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National News

House Geothermal Bill, HR 2304, Passes House Science Committee, Moves on to Full Committee

Yesterday, June 6, the House Science Committee Subcommittee on Energy and Environment passed HR 2304. The Subcommittee vote was a voice vote with bipartisan support. There was apparent bipartisan support for the bill with the bill sponsor, Rep. McNerney (D-CA), the Subcommittee Chair, Rep. Lampson (D-TX), and the Subcommittee Ranking Republican, Bob Ingles (R-SC) all expressing support for the bill. The bill may be up in Full Committee as early as next week.

As indicated in a previous GEA Update, the Subcommittee summarized the geothermal research provisions of HR 2304:

- Authorizes \$80 million a year, from fiscal years 2008 through 2012;
- Establishes an “industry-coupled exploratory drilling” program, which is a cost-shared program with industry partners to demonstrate and apply advanced exploration technologies;
- Provides for the creation of two centers of technology transfer as information clearinghouses for the geothermal industry.
- Addresses R&D for Enhanced Geothermal Systems, in which no naturally-occurring fluid source or reservoir is available, thus a reservoir must be created to extract hot water or steam.

The bill has been slightly revised recently to address several issues, including:

- Cost Sharing – the revised version provides greater leeway for program administrators to play a larger role in the competitive bidding process.
- Environmental Aspects – the revised version supports environmental impact avoidance, and promotes coordination with the EPA to study impacts. This version also gives priority to the most environmentally benign projects.
- International Partnerships – global partnerships are advocated in the new version.

At the hearing, Representative McNerney (D-CA), the bill’s sponsor, said that the bill in particular and geothermal energy in general should be “a part of our efforts to combat climate change.” He characterized geothermal as a “substantially underutilized” resource, noting the recent MIT estimate that 100,000 MW of electricity could be economically brought online—using EGS technology alone—by 2050.

In his opening statement, Chairman Nick Lampson (D-TX), said, “HR 2304...would re-invigorate geothermal research and development in this country. It would provide support and guidance for researchers to develop technologies capable of tapping into the vast quantities of thermal energy that is stored in the earth’s crust.”

Ranking member Bob Ingles (R-SC) said, “We...have an opportunity to address the development of clean, renewable energy sources in today’s markup of HR 2304... Geothermal...should be [a source] of energy for us, and I’m looking forward to promoting research that will make...alternatives commercially affordable.”

For status and details on HR 2304, visit: <http://thomas.loc.gov/home/c110query.html>.

Senators Bingaman, Reid, Others Introduce National Geothermal Initiative Act of 2007, S. 1543

Senator Bingaman (D-NM), along with Senators Reid (D-NV), Murkowski (R-AK), Stevens (R-AK), Salazar (D-CO), Tester (D-MT), and Snowe (R-ME), introduced geothermal legislation in the Senate on Tuesday, June 5. The bill, S. 1543, would establish a national geothermal initiative to encourage increased production of energy from geothermal resources, and for other purposes.

The bill would set a geothermal electricity generation goal of at least 20 percent of total US generation by 2030. This would be achieved, according to S 1543, through the Geothermal Research program, actions by the Department of the Interior, funding for the Intermountain West Consortium, and international cooperation. Sections of the bill are summarized below [*Note: the summary below is not verbatim.*]:

The **Geothermal Research Program** will be successfully implemented by:

- (1) Expanding funding for cost-shared drilling;
- (2) Establishing, at a national laboratory or university research center selected by the Secretary, a national geothermal exploration research and information center;
- (3) In cooperation with the Secretary of the Interior, disseminating geological and geophysical data to support geothermal exploration activities through the center.
- (4) Supporting cooperative programs with and among States
- (5) Improving and advance high-temperature and high-pressure drilling, completion, and instrumentation technologies benefiting geothermal well construction;
- (6) Researching, developing, and demonstrating engineered geothermal systems techniques for commercial application of the technologies.

The above provisions would be authorized at \$75,000,000 for fiscal year 2008; \$110,000,000 for each of fiscal years 2009 through 2012; and for fiscal year 2013 and each fiscal year thereafter through fiscal year 2030, such sums as are necessary.

The **Secretary of the Interior** is instructed to:

- (1) Conduct and complete a comprehensive nationwide geothermal resource assessment that examines the full range of geothermal resources in the United States; and
- (2) Conduct planning and leasing activities with the geothermal generation goal in mind

The above provisions would be authorized at \$15,000,000 for fiscal year 2008; \$25,000,000 for each of fiscal years 2009 to 2012; and or fiscal year 2013 and each fiscal year thereafter through fiscal year 2030, such sums as are necessary.

Intermountain West Geothermal Consortium: Authorized appropriations are for the \$5 million for each of fiscal years 2008 through 2013 and “such sums as are necessary for each of fiscal years 2014 through 2020.”

International Market Support for Geothermal Energy: The United States Agency for International Development, in coordination with other appropriate Federal and multilateral agencies, is instructed to support international and regional development to promote the use of geothermal resources, including (as appropriate) the African Rift Geothermal Development Facility, by:

- (1) Encouraging participation by US firms, and
- (2) Providing “grants and other financial support for feasibility and resource assessment studies.”

The above provisions would be authorized at such sums as are necessary to carry out the section.

In introducing the bill, Mr. Bingaman said the following:

“Mr. President, I am pleased to be able to introduce the National Geothermal Initiative Act of 2007, along with my cosponsors, Senators Reid, Murkowski, Stevens, Salazar, Tester, and Snowe. This bipartisan bill establishes a national goal where at least 20 percent of the total electrical energy production in the United States should be from geothermal resources by 2030. Under the National Geothermal Initiative, the national goal will be accomplished by establishing and carrying out new programs for geothermal research,

development, demonstration, and commercial application. This act also extends an ongoing study being conducted by the United States Geological Survey to characterize the complete geothermal resource base for use in future geothermal energy development. Finally, the act will provide international market support for geothermal energy development. It is critical with ever increasing energy demands that new energy solutions are continually developed and explored. With continued research, development, demonstration, and deployment of new technologies, geothermal energy holds great promise as a growing renewable energy source.”

The text of the bill was printed for the record. *The bill will be available online in the next few weeks at <http://thomas.loc.gov/> (search for the bill number). To obtain a copy of the bill, please email research@geo-energy.org.*

House Appropriations Committee Allocates \$44.3 Million for Geothermal Research in 2008

The full House Appropriations Committee completed work on Wednesday, June 6 on the FY 2008 Energy and Water Appropriations Bill. They approved \$44.3 million for DOE’s Geothermal Research Program in FY 2008 - \$39.3 million above 2007 and eliminated in the President’s request. A Committee press release introduces the Energy and Water funding levels with the following (reproduced in part):

“In the 1970s, when our nation faced an energy crisis we responded with unprecedented initiatives for energy research. Over the years, gas prices came down, incentive was lost, and these efforts fell by the wayside.

Today, we again face an energy crisis, only this time it is coupled with the enormous challenge of addressing the reality of global climate change. This bill attempts to face these twin crises with over three billion dollars to address global climate change – researching its effects and working on technologies to slow it down – and investment in renewable energy programs that both reduce greenhouse gases and help our nation meet its energy needs.”

DOE was funded at \$25.243 billion, \$1.150 billion above 2007 and \$480 million above the President’s request. The section titled “Reducing Our Dependence on Foreign Oil in a Way that Cuts Greenhouse Gas Emissions,” which includes renewable energy programs, was funded at \$1.9 billion by the committee – \$638 million above the President’s request and \$400 million above 2007 for energy efficiency and renewable energy programs. Specific allocations besides geothermal include:

- **Solar Energy:** \$200 million, \$40.6 million over 2007 and \$51.7 billion above the President’s request for research, development and demonstration projects to make solar energy affordable.
- **Biofuels:** \$250 million, \$50.3 million above 2007 and \$70.7 million above the President’s request for research and development of alternative fuels such as corn based and cellulosic ethanol and biodiesel.
- **Hydropower:** \$22 million, not funded in 2007 or in the President’s request, to research new ways of generating power from water flow. (this is on top of the \$95 million for upgrades to existing hydropower dams funded under the Army Corps)

Next steps: The Senate Appropriations Committee will meet separately and review the House bill, at which time amendments may be added or the entire bill may be substituted for a revised Senate version. Then the House and Senate will come together in conference to produce a compromise bill that will be voted on in both the House and Senate. Finally, if the bill is approved by both bodies, it will move on to the president’s desk for signature.

Outlook: Geothermal has historically seen a good deal of support in the Senate, with Senate majority leader Reid one of the industry’s biggest advocates. The fact that the geothermal program has been funded by the House at an amount well over the 2006 level is extremely promising. We expect full support in the Senate, as has been indicated to us by Reid and other supporters. In addition, the simultaneously submitted

geothermal bills, in both the House and Senate, indicate a significant level of bipartisan support for geothermal energy, despite reservations about the value of the program by the administration.

A summary of the FY 2008 Energy and Water Appropriation Bill as approved by the Committee is available at: <http://appropriations.house.gov>.

Reid, Ensign Fight to Ensure Geothermal Energy Funding and Access to DOE Loan Guarantee Program

Washington, DC- U.S. Senators Harry Reid and John Ensign of Nevada along with ten other Senators wrote Energy Secretary Samuel Bodman June 5th urging him to include geothermal energy in the Department's loan guarantee program and to fund geothermal research and development in FY 2007 at the same level as FY 2006. Senators Stevens(R-AK) Murkowski (R-AK), Akaka (D-HI), Inouye (D-HI), Hatch (R-UT), Tester (D-MT), Craig (R-UT), Bingaman (D-NM), Crapo (R-UT) and Feinstein (D-CA) joined in signing the letter.

Nevada produced close to 300 megawatts of geothermal energy in 2006 and hundreds of megawatts are scheduled to come online in the next few years. The spread of geothermal energy throughout Nevada is strengthening and diversifying rural economies across the state and saving tens of thousands of gallons of water that would be used by traditional fossil fuel plants. The continued spread of geothermal energy will be jeopardized without Department of Energy (DOE) funding for geothermal research and development. New technologies and solid financing will help deliver that supply sooner and more cost-effectively.

The DOE's loan guarantee program was passed into law as part of the Energy Policy Act of 2005 in order to help spur investment in new, clean energy technologies. Unfortunately, the DOE has omitted funding for geothermal energy from their Notice of Proposed Rulemaking submitted this past May. Earlier this year, the DOE also released plans to shut down its geothermal research and development program.

"Investing in geothermal energy will help Nevada's rural communities by stabilizing power costs, expanding and diversifying their tax base, and creating high paying jobs," said Reid. "I hope this letter signed by a group of bipartisan western Senators will finally convince the Department of Energy to stop opposing geothermal energy."

"Nevada's potential for producing alternative forms of energy should be explored, and funding this research and development is important for Nevada and the nation," said Ensign, who chaired the first hearing on alternative energy technologies last year. "Finding new and innovative ways to make America energy independent is essential to both our economic and national security. In Nevada we have developing technologies with the capacity to not only stimulate our growing economy but also help shake our reliance on foreign sources of oil."

Geothermal energy is produced when the heat of the earth heats groundwater that is close to the earth's surface. When reservoirs of heated groundwater are located close to surface, wells can be drilled into the earth that extract the water and inject it into turbines where the steam produces electricity. That water is then re-injected back into the reservoir to maintain the reservoir. The process is then repeated. *For more information, go to <http://reid.senate.gov/newsroom/record.cfm?id=275547>.*

Congress Weighs Creation of Energy-Research Agency

Technology companies may soon get another source of funding for cutting-edge energy-related projects, as Congress nears a decision about whether to create the Advanced Research Projects Agency for the Energy Department. Advocates of the effort, including some entrepreneurs in the Washington DC area, say such an office would spur innovation and help reduce the nation's dependence on foreign oil. But the Bush administration and Republicans in Congress oppose the measure, saying it will create a new layer of bureaucracy.

The measure would authorize \$3.4 billion in funding over five years for the Advanced Research Projects Agency-Energy (ARPA-E), which would work with companies to develop technologies aimed at alleviating U.S. dependence on foreign energy sources. The House ARPA-E legislation would establish a goal to reduce U.S. energy imports from foreign sources by 20 percent over the next 10 years. The funding for the new agency, under the House bill, would come from an Energy Independence Acceleration Fund, which would be tapped for contracts, grants and cooperative agreements between the government and companies for joint development of energy technologies. The measure doesn't specify what technologies the fund should promote.

But the proposal is far from becoming a reality. House and Senate negotiators would need to agree on a joint bill that includes ARPA-E, and Congress would need to appropriate funds for the agency annually. Also, the Bush administration opposes the idea. *For more information, please visit* http://washington.bizjournals.com/washington/stories/2007/06/04/story12.html?f=et159&b=1180929600^1470339&hbx=e_vert.

Grassley Questions Big Oil's Commitment to Lessening U.S. Dependence on Foreign Oil

Senator Chuck Grassley compared Big Tobacco's 1994 sworn testimony before a House Subcommittee to sworn testimony made by Big Oil before the Senate Judiciary Committee earlier this year. Grassley questioned the accuracy of their testimony following a Wall Street Journal article revealed inconsistencies in their policies toward alternative fuels. "What I'm afraid of is that these companies aren't serious about expanding the availability and use of alternative fuels," Grassley said. *For more information, please visit* http://grassley.senate.gov/index.cfm?FuseAction=PressReleases.View&PressRelease_id=5395.

Carbon Capture Makes US Coal Growth Uncertain

Coal-fired power plants generate about 50 percent of US power and the EIA has forecast that figure will expand to about 57 percent by 2030. However, the forecast does not factor in adoption of carbon capture and sequestration (CCS), a technology not in commercial use but which could be added to power plants to siphon off CO2 emissions, stopping them from going up the smokestack. The EIA forecast of 57 percent coal dependency is "very uncertain given the possible policy changes and possible technological changes," Guy Caruso, the EIA administrator, said via phone from the Reuters Energy Summit in Washington. "The technology is moving forward, and there may be some carbon restrictions imposed some time between now and 2030," he said. *For more information, please visit* <http://www.planetark.com/dailynewsstory.cfm/newsid/42383/story.htm>.

USA Today: "Push for Geothermal Juice Picks up Steam"

A recent article published in USA Today begins, "There's good reason one of the nation's most promising renewable energies is the industry's best-kept secret: It's buried miles under the surface of the Earth."

The article discusses geothermal's unique advantage as a baseload resource that could, in time and with the adequate technology advances, produce energy across the country. Hurdles cited include risky drilling procedures difficulty locating resources, and lack of support by the Bush administration. Despite DOE's proposed zeroed out funding in 2008, spokeswoman Julie Ruggiero told USA today it "would never turn its back on a promising technology." Challenges notwithstanding, considerable development is taking place, spurred in part by the production tax credit.

The article includes information about the industry, such as the expansion project at The Geysers and the relatively recent use of "binary" power systems, and an overview of the MIT EGS report. The article concludes with a quote from MIT professor Jeff Tester: "You don't quit because the low-hanging fruit" is gone, he says. "You go after the mother lode." *For more information, please visit* http://www.usatoday.com/tech/science/environment/2007-06-06-geothermal_N.htm?POE=click-refer.

Renewable and Climate Change News

Domenici Criticizes Federal Renewable Portfolio Standard

U.S. Senator Pete Domenici recently said that he believes a proposal to impose a 15 percent across the board Renewable Portfolio Standard (RPS) presents an unfair burden to consumers. Domenici said that when the Senate takes up energy, he and other Senators are planning on offering an alternative Clean Energy Portfolio Standard (CEPS) which would create a fair playing field for all low-emission energy resources. The Clean Energy Portfolio Standard would encourage the use of a variety of clean energy resources, such as nuclear power, biomass, fuel cells, solar, wind, ocean, geothermal, hydropower, landfill gas, and clean coal technologies, according to a Domenici press release. CEPS also includes provisions that would help states use less electricity in order to meet target goals, such as energy efficiency measures.

Under the proposed federal RPS, a much smaller set of resources would be allowed to meet targets, the press release states. Most states that have adopted renewable portfolio standards include a broader set of technologies to meet their standards. States that cannot produce the required amount of renewable energy would purchase credits, the cost of which would likely be passed on to consumers. *For more information, please visit*

http://energy.senate.gov/public/index.cfm?FuseAction=PressReleases.Detail&PressRelease_id=235305&Month=6&Year=2007

Earth's Climate Approaches Dangerous Tipping Point

James Hansen, director of NASA's Goddard Institute for Space Studies in New York, published June 1 a study showing that greenhouse gases emitted by human activities have brought the Earth's climate close to critical tipping points, with potentially dangerous consequences for the planet. "If global emissions of carbon dioxide continue to rise at the rate of the past decade," said Dr. Hansen, "this research shows that there will be disastrous effects, including increasingly rapid sea level rise, increased frequency of droughts and floods, and increased stress on wildlife and plants due to rapidly shifting climate zones." The report states that dangerous climate change has not yet arrived, but the tipping point may not be far off. And it may be reached with a smaller temperature rise than recent studies suggest. Dr. Hansen has said in the past that a global tipping point will be reached by 2016 if levels of greenhouse gases like methane and carbon dioxide are not reduced. *For more information, please visit* <http://www.ens-news.com/ens/jun2007/2007-06-01-01.asp>.

Public Concern over Climate Change Jumps - Survey

Global concern about climate change has risen dramatically over the last six months and consumers increasingly expect their governments to act, according to a survey published recently. The survey by the Nielsen Company and Oxford University's Environmental Change Institute, found 42 percent of global online consumers believe governments should restrict companies' emissions of carbon dioxide and other pollutants.

Although up 7 percent in six months, still only 13 percent of United States citizens -- who live in the country responsible for a quarter of global emissions of carbon dioxide -- see climate change as one of their biggest worries. The Swiss -- who already produce most of their power from low-carbon sources -- are the most worried about global warming, with 36 percent saying it was one of their biggest fears in April this year, up 17 percent from October 2007. Crucially, the environmental message is getting through in India and China -- two of the world's largest and fastest-growing polluters -- while public anxiety in other large developing economies like Mexico and Brazil is intensifying.

An 11-percent jump in concern about the environment over the last six months left 19 percent of Indians fretting about global warming, while only 9 percent of Chinese respondents said the issue was very important, up 7 percent. But Russians and eastern Europeans remain unconcerned, with only 3 percent of

Russian respondents losing sleep over it as their energy consumption and carbon emissions rise. Climate change is now a top issue in Canada -- with jitters jumping 18 percent to 31 percent -- after the government said the country's Kyoto Protocol goals were unachievable. Although public concern has jumped, willingness to make personal sacrifices to do something about the problem has not. Only 3 percent of respondents said people should reduce the amount they fly, despite aviation being one of the fastest growing sources of carbon emissions. *For more information, please visit <http://www.alertnet.org/thenews/newsdesk/L04795159.htm>.*

U.S. Short-Changes Climate Monitoring, Report Says

America will lose much of its ability to monitor global warming from space unless the Bush administration reverses course and restores funding for the next generation of climate instruments, according to a confidential report prepared by government scientists. Cost overruns and technology problems recently caused the federal government to cut the number of planned monitoring satellites from six to four. Those four will focus on weather prediction rather than climate research, according to the report.

"The recent loss of climate sensors ... places the overall climate program in serious jeopardy," said the report, which was drafted by government atmospheric and space scientists for the White House Office of Science and Technology. The report was posted on the Internet recently by Climate Science Watch, a Washington-based watchdog group.

America depends on a variety of satellites operated by the Department of Defense, NASA and the National Oceanic and Atmospheric Administration to compile information on everything from sea level change to the erosion of the protective ozone layer in Antarctica. *For more information, please visit <http://www.latimes.com/news/nationworld/politics/la-sci-satellite5jun05.1,4977731.story?track=crosspromo&coll=la-news-politics-national&ctrack=2&cset=true>.*

US House Leader Wants to Pass CO2 Bill This Year

Rep. Nancy Pelosi, speaker of the US House of Representatives, said recently she wanted Congress to pass mandatory caps on heat-trapping carbon dioxide emissions this year. "I'd like to see it pass this year," Pelosi told reporters at a news conference. "Congress will act upon cap-and-trade legislation in this Congress." Pelosi's comments came a day after President George W. Bush called on 15 influential countries to agree by the end of 2008 to a long-term goal to cut emissions, and is the most specific timeline that Pelosi has set for congressional action to date. The United States is the world's biggest greenhouse gas emitter, and Pelosi has said she wants to halve US emissions by 2050 through a cap-and-trade system. Such a system would set industry-specific reduction targets and require those who exceed them to buy permits to pollute. *For more information, please visit <http://www.planetark.com/dailynewsstory.cfm/newsid/42348/story.htm>.*

Global Warming is Accelerating Three Times More Quickly than Feared, Report Finds

Arctic sea ice is melting at a significantly faster rate than projected by the most advanced computer models, a new study concludes. Scientists at the National Snow and Ice Data Center (NSIDC) and the National Center for Atmospheric Research (NCAR) found that satellite and other observations show the Arctic ice cover is retreating more rapidly than estimated by any of the eighteen computer models used by the Intergovernmental Panel on Climate Change (IPCC) in preparing its 2007 assessments. The study, "Arctic Sea Ice Decline: Faster Than Forecast?" finds that Arctic ice cap is melting three times as fast - and the seas are rising twice as rapidly - as had been predicted. *For more information, please visit http://nsidc.org/news/press/20070430_StroeveGRL.html.*

Democratic Climate Change Bill Could Undermine California Standard

In their first draft of new energy legislation, House Democrats would pre-empt California and 11 other states from implementing laws requiring automakers to reduce greenhouse gas emissions across their fleets, according to many environmentalists. The bill would prohibit the Environmental Protection Agency from granting the states waivers to put their climate change rules into effect. California officials, including Gov. Arnold Schwarzenegger's top environmental aides, blasted the legislative proposal.

The proposal was written by Rep. Rick Boucher, a Democrat who represents a coal-producing district in southwest Virginia and chairs the House Energy and Commerce subcommittee charged with crafting climate change legislation. The full committee's chairman, Rep. John Dingell, D-Mich., a longtime ally of the auto industry, also played a key role in putting together the new legislation. The bill would add language to the Clean Air Act stating that the Environmental Protection Agency administrator could not grant states a waiver for their vehicle emissions rules if "such state standards are designed to reduce greenhouse gas emissions." In other words, any state rules seeking to curb global warming would be null and void. The legislation also appears to limit the power of the agency to set federal climate change rules -- even though the Supreme Court in April ruled that greenhouse gases are air pollutants and the Environmental Protection Agency must regulate vehicle emissions or explain why it won't. The measure would also subsidize coal-to-liquid fuels, which emit about twice the greenhouse gas emissions of traditional petroleum-based fuels -- unless those gases can be trapped and stored underground, a still unproven technology. The bill is part of a package of energy independence measures that Pelosi hopes to bring to the floor before July 4.

Pelosi's aides emphasized that the bill was only a discussion draft in a subcommittee, not a final bill on the House floor. The speaker "will be reviewing this draft legislation and following its progress," her spokesman Drew Hammill said. *For more information, please visit <http://sfgate.com/cgi-bin/article.cgi?file=/c/a/2007/06/05/MNG44Q7OS01.DTL>.*

Financial Sector to G8: Deep Climate Emissions Cuts Needed Now

As the G8 Summit opens in Germany, the heads of 23 financial service companies urged the world's eight most industrialized countries to agree on deep cuts in the emissions of greenhouse gases responsible for the planet's rising temperature. They fear that unchecked climate change is likely to lead to an increase in climate-related disasters, with "grave social and environmental harm," including annual economic losses that could rise as high as US\$1 trillion by 2040.

The companies, members of the UN Environment Programme's Finance Initiative, said in a statement to the G8 Summit in Heiligendamm, "There has been a seismic shift in how climate change is perceived and it is widely considered to be the greatest market failure ever. ... Many of the effects of climate change are beginning to be manifested and the threats posed by continued warming will affect - and even possibly disrupt - the operation of markets, societies, ecosystems and cultures," the financial executives say in the first global statement on climate change by the finance sector.

The "Declaration on Climate Change by the Financial Services Sector," is signed by 23 CEOs, presidents, chairmen and managing directors of banks, insurance and re-insurance companies. It calls on the G8 heads of state to formally adopt emission reduction targets no later than 2009. The statement was developed by the UNEP Finance Initiative's Climate Change Working Group. *For more information, please visit <http://www.ens-newswire.com/ens/jun2007/2007-06-06-05.asp>.*

State News

Hawai'i: Geothermal Energy - Clean, Stable, Always Available

A recent press release by Puna Geothermal Venture discusses Puna's contribution to the Hawai'i energy mix. The press release states, in part:

“For just short of 15 years, Puna Geothermal Venture (PGV) has supplied clean, safe and sustainable electrical energy -- and energy diversification -- to Hawaii Island, the Big Island of the chain. Puna Geothermal is provider of about 20 percent of the electricity for the island's businesses and residents.

Powered by natural heat from the earth, its geothermal-generated electricity has:

- saved more than 5.5 million barrels of fossil fuel,
- prevented 2.3 million tons of greenhouse gas emissions,
- produced more than 2.8 billion kilowatts of renewable energy since 1993

‘When the wind doesn't blow and the sun doesn't shine, the volcano continues to produce a steady flow of power. It also could be used to stimulate light industries such as seed germination or hydrogen fuel technology,’ says PGV Plant Manager Mike Kaleikini.

And, there's room to grow-Puna Geothermal's underground resource holds about 200 megawatts of renewable geothermal energy. Ormat Technologies, Inc., a company with considerable international depth in geothermal knowledge and production, acquired Puna Geothermal Venture in 2004, and since then the plant has undergone substantial upgrades. More than 90 percent of Hawaii's energy is powered by imported fossil fuels and the state's electric costs are among the highest in the nation. Hawaii lags behind the rest of the United States in fossil fuel reduction, so the state government is seeking other uses for geothermal power and heat that can benefit agriculture and reduce Hawaii's dependence on energy imports. Puna Geothermal is working on a project with Department of Energy funding an experimental hydrogen program at the Natural Energy Laboratory of Hawaii.” *For more information, please visit http://www.earthtimes.org/articles/show/news_press_release,117857.shtml.*

Oregon: New Oregon Energy Law Means State Requirements Deliver Enough Renewable Electricity for 30 Million Households

State energy laws will cut the equivalent of 19 million cars' global warming pollution

Salem, Ore.—Oregon Governor Ted Kulongoski signed into law Wednesday a bill requiring that large utilities generate 25% of the state's electricity from renewable sources by 2025. The bill's passage caps a year in which 10 states have created such standards or increased existing standards. According to Environment Oregon, an advocacy group, the Oregon standard will generate enough renewable electricity to power nearly 1.2 million Oregon households. Nationally, all such state requirements will generate enough electricity to power 29.7 million households.

“Renewable energy standards are states' most powerful tools for taking control of their energy future,” said Jeremiah Baumann, an advocate with Environment Oregon, “And homegrown renewable energy brings with it a huge boost for rural economies and a major cut in global warming pollution.”

Oregon's standard will cut 6.2 million metric tons of carbon dioxide in 2025, an amount equivalent to that emitted by about 1 million cars. Nationally, state requirements, including Oregon's, will cut 114 million metric tons of carbon dioxide, an amount equivalent to that emitted by 18.7 million cars.

“Global warming is affecting the world we live in, from the shrinking glaciers in the Cascade Mountains to the rising sea levels on Cape Cod,” said Baumann, “But renewable energy is just one example of the tools we have within our grasp to address the problem.”

Oregon's standard is one of the strongest in the country – only Minnesota and New Hampshire have set standards as high as 25%, and California has a standard of 20% by 2010. All three standards were set within the last year. Other states setting or increasing their standards in the last year include Washington, Arizona, Wisconsin, New Mexico, Colorado, and Maryland.

“Renewable energy standards are the best thing for rural communities since the plow,” said Don Coats, a wheat grower in Sherman County, Oregon, where wind power generation is increasing rapidly and farmers and rural counties are seeing increased revenue from the facilities.

Oregon's law was championed by Governor Kulongoski, State Senators Brad Avakian (D-Bethany) and Jason Atkinson (R-Grants Pass), and Representatives Jackie Dingfelder (D-Portland) and Ben Cannon (D-Portland). A state-wide coalition of consumer advocates, environmentalists, farmers, rural county commissioners and sheriffs, business organizations, labor unions, and religious leaders supported the bill

Buoyed by advances in the states and growing public concerns about energy issues, an expanding number of constituencies are pressing Congress to adopt a clean energy standard. Oregon's clean energy victory comes a week before the U.S. Senate is expected to take up energy legislation.

U.S. Senate Energy Committee Chair Bingaman (D-N.M.) has pledged to offer an amendment that would require 15% of the country's electricity to be generated by clean renewable energy by 2020. Senator Klobuchar (D-Minn.) is expected to introduce legislation to generate 25% of the country's electricity from renewable sources by 2025. Energy legislation is also expected in the U.S. House of Representatives later in the month. Representatives Udall (D-N.M.) and Platts (R-Penn.) have introduced H.R. 969 which would require 20% renewable electricity generation nationwide by 2020.

“States like Oregon have raised the bar for strong renewable energy policy, and it's time for Congress to take these benefits nationwide,” said Rob Sargent, energy program director for the U.S. Public Interest Research Group.

International News

Australia (South): Hot Rock Power Set to Take Off in the Region

Petratherm Ltd and Beach Petroleum Ltd have begun their Paralana Project in South Australia, hoping to see the country's first commercial supplies of hot rock power from the end of 2009. The pair's Paralana Energy Joint Venture has appointed Colorado-based Global Power Solutions to advise on the flagship project, as well as other projects in Australia and Spain. The joint venture has also approved the start of deep well design and the rig selection process. Global Power Solutions will give technical oversight to the Paralana well design and drilling process, plus planning and engineering design work for the requisite power generation plant and the integration of the above and below ground works. *For more information, please visit <http://news.ninemsn.com.au/article.aspx?id=271085>.*

Uganda: Make Energy, Including Geothermal, a Priority, President Urges G8

Africa needs support from the world most industrialized nations to help produce energy cheaply, President Yoweri Museveni has said. A statement from State House recently said that while speaking at a meeting in London to hammer out solutions to the continent's problems ahead of this year's Summit of the world's eight leading industrial nations (G8) in Heiligendamm, Germany, Mr Museveni said there would be an influx of investors to Africa if there was cheap electricity. "Where we need assistance now, or at least no obstruction, is on cheap electricity - hydro, geothermal and nuclear power," he said. Mr Museveni appealed to the G8 industrialized nations to woo investors in their respective countries to come to Africa in general and Uganda in particular to invest. *For more information, please visit <http://www.monitor.co.ug/news/news060710.php>.*

Notices and RFPs

Request for Information on Geothermal Co-Production

The DOE Golden Field Office has posted a new Request for Information entitled, "Demonstration of Electric Power Generation Using Geothermal Energy Co-Produced with Oil and/or Gas Wells." Please note that this is a Request for Information (RFI) and not a Funding Opportunity Announcement. DOE is simply seeking information from the geothermal industry and academia regarding the technical feasibility and economic viability of electric power generation using geothermal energy co-produced with oil and/or gas wells and is not accepting applications for financial assistance on this topic at this time. See <https://e-center.doe.gov/iips/faopor.nsf/UNID/50D3734745055A73852572CA006665B1?OpenDocument> for details. Questions regarding the content of this RFI should be submitted through the "Submit question" feature of the DOE Interactive Procurement System (IIPS) at <http://e-center.doe.gov>.

DOE Offices Release Best Practices for Distributed Energy Interconnection Procedures for State Consideration

The U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) and Office of Electricity Delivery and Energy Reliability (OE) have jointly developed voluntary "best practices" for use by States in implementing interconnection requirements that allow for simple connection of distributed energy technologies to the electric grid. Recognizing that Section 1254 of the Energy Policy Act of 2005 requires each State to consider interconnection procedures and complete its determination by August 8, 2007, EERE and OE offer these "best practices" to assist States in those determinations. For more information, please visit http://www1.eere.energy.gov/news/progress_alerts/progress_alert.asp?aid=221.

SMUD Renewables RFO (Due June 11)

The Sacramento Municipal Utility District (SMUD) announces its Request for Offers (RFO) for renewable energy power purchase agreements (PPA) and project ownership options. SMUD will consider RFOs for the following renewables: Wind, geothermal, small hydroelectric, landfill gas, biomass and biodiesel, photovoltaic, solar thermal (with and without natural gas assist), biomass gasification, digester gas, fuel cells using qualifying renewable fuels, qualifying municipal solid waste conversion, ocean wave, ocean thermal, tidal current, and innovative storage coupled with qualifying intermittent renewables. For more info, contact Marco Lemes at mlemes@smud.org or go to: <http://www.bids.smud.org/sDsp/sDsp004.asp>.

BLM Competitive Geothermal Lease Sale, Idaho and Utah Combined, June 20, 2007

BLM has announced a combined geothermal lease sale for certain lands in Idaho and Utah. The sale will take place on June 20th, 2007, at BLM's Utah State Office in Salt Lake City. For information contact Tracy Cron in the BLM Idaho State Office at 208-373-3886 or Connie Seare in the BLM Utah State Office at 801-539-4111, or go to: <http://www.blm.gov/id/st/en.html> or <http://www.blm.gov/ut/st/en/prog/energy/geothermal.html>.

Applications for CREBs Sought by July 13, 2007

IRS Notice 2007-26 solicits applications for the allocation of the available clean renewable energy bond national limitation under Section 54 of the Internal Revenue Code and provides other guidance with respect to the issuance and post-issuance compliance of clean renewable energy bonds. This notice was published in Internal Revenue Bulletin 2007-14, dated April 2, 2007 and the due date is July 13, 2007. For more information, please visit: http://www.irs.gov/irb/2007-14_IRB/ar17.html#d0e2321

Energy Institute Accepted Entries for Organizations that Set New Standards of Excellence and Innovation (Deadline June 29)

For the last seven years, the Energy Institute has recognized individuals and organizations in the global energy industry for setting new standards of excellence and innovation. The 8 categories cover a broad range of areas which enables companies and projects of all sizes, across the wide energy spectrum to compete against each other.

The eight categories are:

- Communication sponsored by AMEC
- Community Initiative
- Environment sponsored by Total
- Innovation sponsored by ExxonMobil
- International Platinum sponsored by TNK-BP
- Outstanding Individual Achievement Award sponsored by Norman Broadbent
- Safety sponsored by Shell
- Technology sponsored by BG Group

Full details of all the criteria as well as an entry form are available at www.eiawards.com.

Upcoming Events

Renewable Energy Fair, June 9-10, Loretto, Pennsylvania

St. Francis University in partnership with the Saint Francis Renewable Energy Center will host the 2nd annual ECare Fair, a national event to discuss and promote renewable and reduced energy resources. Exhibits are slated to include alternative and renewable energy, energy reduction processes, inexhaustible energy and sustainable living. *More information is available by phone at (814) 736-8266 or online at <http://www.ecarefair.com>.*

Infrastructure Finance & Investment Summit, June 11-12, New York City

Financial Research Associates' Infrastructure Finance & Investment Summit explores investment vehicles and capital sources supporting the growth of private investment in public infrastructure. Moving beyond traditional equity investment, and bond issues the Summit focuses on innovative, alternative finance opportunities for infrastructure projects. *More information is available by calling Eric Johns at (831) 465-7409, or online at <http://www.frallc.com/conference.aspx?ccode=B490>.*

Geothermal Energy Utilization Associated with Oil and Gas Development, June 12 – 13, Dallas, Texas

This international conference specializes in the enhancement of existing oil & gas wells for electrical production. Geothermal energy can be extracted from the well fluids using newly designed compact turbines with binary fluids. These systems are now sized to fit single wells or multiple wells with an approximate fluid temperature differential of 120°F+ between produced and cooling temperatures. Thus, in the Gulf Coast temperatures of 225°F or higher are eligible. This electrical production (geothermal energy) is renewable and considered a baseload source since it is capable of producing 24 hours a day. This capability gives new life to low yield producers with high water volume and a reason to keep them pumping. Undesirable high water flow geopressure wells become an immediate revenue path if converted to electrical production. Abandoned wells have value with the Geothermal Industry fracturing techniques to increase water flow. With a system installed in Chena Hot Springs, Alaska and another installation going into the Wyoming Rocky Mountain Oil Field Testing Center, the ability to use low temperature fluids is no longer just a concept, rather it's a reality. Data and economics will be presented to assist you in

developing your company's renewable energy portfolio using existing wells. The event will take place at the Southern Methodist University in Dallas, Texas. *For more information, please visit http://smu.edu/geothermal/Oil&Gas/2007/geothermal_energy_utilization.htm.*

Sustainable Energy Coalition Expo, June 14, Washington, DC

The 10th Annual SEC Expo will feature a variety of renewable energy and energy efficiency technologies. GEA's booth will feature displays from Ormat Technologies and UTC Power, as well as materials from the Geothermal Education Office and GEA. Besides an exhibit portion showcasing the companies and technologies that are developing renewables and efficiencies today, the Expo will also feature panel discussion and presentations on the most important energy topics of the day – global warming, U.S. competitiveness, and renewable/efficiency potential over the next ten years. The event will kickoff with a keynote address by Jon Holdren. *For more information, please visit <http://www.google.com/calendar/event?eid=aDMzc2tqY3RmbmlkZ2o5N3VtNXI0Z21iczOgc3VzdGFpbmFibGVlbmVyZ3ljb2FsaXRpb25AbQ>.*

California Geothermal Development Plan Workshop, June 20, Woodland, California

You are invited to participate in the Geothermal Energy Collaborative (CGEC) kick-off workshop which will focus on developing a comprehensive California Geothermal Development Plan. The workshop will be held on Wednesday, June 20, 2007 at the Heidrick Ag History Center in Woodland (near Davis). Workshop Purpose: The CGEC is working on a report to advance the development of geothermal resources in California. This report will provide input to the California Energy Commission as it develops a new renewables road map. If you have questions, please e-mail Marilyn Nemzer at MNemzer@aol.com or call 415-435-4574.

4th Renewable Energy Finance Forum - Wall Street, June 20-21, New York, NY

REFF Wall Street is designed to be a one-stop-shop for discussion of the complete spectrum of financing opportunities for all renewable energy technologies, and consequently provides a unique forum to meet and network with delegates from all walks of the RE industry, together with high level financiers. The event had over 600 delegates from 18 countries in 2006. *For more information and to register, please visit <http://www.euromoneyenergy.com/default.asp?Page=11&eventid=ECK162&LS=REA&site=energy>.*

Power Gen Europe and Related Events, June 26 – 28, Madrid, Spain

The POWER-GEN Europe conference program addresses challenges faced by the electricity sector as a whole, both strategic and technical. It is an information platform to provide the latest technologies and best industry practices to support decision-making processes. In addition to POWER-GEN Europe conference sessions, delegates can attend those for Renewable Energy Europe and POWERGRID Europe. The three conferences bring together three key elements of power production and delivery today, conventional power generation, renewable power generation, and transmission and distribution. Renewable Energy Europe conference is the first large-scale renewables event tailor made for Europe's power industry. POWERGRID Europe aims to be the primary forum where European utility professionals can come together and examine, in-depth, the challenges facing the transmission and distribution arms of the power industry. *For more information, please visit <http://pge07.events.pennnet.com/fl/index.cfm>.*

GEA Trade Show/GRC Annual Meeting, September 30-October 3, Reno, Nevada

The GEA 2007 Trade Show will be held at John Ascuaga's Nugget Hotel & Casino in Reno, Nevada, September 30 - October 3, 2007. To see the floor plan, sponsorship opportunities, or register for an exhibit space go to: <http://www.geo-energy.org/tradeShow/invitation.asp>

For more information about the GEA Trade Show contact Daniela Stratulat at 202-454-5263 or email Daniela@geo-energy.org.

First European Geothermal Review Meeting, Oct 29 – 31, Mainz, Germany

A review meeting called "First European Geothermal Review Meeting" will be a conference/workshop on the development/demonstration of engineered geothermal systems (EGS). The drive comes from the fact that engineering in the underground is necessary to develop the hydrothermal resources. This will be a conference with a slight difference, in that the participants will be able to see a demonstration of an engineered geothermal plant producing power and providing heat to the town of Landau. *The information on the meeting and the registration can be obtained on <http://www.bestec-for-nature.com/fegr2007/>.*

The Trade Show is held concurrently with the Geothermal Resources Council's (GRC) Annual Meeting. For information about the GRC Annual Meeting contact GRC at 530-758-2360 or email grclub@geothermal.org.



GEA Update

A newsletter for GEA Members written by Alyssa Kagel and Karl Gawell.

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