



## GEO THERMAL ENERGY ASSOCIATION

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## **National News**

### **GEA Asks Congress to Fully Fund and Direct DOE to Follow New Geothermal Research Law**

Washington, DC—The Geothermal Energy Association (GEA) has urged the House Appropriations Committee to direct the Department of Energy (DOE) to begin implementing legislation creating a new advanced geothermal research program passed by Congress in December. “Unfortunately, the Department of Energy’s (DOE) budget submission for FY 2009, does not appear to implement the new research initiative authorized by Congress,” GEA’s Executive Director, Karl Gawell, told the legislators.

At issue is the *Advanced Geothermal Energy Research and Development Act of 2007* passed as part of the 2007 energy bill. The legislation “defines a bold new vision of public-private partnerships and federal research and information initiatives that could help bring substantial new geothermal energy sources online to meet national energy needs,” according to GEA.

Congressional action on geothermal research was at least in part a response to efforts by the Administration to terminate all federal geothermal research, as proposed in their FY 2007 and FY 2008 budgets. But, Congress rejected the Administration’s proposals to close the program. Last December Congress approved \$20 million for DOE’s geothermal research efforts in FY 2008 as part of the Omnibus Appropriations Bill.

A few days earlier Congress passed national energy legislation, H.R.6, which contained the new research program for advanced geothermal technologies. At the time, Senate Majority Leader Harry Reid told his colleagues “...with the Senate’s passage of the omnibus appropriations bill for fiscal year 2008 and H.R. 6, the Energy Security and Independence Act of 2007, the Department of Energy must now finally understand that its irrational hostility toward geothermal energy research and development has come to an end.”

Last month, a bipartisan group of a dozen Senators led by Senators Wyden (D-OR) and Murkowski (R-AK) sent Secretary Bodman a letter urging DOE to move forward immediately with the new geothermal research law. “An important part of the Energy Independence and Security Act, HR 6, are the provisions that authorize and direct the Department of Energy to undertake a broad, new advanced geothermal energy research program,” the Senators told Bodman. “These provisions were based upon legislation that had strong, bi-partisan support in both the House and Senate...” they added.

In their statement today, GEA urged Congress to “direct the DOE to implement the new law and to provide adequate funding to achieve its goals.” We believe DOE could effectively use the entire amount authorized by Subtitle B of HR 6 for the DOE geothermal research program, some \$100 million, in FY 2009, GEA said. “We estimate that a minimum effort to implement the new law will require an appropriation of \$77.5 million for the DOE geothermal research program in FY 2009,” GEA argued.

Specifically, GEA urged the House Energy and Water Appropriations to:

- Provide specific direction to the DOE to implement the provisions of the *Advanced Geothermal Energy Research and Development Act of 2007*.
- Provide no less than \$15 million for activities under Section 613 (Hydrothermal Research And Development).
- Provide \$10 million for the implementation of Section 614 (Geothermal Systems Research and Development).
- Provide \$20 million for activities under Section 615 (Enhanced Geothermal Systems Research and Development).
- Provide \$15 million for implementation of Section 616, \$10 million for oil and gas field geothermal production, and \$5 million for geopressured resources recovery and production.

- Provide \$5 million for the information and education provisions of Sections 618, 619, and 620.
- Direct DOE to provide Congress the report requested under Section 621 by the end of FY 2009 and provide \$2.5 million for the preparation of this report through an independent outside laboratory with geothermal expertise.
- Provide at least \$5 million for implementation of Sections 624 and 625 and direct the DOE to take the lead for implementation of Section 624.
- Provide at least \$5 million for implementation of the Intermountain West Geothermal Consortium, including continued work at the University of Nevada Reno to develop techniques, technology, and geologic information that allows identification of the currently “hidden” geothermal resource base.

While DOE’s budget proposal for FY 2009 included funding for geothermal research, it would fund only work on enhanced geothermal systems and ignore many other opportunities to expand geothermal energy production, according to GEA.

The House Energy and Water Appropriations Subcommittee will act first on a FY 2009 funding bill for DOE, probably in late April or May. Meanwhile, the Senate Energy and Water Development Appropriations Subcommittee has set Friday, April 18, 2008 as their deadline for outside witness testimony.

*Details on how to submit a statement to the Senate Subcommittee are available on their website at: <http://appropriations.senate.gov/energy.cfm>.*

## **EPA Releases Analysis of Lieberman-Warner Climate Bill**

The Environmental Protection Agency (EPA) has released a 189-page analysis of the Lieberman-Warner Climate Security Act of 2008 (S. 2191). The analysis was requested by Senators Joseph Lieberman (ID-CT) and John Warner (R-VA) last November.

Senator Warner told the press, "I am satisfied that EPA's analysis demonstrates what we have long known: You can control greenhouse gas emissions in a manner that leaves the economy whole and is not burdensome on consumers."

EPA included ten scenarios to evaluate possibilities. Findings are taken from the press release on Senator Lieberman’s Web site:

- The Climate Security Act's cut in cumulative US greenhouse-gas emissions is deeper than one found earlier by EPA to be consistent with keeping global CO2 concentrations below 500 parts per million in 2100. *[Slide 141]* The finding assumes that other developed countries reduce their emissions by less than the US, and that the developing countries do not start making similar reductions until 2025. According to the Intergovernmental Panel on Climate Change, keeping the global concentration below 500 ppm greatly decreases the risk of severe global warming impacts in the US and elsewhere.
- Under the conservative assumptions described above concerning action by other nations, the Climate Security Act does not shift US greenhouse-gas emissions abroad. In EPA's words, "no international emissions leakage occurs." *[Slide 5]*
- Under the same conservative assumptions, the Climate Security Act causes US exports of energy-intensive products (e.g., steel, cement) to developing nations to increase and causes US imports of energy-intensive products from developing nations to decrease. *[Slide 83]*
- Under the Climate Security Act, US gross domestic product grows by 80% from 2010 to 2030. That is just one percentage point less than the growth in the absence of the bill. *[Slide 61]*

- Under the Climate Security Act, average annual per-household consumption in the US grows by 81% from 2010 to 2030. That is just two percentage points less than the growth in the absence of the bill. [Slide 65]
- EPA notes, "The economic benefits of reducing emissions were not determined for this analysis," [Slide 3] and "While the models do not represent benefits, it can be said that as the abatement of GHG emissions increases over time, so do the benefits of the abatement." [Slide 108]
- The Climate Security Act's allowance price and financial support for carbon capture and sequestration (CCS) make that technology a commercial reality in the US by 2015 - several years earlier than in the absence of the bill. [Slide 4]
- One of the effects of the accelerated CCS deployment is to drive natural gas out of the electricity sector, to the benefit of manufacturers who use natural gas. [Slide 57]
- Under the Climate Security Act, the price of an emission allowance is \$22 in 2015 and \$46 in 2030. [Slide 24] This is significantly lower than allowance price predictions made by models which ignore the recent Energy Independence and Security Act, artificially limit technology deployment, and ignore technology incentives and cost-saving provisions of the bill.
- Under the Climate Security Act, increases in average US electricity prices materialize slowly and gradually. Even forty years after enactment, those prices reach a level only 18% higher than the 2005 level. [Slide 55] Over that period, the bill directs more than \$1 trillion to lowering and offsetting US consumers' actual energy costs.

See <http://lieberman.senate.gov/newsroom/release.cfm?id=294865> and <http://www.epa.gov/climatechange/economics/economicanalyses.html>.

## **Company News**

### **Raser Technologies to provide power in California**

Raser Technologies in Provo, Utah will sell geothermal power to Anaheim, California, according to their Web site.

The city of Anaheim approved power purchase agreements for two of Raser's planned projects.

"Anaheim is committed to the development of new energy technologies," Curt Pringle, Mayor of Anaheim, told the press. "This agreement with Raser is evidence of our commitment, and will help us meet the growing demand in achieving a higher standard of renewable energy use."

"These geothermal power plants are designed to provide baseload renewable energy with virtually no harmful emissions for a combined 18,000 homes," said Brent Cook, CEO of Raser.

Each is a 20-year agreement to cover up to 11 MW for a total of 22 MW starting in December 2008.

<http://www.rasertech.com/news/scripts/full-news.php?1205930640>

### **Davenport Power to receive funds for Newberry project**

Davenport Power, an independent electric power company, will receive funding for their Newberry geothermal plant.

US Renewable Group and Riverstone Holdings will invest in the development of the 120 MW project at the Newberry volcano in Oregon. Initially this will include drilling exploratory wells.

Davenport president Doug Perry said, "We are very pleased in the confidence expressed by this investment from US Renewables and Riverstone, who we know to be two of the most sophisticated energy investors in the nation. If exploration is successful and a viable commercial resource is found during the exploratory drilling, Davenport will prepare and submit specific plans to develop a state-of-the-art geothermal energy facility that will provide clean, renewable energy."

The project is expected to produce electricity for a 20-year contract with Pacific Gas & Electric Company.

Visit <http://www.davenportpower.com/projects/projects.htm> and [http://www.energy-business-review.com/article\\_news.asp?guid=FDBB119C-ED4C-4C99-A310-2809DDA53BD7](http://www.energy-business-review.com/article_news.asp?guid=FDBB119C-ED4C-4C99-A310-2809DDA53BD7).

## **Lihir Gold Annual Report Shows Use of Geothermal is Profitable**

Lihir Gold, a gold mining company on the island of Lihir near Papua New Guinea, uses geothermal energy for about 75% of their power needs.

Their 2007 annual report, released last week, showed that geothermal production last year was a success for the company, according to managing director Arthur Hood on [thenational.com](http://thenational.com).

Last year, geothermal energy reduced production costs by the equivalent of US \$60 per ounce of gold produced and generated US \$5 million in carbon credits, according to the article.

Hood told the press, "The completion of the flotation and geothermal construction projects during 2007 is a major achievement for LGL. Both initiatives will drive a significant turnaround in LGL's production and cost profile over the coming years, underpinning the long term future of the Lihir project."

See <http://www.thenational.com.pg/031908/biz2.htm>. For the Lihir 2007 Annual Report, visit <http://www.lglgold.com/asp/index.asp?pgid=10679>.

## **Renewable and Climate Change News**

### **Imperial Valley Renewable Energy Summit to Highlight Green Energy Feasibility Study**

The Imperial Valley Economic Development Corporation's (IVEDC's) Renewable Energy Summit will be held at the Barbara Worth Resort in Holtville, California on April 17–18, 2008, according to their press release.

Hosted by IVEDC, the County of Imperial and Imperial Irrigation District (IID), the local energy provider, the two-day event will feature a tour of various local renewable energy projects and a full-day panel discussion on topics that are relevant to the renewable energy industry.

At the center of the discussion will be the Renewable Energy Feasibility Study sponsored by IID. The study examines the renewable energy resources that exist in the region, which technologies are suitable for the area, as well as the technical potential and generating characteristics of each form of energy.

"The renewable energy feasibility study is a panoramic view of the green energy resource potential that Imperial Valley offers," said Tim Kelley, President and Chief Executive Officer of IVEDC.

“Encompassing geothermal, wind, solar and other forms of green energy, the study charts the future of renewable energy development in the Imperial Valley.”

The Imperial Valley Renewable Energy Summit will bring utilities, regulators, business leaders and emerging energy producers together to discuss key issues that surround green energy development in the area. Discussion will explore the opportunities and challenges that lie ahead in Imperial Valley’s quest to expand its renewable energy industry—an effort that will undoubtedly transform the agricultural-based region and numerous utility energy portfolios.

Headlining the current list of confirmed speakers and panel members for the Imperial Valley Renewable Energy Summit are as follows:

- Juan Carlos Sandoval, Manager of Transmission Planning and Operations, Imperial Irrigation District
- Bill Carnahan, Executive Director, Southern California Public Power Authority
- Jonathon Weisgall, Vice President of Legislative Affairs, CalEnergy Corporation
- John Egan, Vice President, Stirling Energy Systems
- Richard Becker, Directors of Assets, MMR Power Solutions, LLC
- Jeffrey Lee, President, California Ethanol & Power, LLC
- Matt Burkhart, Vice President of Procurement, San Diego Gas & Electric

For more information about the summit, please visit [www.ivedc.com](http://www.ivedc.com) or call (760) 353-8332.

### ***The Economist* Story Describes Geothermal Experiment in Germany**

*The Economist* printed a story about geothermal energy that described an experiment by Wulf Brandt of the National Research Centre of Geosciences in Potsdam. Brandt drilled at Gross Schönebeck near Berlin to experiment with geothermal energy in a location outside the Ring of Fire.

“Dig deep enough and geothermal energy is everywhere, since the temperature increases by 25-30°C for every kilometre you go down,” reads the article. “Generating electricity requires a temperature above 150°C to be viable. In the case of the rocks under Gross Schönebeck, that means digging to a depth of 4.4km (2.8 miles)—and then doing so all over again. For unlike volcanic geothermal energy, which is supplied by water or steam gushing to the surface unprompted, the non-volcanic variety requires a pump, and two holes in the ground, rather than one. Cold water goes down the first hole, and hot water comes up the second.

“Mr Brandt picked Gross Schönebeck because one of these two holes was available for nothing. It had been drilled by a gas-exploration company, but had proved “dry”. Mr Brandt drilled the other hole to the same depth as the first, about 400 metres away. That, he reckoned, was far enough for water travelling between the two holes to heat up without cooling the intervening rocks too rapidly.

“The question was, would water pushed down the first hole force water up the second in large enough quantities, and at high enough temperatures, to be commercially viable? To start with, the answer was no. But as the experiment progressed, the rate of flow increased—and this was no accident.

“One of the things Mr Brandt had taken into account when he planned the experiment was the grand movement of the Earth's tectonic plates. He aligned the two holes in order to benefit from the tension created, even as far north as Berlin, by the collision of African and Eurasian plates that uplifted the Alps. The downward-flowing water, which was injected at a pressure of 500 atmospheres, gradually forced apart existing fissures, and created new ones, in such a direction that the tension helped keep them open.

“Another trick was to add grains of sand and a mineral called corundum to the water. These grains were the right size to help keep the fissures open without blocking them. The result was that the rate of flow increased towards the 75 cubic metres per hour that is needed to make an electricity plant viable.

"It remains to be seen whether that flow rate can be sustained, and Gross Schönebeck can be turned into a commercial power station. But the auspices are good. If it can, it will pave the way for others. The supply of heat from the Earth's interior is, in practice, inexhaustible. And although any given site can be cooled to the point where it is useless—Mr Brandt reckons it would take about 30 years in the case of Gross Schönebeck—you can always dig more holes."

Visit [http://www.economist.com/printedition/displaystory.cfm?story\\_id=10789290](http://www.economist.com/printedition/displaystory.cfm?story_id=10789290).

## **EU in Talks for Climate Change Legislation**

The EU hopes to cut greenhouse gases by 20% before 2020, with legislation in the works for early 2009, they decided at a March 13–14 summit in Brussels, according to news.bbc.co.uk.

To implement, EU states will need to increase renewable energy consumption to 20% of total consumption as opposed to the current 6–7%.

The Slovenian Prime Minister Janez Jansa told the press, "We are convinced that the costs of these measures will be much lower than if we don't act." Slovenia currently holds the EU presidency.

Leaders will finish talks by the end of the year and will move forward with legislation.

Visit <http://news.bbc.co.uk/2/hi/europe/7296564.stm>.

## **San Francisco Building Codes Would be Greenest in U.S.**

The San Francisco Building Inspection Commission will send new green building standards to the Board of Supervisors, as decided March 19 in a unanimous vote.

Many people see it as a time to take matters into their own hands and do something about climate change. "George Bush is doing nothing to fight climate change on the national level, but with this groundbreaking ordinance, we're doing our part on the local level," Nathan Ballard, a spokesman for Mayor Gavin Newsom, told the press. "Many people don't realize that buildings have a big carbon footprint, and this will help reduce the size of that footprint."

If approved, Newsom will sign the standards into law. They could reduce carbon dioxide emissions by 60,000 tons by 2012, according to an estimate by city officials.

The Commission oversees building permits and construction.

See <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/03/20/MN7QVMJ5T.DTL>.

## **State News**

### **Alaska: Excerpt of Murkowski's Address to Lawmakers**

U.S. Sen. Lisa Murkowski addressed the Alaska Legislature last Tuesday. One thing she focused on was geothermal energy.

*Tighter and more efficient homes and offices are good for consumers, but finding affordable alternative energy sources is even better.*

*When we think of alternative energy, Iceland is probably the poster child for meeting energy needs in a clean, sustainable manner at low cost to consumers. Using geothermal and hydropower, Iceland has an*

*excess power supply, and its low cost of electricity has attracted U.S. and European companies to set up shop on the island.*

*Iceland didn't just stumble upon this - it got serious about how it was going to address its energy needs. The nation established its own bank to underwrite geothermal projects, not just construction but exploration as well.*

*Think about it - an isolated area, with a small population, in a cold climate - sound familiar? I want to work with you to write our own version of this success story here in Alaska. As I said, we have the money, the ideas, the will and the people. We just need the commitment.*

*The Energy Bill of 2007 includes a provision - open only to Alaska - where the federal government can provide grants to cover up to half of the cost of all forms of renewable energy development. It includes additional aid specifically for geothermal projects.*

*That's the authorization; now we need the money. Obtaining federal funds for this Renewable Energy Deployment Grant program will be a lot easier if Congress sees some State money in the game.*

*Which is why I want to commend the Legislature for considering several bills to help promote and fund alternative energy projects statewide, especially Speaker Harris' bill to establish a renewable energy fund that could be used to match federal funding for renewable projects. I see it is co-sponsored by more than half the House and Senate.*

*I strongly encourage you to make energy project funding a priority this session. That will deliver a strong signal that Alaska wants to work with the federal government in developing our energy sources, traditional and alternative. That would be of great help as we fight for federal funding this year.*

*Think energy and think jobs. Getting Alaska firms recognized as experts in wind, geothermal and biomass projects will help our economy grow in the years ahead. Bernie Karl at Chena Hot Springs is the "go to" guy for low-temperature geothermal power.*

Visit <http://www.fortmilltimes.com/124/story/105911.html>.

## **California: Press Release—IID Board Approves Generator Interconnect for New 16 MW Geothermal Facility**

(EL CENTRO, CA) – The Imperial Irrigation District (IID) Board of Directors unanimously approved a generator interconnection agreement between IID and Ormat Nevada, Inc., for the Heber South geothermal facility today.

As part of the agreement, IID will receive wheeling revenues in exchange for providing transmission services to Ormat's new Heber South unit. Expected to come online in April, the unit will generate 16 megawatts (MW)\* of clean, renewable energy.

“With the onset of renewable portfolio mandates, more and more energy providers are looking to the Imperial Valley as a key resource for clean renewable energy,” said IID Energy Assistant Manager Juan Carlos Sandoval. “And we’re in a position to deliver – IID owns and maintains a 1600-mile, strategically located transmission system that can transport these renewables to markets in the north, south, east and west.”

With more than 40,000 MWs of potential geothermal, solar, wind and biomass resources in the Imperial Valley, the region is poised to be a world leader in renewable energy generation.

“The Heber South project is the first in a number of projects Ormat has planned in the Imperial Valley that will promote the use of renewable energy resources,” said Brian Harms, who heads up Ormat’s Imperial Valley Operations. “Of course, our success depends upon a positive business relationship with the IID.”

Recognizing the importance of adequate transmission resources to transport these resources, the IID Board of Directors recently adopted two major policy initiatives and recently approved a new Midway-to-Bannister transmission line to help bolster renewable energy development in the region.

In addition, the utility’s GREEN PATH project will increase transmission capacity and strengthen the IID system, helping to spur the growth of the region’s budding renewable energy industry even further. Included in the GREEN PATH coordinated projects are several critical transmission projects designed to meet the needs of IID’s customers while serving renewable generators within the region.

“With more than 20 generator interconnection requests currently on the books being processed and several other projects in the preliminary planning stages, it’s an exciting time to be in the energy industry in the Imperial Valley,” added Sandoval.

\*One megawatt provides enough energy to power more than 750 homes.

Press release available at <http://www.iid.com/Media/Press-Release---IID-Board-Approves-Generator-Interconnect-for-New-16-MW-Geothermal-Facility.pdf>.

## **International News**

### **Caribbean: Companies Enter Agreement to Promote Energy Efficiency**

Encore Energy Systems announced it will enter the Caribbean market, an area affected by dependency on oil, according to earthtimes.org.

The Company plans to actively promote skills and job training throughout the Caribbean in the areas of geothermal systems engineering and solar power technologies, the article said.

Modern Technology Corp will provide grant funding through Caribbean and South American governments interested in energy efficiency.

They hope to introduce energy-saving technologies and to promote job creation and energy independence.

Visit <http://www.earthtimes.org/articles/show/encore-energy-to-enter-caribbean-market-with-modern-technology-corp,318757.shtml>.

### **Dominica: Minister for Energy Strongly Supports Geothermal**

Dominica recently launched a geothermal project, “Preparation of a Geothermal-based Cross-Border Electrical Interconnection in the Caribbean.” Dominica’s Minister for Energy Charles Savarin announced that what oil and natural gas have done for Petroleum exporting countries, geothermal energy can do for Dominica, according to caribbeannetnews.com.

Minister Savarin believes geothermal energy can reduce electricity costs by over 50% and that developing resources could be the single most important economic activity on the island for decades to come, according to the article.

The project, funded by the European Commission with counterpart funding by the Agence Francais de Developpement (AFD) and the Fonds Francais pour L’Environnement Mondial (FFEM) has the following objectives:

- Produce geophysical and scientific data on Dominica’s geothermal resources.
- Conduct feasibility study of an electrical interconnection network between Guadeloupe, Dominica, and Martinique.
- Prepare the physical and institutional infrastructure that will be necessary to enter into Power Purchase Partnerships and Agreements for geothermal electricity production in Dominica.
- Set the stage for commercialization to reduce in the cost of electricity to the Dominican consumers and allow for transmission to neighboring islands.

Visit <http://www.caribbeanetnews.com/news-6562--31-31--.html>.

### **Philippines: Nine Groups will Bid for Tiwi-Makban Plant**

Nine groups have submitted letters of interest before the March 12 deadlines and will bid for the 747-MW Tiwi-Makban geothermal power complex, according to abs-cbnnews.com. The letters were submitted to the Power Sector Assets and Liabilities Management Corp (PSALM).

PSALM received letters from five groups from the Philippines, two from Europe, one from North America, and one from Asia-Pacific.

See <http://www.abs-cbnnews.com/storypage.aspx?StoryId=112888>.

### **U.K.: Newcastle University Explores Geothermal Well**

Newcastle University scientists exploring Newcastle and nearby areas have found evidence of geothermal energy, according to nebusiness.co.uk.

Together with engineering consultants at PB Power, the university scientists conducted exploratory drilling in Weardale, County Durham in 2004 and have since done more testing on the site, showing possible existence of naturally hot water.

This is the U.K.’s first geothermal exploration borehole in 20 years. In an area where geothermal resource has not been tapped, these studies show possible energy development in the future.

See <http://www.nebusiness.co.uk/business-sector-reports/business-innovation-north-east/2008/03/20/preparing-to-tap-into-clean-power-from-the-earth-s-core-51140-20652004/>.

### **Notices and Employment Opportunities**

#### **Employment Opportunity—Terra-Gen Operating Company**

Terra-Gen Operating Company is a newly formed independent power producer operating clean and reliable energy projects located in several western states. Current renewable projects include wind, geothermal, and solar. Terra-Gen is currently seeking...

#### **Geothermal Resource Manager:**

Manage/develop the geothermal resource company wide. Maintain departmental budget. Direct/support geological/resource needs i.e., on-going geologic model, temperature model, reservoir and well performance evaluation. Evaluate geothermal reservoirs, provides recommendations for well field

operations. Target drilling for production and injection wells. Provide technical support for well maintenance i.e., workovers, acid jobs, caustic jobs, surveys, etc. Desired qualification: Relevant BS from 4 yr college or university; or 10 yrs related exp and/or training; or equal education and experience. Geological and temperature modeling knowledge.

**Environmental Manager:**

Supervise the Environmental Compliance Dept personnel. Oversee departmental budget integrated into plant budgets. Document, review and track department activities, reports, compliance documents, audits, and investigations. Ensure company operations comply with environmental permit requirements and federal, state and county/district regulations. Maintain an effective relationship with regulatory agencies. Prepare and update company programs, policies, and procedures for safety and environmental compliance. Organize, develop, implement and administer the company's safety program. Desired qualifications: Bachelor's Degree from a 4-yr college or university; and 8+ yrs related experience and/or training; or equal education and experience. Environmental and safety regulation knowledge.

*To apply for either position, send a resume to Terra-Gen Operating Company, Attn: Human Resources, P.O. Box 1690, Inyokern, CA 93527, fax to 760-764-1318, or email to [djackson@tgpny.com](mailto:djackson@tgpny.com). Terra-Gen Operating Company is an Equal Opportunity Employer.*

**Employment Opportunities—Mighty River Power**

Mighty River Power's diverse generation portfolio helps New Zealand ensure its ability to meet future energy needs. Mighty River Power is an integrated energy generation and retail business with a diverse and expanding portfolio of generation assets throughout the North Island of New Zealand. That portfolio includes rapidly growing geothermal interests including those at Mokai, Rotokawa, Kawerau, and throughout the Taupo Volcanic Region. Mighty River Power's geothermal team performs to world class standards and is focused on implementing cutting-edge technology to the development of these renewable and greenhouse friendly energy resources. Rapid growth in our geothermal business has increased their need for engineers to join the geothermal team. They're looking for motivated engineers with good written and verbal English skill. They offer a stimulating environment for those who want to apply their geothermal expertise, whilst enjoying New Zealand's extensive lifestyle opportunities.

**Reservoir Engineer:**

As a reservoir engineer you will:

- Design and supervise well tests, and collect and interpret results
- Propose and oversee field monitoring projects
- Characterize resource behavior using sophisticated computer modeling software.
- Provide valuable technical support to high-dollar energy resource projects.

An engineering, hydrology or applied maths degree are relevant qualifications. An interest in real-world applications in a mixed office and outdoor environment is essential, as well as interests in geology, civil engineering, hydrology and computer modeling. Specialized knowledge and skills in geothermal field management, resource monitoring and well testing will be developed over time. This position reports to the Geoscience Manager and is located in Hamilton.

**Senior Mechanical Engineer:**

As a senior mechanical engineer you will:

- provide vital strategic support to both operations and new generation development
- provide engineering and economic evaluation for enhancement opportunities of existing assets and new developments
- oversee and provide leadership for a multi-disciplined team of engineers.
- ensure that the company's strategic goals are achieved through assurance of plant performance in consideration of life cycle costs

The ideal person for this role will hold a relevant engineering qualification and have more than 10 yr experience in geothermal projects. This position reports to the Geothermal Engineering Manager and is located in Hamilton.

**Plant Chemical Engineer:**

As plant chemical engineer you will:

- be responsible for determining appropriate treatment processes throughout the different geothermal power generation cycles
- oversee various specialist service providers
- review industry trends to ensure best practice principles are being applied
- specify and review the design of new installations
- supervise investigations

The ideal person for this role will hold a relevant engineering qualification and have more than 5 yr experience in geothermal power plant operation. This position reports to the Operations Manager and is located in Taupo.

**Maintenance Manager:**

As maintenance manager, responsible for a portfolio of power generation plant currently totaling 150MW and expanding to 500MW in the near future, you will:

- proactively improve and implement systems to enhance plant availability
- oversee and provide leadership for a multi-disciplined team of engineers.
- remain aware and trained on all technical advancements in the area of responsibility
- manage plant level capital projects in conjunction with the engineering team

This role will require a relevant engineering qualification and have more than 10 yr experience in geothermal power plant operation, including demonstrated line management skills. This position reports to the Operations Manager and is located in Taupo.

**Drilling Engineer:**

As a drilling engineer you will:

- Write drilling programs and monitor drilling progress
- Assist the onsite drilling supervisor with implementation of high profile drilling operations
- Review operations for process improvements
- Provide technical support to field managers and reservoir groups for well maintenance.

An engineering degree with computer skills and good written and spoken English communications skills are required. Specialized knowledge and skills in geothermal drilling are important and additional experienced can be developed over time where needed. This position reports to the Drilling Manager—Geothermal and is located in Hamilton.

*If you would like more information about Mighty River Power please see the company Web site at [www.mightyriver.co.nz](http://www.mightyriver.co.nz). If you would like more information about any of these vacancies or wish to apply then email [careers@mightyriver.co.nz](mailto:careers@mightyriver.co.nz), or phone +64 9 5803612, or post your application to Human Resources, Private Bag 92008, Auckland Mail Centre.*

**Employment Opportunity—Nevada Geothermal Power Inc.**

Nevada Geothermal Power Inc. is seeking an experienced Geothermal Resource Exploration and Development Manager. Nevada Geothermal Power's 30 MW geothermal power development at Blue Mountain near Winnemucca is financed to production (\$120 million). This dynamic company seeks to significantly expand the resource base at Blue Mountain and is actively developing other geothermal power projects to meet the increasing demand for clean energy. The Company is well financed and expects significant growth through the next decade.

**Geothermal Resource Exploration and Development Manager:**

This is a senior management position that requires a MS in Geological Sciences, Geological Engineering or Hydrology with 10+ yr experience with geothermal field development. The successful candidate will plan

and implement exploration and geothermal reservoir evaluation programs using a multi-disciplined approach involving geology, geochemistry, geophysics, and drilling up to and including large scale development wells, helping to achieve the Company's objective for growth. The position is based in Reno and/or Winnemucca and will involve supervision of resource technical staff and consultants. Excellent communication and interpersonal skills are required as is a familiarity with budgets and cost controls.

The Company offers excellent health benefits, competitive remuneration, opportunities for career advancement in an exciting field.

To apply, fax resumes to 604-688-5926 or email resumes to [careers@nevadageothermal.com](mailto:careers@nevadageothermal.com).

## **Requests for Proposals (RFPs)**

### **RFP for Enhanced Geothermal Systems—U.S. Department of Energy**

The U.S. Department of Energy announces its intent to request proposals for Enhanced Geothermal Systems, to demonstrate reservoir stimulation techniques at existing geothermal fields; establish an EGS field validation site where DOE and its partners can perform high-risk experiments under actual field conditions; develop new sensors, down-hole tools, and mapping capabilities able to operate at greater depths and higher reservoir temperatures; and provide outreach to the geothermal community to convey the benefits and potential opportunities of EGS technologies.

Funding amount and number of awards anticipated was not posted at this time.

For more info, contact James Damm at [james.damm@go.doe.gov](mailto:james.damm@go.doe.gov) or go to: <http://e-center.doe.gov/doingbiz.nsf/UNID/5E8F90C7ED4B98848525740400568EF1?OpenDocument>.

### **SMUD to Release 2008 Renewable Energy RFO (Due April)**

On January 4, The Sacramento Municipal Utility District (SMUD) will release a Request for Offers (RFO) of renewable energy for power purchase agreements (PPA). Proposals will be due early April.

SMUD has a goal to meet 23% of its retail electricity sales with renewable energy by 2011 and beyond. The utility's need for renewable energy continues to increase due to its commitment to expand the amount of power from renewable sources in its power mix and a need to replace current contracts that expire in the coming years.

The 2008 solicitation is for PPA offers of California RPS eligible conventional renewables, which include resources such as wind, geothermal, small hydroelectric, landfill gas, biomass and biodiesel. A separate RFO for emerging renewable technologies is planned for mid-2008.

Interested parties can download the RFO documents from SMUD's Electronic Bid Solicitation System (EBSS) Web site at [www.bids.smud.org](http://www.bids.smud.org) when it becomes available. Registration to the EBSS site is required to access the documents.

SMUD recommends that those interested in this and future solicitations list their company name in the "Renewable Power" category as well as in one or more of the following Renewable Power subcategories: Generation Energy, Geothermal Power, Landfill Gas Power, Renewable Power-Other, Small Hydro Power, and Wind Power.

Registered individuals will also receive updated information regarding this RFO and will also receive notification of future solicitations for purchase of renewable energy resources.

For additional information, contact Cesar J. Beltran at (916) 732-6925 or [cbeltra@smud.org](mailto:cbeltra@smud.org).

### **RFO for Supply of Renewable Energy Resources— San Diego Gas & Electric (Due April 30)**

San Diego Gas & Electric (SDG&E) today announced it has issued a competitive solicitation seeking supply of renewable-energy resources to help the utility meet California's mandate to derive 20% of its energy from renewable sources starting in 2010. This latest solicitation, also known as a "request for offers" (RFO), will help to further increase SDG&E's supplies of clean, renewable power for the region's energy portfolio.

"For the last five years, SDG&E has aggressively pursued renewable energy from developers whose projects deliver clean energy to our customers in San Diego and South Orange Counties," said Matt Burkhardt, vice president electric and gas procurement for SDG&E. "For this year's solicitation, SDG&E seeks both long-term and short-term contracts that will build on our existing clean, 'green' energy resources and will aid us in our effort to secure 20% of our energy from renewables by 2010."

Through the bidding process, or RFO, SDG&E is seeking energy that comes from solar, wind, geothermal, biomass and any other clean, renewable resource that qualifies under the state's Renewable Portfolio Standard program. The plants that produce the power can be inside or outside the SDG&E service territory. Bids are due April 30, 2008.

The evaluation and selection of offers includes active participation by SDG&E's Procurement Review Group, comprised of California Public Utilities Commission (CPUC) staff, consumer advocates and other non-market participants, as well as an independent evaluator. These entities are involved at all stages of the process, including the preparation of the RFO, bid evaluation and determination of the final "short list" of bidders. Once the evaluation process is completed, all proposed contracts are subject to CPUC review and approval.

*More information about this latest RFO for renewable energy is available at <http://www.sdge.com/renewablerfo2008>.*

### **RFP for Renewable Power Projects—Southern California Edison (Due May)**

Southern California Edison is looking for both short-term and long-term contracts for projects that produce solar, wind, biomass, and geothermal energy, according to a release. All proposals are welcome, but the company is especially interested in the Tehachapi area of Kern County.

Proposals are due in May 2008. SCE hopes to submit completed contracts to the California Public Utilities Commission by December.

Contact [vanessa.mcgrady@sce.com](mailto:vanessa.mcgrady@sce.com). Visit the Southern California Edison Web site at <http://www.sce.com/>.

### **RFP Climate Change and Sustainability Conferences (Due June 5 and December 9)**

The U.S. Environmental Protection Agency has issued a Broad Agency Announcement for Conferences, Workshops, and/or Meetings. EPA seeks applicants for the planning, arranging, administering and/or conducting of conferences and workshops in areas including, but not limited to: Economics and sustainability; air and global climate change; and technology. \$500K expected to be available, up to 15 awards anticipated. Proposals due 1/7/08, 6/5/08 and 12/9/08.

*For more information, contact Bernice Smith at [smith.bernicel@epa.gov](mailto:smith.bernicel@epa.gov) or go to [http://es.epa.gov/ncer/rfa/2008/2008\\_baa.html](http://es.epa.gov/ncer/rfa/2008/2008_baa.html). Refer to Sol# EPA-C2008-BAA. (Grants.gov 12/6/07)*

## **Upcoming Events**

### **Geothermal Working Group Meeting, April 8, Denver, CO**

The Colorado Governor's Energy Office is sponsoring a Geothermal Working Group Meeting in Denver on April 8th. The agenda includes sessions on geothermal electricity development in Colorado and ground source heat pump applications.

*Persons interested in this event are invited to contact John Gitchell at [John@SustainableConferences.com](mailto:John@SustainableConferences.com).*

### **MIT Energy Conference, April 11–12, Cambridge, MA**

Registration is now open for the MIT Energy Conference, which brings together leaders in technology, policy, entrepreneurship, and finance to discuss multidisciplinary solutions to our global energy challenges. Based on the 2008 theme of "Solutions that Scale," panel sessions will cover: Nuclear Power, End-Use Efficiency, Carbon Capture and Sequestration, Geothermal Energy, Transmission Infrastructure, Vehicles, and the all-conference session Renewables at Scale. Many of these panels will be moderated by MIT faculty who are leading researchers in these fields.

*For more information and to register, visit <http://mitenergyconference.com/>.*

### **Geothermal Working Group Meeting, April 22–23, Cedar City, UT**

The next Geothermal Working Group Meeting will be at Southern Utah University. The theme will be "Geothermal Activities and Potential in Southwestern Utah: Ground Source Heat-Pumps to Electrical Generation.

Day one will offer presentations from private geothermal developers, utilities, and other industry members.

Day two will consist of an all day field trip to Blundell Geothermal Power Plant and Milgro Nursery in Newcastle, Utah.

Further event details will be announced soon.

*If you have any questions or comments, please contact Jason Berry at [jasonberry@utah.gov](mailto:jasonberry@utah.gov) or 801-538-5413.*

### **4th International Geothermal Conference, April 24, Freiburg, Germany**

The International Geothermal Conference is one of the leading event for geothermal developers, finance providers and policymakers in Germany. The conference provides profound information about geothermal projects and creates ideal conditions to network with international business partners. The event will bring high level representatives such as Karl Gawell, director of the Geothermal Energy Association (GEA), who will report on the state of US geothermal activities. Michael Kraml, consultant at the Federal Institute of Geosciences and Natural Resources (BGR) will offer high-quality information about current developments in South America and East Africa. A speech on the political frameworks, especially the „Erneuerbare-Energie-Gesetz“ (Renewable Energy Sources Act) and its essential effect on market developments in Germany will be given by Cornelia Viertl, consultant at the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

Following the lectures four workshops will take place and provide opportunity to exchange information about technical demands, project financing instruments and the legal framework situation. After keynote

speeches and the presentation of a case study, representatives of banks, public authorities, drilling and insurance companies will offer sufficient time to share experiences and informations during the following panel discussions. Speeches and workshops will be translated simultaneous into English and German in parts.

As last year, the Federal Ministry of the Environment, Nature Conversation and Nuclear Safety (BMU) oversees the International Geothermal Conference 2008. We are also happy to present one of the leading magazines for renewable energy, Sun & Wind, and vdi-nachrichten as the new media partners of the conference. Cooperation partners are amongst others the German Energy Agency dena as well as the International Geothermal Association (IGA). The conference invites investors, insurances, insurance companies, project developers, technology experts, consultants, energy providers, local authorities, political stakeholders and associations. The application fee is 300 Euro plus VAT.

For further information please visit: [www.geothermiekonferenz.de](http://www.geothermiekonferenz.de).

### **SMU Geothermal Conference, June 17–18, Dallas, Texas**

Southern Methodist University will put on a Geothermal Conference June 17–18. This international conference specializes in the enhancement of existing oil & gas wells for electrical production. According to SMU, “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 and 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. 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. New technology, data, and economics will be presented to assist you in developing your company’s renewable energy portfolio using existing wells.

Topics Presented To Include:

- Power Generation Technology Advancements
- Geothermal Resource Exploration and Assessment
- Reservoir Engineering
- Fracturing
- Geopressure Development
- Tight Gas Sands Development
- Well Longevity—Corrosion and Scaling Management
- Enhanced Geothermal Systems – International
- Green Power for Utilities (RECs)
- Economics and Business Plan
- Transmission needs
- Regulations and Leasing
- Financing
- Demonstration Sites

For more information and to read the Call for Papers, visit [http://smu.edu/geothermal/Oil&Gas/2008/Geothermal\\_Energy\\_Utilization.htm](http://smu.edu/geothermal/Oil&Gas/2008/Geothermal_Energy_Utilization.htm).

### **GEA Trade Show/GRC Annual Meeting, October 5–8, Reno, Nevada**

The GEA Trade Show and GRC Annual Meeting will take place October 5-8 Peppermill in Reno, Nevada. Annually, Geothermal Energy Association hosts a wide range of companies working in the U.S. and abroad within the geothermal power industry at its Trade Show. Last year in Reno/Sparks, Nevada, 71 booths were

visited by over 1000 visitors. With dramatic growth underway in geothermal power projects in the U.S. and internationally, we expect the 2008 trade show in Reno to be our largest event yet!

For more information about the GEA Trade Show, visit [http://www.geo-energy.org/2008\\_ts/index.htm](http://www.geo-energy.org/2008_ts/index.htm).  
For information about the GRC Annual Meeting, go to <http://www.geothermal.org>.

## **2nd African Rift Geothermal Conference, November 25–29, Entebbe, Uganda**

The second International Geothermal Conference on the African Rift will be held in Entebbe, Uganda. The conference is designed as a forum for the exchange of information on the African Rift Geothermal Resources and for discussion of the current state of scientific knowledge and understanding of all aspects of exploration and development of geothermal resources, including exploration, field and conversion technology, design and construction, environmental considerations, financial, marketing, and operational aspects.

### **Scientific Program**

The Scientific Program of the conference consists of Plenary Lectures, Poster presentations, Workshop and Field Trips. The structure and the list of sessions below are preliminary.

A number of Keynote addresses will be given by eminent scientists, on subjects relevant to the main themes of the conference (as indicated in this circular). Lectures will be open to all participants and will take place in a large conference hall.

### **Sessions**

The following will be the themes for oral and poster sessions:

- Session 1: Exploration: Geology, Geophysics, Geochemistry, and Hydrology
- Session 2: Drilling and well design: Shallow and deep, Production and Injection
- Session 3: Field development, Production Technology, Power generation & Operation.
- Session 4: Reservoir Engineering: Well Testing, Injection, and Modeling
- Session 5: Case Histories
- Session 6: Economics and Financing
- Session 7: Environmental, Social, Legal and Institutional Aspects
- Session 8: Direct Use: Agri-and aquaculture, Mineral extraction, Manufacturing, Air conditioning etc.

### **Contributions**

The organizers of ARGeoC2 welcome submission of titles/extended abstracts for oral and poster presentations from all geoscientists, engineers and others involved in geothermal resources exploration and development. Authors may submit papers for publication only, or for presentation and publication in “The Conference Proceedings”. Papers may be selected for presentation in a technical session, or poster session. Selection of papers for presentation will be based on subject material suitability, professional standards of writing, and quality of the illustrations. Time allotted for oral presentations will be 15 minutes each, with an additional 5 minutes for discussion. Oral presentations will be illustrated with LCD Projector in PowerPoint.

For more information and to register, contact Department of Geological Survey and Mines, Plot 21–29, Johnstone Road, P.O Box 9, Entebbe, Uganda. Phone: +256 712 812231, +256 712 835843, +256 773 129941. Fax: +256 414 320364. E-mail: [argeoC2@minerals.go.ug](mailto:argeoC2@minerals.go.ug) or [bahati@minerals.go.ug](mailto:bahati@minerals.go.ug).



### **GEA Update**

A newsletter for GEA Members written by Leslie Blodgett and Karl Gawell.

For more information contact GEA at: 209 Pennsylvania Avenue SE, Washington, D.C. 20003. Phone: 202-454-5261; Fax: 202-454-5265; E-mail: [research@geo-energy.org](mailto:research@geo-energy.org)

