

## LEGISLATIVE REPORT

- SUBJECT:** Relating to the State Budget
- REFERENCE:** Act 213, Session Laws of Hawaii 2007 (HB 500, HD1, SD1, CD1, Section 80)
- ACTION REQUESTED:** Report on various energy efficiency projects and change in energy usage.
- DOE REPORT:** The Department of Education (DOE) has filled the Energy Conservation Coordinator position as of January 2007. More planning and implementation of energy conservation programs, goals, and practices will be achieved. The DOE now designs all new buildings or facilities to meet the requirements of the Leadership in Energy and Environmental Design (LEED) Silver. In addition, all consultants are now required to have a LEED Accredited Professional on the project team.
1. Design all new schools and some new buildings for the LEED Silver standards. New schools are planned to meet LEED Silver requirements which incorporate the use of insulation, orientation of buildings to maximize natural ventilation, use of day-lighting, and possible implementation of solar water heating.
    - The following new schools are planned to meet LEED Silver certification:
      - Ewa Makai Middle
      - Lahaina III (West Maui) Elementary
      - Wailuku Elementary II
    - The following schools will have buildings that meet LEED Silver:
      - Naalehu Elementary – six classroom building
      - Kapaa Elementary – library
    - The following facilities are designed to meet LEED Silver; however, these will not be formally certified as LEED Silver due to certification costs:
      - Baldwin High School – library
      - Lanai High and Elementary School – six classroom building

- Keaau Middle School – eight classroom building
- Pahoa High School – gymnasium
- Nanakuli High School – eight classroom building
- Campbell High School - eight classroom building

2. Existing and on-going programs to achieve energy conservation goals as required by Act 96 include:

- Capture and consolidate separate line-item costs for design and construction estimates for new and/or substantially renovated facilities in meeting LEED Silver ratings.
- Train in-house employees holding key positions for effective energy conservation design, planning, and construction.
- Pilot studies for energy efficient technologies such as, occupancy sensors for lighting controls, light tubes, and solar fans.
- Implement the energy conservation school program that benchmarks school energy use for a baseline using a three-year average. Schools with usage higher than the three-year baseline must pay half the excess energy cost. Schools saving energy are reimbursed for half of their energy savings.
- Extension of the school energy audit pilot program that allows a school an on-site visit by the energy conservation coordinator. The energy audit will identify and quantify various equipments and generate an assessment of energy savings in a report.
- Formation of a committee chaired by the energy conservation coordinator that will align energy conservation efforts for the DOE. This includes review of new energy conservation technology, existing operations in school curriculum that affect energy use, and review of existing operations in

design, planning, procurement, and maintenance for ways to reduce energy consumed.

- Installation of photovoltaic systems based on the requirements in Act 96.
- Replacing older lighting with newer energy efficient lighting, including compact fluorescent light bulbs and T-8 ballasts.

3. Immediate steps for school energy conservation are listed below:

- Set air conditioning so that the room temperature is 76 degrees.
- Do not turn on any air conditioning 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 turn off all air conditioning no later than 4:30 p.m.
- Use timers to turn off 75 percent of night lights between the hours of 10:00 p.m. and 6:00 a.m.
- By June 15, 2009, replace all appliances (refrigerators, microwave ovens, coffee makers, 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.

4. Future programs for FY 2008-2009 and 2009-2010 are:

- Pilot projects to look into the feasibility of various heat abatement strategies other than air conditioning. These include a heat abatement pilot at Kahuku High that looks at various options

to cool portable classrooms, and a pilot involving possible heat abatement strategies at Ewa Beach Elementary.

- Limit purchases to energy efficient equipment for office and school use – Energy Star rated.
- Completion of Life Cycle Cost Analysis (LCCA) for identified equipment replacement.
- Enter into Energy Savings Company Contracts (ESCO) with municipal lease funding for equipment installation demonstrating positive LCCA.
- Initiate pilot studies for various available technologies or combination of technologies towards meeting energy conservation goals and a match for DOE Facilities and Maintenance and Planning operations.
- Continue to utilize consultant studies for strategic alignment of resources for energy conservation.

## 5. Energy Usage Change

- Electric and gas consumption is tracked annually. An internal system has been developed to track individual school electric energy usage with comparison to a three-year average.
- Most recent and available information to date indicates school enrollment is near level with moderate increases in energy use resulting from the impact of technology use for educational purposes, expansion of facilities, and mandated use of air conditioning for noise and heat abatement.
- Energy conservation may lower energy use but will continue to be offset by increases in energy use as the result of more buildings and more computers and other technology equipment. The impact of energy conservation can most accurately be measured by individual performance of energy conservation measures. To date, DOE

has reduced electric energy consumption by 1,185,000 kWh as measured by utility rebates in 2007.

- Future measures that reduce energy consumption will be tracked and reported as they come into fruition.