EERE Program News

February, 2008

Another spectacular Hawaiian sunset underlines the state's great strength in renewable energy resources. (Courtesy of Hawaii Dept. of Business, Economic Development and Tourism)

Hawaii struggles with some of the nation's highest energy prices and our greatest dependence on outside energy sources.

State leaders are taking steps to change that. The state recently announced, with DOE, an exciting pledge to get 70 percent of its energy from its own renewable resources by 2030.

The island state is well suited for making the switch. It has abundant wind, wave, solar, biomass, geothermal and hydropower resources that can be used to generate electric power and transportation fuels.

"Hawaii will be a living laboratory for integrated, renewable energy development," Assistant Secretary of Energy Alexander Karsner said in an enthusiastic interview with Hawaii's Channel 9 News. (video)

Elsewhere, a new study finds that internet and communication technologies, while struggling to reduce their own energy intensity, help the rest of us consume far less energy to produce goods and services than otherwise would be the case.

Also, U. S. venture capitalists are gaining new interest in clean energy technologies and businesses as fertile ground for investment, pouring $2.6 billion into clean energy start-ups the first nine months of 2007, compared to $1.8 billion for all of 2006.

One exciting energy source long dreamed about is becoming reality; a Discovery Channel video explores new ocean wave energy technology.

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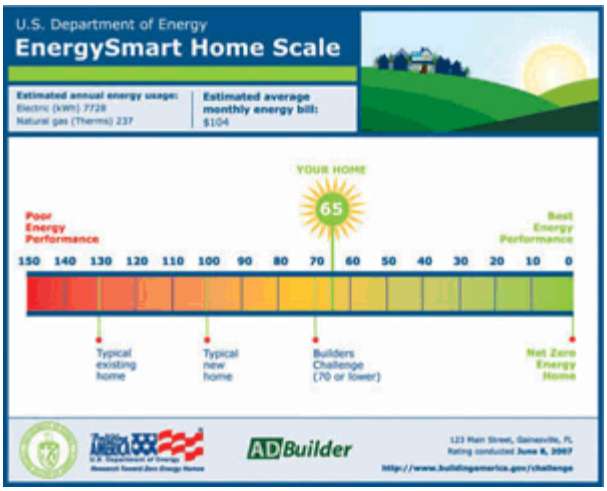
DOE challenges homebuilders to increase energy efficiency

DOE has launched the Builders Challenge, a voluntary national energy savings program calling for the U.S. homebuilding industry to build 220,000 high performance energy efficient homes by 2012.

A high-performance home would use at least 30 percent less energy than a typical new home built to meet criteria of the 2006 International Energy Conservation Code. As part of DOE's Builders Challenge, 38 homebuilders have already pledged to build an estimated total of 6,000 high-performance homes.

Ultimately, DOE aims to see 1.3 million homes of this high standard constructed by 2030, allowing Americans to save $1.7 billion in energy costs, or the carbon equivalent of taking 606,000 cars off the road annually.



DOE's new E-Scale rating sticker will mark energy efficient homes meeting requirements of the Builders Challenge.

To help home buyers better understand their energy efficiency choices, DOE has developed the "E-Scale", a graphic to be placed by participating builders on the power panels of homes meeting the Builders Challenge goal of a 70 or better.

The E-Scale is based on the well-established Home Energy Rating System (HERS) index, developed by RESNET, the Residential Energy Services Network. For more information on the E-Scales technical rating system, visit the Residential Energy Services Network.

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Internet, communications technologies boost energy efficiency

A study by the American Council for an Energy Efficient Economy (ACEEE) shows that new technology use saves

energy. It takes the U.S. less than half the energy to produce a dollar of economic output now that it did in 1970.

The report states, "Since 1970... U.S. energy consumption per dollar of economic output has declined from 18,000 British Thermal Units (Btus) to about 9,000 Btus in 2008. Through that energy efficiency we have met approximately 75 percent of our new demand for energy."

Energy intensity (Units of Energy used to produce a unit of Gross Domestic Product) declined 1.8 percent per year between 1970 and 1995. As new internet and communications technologies forged onto the scene between 1996 and 2006, energy intensity declined at a much more rapid rate of 2.4 percent.

According ACEEE, every extra kilowatt-hour demanded by internet and communications technologies produces a ten-fold energy savings in the U.S. economy.

ACEEE: Information and Communication Technologies, the Power of Productivity

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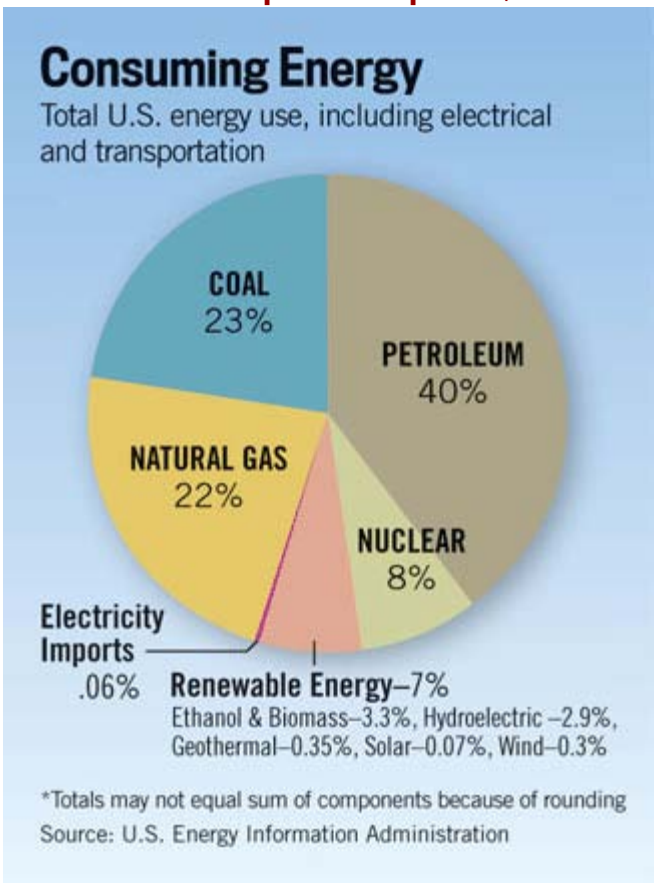
U.S. venture capitalists pour $2.6 billion into clean energy



While ethanol and biomass energy have gained on hydroelectric as major providers of renewable energy, wind and solar still reach less than two percent of the total.

In the first nine months of 2007, venture capitalists invested $2.6 billion in clean energy start-ups, up from $1.8 billion for all of 2006.

According to Marty Murphy, manager of the National Renewable Energy Laboratory's (NREL) Enterprise Development Program, venture capitalists are likely to continue their growing interest in energy efficiency and renewable energy.

Murphy said at a recent Clean Energy Industry Growth Forum, “The high cost volatility for conventional energy sources enhances the value of alternatives. Clean energy technology-based companies are becoming increasingly attractive to investors."

The trend has captured the attention of the major news media. U.S. News, CNN, Wall Street Journal, CNBC, Boston Globe and Entrepreneur have done recent stories on this hot new investment trend.

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Spanish firms look to expand clean energy operations in U.S.

This solar tower outside Seville, Spain is the first commercial solar tower in the world. Built by Spanish company Solucar (Abengoa), it can power up to 6,000 homes.

A delegation of Spanish government officials and renewable energy industry leaders recently visited the U.S. in hopes of finding fertile locations to build business expansion units. A visit to NREL and the National Wind Technology Center highlighted the trip for the solar and wind power executives.

During a briefing with NREL officials, the U.S. ambassador to Spain, Eduardo Aguirre stated the importance of partnering with the U.S. in renewable energy development. "It is our hope that Spain can collaborate closely with the U.S. to learn how to jointly help globally mature these technologies and facilitate their deployment," said Aguirre.

Several of the Spainish companies on the trade mission already have operations in the U.S., including Abengoa Solar in Colorado, Acciona in Iowa and Gamesa in Pennsylvania.

Participating Spanish companies

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Features

Hawaii, with its plentiful geothermal, wave energy, wind, hydropower and solar resources, combined with a strong economy, has committed to become a "world model" for clean energy development. The state has pledged to work toward meeting 70 percent of all its energy requirements through renewable

sources by 2030. (Courtesy of Hawaii Dept. of Business, Economic Development and Tourism

Hawaii and DOE join to develop clean energy resources

Hawaii and DOE representatives have signed a memorandum of understanding to establish the Hawaii Clean Energy Initiative that will accelerate the transformation of Hawaii into a “world model” for clean energy development. Hawaii's goal is to save billions of dollars now being used to pay for foreign oil, as well as improve the state's energy security.

Under the agreement, Hawaii intends to rely on local renewable resources to account for 70 percent of its energy demand by 2030. Currently, Hawaii imports about 90 percent of its electricity and transportation fuel from foreign sources of oil, making it the most expensive state for residents to pay for electricity and fuel.

Hawaii governor Linda Lingle, who signed the agreement with DOE, believes the time is right for the innovative partnership. “Now is the time to capitalize on our own renewable resources,” she said. “It’s a bold goal, but we have to push ourselves.”

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Hawaii taps volcano for clean power generation

The Hawaiian Island archipelago is well situated to take advantage of geothermal energy. The state consists of a series of volcanoes that formed as the Pacific Plate slides over a "hot spot" in the Earth's crust.

The island of Hawaii, also known as the "Big Island," holds Kilauea, the state's most active volcano. The Kilauea East Rift Zone (KERZ), a zone of geologic weakness running from the summit caldera to (and beneath the surface of) the sea at the easternmost cape on the island, comprises the state's only known geothermal resource area.

Geothermal production wells drilled more than a mile deep have tapped hot, pressurized fluids which are brought to the surface, used to generate electricity and injected back into the rift zone.

The Puna Geothermal Venture (PGV) power plant, with a 30-megawatt capacity, is located in the lower KERZ near the town of Pahoa. Since 1993, it has been providing 15-20 percent of the electricity consumed on the island.

PGV is now in negotiation with the Hawaii Electric Light Company (HELCO), the island's electric utility, to provide approximately 6-8 MW of additional capacity and has received County of Hawaii permits to double its total output to 60 MW.

Kilauea volcano has been actively erupting since 1983 from a vent uprift from the PGV power plant, nearly 20 miles away.

Map of Kilauea volcano
Eruption activity

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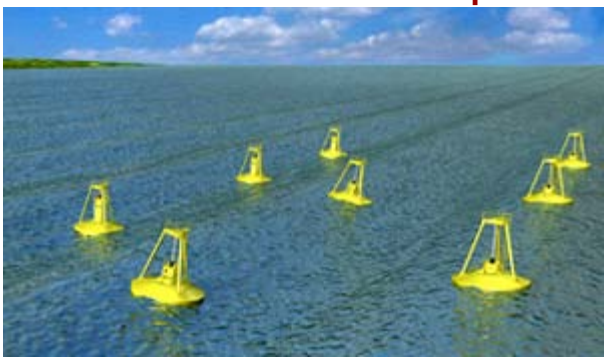
Hawaii turns to the sea for power



Ocean Power Technologies' (OPT) PowerBuoy® wave generation system uses a "smart," ocean-going buoy to capture and convert wave energy into low-cost, clean electricity.

There are many different devices under development around the world to capture the endless energy in ocean waves. Hawaii has excellent wave energy resources, particularly along the windward, northeastern, coastline.

Several prominent wave energy development companies have current or proposed projects in Hawaii. This month Governor Lingle announced a 2.7-MW project proposed by Oceanlinx for the northern coast of Maui, near Pa'uwela Point. This would be the first commercial wave power plant in the state.

In another proposed wave development project, at Kaneohe Bay on the island of Oahu, Ocean Power Technologies (OPT) has been testing models of its PowerBuoy under a contract with the U.S. Navy since June 2004. An environmental assessment was completed for the project which could include multiple buoys.

Other companies, including Hawaii-based marine engineering firm Navatek are also developing wave energy devices and exploring opportunities for deployment in Hawaiian waters.

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EERE News Releases

Feb. 14, 2008
U.S. Department of Energy Challenges U.S. Homebuilding Industry

Feb. 12, 2008
U. S. Department of Energy to Invest up to $20.6 Million for Solid-State Lighting Research and Development Projects

Feb. 11, 2008
DOE Releases Climate VISION Progress Report 2007

Feb. 8, 2008
DOE Announces Technology Transfer Policy to Move Cutting-Edge Technology Research to the Marketplace

Feb. 4, 2008
President Bush Requests $25 Billion for U.S. Department of Energy's FY 2009 Budget

Jan. 29, 2008
NOAA and U.S. Department of Energy Expand Efforts to Increase Energy Efficiency at National Marine Sanctuaries

Jan. 29, 2008
U.S. Department of Energy Selects First Round of Small-Scale Biorefinery Projects for Up to $114 Million in Federal Funding

Jan. 28, 2008
U.S. Department of Energy and State of Hawaii Sign Agreement to Increase Clean Energy Technologies in Hawaii

Jan. 24, 2008
Energy Department Selects Student Teams to Compete in 2009 Solar Decathlon

Jan. 17, 2008
Department of Energy to Invest Up To $30 Million to Accelerate Development and Deployment of Plug-In Hybrid Electric Vehicle Technology

Jan. 15, 2008
Environmental Protection Agency and Department of Energy Spread a Bright Idea: Energy Star Light Bulbs are Helping to Change the World

Jan. 15, 2008
USDA and DOE Biomass Research And Development Technical Advisory Committee Members

Recent Speeches

Feb.14, 2008

Secretary of Energy Samuel L. Bodman before the National Association of Homebuilders' International Builders' Show, Orlando, Fla.
As the challenge expands and more home builders sign on, we hope to spur the construction of 1.3 million high energy performance homes by 2030. If we reach that level, we will have... taken the carbon equivalent of 606,000 cars off the road annually.... The ultimate goal is to have all new homes achieve a zero rating– making them net-zero energy homes, producing at least as much energy as they consume.

Feb. 7, 2008
Assistant Secretary Alexander Karsner's testimony before the Senate Energy and Natural Resources Committee Hearing on the Renewable Fuel Standard (RFS)
This new law will result in the avoidance of billions of tons of greenhouse gases.... The modified RFS mandates 9 billion gallons of renewable fuel in 2008, rising to 36 billion gallons by 2022. Of these 36 billion gallons, 21 billion in 2022 are to be obtained from cellulosic ethanol and other advanced biofuels.... Continuing R&D will help facilitate achievement of these volumes, while ensuring that these fuels' greenhouse gas emission-reducing potential is realized...

Jan. 22, 2008
Assistant Secretary Alexander Karsner's Remarks to the Washington Auto Show, Washington, D.C.
[The Energy Policy Act of 2007] fundamentally decouples the price of oil from the price of alternatives and assures the entry of [emission-reducing] renewable fuels into the marketplace. And we will assure multiple pathways... moving towards E85 and intermediate blend fuels, working together with the auto companies to see what is technically viable....

Dec. 17, 2007
Chief Operating Officer Paul Dickerson's remarks at the Nellis AFB Solar Power System Dedication Ceremony, Las Vegas, Nev.
The Nellis solar project we're celebrating today... establishes a precedent for other federal agencies.... The Air Force's leadership on this solar project, in combination with the critical roles played by SunPower, MMA Renewable Ventures, and Nevada Power, has resulted in the largest PV installation in North America.... To those who doubted the ability of solar to play a critical role in our nation's electricity infrastructure, look at this and tell us it can't be done....

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Events

If you have an event scheduled in the next year of regional or national interest to the energy efficiency and renewable energy communities, please contact us with pertinent information and a web link and we will include it in EERE Program News. — Jack Jenkins, John Horst

Washington International Renewable Energy Conference — March 3-6, Washington, D.C.
WIREC 2008 is a global platform for government, private-sector, and nongovernmental leaders to jointly address the goal of advancing renewable energy. The event will be hosted by the United States Government in cooperation with the American Council On Renewable Energy.

NESEA's Building Energy Conference and Trade Show — March 11-13, Boston, Mass.
The Northeast Sustainable Energy Association's (NESEA) BuildingEnergy08 is a premier conference and trade show for renewable energy, green building, and climate change professionals. 175 exhibitors.

Solar 2008 — May 3-8, San Diego, Calif.
SOLAR 2008 explores, “Catch the Clean Energy Wave." Addresses sustainable energy as a key component in climate recovery, a healthy economy, and a secure energy future.

DOE's Fundamentals of Compressed Air Systems — May 6, Omaha, Neb.
Introductory workshop teaches facility engineers, operators and maintenance staff how to achieve 15 - 25-percent cost savings through more effective production and use of compressed air.

DOE's Advanced Management of Compressed Air Systems — May 7-8, Omaha, Neb.
Intensive two-day workshop that provides in-depth technical information on troubleshooting and making improvements to industrial compressed air systems.

American Institute of Architects National Convention — May 15-17, Boston, Mass.
The focus will be, "*We the People*," and explore the power of architecture in society.

CONSTRUCT 2008 — June 3-6, Las Vegas, Nev.
Commercial, industrial, and institutional construction professionals and hundreds of exhibiting companies will attend CONSTRUCT 2008. Nearly 100 training sessions will be held on the latest construction technologies, industry solutions, trends and best practices.

DOE's EERE Hydrogen Program 2008 Merit Review — June 9-13, Arlington, Va.
Each year hydrogen and fuel cell projects funded by DOE's Hydrogen Program are reviewed for their merit during an Annual Merit Review and Peer Evaluation Meeting.

Wind Expo Latin American Wind Energy Association 2008 — Nov. 5-7, Guadalajara, Mexico
The first Latin American Wind Energy Association (LAWEA) Wind and Renewable Energy Conference and Exhibition, WIND EXPO LAWEA GUADALAJARA 2008, organized by the Latin American Wind Energy Association.

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