

Geothermal Energy Weekly

A publication of the
Geothermal Energy Association

~formerly the GEA Weekly Update~



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December 4, 2009

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www.geo-energy.org/publications/updates



National News

U.S. President Sets Target for Cutting Greenhouse Gas Emissions

On November 25, the White House announced a target for emission reductions of 17% below 2005 levels by 2020 in the United States. They also announced that President Obama will participate in the United Nations climate change conference, arriving in Copenhagen on December 9.

The U.S. delegation will have a U.S. Center at the conference with an interactive forum. The center will feature keynote speeches by top U.S. officials from December 9 through December 17, including a December 14 speech by Secretary Chu on U.S. leadership in energy efficiency and renewable energy. The U.S. Department of State has also established the "COP-15" Web site and a Facebook page for the event, according to the press release.

China has announced that it will reduce its carbon dioxide emissions by 40%-45% by 2020.

See <http://www.environmental-expert.com/resultEachPressRelease.aspx?cid=11245&codi=76508&lr=1> and http://english.gov.cn/2009-11/26/content_1474008.htm.

GEA Submits Comments on National Geothermal Action Plan

In October, the U.S. Department of Energy's National Geothermal Action Plan (NGAP) was released in draft form for public comment. The report lays out a plan for the future of geothermal energy production and gives direction to the federal government to guide use of this resource.

This week the Executive Director of the Geothermal Energy Association (GEA), Karl Gawell, responded to the draft plan in a letter to Energy Secretary Steven Chu. The letter pushes the DOE to provide a more detailed plan with specific goals for the production of renewable energy and the creation of the green jobs that will help provide economic recovery in America.

Topics addressed in the letter include how the program goals are too limited and may miss substantial opportunities; and how plan speaks generally to "Green Jobs" but should examine specifically how to help expand employment and stimulate new economic activity.

The letter discusses what is needed to support long-term growth and technology enhancements; it states why NGAP should address all challenges to geothermal development.

Further, the letter addresses what geothermal energy's role can be in addressing climate change; and why efforts involving international organizations need to involve U.S. industry.

For a copy of GEA's comments, email karl@geo-energy.org.

BLM Utah Geothermal Lease Sale Results Posted

The Bureau of Land Management Utah held a competitive geothermal lease sale last month at the BLM Utah State Office in Salt Lake City. The BLM sold 3 parcels on 3,780 acres of federal land in the Cedar City Field Office. Radion Energy LLC of Provo, Utah, submitted the highest total bid per acre—\$75 on parcel number 3, with 981 acres. The highest total bid per parcel was also submitted by Radion Energy LLC —\$98,950 on parcel number 1, with 1,979 acres.

See <http://www.blm.gov/ut/st/en/prog/energy/geothermal0.html>.



Company News

Google. Investments Planned in Renewable Energy Projects

Google director of climate and energy initiatives Dan Reicher announced plans invest in renewable energy projects. "It's a logical step from technology investing," he told press. "We're looking at the whole spectrum [of renewables]" he said, adding that investment in renewables is a way to "broaden" the company's "impact on energy."

See <http://online.wsj.com/article/BT-CO-20091130-717307.html>.



Renewable Energy and Climate Change

Senate Bill Extends Wind, Biomass Tax Incentives Through 2016

Sen. Charles Grassley (R-Iowa) introduced a bill this week to extend key tax incentives for wind and open-loop biomass facilities through 2016. "Green energy is a real bright spot in our economic future," Grassley said in a statement. "We need to keep up the momentum for job creation, a clean environment and energy independence. Getting these tax incentives extended is important to help businesses secure the loans they need to make the investments necessary to create jobs." Senators are pushing to get renewable energy tax incentive credits into a "jobs bill."

Another \$2.2 billion in the legislation would provide bonding authority for additional technologies: wind, closed- and open-loop biomass, geothermal, marine, municipal trash combustion facilities and landfill gas. See <http://www.eenews.net/>.

Senate Committee Hears Policy Options for Reducing Greenhouse Gas Emissions

On December 2, the Senate Energy and Natural Resources Committee heard testimony on policy options for reducing greenhouse gas emissions. “The options that will be discussed today include cap-and-trade, carbon taxes, direct regulation, sector-specific approaches and technological innovation. It’s important to note that these policies are not mutually exclusive. In fact, it will more than likely be necessary to rely on a suite of these policies to ensure that we are effective in addressing global warming,” states the accompanying release.

“We need to dispense with this somewhat blind loyalty to economy-wide cap-and-trade,” Sen. Lisa Murkowski (R, AK) stated. “We need to be encouraged to look to all of the alternatives, and, unfortunately, so many of them have just been kicked to the side with the discussion about cap-and-trade. We’ve kind of boxed ourselves in.”

Sen. Bob Corker, R-Tenn. supported a carbon tax and compared cap-and-trade to a “Rube Goldberg mechanism.” Jonathan Banks, climate policy coordinator of the Clean Air Task Force, supported hybrids of various ideas and added that a simple-sounding straight carbon tax could be complicated in Congress.

See http://energy.senate.gov/public/index.cfm?FuseAction=PressReleases.detail&PressRelease_id=9f4fcde6-9add-439b-9700-6fb1c6315d79 and <http://www.chron.com/disp/story.mpl/business/6750089.html>.

Mustang Demo Highlights Geothermal Heat Pump Drilling

Atlas Copco Construction Mining Technique (CMT)’s Baltimore branch recently held a two-day demonstration event for its regional sales team and customers to highlight the Mustang 4-F1 compact rig’s features that make it ideal for geothermal drilling.

“The Mustang has been used in Europe for the past 30 years,” said Peter Redaelli, product specialist for the Mustang. “While it’s new to the U.S., it has been used extensively overseas and has a long track record of success.”



There are approximately 50,000–60,000 new geothermal heat pumps installed each year, and this industry is growing at an annual rate of 15%.

“Forty percent of the calls we get in our Washington office everyday are people looking for ground source-geothermal heat pumps,” GEA Executive Director Karl Gawell (pictured) said at the demonstration. “They are looking for information. I think the biggest problem is that there aren’t enough (drillers and installers) ready to go. People complain that they can’t find system designers or drillers within 200 miles of where they live, or that the installers can’t get to them for at least a year. So if you’re looking for jobs, this market is ready to go.”

“The demand is there; the public interest is there; and now some good incentives are there. There are the state grants and the 30-percent federal tax credit. So really, this is the time to get in. As the economy recovers, the growth rate for geothermal across the board is going to stay in the mid to high double digits. It will be unparalleled.”

“You need the right equipment and the right training, and that’s why I’m excited to see the constant development in this type of rig. It’s companies like Atlas Copco and entrepreneurs who are moving forward by bringing in the equipment you need to help you get the job done better,” said Gawell.

“Our first step is to continue what we’re doing today – getting the word out and having demonstrations,” Redaelli said in praise of the rig. “But we’re also listening to the feedback that we get from our customers. We want to find ways to work together to find solutions to improve and move forward as we all learn this new marketplace. We’re starting to see a lot more inquiries and requests from our customers for this kind of equipment today, and there’s no reason to think that it won’t keep growing from there.”



State News

Alaska. UAF awarded \$4.6m for Geothermal Remote Sensing

University of Alaska Fairbanks researchers will use a \$4.6 million Department of Energy grant to identify and quantify potential geothermal resources throughout Alaska using remote sensing. The grant requires a \$1 million match, to be sought through the state Renewable Energy Fund.

See <http://www.ktuu.com/Global/story.asp?S=11604048> and <http://www.uaf.edu/acep/>.

California. Salton Sea Geothermal Explorations OK'd

The U.S. Bureau of Land Management issued a "record of decision" this week allowing geothermal exploration on 3,322 public acres near the Salton Sea. The go-ahead was given for requests from both Western Geothermal Partners and Ormat Nevada. The companies could generate a potential 100 MW.

See http://www.pe.com/business/local/stories/PE_Biz_S_geothermal04.3737444.html.

California. Draft Cap and Trade Regulations to Reduce Greenhouse Gas Emissions Released. Geothermal “Fugitive” Emissions Not Proposed for Inclusion

By John McCaull, GEA Western States Representative

December 4, 2009. After more than two years of work, the California Air Resources Board (CARB) has released a [“Preliminary Draft Regulation for a California Cap and Trade Program”](#) for proposed adoption in October 2010. As the state starts to finalize a new regulatory framework to implement AB 32 (the Global Warming Solutions Act of 2006), the cap and trade program promises to be one of the most complex and highly contested aspects of the new law. At issue is the proper mix of regulatory and market mechanisms needed to dramatically reducing greenhouse has emissions by 80% by the year 2050.

The AB 32 cap and trade program is described in the draft regulations to mean “a regulatory approach used to control pollution by setting a firm cap on allowed emissions while employing market mechanisms to achieve emissions reductions while driving costs down.” The draft regulations go further and describe the basic mechanism proposed for California.

“In a cap and trade program, a limit, or *cap* is put on the amount of pollutants (GHGs) that can be emitted. Each **allowance** equals one metric ton of carbon dioxide equivalent. The total number of allowances created is equal to the cap set for cumulative emissions from all the **covered (i.e. “capped”) sectors**. These allowances may be **auctioned** and/or **freely given** to companies or other groups.

In addition to allowances, a limited amount of emissions reductions from sources that are outside the cap coverage, called *offsets*, could be authorized. This would allow emissions in the capped sectors to slightly exceed the allowances issued. The term *compliance instruments* covers both allowances and offsets. After initial distribution of allowances—or in the use of offsets—compliance instruments may be traded among entities. At the end of each *compliance period*, covered entities are required to turn in, or *surrender*, enough compliance instruments to match their emissions during this time period.”

As CARB Chairperson Mary Nichols stated in the Board’s press release, “As world leaders prepare for another conference at which no new international treaty will be signed, it is important that the public understand that progress in reducing emissions continues. By releasing the first draft of a cap-and-trade system that California will put into effect in 2012, we are demonstrating the state's determination to push ahead, continue to work with other states in the U.S. and abroad, and invite others to join us.”

California is working closely with six other western states and four Canadian provinces through the [Western Climate Initiative](#) (WCI) to design a regional cap-and-trade program that “can deliver GHG emission reductions within the region at costs lower than could be realized through a California-only program.” To that end, the

CARB cap and trade regulation adoption schedule and regulatory content is being coordinated with the WCI timeline for development of a regional cap-and-trade program.

The cap-and-trade program is one of the major building blocks of California's [AB 32 Climate Change Scoping Plan](#) adopted in December 2008. The preliminary draft regulations include the following components.

- Requires sources of GHG emissions to manage their emissions under an aggregate declining emissions cap that supports achieving the 2020 emissions target mandated by AB 32.
- Starts the program in 2012 with about 600 of the state's largest GHG-emitting stationary sources (primarily industrial sources and electricity generators), along with electricity imports.
- Includes emissions from transportation fuel combustion (e.g., gasoline, diesel, ethanol), and from fuel combustion at stationary sources that fall below the threshold for direct inclusion in the program (e.g., residential and commercial natural gas combustion) by covering the suppliers of fuel to these sources.
- Requires a minimum number of allowances to be auctioned at program start.
- Allows limited use of high quality offsets outside of capped sectors to cover a portion of the overall emissions reductions.
- Establishes clear rules for emissions trading, monitoring and enforcement.

A threshold question for the geothermal industry is whether geothermal plants that have measurable GHG emissions from cooling processes are going to be considered as “covered entities”, and therefore obligated to participate in the cap and trade program. The preliminary regulations identify entities whose GHG emissions are covered under this regulation. Covered entities include operators of large point sources of GHG emissions, electricity deliverers, and fuel deliverers. Covered entities are those that emit at or above a 25,000 metric ton CO₂e threshold each year.

These covered entities are said to have a “surrender obligation” because they must surrender allowances to match the amount of emissions for which they are responsible under this regulation. Importantly, the staff recommendation for what CARB is calling “fugitive emissions” from geothermal plants is to *not* require a “surrender obligation” for these emissions. Importantly, this recommendation may be at odds with the proposal in the Western Climate Initiative. In addition, the regulations indicate that “staff is to review these recommendations for consistency with federal reporting requirements.”

The timeline for adoption of the cap and trade regulatory package is very ambitious. The [first workshop will be on December 14, 2009](#), with an opportunity for public comment on the preliminary regulations document. The public comment period on the preliminary draft will conclude in January, with a Spring 2010 release of a complete regulatory package. After a summer of public comment and numerous hearings, the Board is currently scheduled to consider adoption of the regulations in October 2010. The cap and trade program would actually then launch in January 2012.



International News

Australia. Spudding of Salamander-I Expected for January

Panax's Salamander-I well will begin its drilling activities in January 2010, a delay from earlier predictions due to the drilling rig remaining at the location of its previous drilling activities until late December, according to [proactiveinvestors.com.au](http://www.proactiveinvestors.com.au). Managing director Bertus de Graaf told press that while the extended delays to the commencement of the drill programme were disappointing, Panax is ready for the spudding of the well.

See <http://www.proactiveinvestors.com.au/companies/news/3590/panax-geothermal-edges-closer-to-spud-date-on-salamander-1-well-3590.html>.

Australia. Centre Studies Geothermal Possibilities for Modern Cities

The Western Australian Geothermal Centre of Excellence was launched in Perth this week to study how geothermal energy can be used to provide modern cities with air conditioning, power and desalinated water. The Centre combines below-ground research with above-ground development, modeling low-to-intermediate temperature geothermal systems to develop technologies for low-grade heat. The Centre will develop geothermal energy university courses and provide services to industry.

Dominica. Largest Geothermal Potential in the Caribbean, Study Says

Dominica has the largest geothermal potential in the Caribbean, according to a project entitled "Preparation of a Geothermal-based Cross-Border Electrical Interconnection in the Caribbean" by geologist Herve Traineau of CFG Services. Traineau's studies included nine sites in the Wotten Waven area identified for wells; options are being considered such as four large-capacity power plants (30 MW each) or two small 15-MW power plants. Exploratory drilling could begin in 2010, with production wells by the end of 2011. Production could come on line by 2013.

See <http://www.caribbeannetnews.com/news-20241--31-31--.html>.

Indonesia. Geothermal Electricity Sold at US\$0.097/kwh

The government will announce in December the selling price for geothermal power plant output that will then be purchased by state power company PLN on US\$0.097 per kilowatt hour.

See http://en.vivanews.com/news/read/110232-geothermal_electricity_sold_us_0_097_per_kwh.

Indonesia. Arrow Signs Joint Venture

Press Release, November 30 -- Arrow Resources Development, Inc. (OTCBB: ARWD) (herein "Arrow"), through its Indonesian subsidiary, PT Arrow Renewable Energy, has signed a joint venture agreement with PT. Sumber Alam Utama (SAU). As previously announced, PT Arrow Renewable Energy, along with SAU has gained approval to generate geothermal energy from the patent pending Single Well Engineered Geothermal System ("SWEGS").

The initial power plants will be built at the Company's plantation locations in Sulawesi, Indonesia. The companies plan to execute a Power Purchase Agreement with PT. Perusahaan Listrik Negara (PLN), the Indonesian national electricity company for the development of 10,000 MW (approximately 200 plants and 50 MW each) with a purchase price of \$.075 per kilowatt hour and will sell all energy production to PLN for distribution to the local Indonesian market.

See <http://money.cnn.com/news/newsfeeds/articles/marketwire/0563836.htm>.

Kenya: Geothermal Power Leading the Way for Clean Energy Future

An article on capitalfm.co.ke points to Kenya's energy capacity, large enough to produce its entire electricity from clean energy sources by 2020. "Kenya sits on five or even 10 times more electricity in the Rift Valley of geothermal power than its entire installed generating capacity right now. The irony is, you are so close to it but you are actually walking away from right now," United Nations Environment Program (UNEP) Executive Director Achim Steiner told a Green and Competitive Electricity Conference. The country has the potential to generate up to 2,000MW from wind energy and 7,000MW from geothermal; biomass resources are also available.

Prime Minister Raila Odinga expressed the government's commitment to ensuring that Kenya becomes a green economy by in the next 10 years. "We are going to Copenhagen with a proposal for turning Kenya's economy into a green economy by 2020. It can be done and Kenya can actually take the lead in this regard," the Prime Minister said at the conference.

See <http://www.capitalfm.co.ke/business/Kenyabusiness/Kenya-energy-capacity-massive-3422.html>.

Philippines: EDC Not Seeking State Financing for Geothermal Plant Purchase

Energy Development Corp. (EDC) will pay \$123 million for the purchase of the 192.5- MW Palinpinon and 112.5-MW Tongonan geothermal plants instead of getting state financing.

See <http://www.bworldonline.com/main/content.php?id=2474>.



www.geo-energy.org/publications/updates



Notices

New This Week

DOE Issues Final Renewable Energy Loan Guarantee Rules

Federal Register — Office of the Chief Financial Officer, Department of Energy

On August 7, 2009, the Department of Energy (DOE or the Department) published a Notice of Proposed Rulemaking and Opportunity for Comment (NOPR) to make certain changes to the existing regulations for the loan guarantee program authorized by Section 1703 of Title XVII of the Energy Policy Act of 2005 (Title XVII or the Act). Section 1703 of Title XVII authorizes the Secretary of Energy (Secretary) to make loan guarantees for projects that “avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases; and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued.” Section 1703 of Title XVII also identifies ten categories of technologies and projects that are potentially eligible for loan guarantees. The two principal goals of section 1703 of Title XVII are to encourage commercial use in the United States of new or significantly improved energy-related technologies and to achieve substantial environmental benefits. DOE believes that commercial use of these technologies will help sustain and promote economic growth, produce a more stable and secure energy supply and economy for the United States, and improve the environment.

Through experience gained implementing the loan guarantee program authorized by section 1703 of Title XVII, and information received from industry indicating the wide variety of ownership and financing structures which participants would like to employ in implementing projects seeking loan guarantees, DOE believes it is appropriate to make certain changes to the existing regulations to provide flexibility in the determination of an appropriate collateral package to secure guaranteed loan obligations, facilitate collateral sharing and related intercreditor arrangements with other project lenders, and to provide a moreworkable interpretation of certain statutory provisions regarding DOE’s treatment of collateral, consistent with the intent and purposes of Title XVII. Having considered all of the comments submitted to DOE in response to the NOPR, the Department today is issuing this final rule.

DATES: This rule is effective December 4, 2009.

FOR FURTHER INFORMATION CONTACT:

David G. Frantz, Director, Loan Guarantee Program Office, 1000 Independence Avenue, SW., Washington, DC 20585–0121, e-mail: lgprogram@hq.doe.gov; or Susan S. Richardson, Chief Counsel for the Loan Guarantee Program, Office of the General Counsel, 1000 Independence Avenue, SW., Washington, DC 20585–0121, e-mail: lgprogram@hq.doe.gov.

Notices

Public Selection for 7 Members of Technical Committee on Geothermal Energy in Amiata (December 16)

The Tuscany Regional Council – through Scuola Superiore Sant'Anna – has opened a public selection for international scientists, with outstanding expertise in earth sciences and engineering, whom wish to be considered for the appointment as members of the Technical Committee for Geothermal Energy in Amiata. The committee which is funded by the Tuscany Regional Council will cover a prestigious advisory role for the Council itself and for the local Municipality authorities of Amiata in technical and scientific matters concerning the management and sustainability of geothermal resources in the Monte Amiata area.

The Committee consisting of seven members, will be chaired by one member elected by the afore mentioned Tuscany Regional Council and will be aided by the staff of the Center of Excellence for Geothermal Energy of Larderello which will provide technical and logistic support. It is requested that the members of the Technical Committee for Geothermal Energy be present in Larderello for periodical meetings.

Release date : 17-11-2009, Deadline for admission :16-12-2009. See
http://www.sssup.it/news.jsp?ID_NEWS=2830>emplate=default.jsp.

Special Financing Programs Available for Mustang 4-F1 (December 31)

Atlas Copco Customer Finance North America has partnered with Wells Fargo Equipment Finance – Construction Group to offer beneficial financing and leasing programs for new Mustang customers. Atlas Copco's Mustang Geothermal Drill Finance Special offers 36-, 48- and 60-month options. There is no advance payment on a standard loan and only one advance payment on the lease special.

These special financing programs are available until December 31, 2009, and local Atlas Copco representatives will have the most current rates and terms available. All transactions are subject to credit approval.

For further information please contact

Shawn McGill, Business Development Manager, Atlas Copco Customer Finance North America, Telephone: 803-817-7435; Fax: 803-817-7467, E-mail: shawn.mcgill@us.atlascopco.com

Joanna Canton, Marketing Communications Director, Atlas Copco Construction Mining Technique USA Telephone: 303-253-6922; Fax: 303-217-2840, E-mail: joanna.canton@us.atlascopco.com

Christina Fisher, Public Relations Manager, Ellenbecker Communications, Inc., Telephone: 507-945-0100; Fax: 877-572-9860, E-mail: chris@ellcom.us

GEA Supports Announcement from DOE on Awards for Geothermal Projects

Access this weeks' article from GEA on "A Turning Point for Geothermal: DOE Funding Wins Industry Approval" at <http://www.renewableenergyworld.com/rea/news/article/2009/11/a-turning-point-for-geothermal-doe-funding-wins-industry-approval>.

2009 Excellence in Renewable Energy Awards, Renewable Energy World

Presented by the editors of RenewableEnergyWorld.com and Renewable Energy World North America magazine, these awards recognize the most outstanding projects, programs and technologies in the wind, solar, biomass, geothermal and hydroelectric energy sectors.

Awards will be presented during Renewable Energy World North America Conference & Expo in Austin, Texas, February 23-25, 2010.

Submit your nominations today! See <http://www.renewableenergyworld.com/partner/rew/online/2009-11-17/>.

SMU Geothermal Conference Presentations

The presentations from the SMU conference on Geothermal Energy Utilization Associated with Oil and Gas Development are ready for you to download. You can access them through the [website \(http://smu.edu/geothermal/Oil%26Gas/Oil&GasPresentations.htm\)](http://smu.edu/geothermal/Oil%26Gas/Oil&GasPresentations.htm). 2009 presentations are mixed with the other years and put in alphabetical order by author's last name. Attached is the agenda for both days listing the presenters and their topics.

Three cheers to each of the presenters for taking the time to learn the information, put together the presentation, and give interesting talks that continue to stimulate much discussion. Not only did they too pay to attend, but they are paving the way for geothermal development in oil and gas settings.

Thank you to the many Sponsors of the conference. Your contribution makes a difference in the life of those attending the conference, the SMU Geothermal Lab, and the thousands of people reached because of the outreach done with the funds.

New Online Geothermal Discovery Guide Available

The Geothermal Discovery Guide, part of a series on alternative energy, is posted at <http://www.csa.com/discoveryguides/geothermal/review.php>. GEA is cited extensively in this guide.

New Article on Distributed Temperature Sensing in Geothermal Energy Applications

Mikko Jaaskelainen, Chief Technical Officer at SensorTran has written a new article on distributed temperature sensing in enhanced geothermal system power plants. Jaaskelainen's introduction to the article.

Geothermal power shows promise as an environmentally friendly source for electricity generation not least because fossil fuel alternatives produce at least an order of magnitude more carbon dioxide and consume a hundred times more water per kWh of energy produced. Geothermal energy plants have traditionally been limited to the edges of the tectonic plates but recent advances in enhanced geothermal systems (EGS) should greatly expand its geographical range [1].

Critical to successful and reliable EGS operations [2] is improved subsurface visualization. Fiber-optic distributed temperature sensing (DTS) enables both subsurface visualization and understanding of fracture distribution during both fracturing operations and production. The same DTS system can be used for reservoir characterization and management, production optimization, surface and subsurface integrity monitoring, fluid injection and short-circuit monitoring.

This article provides summaries of geothermal energy technology and DTS technology, followed by a discussion of the many applications of DTS to geothermal electricity production. The article is available at <http://www.sensorsmag.com/sensors/article/articleDetail.jsp?id=625162>.



Employment

Employment Opportunities

Exploration Geologist, Western U.S.

The Exploration Geologist is responsible for overseeing the planning and execution of geothermal projects including compilation and evaluation of existing data, new file data acquisition and mapping, integration of disparate data sets, and development of geological occurrence models for geothermal resources. The exploration focus is the Western U.S., principally California, Nevada, Oregon, and Utah. This role could grow into Exploration Manager for a major geothermal development company.

Essential Functions: Candidate must have a demonstrated capability to work with a team of geoscientists to achieve corporate goals. The ability to communicate in writing and through speaking is essential. Candidate must be able to identify potential resources in known geothermal districts and to identify possible new occurrences in novel settings.

Education, Experience, and Skills Required:

- Bachelor's in Geology from an accredited university is a minimum requirement.
- 10–15 years experience in geothermal exploration, drilling and logging of exploration holes, and conduct of field surveys.

- The successful candidate may be required to spend up to 50% of their time in the field and must be able to withstand the rigors of extreme heat, cold, and wind for short periods of time.
- Travel within the U.S. will be required.

This is a fulltime position that will be located in Reno, NV. A benefit package is available and includes medical, dental, vision, 401(k), and long-term disability. Salary is negotiable, but dependent on experience and qualifications.

For consideration please email or fax resumes to: kborgna@magmaenergycorp.com, 775.787.7069 (fax)

Senior Director, Business Development, Major Geothermal Company

The Senior Director, Business Development is responsible for overseeing the Business Development function in North America for geothermal market. This role could quickly grow into a VP role and will oversee a sales team currently consisting of 8 sales reps and will grow it by 50%.

Essential Functions:

- Direct and execute the business development strategy to achieve company goals and objectives.
- Identify and develop key strategic partnerships, both internally and externally.
- Responsible for negotiating PPAs and contract changes.
- Evaluate and analyze market expansion opportunities
- Build and lead a business development team that will assist the company towards completion of company goals
- Build relationships with internal departments so that all areas of the company are ready to execute when necessary.

Education, Experience, and Skills Required:

- Bachelor degree in engineering and MBA
- 10–15 years experience in Sales, Marketing, Business Development or Operations roles (preferably a mix of sales and operations in energy industry)
- Willingness to travel up to 60% nationally and internationally
- Ability to negotiate contracts with potential business affiliates
- Experience in the renewable energy field a strong plus
- Proven track record maintaining confidentiality and dealing with company proprietary information

Contact: Paige Carratturo, Executive Recruiter

Richard Wayne & Roberts

877-236-0899 (direct)

206-855-9746 (fax)

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Geothermal Project Supervisor, Central American Bank for Economic Integration, Costa Rica

The Central American Bank for Economic Integration (Banco Centroamericano de Integracion Economica, BCIE) is looking for an expert in geothermal energy to supervise a project in Costa Rica. It is called Las Pailas and it is financed through BCIE.

Contact: Ana Karina Rubi de Reyes, Oficial de Consultorias, BCIE-Tegucigalpa, Honduras

Tel. +504-240-2243, Ext. 5214

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Visit the BCIE Web site, www.bcie.org - www.cabei.org



Requests for Proposals

Closing This Week

Environmental Education, EPA (December 15)

The U.S. Environmental Protection Agency requests proposals for Environmental Education Grants. This program supports environmental education projects that promote environmental stewardship and help develop knowledgeable and responsible students, teachers, and citizens. \$3 million expected to be available, up to 95 awards anticipated. Responses due 12/15/09. For more info, including Regional contacts, go to:

<http://www.epa.gov/enviroed/grants.html>. Refer to Sol# EPA-EE-10-02. (Grants.gov 10/29/09)

RFP Announcements

Geothermal Energy Development, Department of the Navy

Department of the Navy Naval Air Systems Command Naval Air Warfare Center Weapons Division Dept. 3a Recovery Act - The purpose of this Broad Agency Announcement (BAA) is to solicit proposals for investigations of geological properties associated with active geothermal systems within select regions of Naval Air Station (NAS) Fallon, NV; Naval Air Facility (NAF) El Centro, CA; Chocolate Mountains Gunnery Range (Chocolate Mountains), CA; and Hill Air Force Base (AFB), UT. The object is to perform geological investigations that could

potentially lead to the discovery of a geothermal resource. This notice constitutes a BAA as contemplated in FAR 6.102(d)(2). A formal Request for Proposal (RFP)/Solicitation will not be issued. The Naval Air Weapons Division (NAWCWD) will not issue paper copies of this BAA. NAWCWD reserves the right to select for award, all, some, or none of the Proposals in response to this BAA. NAWCWD reserves the right to fund all, some, or none of the Proposals received under this BAA. NAWCWD provides no funding for direct reimbursement of proposal development costs. Technical and Cost Proposal (or any other material) submitted in response to this BAA will not be returned. It is the policy of NAWCWD to treat all Proposals as competition sensitive Bid and Proposal Information and to disclose their contents only for the purpose of evaluation. Awards will be to United States (U.S) companies only. All contracts resulting from this announcement are subject to the federal Acquisition Regulation and the Department of Defense Federal Acquisition Regulation Supplement. SEE ENCLOSED ATTACHMENT FOR SPECIFIC INFORMATION AND FORMATTING THAT MUST BE FOLLOWED WHEN PREPARING PROPOSALS FOR THIS CONTRACTING EFFORT. This enclosure calls out another document "Genetic Occurrence Models for Geothermal Prospecting, N68936-04-C-0057", which is attachment 2 to this notice. Place of Performance (if applicable): Naval Air Station (NAS) Fallon, NV; Naval Air Facility (NAF) El Centro, CA; Chocolate Mountains Gunnery Range (Chocolate Mountains), CA; and Hill Air Force Base (AFB), UT.

See <http://www.tradingmarkets.com/.site/news/Stock%20News/2650824/>.

People, Prosperity and the Planet, EPA (January 5, 2010)

The U.S. Environmental Protection Agency requests proposals for the 7th Annual P3 Awards. A National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet. P3 supports R&D and design solutions to real world challenges involving the overall sustainability of human society. Areas of interest include: Energy, Built Environment, Materials and Chemicals, Water, and Agriculture. \$850K expected to be available, up to 46 awards anticipated. Responses due 1/5/10.

For more info, contact Cynthia L. Nolt-Helms at nolt-helms.cynthia@epa.gov or go to:

http://epa.gov/ncer/rfa/2010/2010_p3.html. Refer to Sol# EPA-G2010-P3. (Grants.gov 8/28/09)

Environmental Justice Small Grants Program, EPA (January 8)

The U.S. Environmental Protection Agency requests proposals for the Environmental Justice Small Grants Program. This program supports projects that addresses a local environmental and public health issue within an affected community. There is a well-established scientific consensus that climate change will cause disproportionate impacts upon vulnerable populations. Therefore, this year the program will emphasize the disproportionate impacts of climate change in communities with environmental justice concerns. Areas of interest include, but are not limited to: Energy efficiency, renewables, water efficiency, Green jobs and green economy capacity building, and smart growth. \$1 million expected to be available, up to 40 awards anticipated.

Responses due 1/8/10. For more info, including Regional contacts, go to:

<http://www.epa.gov/compliance/environmentaljustice/grants/ej-smgrants.html>. Refer to Sol# EPA-OECA-OEJ-10-01. (Grants.gov 10/28/09)

Energy Efficiency Block Grants – Recovery Act, CEC (January 12)

The California Energy Commission requests proposals for Energy Efficiency Conservation Block Grants. This program will provide support for energy efficiency projects in small CA cities and counties. \$35.5 million expected to be available. Responses due 1/12/10. For more info, go to:

<http://www.energy.ca.gov/contracts/recovery.html#eeebg>. Refer to PON# 09-001.

Clean Energy Deployment, Recovery Act, New York (February 16, 2010)

The New York State Energy Research and Development Authority seeks proposals for Project Implementation Funding for State Energy Program American Recovery and Reinvestment Act. This RFP will support the implementation of energy conservation measures including energy efficiency, renewable energy, and clean fleet projects. \$74 million expected to be available. Responses due 10/26/09, 12/21/09, and 2/16/10. For more info, contact Ben Fox at bf2@nyserda.org or go to: <http://www.nyserda.org/funding/1613rfp.asp>. Refer to RFP# 1613.

Emerging Frontiers in Research and Innovation (March 31, 2010)

The National Science Foundation requests proposals for Emerging Frontiers in Research and Innovation. Through this new funding opportunity, the NSF seeks proposals from interdisciplinary teams of researchers, with transformative ideas that represent an opportunity for a significant shift in fundamental engineering knowledge with a strong potential for long term impact on national needs or a grand challenge. Areas of interest include: 1) Renewable Energy Storage, and 2) Science in Energy and Environmental Design (SEED): Engineering Sustainable Buildings. This solicitation is in coordination with the U.S. Department of Energy and the U.S. Environmental Protection Agency. \$29 million expected to be available, up to 14 awards anticipated. Letters of Intent due 10/9/09, preliminary proposals due 11/13/09, final proposals due 3/31/10. For more info, go to: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf09606. Refer to Sol# 09-606. (Grants.gov 8/13/09)

RFP for Smart Grid Investments, DOE, American Recovery and Reinvestment Act (March 31, 2010)

The U.S. Department of Energy announces its intent to request proposals for the Smart Grid Investment Grant Program. Through this program, DOE seeks to stimulate the rapid deployment and integration of advanced digital technology that is needed to modernize the nation's electric delivery network for enhanced operational intelligence and connectivity. The program will support projects that promote deployment, including development of component technologies. Individual award range anticipated to be \$500K to \$5 million. The RFP

will open on or about 6/17/09. Three due dates anticipated: 7/29/09, 12/2/09, and 3/31/10. For more info, contact Donna Williams at Smart-Grid.NOIComments@hq.doe.gov or go to: <https://e-center.doe.gov/iips/faopor.nsf/UNID/39COD96768F2083F8525759A0068F216?OpenDocument>
<http://www07.grants.gov/search/search.do;jsessionid=9x3VJydGP2TfWHPRK9mfnpHqsWpm1TQmDJTzS6XLDp1QJKpb2SM!-1267850137?oppId=46833&flag2006=false&mode=VIEW>. Refer to Sol# DE-FOA-0000058.
(Grants.gov 4/16/09)



Events

GEA Events

PowerGen International 2009, December 8–10 (Las Vegas, NV)

<http://www.power-gen.com/>
Las Vegas Convention Center

GEA Geothermal Energy Finance Forum, January 14, 2010 (New York, NY)

Ritz-Carlton Battery Park

The Geothermal Energy Association (GEA), with Gold Level Sponsors, Islandsbanki and Vulcan Power, will be holding a one-day Geothermal Energy Finance Forum on Thursday, January 14, 2010 at the Ritz-Carlton, Battery Park in New York City. This program will bring the finance and investment community of New York City together and provide a tutorial on geothermal energy investment with top experts and major players in geothermal development and finance. The day's agenda includes presentations and panel discussion on; project development and design, risk mitigation, costs and financial modeling, government finance and incentives, and case studies from developers and financiers with recent success stories.

For information contact Kathy Kent at Kathy@geo-energy.org.

Renewable Energy World North America 2010, February 23–25, 2010 (Austin, TX)

<http://www.renewableenergyworld-events.com>
Austin Convention Center

CGEC California Geothermal Energy Summit, May 12, 2010 (David, CA)

<http://cgec.ucdavis.edu/>
UC Davis Campus

GEA Geothermal Symposium, May 21, 2010 (Washington, DC)

GEA Geothermal Energy Workshop, July 22, 2010 (Las Vegas, NV)

GEA Geothermal Expo and Conference, TBA

GEA's annual Geothermal Energy Expo, date and location to be announced

Why Should You Attend GEA Events?

As the national trade association for the geothermal industry, the Geothermal Energy Association (GEA) strives to create and deliver educational events involving the full range of the geothermal industry, reflecting the dynamic growth of the geothermal market, and communicating the benefits of geothermal energy to all. GEA events offer important opportunities to learn and network within the geothermal community, and to inform and educate companies and organizations outside today's industry that are interested in learning more about geothermal energy. The revenue generated from GEA events is used to advance the goal of the GEA, "to expand the production and use of geothermal energy in the United States and around the world." The revenue supports GEA's workshops and events, communications activities, outreach efforts, policy related activities and analysis, internet publications, and other initiatives designed to help achieve this goal. ONLY GEA puts your dollars to work in all of these ways to advance the future of the geothermal energy industry. And, GEA does not sell your email or postal address to junk mailers or spammers.

To keep track of new events and changes to this calendar go to: www.geo-energy.org

Geothermal Energy Weekly

A newsletter for the geothermal industry written by Leslie Blodgett and Karl Gawell.

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