Solar Decathlon is important to promoting solar energy—and to providing college students with unique training for green jobs in renewable energy and energy efficiency.
As the University of Hawai’i’s flagship campus and leading research institution, UH Manoa must exercise leadership in preserving our environment and modeling ways to operate in a sustainable manner.

MISSION
Our Solar Decathlon mission is to design and build a solar-powered energy-neutral home that demonstrates a holistic approach to architectural design and technological innovation.

In this multidisciplinary student-driven project, we hope to better prepare local college students with hands-on “green” skills training and experience through curriculum-integrated educational opportunities. Students will participate in all aspects of sustainable building, from conceptual design through construction and demonstration. We also hope to leverage project efforts to increase public awareness of renewable energy technologies and energy efficiency within the State of Hawaii, and develop innovative renewable energy technologies.

BACKGROUND
We understand that the future of our Hawai’i depends on our actions today. Throughout history, the unique geography and culture of the Hawaiian Islands have guided its heritage of sustainability. We believe it remains an ideal location to promote a global vision of sustainability. Although this 4th smallest U.S. state is located 2,000 miles from the nearest continent, ancient Hawaiian society was able to flourish with its limited natural resources by living in harmony with the ‘aina (“land”). This was achieved through a deep understanding of the interdependence between all ecosystems in the land, sea and sky.

In modern times, the geography and people of Hawaii have continued to drive innovation in sustainability. With its vast richness of renewable energy sources, including: solar, wind, geothermal, biomass and hydropower, and our ever-increasing awareness of the global impact caused by fossil fuel production and our consumer society, Hawaii has become a natural test-bed for innovative renewable energy technologies and sustainable practices. Furthermore, as the economics of imported resources challenge the existing paradigm of our consumer-based market, it has become increasingly vital for our state to develop and ingrain a sustainable lifestyle into local culture.
ABOUT

The U.S. Department of Energy will host the Solar Decathlon—a competition in which 20 teams of college and university students compete to design, build, and operate the most attractive, effective, and energy-efficient solar-powered house. The Solar Decathlon is also an event to which the public is invited to observe the powerful combination of solar energy, energy efficiency, and the best in home design.

The Solar Decathlon consists of three major phases:

BUILDING: This is where most of the work—and the learning—happens. In addition to designing houses that use innovative, high-tech elements in ingenious ways, students have to raise funds, communicate team activities, collect supplies, and work with contractors. Although the Solar Decathlon competition receives the most attention, it’s the hard work that students put in during the building phase that makes or breaks a team.

MOVING TO THE SOLAR VILLAGE: When it’s time for the Solar Decathlon, the teams transport their houses to the National Mall in Washington, D.C., and rebuild them on site.

COMPETING: During the competition itself, the teams receive points for their performance in 10 contests and open their homes to the public.

Contests
The decathlon consists of 10 contests that center on all of the ways in which we use energy in our daily lives.

ARCHITECTURE – 100 points (subjective)
Solar and energy efficiency technologies must be seamlessly integrated in the home design. A jury of professional architects evaluates three main factors: Architectural Elements, Holistic Design, and Inspiration.

MARKET VIABILITY – 100 points (subjective)
Teams are evaluated to determine each house’s market viability: Livability, Buildability, and Marketability.

ENGINEERING – 100 points (subjective)
The Engineering contest rewards teams for their engineering excellence, as a jury of professional engineers evaluates each home for: Functionality, Efficiency, Innovation, and Reliability.

LIGHTING DESIGN – 75 points (subjective)
The Lighting Design jury evaluates the following in each house: Electric Lighting Quality, Daylighting Quality, Ease of Operation, Flexibility, Energy Efficiency, and Building Integration.

COMMUNICATIONS – 75 points (subjective)
This challenges teams to communicate about the technical aspects of their homes, as well as their experiences, to a wide audience through Web sites and public open houses, with points awarded based on the team’s success in delivering clear and consistent messages and images that represent the vision, process, and results of each team’s project.

COMFORT ZONE – 100 points (objective)
For the Comfort Zone contest, teams receive full points for maintaining narrow ranges of temperature (72°F/22.2°C to 76°F/24.4°C) and relative humidity (40% to 55%) inside the houses.

HOT WATER – 100 points (objective)
Teams score points in this contest by successfully completing “shower tests” over four days of the competition. The goal during these tests is to deliver 15 gallons of hot water (110°F/43.3°C) in 10 minutes or less.

APPLIANCES – 100 points (objective)
The Appliances contest is designed to mimic the appliance use of the average U.S. home while using less energy. This includes maintaining a refrigerator and freezer at specified temperature ranges, washing and drying 10 loads of laundry, and running the dishwasher five times.

HOME ENTERTAINMENT – 100 points (objective)
The Home Entertainment contest is designed to demonstrate that houses powered solely by the sun can deliver more than just basic household functionality. Activities to be accommodated include hosting dinner parties for neighbors, operating a TV and computer during specified periods, and hosting a movie night.

NET METERING – 150 points (objective)
Each house will be equipped with a utility meter that will enable competition organizers to measure how much net energy the house produced or consumed over the course of the competition. Teams receive 100 points for producing at least as much energy as the house needs, thus achieving a net energy consumption of zero during contest week. U.S. Department of Energy’s Solar Decathlon teams can receive up to 50 additional points for producing surplus energy over and above what they use during the contest week.
TEAMWORK

We hope to design, construct and demonstrate an attractive, effective and energy-efficient solar-powered house for the 2011 Solar Decathlon competition. The international competition is open to all university institutions, where student teams demonstrate that a well-designed house can generate enough energy to meet all the needs of a modern household, including electricity for lighting, cooking, washing clothes and dishes, powering home and home-office electronics, maintaining a comfortable indoor temperature and air quality, and powering an electric car.

Our team consists of students and faculty from:

University of Hawaiʻi at Manoa
  - College of Engineering
  - School of Architecture

Honolulu Community College
  - Transportation and Trades

INNOVATIONS

Our house will feature sustainable building materials, residential water purification and desalinization, DC power distribution, and photovoltaic systems.

TECHNOLOGIES AND THEMES

Sustainability
Energy Neutral Home
Green Building
Energy Efficiency
Building-integrated Photovoltaic (BIPV)
Solar Heating, Ventilation & Air Conditioning (HVAC)
Water Catchment, Purification & Desalinization
DC Power Distribution & Appliances
Raising Public Awareness
WE NEED YOUR HELP

Your support of our Solar Decathlon team is vital to our success. We are excited to represent Hawai‘i in the U.S. Department of Energy’s Solar Decathlon, widely recognized as one of the world’s premier student-led design-build competitions. Your contributions will help us showcase everything that the State of Hawai‘i has to offer in the emerging fields of sustainable design and green technologies.

There are many ways to support the team. With a cash donation, you can help us pay for general expenses such as building materials, equipment, component prototyping, student support, and transportation. We also welcome in-kind donations such as technical support, equipment donations and building materials to help us design and construct our Solar Decathlon house. If you have questions about specific in-kind donation needs, please contact the academic support team.

SPONSORSHIP LEVELS

GREEN SPONSOR
$100,000 and greater
In addition to all benefits from Platinum Sponsorship
- Company logo on team member t-shirt to be worn on the National Mall
- Graphic web link from our homepage
- Opportunity to speak on behalf of company at Public Unveiling

PLATINUM SPONSOR
$50,000 to $99,999
In addition to all benefits of Gold Sponsorship
- Company logo on construction site banner
- Company logo included on printed promotional materials

GOLD SPONSOR
$25,000 to $49,999
In addition to all benefits of Silver Sponsorship
- Private tour of construction site
- Graphic web link from website Sponsor Page

SILVER SPONSOR
$10,000 to $24,999
- Text web link from website Sponsor Page
- Invitation to public unveiling and exhibition
- Invitation to project events and celebrations
- Invitation to Sponsor Recognition Dinner with student team

For information about making a contribution, please contact Justin Akagi by calling (808) 956-0776 or e-mail justin.akagi@hawaii.edu.