month, which ranged from LEED seminars to a forum on public policy, buildings, land use and sustainability.



Hawaii homeowners are eager for information on energy efficiency.

Milestones in Fuel Cells, Hydrogen and Geothermal

A new fuel cell membrane which promises to be more economical has been developed by a local high-tech company, Hoku Scientific. The membranes have been installed in ten fuel cell devices and will be demonstrated for a year at Pearl Harbor.

Building on Hawaii's role promoting fuels cells and hydrogen fuel, the state hosted the world's largest fuel cell meeting at the Hawaii Convention Center in November. The 2006 Fuel Cell Seminar attracted international experts in the field.

DBEDT received a federal award of \$59,507 to establish a "Geothermal Energy to Hydrogen" road map for the Big Island. This effort will outline the potential to use geothermal energy to generate hydrogen fuel, contributing to the island's self-sufficiency.

Another federal award, of \$50,000, will be used by DBEDT to establish the Geothermal Resource Information System. This system will organize and maintain data for state and national use to facilitate management and appropriate use of Hawaii's geothermal resource and to support policy development.

Geothermal energy can also be used directly, as heat for agricultural processing and other endeavors. A feasibility study of possible applications such as lumber drying, greenhouse bottom-heating, and growing media pasteurization will be completed in early 2007.

Energy Programs Supported by \$1.3 Million in State and Federal Funds

More than \$1.3 million in federal and state funds were dedicated to a wide variety of energy initiatives in 2006. Of this, \$1.16 million were from federal sources, approximately \$7.60 for every \$1 of State funds budgeted.

Federal funds included a significant amount obtained through competitive nationwide solicitations offered by the U.S. Department of Energy (USDOE). DBEDT-SID has a stellar track record of securing and successfully completing federal contracts.

Other efforts are funded through USDOE's State Energy Program, which provides a foundation for Hawaii's energy initiatives.

The state's energy program is extended by a network of partners at the county, state and federal government levels as well as in the private sector. Many of SID's projects involve matching funds and in-kind services from other partners, meaning that the level of commitment within the state and the economic impact of these programs is far beyond what can be characterized by SID's budget alone.

The Buildings program was the largest component of SID's efforts in 2006. Over half of the federal funds received for programs were in this sector, which encompasses energy codes, the Rebuild Hawaii and Rebuild America efforts, building guide-

lines, and promotion of Energy Star products. A total of \$654,997 was received from federal sources, with another \$18,450 from state general funds to provide technical assistance on energy efficiency.

The Utilities program received over one third of the federal funds and nearly all of the state funds dedicated to energy programs.

Utility projects supported by federal contracts, totalling \$437,692, included energy emergency preparedness planning and hazard mitigation, state energy policy planning, and activities promoting renewables such as biomass and geothermal energy.

State general funds totalling \$132,495 were used to support the Homeland Security Summit, a fuel cell seminar, and development of a catalog of renewable energy sites.

Activities in resource efficiency such as recycling were supported by \$10,000 in federal funds under the Industrial component.

Alternative fuels in the Transportation sector received \$50,000 in federal support. A major focus is the smooth transition to gasoline containing 10% ethanol.

Science education, including support for the Science Bowl and State Science and Engineering Fair, totalled \$7,950 in federal grants.

Description	State Funds	Federal Grants	Total
Education	\$ 0	\$ 7,950	\$ 7,950
Transportation	0	50,000	50,000
Buildings	18,450	654,997	673,447
Industrial	0	10,000	10,000
Utilities	132,495	437,639	560,187
Totals	\$ 150,945	\$ 1,160,639	\$ 1,311,584