Bulletin d'Hydrogéologie No 17 (1999)
Centre d'Hydrogéologie, Université de Neuchâtel
EDITIONS PETER LANG

Making the transition to geothermal educating policy makers

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ABSTRACT

To meet the needs of an accelerating world-wide geothermal industry, policy makers familiar with the related fields of energy, engineering, and natural resources must be given an opportunity to easily transition from existing fields of expertise to areas needed to meet the specific requirements of geothermal exploration and development. Educational initiatives and courses must be designed to build upon and take maximum advantage of previous knowledge and experience. Educational activities must be designed and be presented, to the maximum extent possible, as integral parts of existing programs or carefully orchestrated to provide unique value or experience so as to maximize attendance and minimize time requirements. Detailed techniques and methodologies of achieving these aims are disclosed in detail.

KEYWORDS

Geothermics, education, policy makers

1. Introduction

There is an ever-increasing need to provide educational opportunities for those who are or will be involved in geothermal exploration, drilling, field development, power plant design, reservoir management, and financing, to mention only a few of the specific, and often inter-related disciplines required for the successful pursuit, development, and operation of a geothermal project. And although there is a continuing and ever-growing need to provide quality education for present and future professionals in the multiple fields related to geothermal energy development and operation, there is an even more critical need to educate present and future policy makers as well. It is the policy makers who make decisions as to what areas can be accessed for development, who can hold leases and pursue development, what environmental factors must be considered, and, when deemed necessary, what environmental mitigation measures will be required. It is the policy maker who also,

to a large extent, determines a region's or nation's energy future and what resources will receive favorable consideration for development through the enactment of tax policy, through the provisions of incentives, and by providing funding for government-sponsored or conducted research. Policy makers also play a major role in determining the financability of projects through regulation of property ownership, utility services, imposition of export or import restrictions, passage of laws related to foreign investment, foreign ownership, expatriation of profits, requirements for foreign versus domestic employees, and through provision of government guarantees. In truth, government policy will and does have a major impact on almost every conceivable aspect of project development beginning with the granting of access for exploration and development to decommissioning and site restoration. And although most policy is set at the national level, regional and even local policy makers can and often do have a major impact on project development and/or operation.

Because the role policy makers play is ever as important as that of the geologist, drilling supervisor, reservoir engineer, power plant designer, or operations supervisor, it is as important that the same amount of effort be put into providing education directed toward meeting their needs as is put into education and training technical specialists and scientists.

2. Educating policy makers

In addressing the educational needs of policy makers relative to geothermal energy exploration and development, two very important factors must be considered

1) geothermal development is a fairly recent phenomenon in all except a very limited number of countries, so therefore, there is not likely to be any directly applicable case law upon which to build, and

2) very few educational curriculum will provide reference to geothermal let alone any major focus on the specific characteristics and needs of geothermal development.

Because most policy makers will have no previous exposure to or knowledge of geothermal technology, or understanding of the needs of the geothermal industry, and because few will ever have the opportunity or need to gain a deep understanding of geothermal, education must focus on building upon existing knowledge and experience gained from setting policy for other more historically, commonly dealt with, resources such as oil, natural gas, coal, and hard rock minerals. And, in fact, anyone who does even a cursory study of geothermal policy, for example, in the United States, will quickly see the similarity of geothermal policy to that of petroleum policy, and, to some extent, of hard rock minerals policy. Geothermal education can, therefore, take full advantage of previous knowledge of and experience in setting policy for related natural resources and build on that knowledge and experience by relating existing policy to the specific needs of geothermal. For example, there is, in many countries, extensive case law and policy relating to petroleum exploration and production and/or mineral exploration and extraction. Much of the case law and a great deal of the policy adopted for petroleum development can, and probably should, apply to

geothermal with some major exceptions. For example, geothermal fluids, at least for power production, cannot be transported over long distances or stored before use as is the case with petroleum. It is, therefore, essential that policy related to exploration and production as it applies to petroleum must be expanded to address the needs of the conversion of the geothermal energy to electrical power at or very near the site of extraction. As can be seen from the example, it is critical to present the needs of geothermal based on a full understanding of the similarities as well as the dissimilarities between presently adopted policy, e.g., that relating to petroleum, and to the specific policy needs of geothermal.

Providing education relative to any specific policy need of the geothermal industry can, in most cases, be fairly straightforward and usually consists of working one-on-one directly with critical policy makers or their staffs. Because, in most instances, policy recommendations are drafted by staff, developing a strong working relationship with appropriate staff is essential, and looking to the future, taking every opportunity afforded to furthering that individual's knowledge of geothermal should be fully exploited.

However, making policy is far more than just addressing specific needs on a one-by-one basis. As was mentioned earlier, national, regional, and, to some extent, local policy often dictates what resources can or will be developed. And, in fact, in order to have success in resolving even singular policy issues, it is often important that much broader policy decisions be made as, for example, adoption of a national policy to pursue the development of indigenous, renewable, and sustainable resources. And, more specifically, a decision to pursue development of geothermal energy as one of those preferred resources will often necessarily precede any agreement to deal with specific geothermal policy needs. Here it is not simply enough to build upon existing case law or legislation and to clearly articulate the need and make recommendations or suggest remedies for addressing that need; here the focus must be on building a strong appreciation for the economic, environmental, and social benefits that are associated with geothermal development while fully explaining the requirements of a viable geothermal development program. Of course, risks and potential impacts of development must also be clearly presented if credibility of the arguments are to be sustainable, and policy support ongoing.

3. Developing an educational strategy

Getting the attention of policy makers is not always an easy task, but a number of techniques can be used to help get their attention and, most importantly, getting them to devote their time as well as their staff's time, energy, and resources to formulating policy favorable to geothermal development.

3.1. Personal contact

Personal contact with policy makers is extremely important, but due to the number of issues with which most policy makers must deal, should be used sparingly and only to provide critical information or request specific assistance. Personal contact can be most

persuasive when done by or in conjunction with a representative of an industry association and/or when specific benefits to or impacts upon the policy maker's constituents can be clearly presented.

Identifying and developing one or two champions within a national, regional, or local legislative assembly is often critical, and identifying such an individual or individuals should be given very high priority. Once identified, a very good way to get a particular policy maker more engaged is to ask he or she to speak at a major meeting or conference, or to participate in a ground breaking or ribbon cutting ceremony. This has the primary benefit of bringing the policy maker into direct contact with the industry. This also allows you to work closely with that individual's *staff* as you will often be called upon to help prepare the policy maker's presentation or remarks. Working with staff on the preparation of such materials thus provides an opportunity to educate that individual and indirectly the policy maker. This can also be an excellent opportunity to arrange for a site visit or tour so that the policy makers and possibly staff member(s) can see first hand what is truly involved in geothermal development. If a trade show or exposition is part of a conference where a talk is given, a guided tour of the expo will often highlight the breadth and extent of the geothermal industry. Being invited to participate in a ground breaking or ribbon cutting ceremony can often serve as a reward for past legislative or policy support, and provides an excellent opportunity for good press for the policy maker, the particular project, and the industry at large.

Personal contact with staff should be seen as important as that with the policy maker. Staff can often be found at two distinct levels: the first being the policy maker's personal staff and, second, *staff* that serves a particular committee, e.g., the Committee on Natural Resources or the Commerce Committee, but who still may report to the policy maker if he or she serves in a leadership position for that particular committee. Committee *staff* tend to be more permanent and often have extensive education and experience in issues over which the committee has jurisdiction. Personal staff, on the other hand, tend to change regularly and seldom have either in-depth knowledge of or experience with the programmatic areas to which they are assigned. Committee *staff* tend to be much more receptive to offers of assistance and educational opportunities. Personal staff, on the other hand, are often overwhelmed by the sheer magnitude of the things with which they must deal, and seldom have interest in or opportunity to attend anything more than short briefings on any given topic. Their familiarity with a particular policy issue is, however, critical, and often the key to achieving direct contact with either the policy maker or committee staff. Because of the tremendous turnover in personal staff, briefings should be offered at least every six months, and personal visits made as often as is possible, especially whenever there is a change in project status or a particular issue requires their attention.

3.2. Study tours

Study tours can be an excellent tool for providing policy makers with a highly concentrated education. Often study tours of 6-12 individuals can be arranged to visit extensive geothermal developments at home or in a foreign country. This not only allows for the

policy maker to meet face to face with his counterparts that may have recently had to face many of the same issues that he or she is now facing, but to see first hand actual benefits and impacts of geothermal development. This also provides several days of uninterrupted time to get to know and gain the trust of tour participants. There is nothing quite like a captive audience when it comes to accomplishing an educational agenda. One of the real benefits for those organizing and conducting such study tours is the ability to ask those providing the briefings the often over-looked or leading question or to direct a discussion in the direction of the policy initiatives you are most wanting to pursue.

3.3. Topical short courses

Topical short courses are an extremely powerful educational tool, but are best directed at high-level staff as opposed to policy makers themselves, as it is seldom that a legislator or assembly person will have the time to attend a multi-day course. However, if orchestrated properly, a study tour with multiple briefings can, in fact, serve the same function as a short course, but in a more informal and relaxing setting and with the added incentive to participate in what is often a fully paid trip.

Short courses can be organized to address any particular topic and can allow for a great deal of dialogue between presenters and attendees. Topical short courses of fiom 3 to 10 days can be organized in a host country where a particular policy debate is taking place or in a country where many of the issues have already heen resolved but where extensive expertise is available, this often allows attendees to more fully appreciate the debate that preceded resolution of a particular issue or issues. A number of organizations, including the International Geothermal Association, can participate in organizing and even possibly assist with funding for topical short courses.

3.4. Training schools

In addition to the many topical short courses, seminars, and workshops that are held on a semi ongoing basis, a number of schools specializing in geothermal training also exist. Of these, the schools in New Zealand and Iceland are probably most renowned for their well-established programs. And although it is highly unlikely that a high-level policy maker would ever have the luxury of attending a multi-month course, these training centers are actively training those that could, and most likely will, become the policy makers of the future. It is because of this that although the training centers are primarily aimed at meeting the needs of scientists and engineers, additional emphasis on policy issues and the interrelationship between science, technology, policy, and politics should receive greater attention.

3.5. Additional alternatives

Another way to influence policy makers and policy decisions is through the use of special one-day events directed at policy makers and staff and can include talks, discussions, and exhibits. A full-day or even a half-day event that is well coordinated with staff and that

carries with it the endorsement of the administration or legislative leadership, can be extremely beneficial in raising awareness about the many benefits of geothexmal development as well as introducing particular needs of the geothermal industry. Such events, of course, must be organized and held in a locale that makes attendance by the policy maker and staff as convenient as possible.

Many legislative committees also hold mid-session study days or weekends devoted to in-depth looks at possible areas for future legislative action. Getting on the agenda of such events often provides a chance to give a much more detailed presentation than would be possible during legislative hearings. In addition, such informal presentations often allow for the identification of individuals that may be especially interested in pursuing a particular legislative agenda, i.e., the legislative champion.

Often overlooked but tremendously important is the influence that the general public and, in particular, organized factions of the general public have on policy decisions. Because of this, the education of natural allies, for example, labor unions or groups devoted to pursuit of environmental or sustainability goals, about the benefits of geothermal can have a major impact on the success of other educational efforts directed at policy makers or their staffs.

The press also has a major influence on policy development, and although one or two unfavorable articles can have a major negative impact on public opinion, journalists are seldom provided with real opportunities to leam first hand about geothermal energy developments, and the real costs, benefits, and impacts of such development. Whenever possible, science and technology editors should be provided with educational materials and offered the opportunity to cover conferences, workshops, briefmgs, ground breaking ceremonies, project dedications, etc. Journalists can also be offered the chance to cover study tours; however, most will insist on paying their own expenses in order to ensure that their professional integrity is not compromised.

4. Summary

Geothermal education is all too seldom directed towards meeting the needs of policy makers or those who have the greatest influence over policy debate and policy development. Because even getting on a policy maker's radar screen, let alone his or her policy agenda, is often the most difficult task, a number of strategies must be considered and numerous options pursued.

The ever-increasing,world-wide demand for energy provides a tremendous opportunity for accelerating geothermal development—how well policy makers understand the benefits of geothermal development and the needs of the geothermal industry will, to a large extent, dictate the long-term contribution that geothermal will make to meeting the need for energy in an environmentally-acceptable and sustainable manner. How successful we are in educating present and future policy makers will greatly influence the final outcome and ultimately the future of the geothermal industry.