

**U.S Department of Energy
Final Report**

Geothermal Outreach

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Summary:

- Created Oregon Geothermal Working Group (OGWG) to network and disseminate information. Regular workshops, 10 in total, were held throughout the state. These workshops provided the opportunity to enhance understanding of the geothermal energy resource in the state and network between the various stakeholders.
- Members of the OGWG worked with other renewable stakeholders to advise the Governor and Legislature on various issues related to geothermal energy.
- The Oregon Department of Energy (ODOE) and the Oregon Department of Geology and Mineral Industries created the interactive Geothermal Interactive Information Layer for Oregon (GTILO).
- Improved the ODOE geothermal web page. Created display information for renewable energy fairs and conferences.
- Presented a geothermal energy overview at various conferences and workshops in the Northwest.
- Provided information to numerous citizens, organizations and companies throughout the state.
- Provided technical expertise for the development of ODOE's ground source heat pump tax-credit certification program for technicians who install such heat pumps.

1. Oregon Geothermal Working Group (OGWG)

Beginning in August 2004, ODOE assigned management to a person who understood the benefits of rural renewable energy development shared by both wind and geothermal power. An organizational meeting held in November 2004 provided initial direction to the OGWG. Current geothermal developments in central and eastern Oregon made Bend the primary meeting site of the Group. Population growth in and around Bend in Deschutes County over the last 20 years has been tremendous. An important goal was to target outreach efforts to the new generation of Central Oregon residents who are unaware of geothermal development efforts of the 1980s and 1990s.

An initial mailing list of 44 stakeholders was invited to the first meeting in November 2004. That number is currently over 180 individuals. The Group considered a draft Oregon Geothermal Strategic Plan and discussed the six proposed strategies therein. One goal of the Program was to position geothermal energy in the new state Renewable Energy Action Plan.

One of the Action Items from the first meeting was assembling a list of all publications related to Oregon. The Program Manager collected lists from the OIT Geo-Heat Center, the Dept. of Geology & Mineral Industries and the Geothermal Resources Council, and made them available for the second meeting.

The Program started in late 2004 preparing a “Geothermal 101” course directed at Oregon utilities.

Subsequent OGWG meetings were held as follows:

| | <i>Date</i> | <i>Location</i> | <i>Topic(s)</i> |
|----|-------------|-----------------|---|
| 1 | 4-Nov-04 | Bend | Strategic Plan |
| 2 | 9-Feb-05 | Bend | Central OR. development, Strategic Plan |
| 3 | 11-May-05 | Salem | Power generation, utility interest |
| 4 | 3-Nov-05 | Bend | Legislation, Lake Co. developments |
| 5 | 5-Apr-06 | Salem | Renewable Portfolio Standard |
| 6 | 17-May-06 | Burns | Direct use, Harney Co. developments |
| 7 | 7-Nov-06 | Bend | Federal & State power dev. regulation |
| 8 | 23-July-07 | Portland | BLM PEIS for Oregon lands & leases |
| 9 | 1-May-08 | Bend | Developments, Newberry field trip |
| 10 | 31-Oct-08 | Bend | Environmental community dialogue |

2. Policy Development

Members of the OGWG worked with other renewable stakeholders to help formulate and support the Renewable Portfolio Standard passed by the 2007 Legislature. Members of the OGWG participated in Oregon’s Renewable Energy Working Group to advise the Governor and Legislature on various issues related to geothermal energy.

3. Geothermal Interactive Information

ODOE and the Oregon Department of Geology and Mineral Industries collaborated to update the statewide geothermal resource assessment that culminated in the June 2007 release of the interactive Geothermal Interactive Information Layer for Oregon (GTILO). An interactive map displays thermal spring and well data, Ref ID data, and on the Download Data page, metadata files, a geothermal data download zip file, and geophysical logs in zipped files. See <http://www.oregongeology.org/sub/gtilo/index.htm>

4. Improved ODOE geothermal web page

ODOE staff created display information for renewable energy fairs and conferences. The Program created a self-serve sign-up email list for OGWG activities at the website. Almost all presentations given at OGWG meetings are available on the ODOE website.

1. Renewable energy index
<http://egov.oregon.gov/ENERGY/RENEW/index.shtml>
2. Geothermal Energy Home Page
http://oregon.gov/ENERGY/RENEW/Geothermal/geo_index.shtml
3. Oregon Geothermal Resources Map
http://egov.oregon.gov/ENERGY/RENEW/Geothermal/docs/oregon_map.pdf
4. Oregon Geothermal Working Group
<http://oregon.gov/ENERGY/RENEW/Geothermal/OGWG.shtml>
5. More information on geothermal energy
<http://egov.oregon.gov/ENERGY/RENEW/Geothermal/geo.shtml>

5. Presentations

The Program presented a geothermal energy overview at various conferences and workshops in the Northwest. These included the following:

- Joint Engineering Conference in Bend, Oregon on May 18, 2007.
- Business Alliance for Sustainable Energy (BASE) Summit in January 2008
- Council of State Governments-WEST July 2008

6. Information dissemination

The Program provided information to numerous citizens, organizations and companies throughout the state including the following:

- Staff worked with interested persons representing the onion growers in the eastern Oregon-western Idaho area on *the onion dehydration process using geothermal energy*. Meetings were held in Ontario, OR on November 29, 2005 and Jan. 4, 2006. OIT Geo-Heat Center provided preliminary estimates of the various costs and income associated with a plant that could process 10,000 lbs./hr of wet and produce 2,000 lbs./hr of dehydrated onions resulting in 12 million pounds of dried product/yr. Detailed maps and well/spring data were also presented indicating where the geothermal resources were located and where the most likely sites might be found. Interested parties presented recommendations for further investigations. Preliminary economics looked promising, and ODOE loan

program staff assisted the Geo-Heat Center financial forecasting. Several other challenges face the onion growers, including confirming the highest ranked geothermal resource sites, plant infrastructure costs e.g. gas and power lines, and the market for onion flakes.

- In February 2008 Program Staff participated in a discussion of opportunities to tap into *geothermal energy for Government Camp, Oregon*. There is strong community wide and property specific interest in seeing what the potential could be, what resources are available, next steps involved and the expertise available. Based on the meeting, Collins Lake Resort officials will investigate ground source heat pump opportunities for the next phase of development.
- Information was provided to the *Ash Grove Cement Company in Durkee, Oregon* in August 2008. The firm is investigating opportunities to self generate power for its local plant.
- Program staff met with *a trade delegation from Iceland* in May 2008 to inform them about the geothermal potential in the state.

7. Ground source heat pump tax-credit certification program

The Program provided technical expertise for the development of ODOE's ground source heat pump tax-credit certification program for technicians who install such heat pumps. The Program in June 2006 focused on ground source heat pump promotion. Working with residential tax credit staff at ODOE, the Program helped address new requirements for installers of such systems. The primary goal was to clarify requirements for Oregon state tax-credit certified technicians. Oregon residents applying for a tax credit must use a tax-credit certified technician. ODOE currently certifies diagnostic, duct, solar - and now -geothermal technicians. Certified geothermal technicians have three options: 1) show proof of International Ground Source Heat Pump Association training (IGSHPA), 2) show proof of a qualified manufacturer's equivalent training program, or 3) other training approved by the Oregon Department of Energy's Director.

Here is a listing of ground source heat pump certified installers as of today:

CITY COMPANY PHONE

Albany Mike's Heating & A/C (541) 928-1804

Baker City Cook & Emele Heating Service, Inc. (541) 523-2488

Battleground, WA Hendrickson HVAC Services, Inc. (360) 687-2034

Central Point Advanced Air & Metal, Inc. (541) 772-6866

Pacific Heating & Cooling (541) 826-7773

Clackamas Year Round Comfort (503) 761-3900

Colton J.W. Geothermal, Inc. (503) 824-4500

Corvallis Middleton Heating & Sheet Metal (541) 758-3358

Stephens Heating & Air Conditioning
(541) 754-1681
Eugene Automatic Heat Company (541)
726-7654
Home Comfort (541) 345-2838
Priority One Heating & A/C (541) 689-
1004
United Garibay Heating & Air (541)
344-2481
Valley Heating (541) 485-0123
Grants Pass Caveman Heating & Air
(541) 476-0009
Hillsboro Rite Way Heating (503) 693-
3161
Hood River Corey Lee Heating & A/C
(541) 806-0927
Jacksonville Spring Air, Inc. (541) 899
3155
Junction City Montgomery Heating
(541) 998-9423
La Grande Scott's Heating (541) 963-
4316
La Pine Air Tech Heating & Air
Conditioning (541) 536-2463
Lebanon Lebanon Servco, Inc. (541)
451-5090
Ries & Sons Heating & A/C, Inc. (541)
259-3322
Lincoln City Groth-Gates Sheet Metal,
Inc. (541) 994-2631
Lyons Lyons Heating & Cooling, Inc.
(503) 859-2325
Medford Curtius Huntley Plumbing,
Inc. (541) 857-8988
Newport Groth-Gates Sheet Metal, Inc.
(541) 265-8636
Nyssa M & R Sheetmetal (541) 372-
3654
Portland Jacob's Heating & Air
Conditioning (503) 234-7831
Roseburg American Quality Heating &
Air Conditioning (541) 464-0903
Mahalo Heating & Air Conditioning
(541) 672-6707
Pacific Air Comfort (541) 672-9510

Salem Day Heating Company (503)
363-4822
Scappoose Columbia NW Heating 503-
543-3624
Springfield Climate Control Heating &
A/C (541) 736-3438
Marshall's (541) 747-7445
Pacific Air Comfort (541) 342-5300
Sutherlin Barnes Heating & Cooling,
Inc. (541) 459-1545
Sweet Home Reliable Heating & A/C
(541) 367-8706
The Dalles Columbia Gorge Heating &
Air (541)296-9926
Oregon Equipment Co., Inc. (541) 296-
2915
Tigard Specialty Heating & Cooling
(503) 620-5643
The Heat Exchange (503) 312-0835
Troutdale Perfect Climate, Inc. (503)
491-4848
Vancouver, WA Total Energy Concepts
(360) 571-7002
Woodland, WA Justice Heating & Air,
Inc. (360) 694-8105
Yamhill South Metro Heating (503)
662-3560