



GIA-IGA Joint Workshop, May 5-6, Madrid

Barrier and Opportunity Identification:
A task of IEA GIA Annex VIII
‘Direct Use of Geothermal Energy’
- Summary of Answers to Questionnaire -

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Background

- **Renewable energy technologies** generally face barriers to technology uptake, for example, immature technology, high initial cost and other obstacles such as environmental and legal constraints and lack of public acceptance, information and education (IEA, 2006).
- **For geothermal power generation** like other renewable electricity, these barriers are rather well identified and information is shared to some extent.
- **For geothermal direct use**, on the other hand, cost and other barriers are quite different from country to country and sometimes poorly identified. This is also true for opportunities and supportive measures, if any.



History of the Annex VIII Task C Questionnaire

- **September, 2005 (14th ExCo meeting):** agreed on formulating and circulating a questionnaire about the status and prospect of geothermal direct use in the countries participating Annex VIII, covering the aspect of barriers and opportunity (Task C) as well as costs and performance (Task B).
- **June, 2006:** The first circulation has been completed.
- **March, 2007 (17th ExCo meeting):** Compiled and analyzed results of answers from six participating countries was reported. It was suggested to revise the questionnaire and to include other countries being active in direct use.
- **October, 2008 (20th ExCo meeting):** agreed that revised questionnaire focusing on ‘barrier and opportunity identification’ (Task C) should be completed first.
- **April, 2009:** Answers from eleven countries have been received and subsequent compilation & analysis have been made.



Contents of the Revised Questionnaire

Part I. General Questions on Present Status:

1. Present status
2. Development trends
3. Energy policy

Part II. Barrier and Opportunity Identification:

4. Social and political issues
5. Information channels for public awareness
6. Environmental constraints
7. Legal matters
8. Financial capacities
9. Technical and other barriers
10. Supportive measures
11. Future concerns

Part III. Other Relevant Issues:

12. International cooperation
13. Other relevant issues to be added (something like suggestions)



Contact list and status

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* Answers from China, Germany, Poland and Turkey have not been received yet



Discussion, Conclusions and Suggestions

- **Direct use prospect:**
 - Geothermal heat pump installation is expected to increase more than 10% every year
 - Other types of direct use will also increase but with much lower rate

- **Technological problems to be solved:**
 - Method of direct-use resource assessment should be designed (including potential for GHP?)
 - It should include subsurface information as various as possible to remove technical barrier, if any
 - Engineering standard and qualification scheme are better to be devised with help of various available sources (subject of Task E) ⇒ important for nurturing small business



Discussion, Conclusions and Suggestions (continued)

- **Supportive measures:**
 - Government support types (e.g. subsidy, tax credit, electricity rebate, and so on) should depend on each countries' development stage and legal system as currently those are
 - But, nevertheless, we may need to categorize those and better to prepare a best suited proposal and corresponding outcome or prospect ⇒ **especially important to decision makers**



Discussion, Conclusions and Suggestions (continued)

- **Public relations and information to decision making level:**
 - Although it is getting better, geothermal is still less known to public than other RES such as wind, PV, bio, and so on
 - On the decision making level, furthermore, lack of lobbying or powerful lobbying from other RES may be a threatening factor against making geothermal wide spread
 - So, we need to do better job of publicizing the geothermal energy with emphasis on its indigenous and ubiquitous nature ⇒ should devise effective tools such as demonstration center or media program
- **Of course, further survey on other countries those are active in direct use such as China, Germany, Poland and Turkey will help us understanding different situations worldwide and, in turn, devising better tools to promote geothermal direct use**



Thank you for attention!

