

Geothermal Energy Weekly

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National News

Renewable Energy Subsidies Face Uncertain Future in Congress

Two pieces of legislation currently proposed in Congress offer very different futures for the role of federal support of renewable energy development in the U.S.

Legislation cosponsored by Rep. Dave Reichert (R-Washington) and Rep. Earl Blumenauer (D-Oregon) would extend tax credits for geothermal, wind, hydro, and other forms of renewable power through 2016. In his support of H.R. 3307, the American Renewable Energy Production Tax Credit Extension Act, [Reichert said the tax credits are "job creators"](#) across the nation.

Last week, a nonpartisan coalition of 369 members [issued a letter endorsing the extension](#) legislation. Signatories included the National Association of Manufacturers, the American Farm Bureau Federation, the Edison Electric Institute, the Western Governors Association, the United Steelworkers, and members of the environmental community.

Meanwhile, Rep. Mike Pompeo (R-Kansas) and Rep. Raúl Labrador (R-Idaho) are leading the HR 3308 effort to end subsidies for renewable energy projects. "Wind, solar, biomass and other sources of energy all have shown great promise, but it is high time for energy sources to demonstrate their value on the open market - without government interference," [Pompeo told press](#).

A [statement on TheTeaParty.net](#) in support of the proposal to end subsidies said: "The Energy Freedom and Economic Prosperity Act of 2011 (HR 3308) eliminates the practice of targeted subsidies. Creating an unmanipulated, competitive free market is the best way to encourage American ingenuity to solve our growing energy crisis."

The end subsidies bill would fully repeal subsidies for plug-in electric and fuel cell vehicles, alternative fuel and alternative fuel mixtures, the Cellulosic Biofuel Producer Credit, alternative fuel infrastructure, the Production Tax Credit for electricity produced from renewable sources, the Investment Tax Credit for equipment powered by specified renewable resources, the enhanced oil recovery credit, and the credit for producing oil and gas from marginal wells.



Another piece of legislation originally introduced by Labrador, H.R. 2171, would ease the permitting process for geothermal exploration on federal lands when the developer already owns a lease, potentially saving developers time and money and, in the process, making projects more attractive to investors.

GEA Hosts Geothermal Energy Finance Forum 2012 in San Francisco

Press Release, San Francisco, November 22 . On January 18, the Geothermal Energy Association will convene the financial community at San Francisco's Marriott Marquis for GEA Geothermal Energy Finance Forum 2012. After three years in New York City, GEA's leading financial renewable program moves for the first time to the Bay Area, home of the world's top technology leaders and venture capitalists. The event will create a networking dialogue between the finance and investment communities of the East and West Coasts, and offer a tutorial on geothermal energy investment with top experts and major players in geothermal development and finance. Event partners for the event are American Council on Renewable Energy (ACORE) as well as sponsors GeothermEx and Pratt & Whitney Power Systems.

California is hands down the world leader in geothermal, boasting more than 40 percent of the renewable energy mix in the state, making San Francisco the ideal setting for this important meeting that will take this industry to the next level of development, said GEA Executive Director Karl Gawell. The geothermal industry has the ability to provide a significant portion of baseload energy to U.S. households. Megawatt for megawatt, geothermal employs four times as many Americans as natural gas, and the industry is creating thousands of jobs.

The program will feature discussions with geothermal leaders including Karen Douglas, Commissioner, California Energy Commission; Dan Nastou, Power and Infrastructure, John Hancock Financial Services; John Marciano, Chadbourne & Parke LLP; Rick Rodgers, Managing Director and CEO, Montgomery Street Financial; Mark Taylor, Lead Analyst, CCS & Geothermal, Bloomberg New Energy Finance; Shinji Yamamoto, Chief Investment Officer, IFC; CJ Arrigo, Advisor, Glacier; David Watson, Hudson Ranch I, EnergySource; Jonathan Weisgall, Vice President of Legislative and Regulatory Affairs, MidAmerican Energy Holdings Company; Kent Burton, National Environmental Strategies; Jonathan Zurkoff, VP of Finance, U.S. Geothermal; Louis Capuano Jr, Chairman of the Board, ThermaSource; Subir Sanyal, President and Manager of Reservoir Engineering, GeothermEx; Anders Kruss, Alterra Power Corp.; Craig Mataczynski, CEO, Gradient Resources; Lenny Hochschild, Managing Director, Evolution Markets, Inc.; and more.

The United States is the world leader in geothermal generation, with approximately 3,100 MW online. A new map from Southern Methodist University's Geothermal Lab, created with help from a grant from Google's philanthropic arm Google.org, estimates the U.S. could potentially generate nearly three million megawatts using the Earth's heat, or about ten times the installed capacity of coal power. Since 2005, geothermal power projects have expanded from four states into 15 states from the Pacific to the Gulf Coast. While the number of states with



geothermal installed capacity and projects in development is significant, the reach of the geothermal industry is even more extensive. A total of 43 states have companies involved in geothermal development operations.

In addition to its large potential capacity, geothermal energy offers advantages over other forms of energy. It is ideally suited to provide baseload power that intermittent resources cannot provide. Additionally, when compared to other forms of baseload thermal generation, geothermal offers major advantages in fuel price stability, since it does not require a fuel supply, significantly reduced air emissions, and a smaller land-use footprint per installed MW.

Bipartisan Members of Congress Defend County Share of Geothermal Royalties

While the Super committee assigned to forge a deficit reduction deal failed to do so by this week's deadline, it was not without an attempt last week by a bipartisan group of congressional representatives to ensure the future of county shares of geothermal revenues. Last week, six Members of Congress sent a bipartisan letter urging the 12 members of the Joint Select Committee on Deficit Reduction to maintain the current revenue sharing for counties as it pertains to geothermal receipts.

There have been numerous proposals to discontinue geothermal revenue sharing for counties, including a provision in the President's Plan for Economic Growth and Deficit Reduction, [reads the letter](#). We are strongly opposed to this provision. Ending the geothermal revenue sharing plan would have a significant negative impact on our districts, while the overall effect on our nation's fiscal well-being would be miniscule.

The letter was authored by Congressmen Mike Thompson (D-St. Helena) and John Garamendi (D-Fairfield). Additionally, it was signed by Representatives Mark Amodei (R-Carson City, NV), Lynn Woolsey (D-Petaluma), Shelley Berkley (D-Las Vegas), and Bob Filner (D-San Diego). Thompson, who [represents Lake County in the US House of Representatives, told press](#): "As a community invests in developing geothermal energy they deserve to get their fair share in returns. I am strongly against cutting counties' share of geothermal revenue because that means cutting jobs, crippling future green job growth, and stifling our economic recovery . all of which will only make our deficit larger."



Company News

ACORE: Phase II of Renewable Energy in America to Focus on Security and Investment

The American Council on Renewable Energy will hold its annual [Phase II Policy Forum](#) on December 6-7 in Capitol Hill, Washington, DC. The Phase II National Policy Forum will lay the groundwork for the 2012 US renewable energy market and finance policy agenda.

ACORE's annual Phase II Policy Forum has never been more important. With an industry whose growth and economic potential is being called into question, Phase II will be a critical meeting geared to formulate an overarching strategy for the continued success and support of the industry. The forum will explore issues of national and energy security, economic development, capital raising, and jobs for the many under and unemployed Americans. The thought leaders from the global stage will join leaders from the national and state level to assess the status of renewable energy policy today, the range of policy options available, and help to advise on a best-case policy framework for 2012 and beyond. Your attendance is critical to formulating a well-rounded energy policy for America's future.

Renewable Energy and Climate Change

Report Shows Benefits of Clean Energy Standard

A report released by the Center for Climate and Energy Solutions, formerly the Pew Center on Global Climate Change, says a [clean energy standard could be a flexible way](#) to diversify the energy supply, grow new industries and jobs, and reduce public health and environmental damages. But the U.S. renewable power capacity will stay about the same for the next 25 years without new policies to promote clean energy, the report said.

Renewable or alternative energy portfolio standards already in place promote the construction of renewable energy facilities across the nation in 31 states and the District of Columbia. Another eight states have voluntary clean energy goals.

EIA Report Shows U.S. Geothermal Generation Up from 2008

EIA's [Electric Power Monthly report](#), using data from power generation facilities of 1 megawatt or larger, showed that U.S. geothermal net electricity generation reached 10,898 million kWh in the first eight months of 2011. The total was up 10% from the same period in 2008.

In California, geothermal represented about 5% of the state's total power generation during that period, while nationwide, geothermal produced 0.4% of the total electricity from all U.S. energy sectors.



The report covered several factors that have influenced the growth of geothermal generating capacity, including: technology costs, site-specific limits, transmission access, long completion lead times, and exploration and production risks that lead to high development costs.

NRG Expert Releases Report on Worldwide Geothermal Development in 2010

Press Release ([see full story](#)), London, November 22 -- The newly released Global Geothermal Report from NRG Expert confirms that once again the US is the largest company in terms of installed capacity of 3,102 MW followed by the Philippines (1,966 MW), Indonesia (1,189 MW), Mexico (958 MW) and Italy (863 MW). Sixth placed New Zealand is reporting strong growth after a 140 MW geothermal plant was commissioned in the country last year and is now the biggest plant in operation.

2010 was a better year for Geothermal after a poor 2009+says Max Krangle, Managing Director of NRG Expert, several projects are now in the advanced stages of development, e.g. in the US alone there is 722 MW of project in phase 3 and 4, and support for the sector is strong. Specifically, Japan and Indonesia are relaxing rules on developing geothermal projects on protected land, which should open up more sites for development, but Cost is still a major barrier to the development of projects and access to finance for the exploratory stages is still a challenge.+

State News

Idaho: City of Stanley Studies Geothermal Potential

In [phase one of the Stanley Geothermal Development Initiative](#), scientists and students are using magnetometers and an electromagnetic profiler to locate underground faults and fractures to determine the potential of geothermal development. The city was awarded a \$20,000 USDA Rural Development block grant last summer for the study.

Project organizers are looking for the best location to drill a test well, phase two of the project. Partners include Idaho National Laboratory, Idaho State University, local property owners, Custer Economic Development Association, and Salmon River Electric Cooperative.

West Virginia: Geothermal Energy to be Topic of State Conference

A state conference on geothermal energy will be held May 22 in Flatwoods, presents a recent meeting of the West Virginia Division of Energy Public Energy Authority [told audience and press](#). Interest in geothermal energy as an energy source for the state is growing as implications from a study by Southern Methodist University, and funded by Google, gain footage. The report authors said West Virginia is the "most attractive area for geothermal



energy development in the eastern one-third" of the United States, and found West Virginia geothermal generation could be as high as 18,890 MW.

International News

Europe

Iceland: State to Reclaim HS Orka; Landsvirkjun Negotiates PPA's for New Geothermal Plant

The Icelandic government has signed an acquisition agreement for land on Reykjanes peninsula, and it will acquire the geothermal resources of the Reykjanesvirkjun geothermal power plant. Canadian company Magma Energy has held ownership of HS Orka, the company running the 100-MW plant. Plans for the geothermal plant are to increase its capacity by 40 to 50 MW, and it has an operation license for up to 180 MW. [Reports have said](#) the land acquisition is part of the government's efforts to reclaim ownership of HS Orka from Magma Energy. "A load of debt has been lifted off their shoulders but they lose these resources," Björn Valur Gíslason, vice-chairman of the Icelandic parliament Althingi's Budget Committee told press.

Meanwhile, power generator Landsvirkjun announced it is offering contracts up to 12-years at the current rate of US\$43/MWh to industrial companies. The company is negotiating power purchase agreements for a new geothermal power area in the northeast, which it expects to be generating power in early 2015. The company's clients include aluminium smelters, data centers, methanol producers, and silicon metal. "These are Europe's most competitive rates in terms of price, length of contract and the fact that on top of that we offer 100 percent green and renewable power," Magnus Bjarnason, EVP for Marketing and Business Development [told press](#).

Africa

Ethiopia: EEPSCO to Begin New Geothermal Project, Wind Projects

The Ethiopian Electric Power Corporation (EEPCO) plans to [begin construction on one geothermal energy power plant](#) and six wind power projects within the budget year. The Aluto Langanjo geothermal project will have a capacity to generate 70 MW. The corporation plans to increase the country's electric power generation capacity from the current 2000 MW to about 10,000 MW by the end of 2015.

The wind projects included in the plan are: the 300 MW Ayisha Wind Farm; the 100 MW Debre Birhan Wind Farm; the 100 MW Assela Wind Power Project; the 153 MW Adama II Wind Power Project; the 42 MW Mesebo Harena Wind Farm; and the 250 MW Galema I Wind Power Project.



Kenya: New Plans Could Produce Additional 210 MW of Geothermal Power

Africa Geothermal International Limited, WalAm Geopower Inc., and Marine Power Generation have all been awarded new licenses for geothermal development. The geothermal resource sites are located at Longonot, Suswa, and Akiira Ranch, with a total minimum output capacity of 210 MW.

[According to press](#), Energy Assistant minister Mahmoud Mohammed told a geothermal conference in Nairobi: "All the three companies are past the initial stages of surface exploration, having set the initial exploratory drilling sites. Two of the companies have undertaken the Environmental and Social Impact Assessment studies while the third has initiated the process."

Mahmoud added that financing proposals have been developed by the Energy ministry and the Treasury to open up the Bogoria and Silale areas. The Government is considering financing under the Public Partnerships Framework. KenGen managing director Edward Njoroge told press they are looking at options such as Direct Foreign Investment, vendor financing, PPPs and IPPs, as well as BOT options.

Pacific

Australia: Geothermal Development Encouraged by Carbon Tax and Hot Dry Rocks Study

The introduction of the carbon tax in Australia is encouraging investment in exploratory drilling for geothermal energy, Susan Jeanes from the [Australian Geothermal Energy Association told press](#) last week. "What the problem for the industry is in this early exploration phase is that the rigs that we need to drill holes four and five kilometres deep cost about 50 million dollars," she said. Jeanes added, "There are a lot of clean energy options around but ultimately we're the only renewable energy on the horizon that is baseload."

Meanwhile, [Climatespectator.com.au asks whether the geothermal industry](#) in Australia can achieve the potential set forth in a recent heat mapping report by Hot Dry Rocks and Google. The study estimates 136,759 MW of potential capacity in Queensland; 83,104 MW in the Northern Territory; 58,541 MW in SA; 55,133 MW in NSW; 46,080 in WA; 12,411 MW in Victoria; 43 MW in the ACT; and a 3,021 MW estimated capacity in Tasmania.

"It's frustrating that we haven't yet managed to produce power in Australia," Graeme Beardsmore of Hot Dry Rocks told press.

Japan: Geothermal Studies Underway by Kyushu Electric Power

Kyushu Electric Power Co., Inc. is conducting [studies for two new geothermal power plant](#) sites, and will also begin a demonstration test using low temperature steam at its Yamagawa geothermal station. The two studies are underway in Oita Prefecture and Kagoshima Prefecture. The project in Oita Prefecture at Mr. Waita may become the first collaboration in Japan between an electric power company and a local government to operate a



geothermal power plant. The power company has a total 212 MW output from six geothermal power plants at five sites.

New Zealand: Mighty River Power Studies Geothermal in Taheke; Sponsors Geothermal Chair at University of Auckland

Mighty River Power has signed agreements for initial exploration and feasibility studies for geothermal generation on the Taheke field. The agreements were signed with Okere Incorporation and Ruahine Kuharua Incorporation and provide for long-term co-ownership. David Wickliffe, Chairman of [Ruahine Kuharua Incorporation, told press](#): "This is a landmark development where two Maori landowners have agreed to come together with respect to geothermal development in the spirit of whanaungatanga. Signing these agreements marks a significant milestone."

The company has also entered into an agreement to sponsor a Chair in Geothermal Reservoir Engineering at the University of Auckland. The sponsorship will provide \$1 million over a five year period. Mark Trigg, General Manager Development of [Mighty River Power told press](#): "The re-establishment of the Geothermal Institute will provide vital impetus to the building of New Zealand's geothermal capacity, both in terms of a greater number of graduates with the skills sought by Mighty River Power, and also in building a greater depth of geothermal knowledge in New Zealand. A search panel will be established to appoint the Chair."

Philippines: EDC Renews Geothermal Drilling Contract

Energy Development Corp. will extend its drilling services for Lihir Gold Ltd. (LGL) of Papua New Guinea to December 31, 2012. The agreement marks the fifth renewal of the contract. LGL is a leading gold producer in the region and relies on geothermal energy for its gold mine and processing facility. EDC's revenue from drilling services was at P 522.3 million as of September, and it is seeking additional prospective geothermal drilling projects in Chile, Kenya, and Indonesia, [according to reports](#).



<http://www.geo-energy.org/updates.aspx>

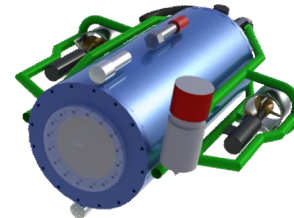


Notices

New This Week

Project Abyesse Seeks Support to Build Remote-Controlled, Mine-Shaft Submarine for Geothermal Implementation

From Project Abyesse: We are 20 engineering students from the University of Sherbrooke that are conceiving and building a remote-controlled submarine capable of navigating in a submerged mine shaft and measuring the temperature of the surrounding water. The objective of our project is to promote the use of geothermal energy. Having the thermal gradient of a mine shaft can potentially lead to geothermal implementations.



3D rendering of the submarine

We are currently looking for sponsors to help and encourage us in our endeavors, both on the financial side, as well as technical support. Any technical information or monetary or material donation would be greatly appreciated.



If you wish to help us in any way, you can contact Mathieu Couture at:

Mathieu.G.Couture@USherbrooke.ca, or Stephane Labadie at: Stephane.Labadie@USherbrooke.ca. For more information regarding the project, visit our Web site: www.projetabyesse.com.

Current Notices

Is Your Company Interested in Providing a Geothermal Internship?

If your company working in the geothermal industry has provided internship opportunities in the past, or is interested in doing this in the future, GEA can help. Contact Alison Holm: Alison@geo-energy.org. To see some of the work that GEA has done connecting and providing resource for students who are interested in geothermal careers, visit GEA's networking database, the Geothermal Web: <http://geothermalweb.org/Students.aspx>.



For Sale: Binary Cycle Geothermal Power Plant

U.S. Geothermal Inc. is seeking indications of interest to purchase the 4.8 MW (gross) binary cycle power plant located near Empire, Nevada. The plant was built in 1986 and consists of four 1.2 MW Ormat Energy Converters (OECs), a wet cooling tower, electrical equipment and controls, and associated spare parts, including a spare turbine. After substantial refurbishment during 2009 and 2010, the plant is fully operational, and achieved 98.8% operating availability in 2011. Sale of individual OEC units will be considered. Please contact: Mr. Doug Glaspey at 208-424-1027 or Mr. Chris Harriman at 208-645-2600.

Site Needed for DOE Demonstration, Chena Power

Chena Power is in need of a site location for their DOE Demonstration incorporating a [Pratt & Whitney](#) 280 kW power module and 3 evaporative coolers, placed on 2 low boy trailers, with satellite monitoring. The system requires 20 gallons per minute of water for cooling. Here is an opportunity for testing the production of a reservoir over the next few years and produce electricity for onsite use. Contact Bernie Karl recycle@polarnet.com.

Employment

Employment Opportunities

Chief Reservoir Engineer, CalEnergy, Calipatria (Imperial Valley), California

Applicants should apply via our careers Web site (full job description available there):

<http://www.calenergy.com/common/careers/taleo.asp?c=cal>

Primary Job Duties and Responsibilities

- Maintain an accurate and current reservoir engineering database for the areas of responsibility. This includes maintaining a current set of well production histories, observation of well data, geochemical trends and relevant geological data for the assigned fields.
- Prepare authorization for expenditures (AFE's) and economics for well work and equipment.
- Conduct and supervise well-field related activities that include but are not limited to the following: well acidization, well surveys (static, pressure-temperature-spinner (PTS), caliper), coiled tubing cleanouts, capillary tubing installations and tracer enthalpy testing.
- Develop new and innovative technical solutions to resource and/or drilling related issues as required.
- Diagnose well problems and engineer solutions. This includes using simulation tools to model downhole flow conditions to diagnose well problems and be proactive in preventing possible problems.
- Monitor well-field performance of MidAmerican Energy Company geothermal fields to determine potential problems that could arise and simulate current trends to the future to determine needed changes in operating procedure.



- Coordinate with all professional resource sources to provide a comprehensive interpretation of the company's geothermal and mineral reservoirs. Interpretation should be fully documented for financing.
- Responsible for data collection and analysis of Region 1 shallow heat anomaly to meet regulatory obligations and provide an appropriate management program.
- Responsible for coordinating the development of appropriate software tools to manage the reservoir and production data gathered from the field.
- Provide monthly reporting to California department of oil, gas and geothermal resources on production and injection as well as quarterly reporting to environmental agencies.
- Collect/analyze Pressure-Temperature-Spinner (PTS) and capillary tubing data.
- Must have working knowledge of reservoir simulation to oversee, direct and troubleshoot outside simulations of reservoir for financing and development.
- Develop well flow performance curves.
- Provide engineering analysis and economic models for exploration, development, workover and acquisition projects.
- Provide engineering technical support to CalEnergy Operating Corporation and global MidAmerican Energy Company operations as required.

Qualifications

- Bachelor's degree or higher in engineering, preferably petroleum.
- At least fifteen years of related experience and/or additional resource engineering-related training. Geothermal resource engineering experience is required and some petroleum engineering experience in oil and gas is also desired.
- Effective oral and written communication skills. Ability to read, write, analyze, and interpret technical procedures or regulations. Ability to effectively present information and respond to questions from managers and employees.
- Effective analytical, problem-solving and decision-making skills. Ability to work with mathematical concepts such as probability and statistics and complex equations including algebra, trigonometry, geometry, calculus, as well as differential equations. Must have basic computer programming ability and be very fluent in spreadsheet analysis. Must have a solid understanding and be proficient in economic analysis. Must be able to work with math in an abstract way. Must be able to modify and/or derive mathematical equations from physical processes and relationships.
- The employee should be able to solve tough problems and deal with a variety of variables in situations where only limited standardization exists. Employee needs to synergize several inconsistent partial data sets to arrive at abstract answers. Employee should be able to interpret a variety of instructions furnished in written, oral, diagram or schedule form. Ability to visualize and comprehend the dynamic conditions and possibilities that occur during power plant and well-field development and the changes to the process that will occur over time and with proposed changes.



- A valid California driver's license is required.
- Project management skills; ability to prioritize and handle multiple issues and projects concurrently.

Research Geologist/Geophysicist, United States Geological Survey

The USGS in Menlo Park, California, has an opening for a Research Geologist/Geophysicist to conduct research in support of geothermal energy assessments, with a focus on the structural, geomechanical, thermal, and hydrologic properties of fault-hosted hydrothermal systems. Detailed information on the position can be found at <http://tinyurl.com/USGSGeothermalJob>. Individuals must apply online at <http://www.usajobs.gov/> to receive consideration. For more information about the USGS, visit: <http://www.usgs.gov/ohr/great.html>.

Tenure-line Position, Energy Resources Engineering, Stanford University

The Department of Energy Resources Engineering at Stanford University [invites applications for a tenure-line faculty appointment](#). The position is at the assistant professor level. It is desired that the selected candidate be able to start by January 2012. (Application reviews began April 15, 2011)

The Department of Energy Resources Engineering focuses on a wide range of activities related to the recovery of the Earth's energy resources (e.g., hydrocarbons, geothermal, and renewables). The Department also has active research programs on carbon sequestration and clean energy conversions. ERE offers degrees in both energy resources engineering (B.S., M.S., Ph.D.) and petroleum engineering (M.S., Ph.D.). The ideal candidate should have research and teaching interests beyond traditional petroleum engineering disciplines.

We seek scholars with a Ph.D. in a relevant field with novel and innovative research interests in energy resources, such as in one or more of the following areas:

1. Energy systems modeling and optimization, for example integration of energy recovery and carbon sequestration
2. Engineering of enhanced geothermal systems
3. Recovery of unconventional energy resources, such as coalbed gas, shale gas or gas hydrates
4. Renewable energy resources

Please apply online at <https://academicjobsonline.org/ajo/jobs/685/> in electronic format (pdf only) with the following application material:

- cover letter
- curriculum vitae
- a statement outlining research and teaching interests
- the names of three references including e-mail addresses
- copies of up to five selected papers published in refereed journals over the past three years



Requests for Proposals

New This Week

Financial JV Partner Needed, Geothermal Power Generation Project in Indonesia

The promoters were awarded the bid to build a 65 MW Geothermal Working Area (GWA) and the mining permit (IUP) of Geothermal in West Nusa Tenggara Province, Indonesia, in July 2010. The IUP is valid up to 35 years, with 3 years for exploration, 2 years for feasibility study & construction, and 30 years for commercialization. Each stage could be extended by government approval.

Promoters can sell electricity to the PLN (National Electricity Grid of Indonesia) at USD 9.65 cents per kWh. The promoters have entered a long-term Power Purchase Agreement (PPA) for 25 Years. Promoters must conduct exploration within the next 6 months.

The recommended activities of exploration stage consist of magneto telluric, gradient temperature drilling and exploration drilling. The outcome of the exploration stage is to confirm the status of probable reserve from the hypothetical resource at 65 MW. The estimated capital expenditure for the exploration stage is US \$15 million, which is required to determine the location for drilling the exploitation wells.

After confirming the location of the exploitation wells, 5-10 production wells will be drilled to produce 50 MW steam. The steam shall be converted into electricity power by constructing the steam gathering facilities, piping, infrastructures and power plant within 2 years. A mix of equity and debt finance of the total amount of the capital expenditure will be about USD \$150 million.

Projected forecasts can be disclosed during the initial conversation with potential JVC financial and EMC partners. Yearly Projected Net Profit is estimated to be \$12 Million USD with an IRR of 16.2%. Please contact Dr. Tom Lannin at tlannin@gmail.com to discuss details and terms. The opportunity is open for 90 days. (*Posted ~Nov. 17, 2011*)

Proposal Announcements

RE&EE Awards, State Energy Program, DOE

The U.S. Department of Energy requests proposals for the State Energy Program. This program provides formula grants to State and Territorial energy offices to design and carry out renewable energy and energy efficiency priorities. \$39 million expected to be available, up to 56 awards anticipated. Due dates based on state/territorial program years. For more info, contact Sheldon Funk at sheldon.funk@netl.doe.gov or go to:



<https://www.fedconnect.net/fedconnect/?doc=DE-FOA-0000507&agency=DOE>. Refer to Sol# DE-FOA-0000507.
(Grants.gov 6/23/11)

Invitation to Bidding: Consumables for Geothermal Drilling, Ethiopia (November 28)

The Ethiopian Electric Power Corporation (EPCO) now invites sealed bids from eligible and qualified bidders for the procurement of Drilling Consumables under 6 lots. Bidding will be conducted through the International Competitive Bidding (ICB) procedures specified in the World Bank's Guidelines: Procurement under IBRD Loans and IDA Credits dated January 2011, and is open to all bidders from Eligible Source Countries as defined in the Guidelines. Interested eligible bidders may obtain further information from Ethiopian Electric Power Corporation Ethiopian, Aluto Geothermal Power Plant Expansion Project Office; Mexico square, Addis Ababa, Tel.: +251-115-51 25 64 Fax: +251-115-52 57 10 27 or email: eepcogeothermal@yahoo.com to receive tender documents. Advertisements are available on the UNDB and dgMarket Web sites.

Sustainability Research Networks, NSF (December 1)

The National Science Foundation requests proposals for the Sustainability Research Networks Competition. Through this competition, NSF, in partnership with other agencies, international efforts, and the private sector, aims to support members of the academic research community for projects which produce discoveries and knowledge that will inform decisions leading to environmental, energy, social and cultural sustainability. \$36 million expected to be available, up to 4 awards anticipated. Preliminary proposals due 12/1/11, final proposals due 4/1/12. For more info, including contacts, go to:
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf11574. Refer to NSF 11-574. (Grants.gov 8/25/11)

Service Procurement Notice, Commonwealth of Dominica (December 5)

Publication reference, TA2010055 DM IF2, International restricted tender. Feasibility study regarding a submarine interconnection of Dominica with Martinique and Guadeloupe and to define the optimal power rating of the new link

As per the Practical Guide to Contract procedures for EU external actions, which is being followed for the procurement of this contract and which is available from the following Internet address:

http://ec.europa.eu/europeaid/work/procedures/implementation/services/index_en.htm, the award of the contract will entail a two step process with: 1) applications sought at this stage and until December 5, 2011 (as per item 23); followed by: 2) an invitation to tender, expected in January 2012 (as per item 18), to those candidates whose applications are short-listed in step 1 (as per item 17).

Contracting Authority
The Geothermal Project Management Unit
Ministry of Public Works, Energy and Ports



Government Headquarters, Roseau
Commonwealth of Dominica
Tel: (767) 266-3616/7/8; Fax: (767) 448-0182;
Email: geothermal@dominica.gov.dm; pmu.geothermal@gmail.com

The applications must be received by the Contracting Authority no later than 10:00 hrs, local time on December 5, 2011. Provisional date of invitation to tender: January 2012; Provisional commencement date of contract: April 2012. Applications must be submitted using the standard application form, available from the following Internet address: http://ec.europa.eu/europeaid/work/procedures/implementation/services/index_en.htm, whose format and instructions must be strictly observed.

People, Prosperity and the Planet, EPA (December 22)

The U.S. Environmental Protection Agency requests proposals for the National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet (P3). The P3 Awards program was developed to foster progress toward sustainability by achieving the mutual goals of economic prosperity, protection of the planet, and improved quality of life for its people. Areas of interest include: Energy; Built Environment; Materials and Chemicals; Water; Agriculture; Green Infrastructure; and Clean Cookstoves. \$1.05 million expected to be available, up to 45 awards anticipated. Responses due 12/22/11. For more info, contact Cynthia Nolt-Helms at nolt-helms.cynthia@epa.gov or go to: http://www.epa.gov/ncer/rfa/2012/2012_p3.html. Refer to EPA-G2012-P3. (Grant.gov 10/2/11)

Industry/University Cooperative Research Centers, NSF (February 1)

The National Science Foundation requests proposals for Fundamental Research Program for Industry/University Cooperative Research Centers. Areas of interest include, but are not limited to: Energy and Environment; Advanced Manufacturing; Biotechnology; Advanced Materials; and Fabrication and Process Technology. \$1.6 million expected to be available, up to 10 awards anticipated. Responses due 2/1/12. For more info, contact Rathindra DasGupta at rdasgupt@nsf.gov or go to: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf11570. Refer to NSF 11-570. (Grants.gov 8/10/11)

Sustainable Energy Pathways, NSF (February 1)

The National Science Foundation requests proposals for Sustainable Energy Pathways. This RFP will support interdisciplinary efforts by teams of researchers to address the challenges of developing efficient pathways towards a sustainable energy future. \$34 million expected to be available. Responses due 2/1/12. For more info, including agency contacts, go to: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf11590. Refer to Sol# 11-590. (Grants.gov 9/22/11)



Environmental Engineering, Energy for Sustainability, and Environmental Sustainability, NSF (February 17)

The National Science Foundation requests proposals for the following programs, with responses due 2/17/12. :

- Environmental Engineering. The goal of this program is to encourage transformative research which applies scientific principles to minimize solid, liquid, and gaseous discharges into land, inland and coastal waters, and air that result from human activity, and to evaluate adverse impacts of these discharges on human health and environmental quality. \$9.4 million expected to be available, up to 44 awards anticipated. For more info, contact Paul Bishop at pbishop@nsf.gov or go to: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501029. Refer to Sol# PD-12-1440. (Grants.gov 6/8/11)
- Energy for Sustainability. This program supports fundamental research and education in energy production, conversion, and storage and is focused on energy sources that are environmentally friendly and renewable. Sources of sustainable energy include: Sunlight, Wind/Wave, Biomass, and Geothermal. \$9.2 million expected to be available, up to 42 awards anticipated. For more info, contact Gregory Rorrer at gorrer@nsf.gov or go to: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501026. Refer to Sol# PD-12-7644. (Grants.gov 6/8/11)
- Environmental Sustainability. This program supports engineering research with the goal of promoting sustainable engineered systems that support human well-being and that are also compatible with sustaining natural systems. \$5.4 million expected to be available, up to 45 awards anticipated. For more info, contact Bruce Hamilton at bhamilto@nsf.gov or go to: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501027. Refer to Sol# PD-12-7643. (Grants.gov 6/8/11)

Events

GEA and GEA-Sponsored Events

***Updates: GEA Geothermal Energy Finance Forum, San Francisco, CA (January 18)**

GEA will be hosting its next Geothermal Energy Finance Forum at San Francisco's Marriott Marquis on January 18, 2012. This event will highlight the leading companies in the geothermal market, as well as examine the risks and benefits to investing in geothermal energy.

The program will feature discussions with geothermal leaders including Karen Douglas, Commissioner, California Energy Commission; Dan Nastou, Power and Infrastructure, John Hancock Financial Services; John Marciano, Chadbourne & Parke LLP; Rick Rodgers, Managing Director and CEO, Montgomery Street Financial; Mark Taylor, Lead Analyst, CCS & Geothermal, Bloomberg New Energy Finance; Shinji Yamamoto, Chief Investment Officer, IFC; CJ Arrigo, Advisor, Glacier; David Watson, Hudson Ranch I, EnergySource; Jonathan Weisgall, Vice



President of Legislative and Regulatory Affairs, MidAmerican Energy Holdings Company; Kent Burton, National Environmental Strategies; Jonathan Zurkoff, VP of Finance, U.S. Geothermal; Louis Capuano Jr, Chairman of the Board, ThermaSource; Subir Sanyal, President and Manager of Reservoir Engineering, GeothermEx; Anders Kruss, Alterra Power Corp.; Craig Mataczynski, CEO, Gradient Resources; Lenny Hochschild, Managing Director, Evolution Markets, Inc.; and more.

Event partners for the event are American Council on Renewable Energy (ACORE) as well as sponsors GeothermEx and Pratt & Whitney Power Systems.

If you are interested in being a participant in or sponsor of this event, please contact Kathy Kent at kathy@geo-energy.org. To register for the event, please visit: http://geo-energy.org/events/finance_forum_2012.aspx. Discounted registration is available through December 23rd. Significant discounts for GEA Members and Students are available. For more information or to receive media credentials, please contact Shawna Seldon, 212 255 7541 or Shawna@rosengrouppr.com.

***Updates: Geothermal Track, Renewable Energy World North America Conference and Expo, Long Beach, CA (February 14–16)**

The 2012 Renewable Energy World North America Conference and Expo event will take place February 14-16 in Long Beach, California - please save the date! GEA is on the planning committee and will be exhibiting on the Expo floor. Additional participation and sponsorship opportunities are available. Contact: Leslie Blodgett at GEA, leslie@geo-energy.org.

The Geothermal Track sessions will highlight:

- Geothermal Policy and Economics
- Geothermal Plant Systems and Technology
- Geothermal Energy and Waste Heat Recovery

Speakers from the geothermal community will include: Halley Dickey, TAS Energy; Josh Nordquist, Ormat Technologies; Harvey Wen, Bechtel Power Corp.; Gary Zyhowski, ; Mike Ronzello, ; A. Scott Weber, University of Buffalo; Bruno Vanslambrouck, HOWEST, University College of West Flanders; Joe Lillard, Atlas Copco Mafi-Trench; Kelsey Walker, TAS Energy; John McIlveen, Jacob Securities Inc.; Karl Gawell, Geothermal Energy Association; John McCaull, Geothermal Energy Association; and Louis Capuano, Jr., ThermaSource.



Sponsorship Opportunities for GEA Events

Your company has the opportunity for high visibility at GEA's events. In addition to providing the financial support needed for GEA to undertake successful events, GEA events feature media availabilities with sponsors which garner extensive coverage in mainstream press outlets. Events are updated at: <http://geo-energy.org/events.aspx>.

Events currently listed for 2012 are:

- January 18, 2012 GEA Geothermal Energy Finance Forum - San Francisco, CA
- February 14-16, 2012 Renewable Energy World Conference and Expo - Long Beach, CA (GEA is a supporting organization for this event)
- May 23, 2012 GEA International Geothermal Energy Showcase - Washington, DC
- August 7-8, 2012 GEA National Geothermal Summit 2012 - Sacramento, CA
- Sept. 30-Oct. 2, 2012 GEA Geothermal Energy Expo® and GRC Annual Meeting - Reno, NV

Other Events

ACORE Phase II of Renewable Energy in America National Policy Forum (December 6-7)

From ACORE: ACORE's annual Phase II Policy Forum has never been more important. With an industry whose growth and economic potential is being called into question, Phase II will be a critical meeting geared to formulate an over-arching strategy for the continued success and support of the industry. The forum will explore issues of national and energy security, economic development, capital raising, and jobs for the many under and unemployed Americans. The thought leaders from the global stage will join leaders from the national and state level to assess the status of renewable energy policy today, the range of policy options available, and help to advise on a best case policy framework for 2012 and beyond. Your attendance is critical to formulating a well-rounded energy policy for America's future.

DOE Webinar, Geothermal Power Plant Operation and Maintenance (December 14)

The Department of Energy's Geothermal Technologies Program (GTP), in partnership with Western Area Power Administration, is offering this free one-hour webinar covering key topics, issues, opportunities, and challenges associated with geothermal development in the U.S. The intended audience includes developers, utilities, Native American tribes, state officials, and other stakeholders interested in promoting cost-effective renewable energy development. The purpose is to educate the audience on geothermal energy development and utilization.

Geothermal Power Plant Operation and Maintenance (O&M) . Blundell Plant History 10 am MST · In operation since 1984, Blundell is a 34-megawatt geothermal facility near Milford, Utah. It was the first geothermal electric



plant outside of California. Its energy source is a hydrothermal reservoir that lies 3,000 feet below the Earth's surface. The plant uses four production wells and three injection wells that are distributed across an area approximately 4 miles long. About 6 miles of brine piping and 2 miles of steam piping tie the system together. The webinar will include information on the plant operation, performance, and changes over the past 27 years, such as the addition of a bottoming cycle in 2007 to increase power output. If you are interested in registering for the December webinar, please contact Guy Nelson, Western's contract employee, at energyguy@utilityforum.org or (541) 994-4670.

Turkey Renewable Energy and Energy Efficiency Trade Mission, U.S. DOC, Ankara-Istanbul-Izmir (December 5–9)

Turkey's renewable energy investments will exceed US \$20 billion during the next 5 years. The country ranks Number 2 geothermal energy development potential in Europe and 5th in the world. A new Renewable Energy Law passed on December 12, 2010 increasing guaranteed prices for renewable energy resources, and additional incentives are in place.

Participants in this Trade Mission will gain:

- A senior U.S. Department of Commerce executive will lead the mission and facilitate valuable introductions to key Turkish energy industry decision-makers;
- A U.S. Export-Import Bank representative will travel with the delegation in all three cities and advise the participants on trade finance solutions;
- 10-15 pre-scheduled meetings with potential partners, distributors, end users, or local industry contacts;
- Meetings with key government decision makers and private sector firms;
- Pre-travel webinars on subjects ranging from industry briefings to business practices in Turkey;
- Meetings with CS Turkey's energy specialists in Ankara, Istanbul and Izmir, Turkey;
- Transportation to all mission-organized meetings inside Turkey (all air transportation within Turkey is the responsibility of the mission participant);
- The Trade Mission visit will provide visibility for participating American firms at networking receptions at the U.S. Ambassador's residence and U.S. Embassy press releases

Who should participate?: U.S. renewable energy equipment and systems manufacturers, RE project developers, engineering firms, energy efficiency systems and equipment suppliers, project finance companies, and any other RE & EE companies. Cost for small and medium size firms: \$3,285; large companies: \$4,055. To apply, go to: <http://export.gov/california/kern/trademissions/>.

Contact:

Glen Roberts, Director, Bakersfield & Fresno U.S. Export Assistance Centers
2100 Chester Ave., Ste. 110, Bakersfield, CA 93301



Tel: 661 637-0136, Glen.Roberts@trade.gov, www.buyusa.gov/kern

Serdar Cetinkaya, Renewable Energy Specialist, American Embassy - Ankara, Turkey

Dir. Tel. +90-312-457-7203, Cell: +90-532-311-6885, Serdar.Cetinkaya@trade.gov

Geothermal Lease Sale, BLM, Nevada (January 24)

The BLM is holding a competitive oral sale of Federal lands in the State of Nevada for geothermal leasing on January 24, 2012 at the Nevada State Office, 1340 Financial Boulevard, Reno, Nevada.

Leases issue for a primary term of 10 years. Annual rental is \$2 per acre for the first year (paid to BLM), \$3 per acre for the second through tenth year, and \$5 per acre per year thereafter. Once the site is producing for commercial generation, royalty rates are 1.75% for the first 10 years of production and 3.5% thereafter. Lands that do not receive a bid are available for a two-year period beginning the first business day after the sale.

To pre-register by mail or fax, mail the bidder registration form to the above address or fax to (775) 861-6710. On the day of the sale, bidders can register from 8:00 a.m. until 8:45 a.m, and the sale starts at 9. Bring a photo ID to the sale.

Contact: Justin Abernathy, (775) 861-6504. View the parcel list and other available documents, and check back for changes at:

http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing.html. The bid form for successful bidders (Form 3000-2, dated August 2007) can be found at:

<https://www.blm.gov/FormsCentral/show-home.do>

Two Geothermal Leases Up for Bid, BLM, Colorado (February 9)

At its quarterly oil and gas lease auction, the BLM in Colorado will offer two parcels allotted for geothermal energy development. The sale is on February 9 at the BLM State Office, 2850 Youngfield Street, Lakewood, Colorado 80215; Telephone 303-239-3600.

Leases issue for a primary term of 10 years. Annual rental is \$2 per acre for the first year (paid to BLM), \$3 per acre for the second through tenth year, and \$5 per acre per year thereafter. Once the site is producing for commercial generation, royalty rates are 1.75% for the first 10 years of production and 3.5% thereafter. Lands that do not receive a bid are available for a two-year period beginning the first business day after the sale.

The first geothermal parcel includes 4,587.77 acres of BLM land. The second geothermal parcel includes about 3,765.49 acres of U.S. Forest Service land. The BLM's resource management plan for Gunnison includes



stipulations for geothermal leasing that protect geologic hazards, the Gunnison sage-grouse, and senior water rights.

Contacts: Ms. Sharon A. Sales, sharon_sales@co.blm.gov, (303) 239-3987; Mrs. Rebecca Skinner, rebecca_skinner@co.blm.gov, (303) 239-3780; or Mr. Kristian Lee, kristian_lee@co.blm.gov, (303) 239-3786.

Additional lease sale information can be obtained online at:

www.blm.gov/co/st/en/BLM_Programs/oilandgas/leasing.html, or by contacting the address above. The bid form for successful bidders (Form 3000-2, dated August 2007) can be found at:

<https://www.blm.gov/FormsCentral/show-home.do>

GEOTHERMAL ENERGY WEEKLY

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

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