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## PUBLIC INFORMATION PROJECTS OF THE GEOTHERMAL RESOURCES COUNCIL AND THE GEOTHERMAL ENERGY ASSOCIATION

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### ABSTRACT

During the past 20 years the Geothermal Resources Council (GRC), has grown and changed dramatically. An educational organization, the GRC sponsors an annual scientific meeting, and short courses, workshops, and symposia. Meetings and workshops typically are held at locations where members can also attend field trips. The GRC also publishes special reports, a monthly magazine, the *GRC BULLETIN*, and annual meeting transactions. The GRC On-line Information System, a relatively new service, is a library containing over 20,000 technical geothermal papers, articles, maps and periodicals. Presently, citations for 10,000 of these library materials are stored on computer and available via modem to users anywhere in the world. New citations are added to the library frequently.

The GRC's sister association, the Geothermal Energy Association (GEA), collaborates with the GRC on educational programs.

### Discussion

Education and dissemination of geothermal-related information are the GRC's primary mission and purpose for existence. In 1972, when GRC began, the emphasis was on educational programs in exploration, drilling, well testing, reservoir engineering and economics. Over the years, the emphasis has shifted. Today, GRC education programs focus on reservoir management, power generation, plant maintenance, project financing, and export of U.S. goods and services.

Although the content of the educational program has changed, the basic format has changed very little. As always, prices for meetings, courses, workshops, and educational materials are held as low as possible to allow all members to take advantage of the program.

The GRC and its sister association, the GEA, formerly the recently-merged National Geothermal Association (NGA) and the Geothermal Resources Association (GRA), share the

same staff, offices, and office equipment, and occasionally are involved in the same projects. Although the GRC is an educational organization and the GEA is a trade association, their relationship is productive and beneficial to the geothermal community. Because of this close involvement, their information projects will also be discussed in context in this paper.

The predecessors of the GEA were founded in 1986 and 87 to develop representation in Washington, D.C. and to promote exports for U.S. companies. Although the GEA is a trade association, it features a significant educational program. Much of its program is designed to acquaint persons in other countries with the value of U.S. geothermal expertise.

The GRC and GEA presently offer the following information/educational programs:

### Annual Meeting

The GRC and GEA annual meetings are usually held in a western U.S. city in a hotel that meets criteria developed over the years by the GRC's meetings group. These meetings provide a wide range of general and theoretical information on all aspects of geothermal exploration, development and production. They normally feature 8 to 10 technical sessions and a trade show with 45 to 50 exhibitors. Two or three short courses or workshops are usually offered just prior to the meeting. The opening session features knowledgeable keynote speakers discussing pertinent problems facing geothermal developers. Two or three field trips are usually scheduled after the meeting, along with several concurrent social events that allow attendees to exchange information, make contacts and consummate deals.

All of the technical papers submitted at an annual meeting are offset printed and hardbound into single volumes or sometimes in two volumes. Although these papers are not peer reviewed for absolute accuracy, they are reviewed for content, grammar and spelling by the Technical Program Committee of the Annual Meeting Committee. They are

available for purchase at the meeting and after the meeting. The annual meeting policy of the GRC is to provide as much information as possible in the shortest amount of time.

### Short Courses and Workshops

Next in importance to the annual meeting are the courses and workshops that are convened throughout the year. Including those convened at the annual meeting, the GRC and GEA together offer six to eight of these functions per year. The courses and workshops usually are held within the U.S.; however, both the GRC and the GEA are offering more and more of their courses and workshops in other countries.

Subjects of the courses and workshops over the years have included: introduction to geothermal resources; exploration; drilling; well testing; reservoir engineering; power plant design and construction; power plant maintenance; environmental aspects; financing, legal and other related subjects. Most courses and workshops last from one to four days, with two and one-half days as the average. The courses and workshops have been a prime source of information for a large number of U.S. geothermists over the last 20 years. Usually, these functions are also attended by a few international attendees, which adds to their appeal and importance.

All speakers at courses and workshops are asked to submit expanded outlines or copies of the papers(s) that they present. These are duplicated and inserted into binders (study guides) that are given to attendees when they register. In most cases, the study guides from courses also are available after the function to persons who did not attend.

### Symposia

Occasionally, the GRC holds a symposium on a subject that is of high importance to the geothermal community. Symposia are usually offered at convenient locations in close proximity to the origin of the subject matter. For example, a symposium on the geothermal potential of the Cascade Mountain Range would be held in Portland, Oregon. The primary reason for locating a symposium near the subject area is that field trips to areas discussed are easily developed and attended. Topics for these functions are usually obvious and are generally of great interest to the geothermal community. Speakers usually are asked to produce papers, but sometimes this is not done due to time constraints. There is usually a set of papers produced for each function; however, some of the papers consist only of expanded outlines and copies of overhead transparencies. The papers and transparencies are duplicated, inserted into binders, and made available to the attendees. In some cases, these binders are made available for sale after the symposium to persons who did not attend.

In March of 1994, the GRC held two special symposia on subjects that are critical to the long range development of

geothermal resources in the U.S. The titles were: "Sustainability of Geothermal Resources" and "Basin and Range Development." Both were two days in length, but they differed from the normal format in that all the invited speakers were asked to make 20-minute presentations concerning a common subject on the first day and, through discussions, arrive at some consensus on various problems on the subject on the second day. Both of these symposia were pointed directly at the solution of long time problems, and both were very successful. This format will be used again in the future, to help solve major problems and to clear the way for development of geothermal resources in areas plagued by show-stopping problems.

### Special Publications

From time-to-time, GRC publishes special reports on topics that are pertinent to geothermal development. Seventeen special reports have been completed, and two new ones are now under development. Following is a selected list of titles:

- Special Report No. 3: Geothermal Exploration in the First Quarter Century.
- Special Report No. 9: Commercial Uses of Geothermal Heat.
- Special Report No. 13: Role of Heat in the Development of Energy & Mineral Resources in the Northern Basin & Range Province.
- Special Report No. 17: Monograph on The Geysers Geothermal Field.

Because of the success of these publications, the GRC will continue to publish special reports on any aspect of geothermal development and production that is of high interest to the geothermal community.

### GRC On-Line Information System

In 1992, the GRC began cataloging its in-house library. This collection of documents comprises 20,000 separate technical papers, articles, maps and periodicals. Most of the library materials were collected over a period of 20-plus years. In addition, the library was augmented by the addition of three major libraries that were donated to the GRC during the past 5 years.

With the help of the Department of Energy, funds for cataloging the library materials are now being used to maintain a full-time librarian and several students to assign keywords and sort publications. Five on-line data bases have been completed and made available to GRC members and the public via subscriptions. The data bases are described below:

### **Geothermal Data Base**

Over 6,000 citations (titles, author(s), name of journal, publisher and page numbers) are now on-line; 50 percent of them have keywords assigned. By the end of 1994 over 10,000 citations should be available and the assignment of keywords to these citations should follow within six months. An additional 6,000 to 8,000 documents will be keyboarded during the next few years. Even in its present incomplete form, this on-line information system is the most comprehensive, pure geothermal library available to industry and the general public. In the years to come it likely will emerge as the single largest source of information on geothermal energy anywhere.

### **Geothermal Resources Council BULLETIN Data base**

The GRC publishes a monthly magazine, the GRC *BULLETIN*. It includes feature articles, announcements, and news about geothermal energy development around the world. There are 23 volumes and 199 issues, from 1972 to 1994. This GRC *BULLETIN* On-line data base is maintained on a monthly basis and it is an excellent historical reference journal. A description of the color photos used on the covers has also been included.

### **Heat Pump/Direct-Use and OIT Bulletin Data Base**

The Geo-Heat Center at the Oregon Institute of Technology (OIT), using the same library software program and format as the GRC, has cataloged their library. It contains mostly direct-use and heat pump publications. The citations in this collection number over 3,400 and it has become an excellent adjunct to the GRC library. This data base is now part of the GRC on-line information system. Note that the GRC in-house library does not have hard copies of all OIT citations. If OIT library materials are not available in the GRC library, it will be noted on the citation that copies can be obtained through the Geo-Heat Center at OIT. OIT also has *Bulletin*, which contains news about technical advances in the industry. Citations for articles in OIT's *Bulletin* are included in the OIT data base.

### **Power Plant Data Base**

In 1992, the GRC contracted to have a list compiled of all the geothermal power plants throughout the world and to display this material in a standard outline format. This data base, which numbers 228 power plants, was updated in late 1993 and early 1994 and a new, easier-to-read format was developed. This data base is unique in that the information it contains is not available in any other single place. A subscriber is able to search and print on his printer a detailed outline on any power station in the world in a matter of minutes. This data base will undergo continuous updating as

new information is gathered. Country maps showing power plant locations are also available upon request from the GRC office.

### **U.S. Vendors of Geothermal Goods and Services**

In 1993, the GRC contracted to have a list of the U.S. Vendors of Geothermal Goods and Services compiled into a single usable document. This list was subsequently keyboarded on to the library software and entered as one of the on-line data bases. This data base contains information on 168 U.S. vendors.

The GRC plans to add additional data bases over the next few years. Some of the proposed on-line data bases are:

- Geothermal Standards — Standards on all aspects of geothermal development are important and can save a considerable amount of time and money during design and construction of projects.
- Statistics — Statistics on all aspects of geothermal development since about 1960 will be compiled for geothermal resources in the U.S. This data base will include annually recorded items such as wells drilled, megawatts produced, power generation capacity installed, and other important data.
- Well Data — A great deal of well information exists for wells constructed in the U.S. — for example, locations, depths, lithology, tests, and well status. These data eventually will be keyboarded and offered as a data base for geothermal developers.

The library went on-line January 1, 1994; and by April 1 of the same year 10 companies had subscribed to the service. This is one third of the estimated 30 subscribers projected for 1994.

If information in the GRC library is needed quickly, it can be faxed or sent by express mail. There is a nominal charge for faxing up to six or eight sheets; however, a larger fee will be charged for extensive searches, copying, mailing, and express mail.

### **General Information**

Through its staff, the GRC dispenses information on all aspects of geothermal exploration, development and production throughout the U.S.A. and the world. Information dispensed is in the form of brochures, flyers, maps, copied articles and data sheets. Data packets generally are mailed free of charge; however, if a request involves lengthy searches for articles or copying and mailing of heavy packages, a nominal labor charge plus mailing fee is imposed.

For additional information, contact the GRC office in Davis, California (916) 758-2360.