

Summary of the 1st Texas Geothermal Working Group Meeting November 7, 2005

Ellison Miles Geotechnology Institute, Brookhaven College, Farmers Branch, Texas.

Meeting Organizers: Dave Blackwell and Maria Richards of Southern Methodist University, Department of Geological Sciences, SMU Geothermal Lab.

Food Sponsor - EnLink Geoenergy Services, Inc of Houston

Attendees: 70+ individuals from TX, LA, AR, OK, NV, CT.

Speakers - Presentations are available online at:

http://www.smu.edu/geothermal/GPW_TX/TXGeothermalMeetingNOV05_summary.htm

- Texas Geothermal Networking and Outreach Program - *Maria Richards, SMU Geothermal Lab*
- Texas Renewable Energy Overview - *Pam Groce, Texas State Energy Conservation Office (SECO)*
- Texas Renewables in Legislature and Industry - *Russel Smith, Texas Renewable Energy Industry Association (TREIA)*
- National Geothermal *GeoPowering the West* Program - *Roger Hill, Sandia National Lab, New Mexico*
- Utilities Make a Difference in Green Development - *Mark Kapner, Austin Energy*
- History of Ground Source Heat Pumps and Federal Government Usage - *Phil Rawlings, Co-Energy Group*
- School District Involvement in Texas Geothermal - *Don Penn, Image Engineering Group*
- Direct Use of Geothermal in Agriculture and Aquaculture - *Jim Witcher, Witcher and Associates, New Mexico*
- West Texas Oil & Gas Geothermal Development - *Richard Erdlac, UTPB - Center for Energy and Economic Development*
- Texas and Gulf Coast Oil & Gas Geothermal Potential - *David Blackwell, SMU Department of Geological Sciences*

Roundtable Discussions - Topics - Leaders

- Barriers to Geothermal Development - Richard Erdlac
- Working with Engineers, Designers, and Builders - Don Penn
- Direct Use of Geothermal in various Industries - Jim Witcher
- Ground Source Heat Pump - best practices and methods - Phil Rawlings
- Home/Business Owner's Perspective and Questions - Howard Rogers
- Utilities and Renewable Organizations working together - Mark Kapner
- Rural Communities Economic Development - Pam Groce
- Technology Development for Oil & Gas - Fred Cogswell & Hezy Ram
- Texas Legislation and Railroad Commission rulings - Russel Smith
- USDA Grants and other financial opportunities - Daniel Torres

Meeting Highlights

The Texas Geothermal Working Group Meeting was organized to further the **Texas Geothermal Networking and Outreach program coordinated by the SMU Geothermal Lab**, within the Department of Geological Sciences of Southern Methodist University, Dallas, Texas. The program is supported by a grant from the Texas State Energy Conservation Office (SECO) and the Department of Energy GeoPowering the West Program. The aim of the program is to further the development of geothermal energy as a renewable resource in Texas through the education of the public, the networking of the individuals involved in all aspects of geothermal development, and the integration of research and business interests to accelerate the transformation of ideas and technology into actual applications.

The **meeting on November 7, 2005** was attended by approximately 70 individuals from a variety of backgrounds: ground source heat pumps - system engineers & designers, installers, and manufacturers; government agencies - local, state, and federal representatives; oil & gas affiliates; well drillers; geothermal entrepreneurs; university affiliates; home owners and citizens interested in geothermal; non-profit organizations; and utilities.

The **Geothermal resources of Texas were last estimated in the early 1980's** by the Texas Bureau of Economic Geology. Since then there has been little development of geothermal energy in Texas except through the use of ground source heat pumps, (GSHP) or geoexchange units. This aspect of the geothermal industry has continued to increase and is rapidly growing today. Two reasons for the high growth rate are the increase in energy pricing and the Green Building industry use of GSHP as a method to achieve LEED certifications for buildings. The long system life, ease of maintenance, and the energy savings are important factors in the acceptance of GSHP.

There are both Professional Engineers and accredited installers through out Texas using the near-surface temperatures of the Earth for cooling and heating purposes in both commercial and residential applications. Many of the individuals affiliated with this aspect of the field have received training either through the International Ground Source Heat Pump Association ([IGSHPA](#)) in Oklahoma State University or through manufacturer training classes.

Based on the related meeting sessions, **the GSHP industry needs and focus are:**

- Brochures to give to customers to assist in education and understanding of the concept.
- Rating system for GSHP efficiency in comparable units to other similar technologies, i.e., air conditioning, furnaces.
- Development of credentials to assist the consumer in choosing contractors. If licensing were ever to occur, then there should be three categories: driller, loop installer, HVAC/Geothermal designer.
- The energy cost savings information is most likely out of date with the new costs of natural gas, propane, and electricity. New 2006 numbers need to be established for cost comparison and length of time for payback ASAP.
- Architects and Green Builders are interested in more available information. Most companies would appreciate having a local GSHP Designer and Installer give a lunch hour presentation on the systems and inform them when there are installations occurring nearby.
- Discuss with utility companies and neighborhood developers how they can assist in financing the ground loop. For example, utilities could pay for the ground loop and then rent it to the owner.
- Homeowners usually find information on websites first when researching the GSHP. It is important to have informative websites and to be listed in the phone book with

“geothermal” and “ground source heat pump” in the description so that installers can be easily located.

The three main GSPH websites to link to for more information are:

<http://www.igshpa.okstate.edu>

<http://www.geoexchange.org>

<http://geoheat.oit.edu>

- EnLink Geoenergy Services does a monthly webcasts on various topics related to GSHP and the design/installation. <http://www.enlinkgeoenergy.com/>. Email them if you would like to get on their list for notification about these webcasts.

Participants from the Oil and Gas Industry (O&G) were interested to learn about the potential of using the heat from the waste water that is pumped to the surface with the oil and gas. By working with the O&G the cost of developing geothermal in the area is reduced substantially since the wells and fluids already exist. With the new turbine technology discussed at the meeting by Ormat and United Technology - Carrier, temperatures as low as 210°F and a minimum flow rate of 500gpm can be used to generate electricity. **Texas currently has a potential of producing over 400 MW of electricity from waste water being discharged by oil and gas wells.**

Oil and Gas Needs to produce electricity:

- Texas land owners and the O&G to locate wells with temperatures of 200+°F and high flow rate for demonstration sites for electrical production.
- Determine which governing agents within the state will require permits/leases.
- Change current perception that produced water is a liability and use the water for an economic benefit.
- Establish where new transmission lines are needed for electric upload.
- Find energy companies willing to purchase the green renewable energy. To view the list of some of the current Requests for Proposals (RFP) see the website: <http://www.eere.energy.gov/greenpower/financial/>. Currently the Lower Colorado River Authority is listed there and Austin Energy's solicitation is at http://waller.ci.austin.tx.us/purchase/get_ad_detail.cfm?ID=CM06100002 Other potential buyers of the electricity would be TXU Electric & Gas, CPS Energy of San Antonio, Reliant Energy, Green Mountain Energy, and Central and South West Corp.

Economic growth in rural communities could be one of the outcomes from geothermal energy use in Texas. Geothermal energy development can assist rural areas by keeping and creating jobs in fields of agriculture, aquaculture, mechanical engineering, and oil & gas. Communities could lessen their dependence on outside resources by using the geothermal energy in their own community. New binary turbine technology is being assessed for electrical production using the produced hot waste water from oil and gas wells.

New Mexico and Arizona both use geothermal energy in **agriculture and fish farming** to reduce costs and increase production with applications in greenhouses, specialized crops, and fish farming. New Mexico has more acres of geothermally heated greenhouses than any other state. Gross receipts from more than 50 acres of geothermal greenhouses in New Mexico exceed \$30 million annually. Usually from 6 to 12 people are employed per acre at these greenhouses. This is a new concept for Texas, and there is much to learn from the other Southwestern States.

To help promote renewable usage in rural communities the **USDA has grants and loans** available for geothermal energy installation by businesses. For information contact the Texas USDA office at 254-742-9700.

Texas is fortunate to have an organization that coordinates and assists all the renewable programs in Texas. The **Texas Renewable Energy Industry Association (TREIA)** was started in 1974 and has been keeping renewables moving forward in Texas ever since. Because of this the renewable energy industry in Texas is increasing faster than the Texas Legislature has mandated through the Renewable Portfolio Standards (RPS) that it has set for the state. The 2009 mandate of 2000 MW will be surpassed with production at 2800 MW by December 2005. The new Senate Bill with a RPS target of 5880 MW by 2015 requires 500 MW of that energy to be nonwind. Thus, the geothermal energy industry must educate the public and work together, to lead Texas in achieving this goal.

Ways to improve the geothermal energy community in Texas:

- Join TREIA and network with other renewable energy technologies.
- Work on updating the Texas Tax Code to include geothermal in the Franchise Tax Exemption - [Texas Tax Code, Sec. 171.056](#), and the Property Tax Exemption - [Texas Tax Code, Sec. 11.27](#).
- Through TREIA's help, the Texas Public Utility Commission (PUC) will establish the regulations and rules for achieving the 500 MW target through a public process over the next several months. The process will begin in November, 2005. Currently only EnLink Geoenergy and Enviro Air are representing the geothermal industry for Texas.

Where do we go from here?

If you have temperature data from your bore holes, please send it to Maria Richards, SMU Geothermal Lab. One of the goals for 2006 is to update the Geothermal Resources Map of Texas. We are also interested in hearing about locations using ground water directly for heating or as an energy source in Texas.

For more information about geothermal and for posters/brochures the US Geothermal Education Office is a source of information for all levels. They have a variety of materials in which most cases are free if postage is paid. <http://geothermal.marin.org/> or call 415-435-4574. The SMU Geothermal Lab also has information and links at - <http://www.smu.edu/geothermal> or call us at 214-768-1975.

It was decided that a meeting about once a year as an entire group is helpful and that Fall is an appropriate time. The meeting location will rotate around the state. There will be a **specialized meeting March 13-14, 2006 at SMU in Dallas specifically about the development of Oil & Gas waste fluid for electrical production.**

We have a mailing list/network of individuals, companies, nonprofits, government agencies and educational institutions with over 300 names. **Those attending the meeting asked to have the list shared. Attached is the list of meeting attendees. If you would like to have your contact information added to this list, please let me know.** The list is not sold nor given to marketers. If you would like to be added or removed from this list, please let Maria Richards know either by email - mrichard@smu.edu, fax - 214-768-2701 or phone call 214-768-1975.