UNIONE GEOTERMICA ITALIANA

THE EUROPEAN GEOTHERMAL DIRECTORY

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The publication of the European Geothermal Directory has been proposed to EC by GTV (German Geothermal Association) , UGI (Italian Geothermal Union) and EGEC (European Geothermal Council).

The Project has been approved by the EC Directorate-General for Energy and Transport, which has given its financial support, without which the project could have not been realized.

The directory has been prepared and published by UGI.

Its aim is to gather and make available information on who is involved even marginally in the geothermal sector in Europe, with two main targets:

- to disseminate information within the Continent, so to enable interested parties to contact each other;
- to inform about the European know-how and capability persons or firms from other parts of the world wishing to develop geothermal projects.

The publication provides a comprehensive listing of organizations, namely companies, research and learning centres, institutional bodies, business and trade structures, which are active or have some links with the geothermal sector, even if it is only part of their activity.

In fact, even in the period of maximum geothermal activity (the '70s) only few firms dedicated their business exclusively to this sector, because of its small size and very specialized scope.

The directory includes for each country:

- consulting, engineering and service firms operating in the geothermal sector;
- main geothermal plants operators and/or owners;
- main manufacturers of equipment used in geothermal activities;
- geothermal associations or organizations;
- main thermal spas associations and some important operators

The following are also listed:

- main universities with earth science or engineering courses, particularly in countries with geothermal potential;
- NGOs (non governmental organizations) promoting renewable energy use;
- trade and industry associations which can be contacted when developing a geothermal project;
- banking and related institutions and associations from which it is possible to gather information on financial matters (some banks have provided funds for geothermal projects);

- ministries which must give the necessary authorizations for geothermal activities (exploration and production leases, plant siting and building and so on) or which support renewable energy use; some of the Authorities are at the regional level;
- the main national news agencies for general scientific and energy information;
- scientific and technical periodicals which dedicate part of their content to geothermal subjects and relevant publishers;
- international organizations of interest (head office location).

Individuals (consultants, scientists, etc.) are not identified except when indicated as contact persons for specific organizations. Their names and addresses can be obtained from the listed international and national geothermal associations, active in most of the countries with ongoing operations. These associations, as well as other sister ones listed (for example heat pumps organizations) can also provide names and addresses of small firms not evidenced in the Directory.

Geothermal activities include all uses of underground heat contained in water or in the rocks above mean ground temperature. Thus, beside the energy side, warm water use for curative and recreational purposes (spas) or for chemical extraction and so on, is covered.

Energy applications consist of electricity generation and heating uses; in this last field due consideration has been given to the growing sector of shallow geothermal heat pump systems (GSHP or SGHP) and to underground heat storage (UHS); demonstration projects like the Soultz HDR or HFR (Hot Fractured Rocks) are also dealt with.

The geographical coverage of the directory (49 countries) includes all European nations and Turkey. When a nation has overseas territories (like France, Portugal, Spain and UK) these have been included. The same procedure was adopted for the Asian extensions of the Russian Federation and Kazakhstan.

To obtain data for the directory personal professional files from direct contacts were used and updated and several web sites visited. Specific questionnaires were prepared and sent: a general one for institutions of general interest only marginally involved in geothermal matters; another, more detailed, for organizations dealing more specifically with the sector.

Over 3700 names were identified and examined. More than 2100 fax and E-mails were sent and several phone calls made to verify or complete data and to speed up answers, over a period of more than one year. After a careful selection about 1,900 names have been included in the directory.

As usual in this type of work, replies were received from only a fraction, around 15%, of the contacted persons. Notwithstanding every effort, some of the parties more actively involved in the geothermal business did not answer.

Difficulties arose for various reasons. Several small firms active in the geothermal sector in the favourable period of the ‘70s have disappeared or changed scope of work; many have changed address and no information is available on present location. Reply to E-mails is erratic because persons are not anymore with the same company or because firms receiving too many messages ignore those of unfamiliar origin. Many small companies operating only at the local level (for example in the GSHP sector) are difficult to locate or are not interested to be known by a geographically wider audience, even at no cost.

In order to cover as widely as possible the geothermal sector, additional information from the following publications was used and when possible directly updated:

- "The World Directory of Renewable Energy Suppliers and Services 2000" publisher James & James Ltd, 35-37 William Road, London NW1 3ER, UK; http//www.jxj.com
- "The Europa World Yearbook" 2001 and "The World of Learning" 2001, publisher Europa Publications Ltd, 11 New Fetter Lane EC4P 4EE London, UK; http//www.europapublications.com;
- "Italia Energia 2001-2002", publisher L'Annuario Srl, Via Santa Giulia 4, 14049 Nizza Monferrato, Italy; http//www.energiaitalia.com;
- "IGA Membership Directory and Affiliated Organizations" 2001, issued by IGA (International Geothermal Association) Secretariat, Via Andrea Pisano 120, 56122 Pisa, Italy; http//www.iga.cnr.it;
- EC Directorate General for Transport and Energy "Overview of Geothermal Industries and Technologies" 2000 (CD-ROM), Brussels, Belgium

The consent of the publishers to use some of their data in gratefully acknowledged. We also thank collectively all the persons who helped us with specific information.

The directory is subdivided by countries and names are listed in alphabetical order. Each item includes the category, main activity, geothermal activity, full address, contact person, except when information is redundant or missing.

It has not been possible to include in the directory all European operators and owners of geothermal plants and manufacturers of geothermal equipment. Whenever we have obtained the relevant data, we have evidenced the more important ones. While electric power plants (for a total capacity of almost 1000 MWe in year 2000) are limited in number - around 50 - and comparatively large and thus can be easily evidenced, direct use (heat production) installations are more difficult to enumerate. In effect they are very diversified in type of application, small in size (from 20 kWt each for GSHP to few MWt each for conventional plants) and quite numerous. Conventional heat plants can be counted in the hundreds, while in the past few years shallow geothermal (or ground) heat pumps – GSHP - have developed considerably in several countries. Their number is estimated in year 2000 around 130,000 units, increasing substantially every year. GSHP capacity amounts to 27% of all heat uses (about 1700 MWt out of a total of 6350 MWt).*

Tables of geothermal electric power capacity and of the countries with substantial direct uses of geothermal energy are annexed to the directory so to give an idea of the more active locations.

More information on geothermal plants can be obtained from the listed national geothermal and HP associations.

The numerous warm and hot springs, used in spas for healing and recreation, serve also often heating purposes. There is scope for cooperation in furthering combined uses of hot springs water. Information can be gathered from listed spa and geothermal associations.

Because of the complexity of the work and of the above-mentioned obstacles in gathering the data the publication is subject to improvements. Still we believe that it will be useful to interested parties

wanting to be better known or wishing to contact other people dealing with geothermal resources, in other words, to grow themselves and help grow the business.

We hope that comments from the public to improve the directory will be forthcoming, so that in the future it may be possible to issue an updated version, if the climate for geothermal activity will be favourable and if the need for this information is felt.