

Design of a Logo for a Geothermal Energy Supply Chain

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Abstract

Geothermal energy is almost always and universally available, but its potential is largely unused. Previous work in the framework of a project by Technische Universität Bergakademie Freiberg on the improvement of this potential showed that marketing is one of the key factors for success. Hence, the project was continued with a second step consisting in the development of a logo for use by the geothermal energy supply chain in order to help to identify the product on the market. The paper reports on the results of this second step. It discusses general idea about designing a logo, what information is relevant to design a successful logo. It reports about the procedure used to design the logo for the geothermal energy supply chain. It ends with conclusions and some remarks about the outlook for the future.

Keywords: low temperature geothermal energy, marketing, design of a logo

Introduction

Geothermal energy is almost always and universally available, but its potential is largely unused. Previous work in the framework of a project by Technische Universität Bergakademie Freiberg on the improvement of this potential showed that marketing is one of the key factors for success. This result was obtained from an analysis known as the House of Quality of the supply chain of geothermal energy for heating and cooling of houses.

On the basis of the result, the project was continued with a second step consisting in the development of a logo for use by the geothermal energy supply chain, because a logo has been shown to be one of the basic marketing tools for companies, products or services, since it helps to identify the product on the market (Kotler & Armstrong, 2006).

This paper reports on the results of this second step. Given the outcomes of the methodology used in the second step, the outcome of the paper does not only consist in a design of a logo, but also in some recommendations for marketing geothermal energy. Section 1 gives a short overview of geothermal energy market in Germany. Section 2

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discusses general ideas about designing a logo and presents the information which is relevant to design a successful logo. Section 3 deals with a detailed approach towards designing a successful logo for the geothermal energy supply chain. Section 4 contains the procedure used to design the logo for the geothermal energy supply chain. The last section contains the conclusions and some remarks about the outlook for the future.

Geothermal Energy Market: Overview in Germany

Geothermal energy is almost universally available for the purpose of regulating the inner temperature of buildings (cooling and heating and air conditioning). This availability is largely theoretical, since the potential is only marginally tapped on. In figure 1 it can be seen that geothermal energy represents less than 2% of primary energy consumption in Germany. Figures 2 and 3 show that more than 50% of the energy in Germany is used for heating (this includes space heating, hot water and process heat). A comparison of both figures also shows that the share of usage has varied little over time (between 1996 and 2004). Given the importance of heating and the very low share of geothermal energy in this segment, the market for geothermal energy (mostly used for heating and cooling) is still to be conquered and investigating the potential of geothermal energy is worthwhile.

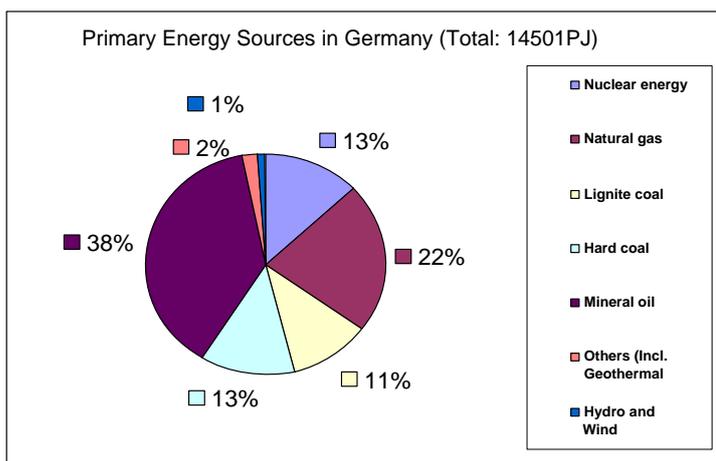


Figure 1: Consumption of Primary Energy Sources in Germany. Source: adapted from RWTH Aachen, 2002

Next to the fact that geothermal energy is almost everywhere available, one should point out that it has a beneficial effect with respect to climate change, since no combustion processes are required.

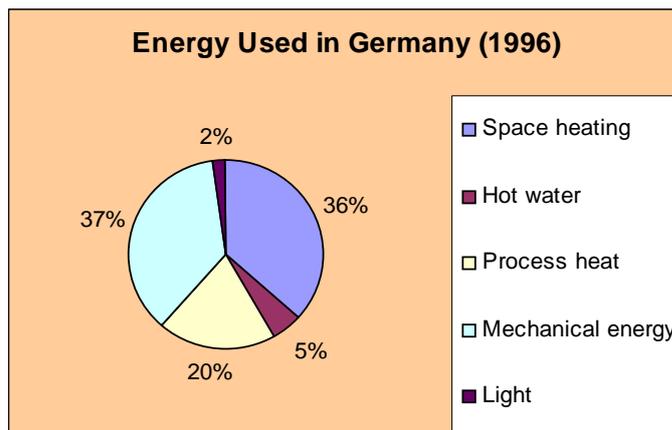


Figure 2: Repartition of Energy Usage in Germany – 1996 Source: adapted from BMWi, 2006

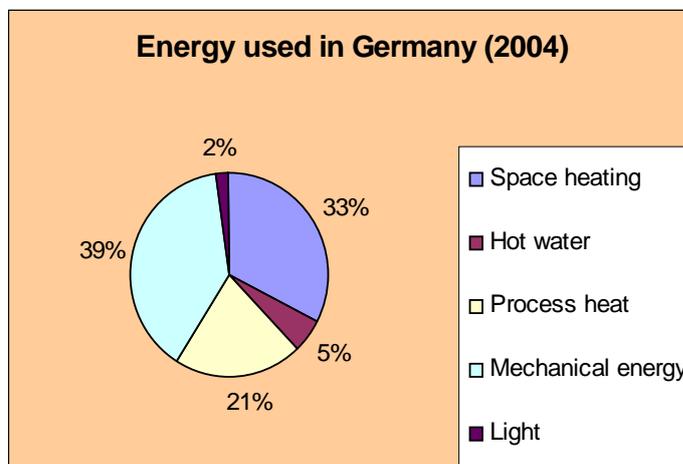


Figure 3: Repartition of Energy Usage in Germany - 2004 Source: adapted from BMWi, 2006

Moreover, the costs of contributing to climate protection are low. Figure 4 shows the cost of reducing one tonne of CO₂ if one replaces fossil fuel by the five renewable energy sources (geothermal energy, wind power, hydro power, solar heating and photovoltaic) and by three energy conservation measures (low energy house, energy saving, block heating units). Among the five renewable energy sources, geothermal energy is that source with the lowest cost and, in that respect, it is a very good substitute for fossil fuel. Hence, as much as CO₂ is becoming the subject of pricing, e.g., in the shape of markets for certificates, entering the geothermal energy business may capture this low cost effect whilst, obviously, a responsibility towards environmental protection can be demonstrated.

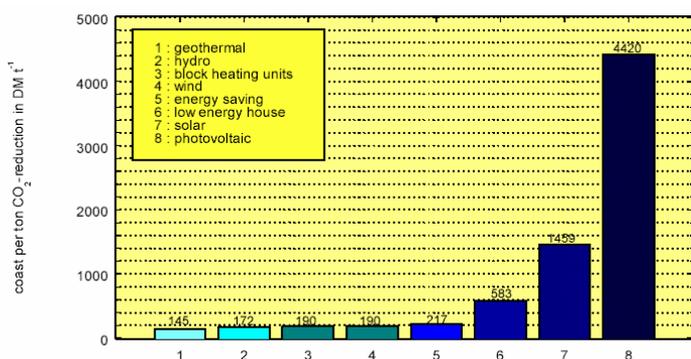


Figure 4: Cost of Reducing one Ton of CO₂ when Replacing Fossil Fuel Energy Sources by Renewable Energy Sources and Energy Saving Measures, Respectively. Source: Schnellschmidt et al, 2000

These two key characteristics of geothermal energy, i.e. its availability and its economically beneficial impact on climate change should call for a much wider use of technologies making use of geothermal energy. Since marketing is an important tool towards that goal, techniques have to be developed for this purpose. The next section describes the design of a logo for the supply chain.

Designing the Logo

Background Information

As mentioned in the introduction, this paper reports on the outcomes of the second stage of a larger project. During the first stage of the project¹, an analysis was made of the supply chain of geothermal energy for heating and cooling from the point of view of the customer's needs. The technique is known as the House of Quality and the striking outcome was that the requirements of the customers related to the marketing of geothermal energy were only poorly met. One conclusion from that result lead to an investigation of the lack in coherence and the low level of confidence in the supply chain, as seen by the customers and as revealed by the low score of the so-called technological specifications used by the supply chain to safeguard this coherence and confidence. The practical way into the investigation consisted in bringing the partners of the supply chain together in a working group in order to improve and demonstrate quality in terms of marketing and service.

As an immediate activity resulting from the report and the subsequent deliberations of the working group, it was decided to design a marketing logo for geothermal energy; with the specifications² that the logo should meet certain qualifications:

- Promote geothermal energy as one of the best alternative energy sources,
- Internally make the geothermal energy (heating and cooling) supply chain that was created becoming "identifiable" to the member of that chain
- Externally serve as marketing tool for geothermal energy and for the supply chain

In the following sections, we analyze the significance of logos for the benefit of these purposes.

What is a Logo?

According to Random House Unabridged Dictionary (2006) and The American Heritage® Dictionary of the English Language (2006), a logo is defined as a name, symbol, or trademark designed for easy and definite recognition, especially one borne on a single printing plate or piece of type. It is short for "logogram" and "logotype". The Compact Oxford English Dictionary (2006) defines a logo as an emblematic design adopted by an organization to identify its products. In the same direction, Solomon et al. define a brand (which includes logo) as a unique symbol that identifies a product and sets it apart from the competition; the said symbol must be recognizable and memorable³.

These definitions of a logo all focus on organizations (companies), products and services (trademark). In a sense, they relate to the world of business and commerce. One should be aware of the fact that logos are also created and used outside this realm. Examples are logos as traffic signs and logos as indicators of directions and locations in public structures and buildings, such as railway stations, airports, hotels and the like. For these logos, the importance is not so much seen in their uniqueness but in the clarity of the message they intend to convey. This property might be important by analogy for the design of a logo for geothermal energy.

The list of definitions of a logo given here is far from exhaustive and it becomes obvious that various interpretations can be given to the term. For our paper, it is not necessary to do a content analysis of the various meanings attached to the term logo. What is required is a clear understanding of what is meant by logo in this context. As a logo we mean a graphical representation using images, colours, shapes to represent and identify a certain object or activity, i.e., in our case, geothermal energy for heating and cooling of buildings. In order to fulfil its functions, a logo should meet a certain set of characteristics or

requirements. Some of these are discussed below.

Basic Requirements for Designing a Successful Logo

At first, it should be noted that there is no bad logo! The issue at stake is whether a logo can become successful and how this success may be achieved. Hence, any logo, whether simple or complex, has the potential to be a success depending on the set of marketing activities in which it is being used. In that context, the following questions should be answered:

- What is the logo made for?
- Where is it going to be used?
- Who are target people of the logo?
- What is needed to be achieved by the logo?
- Which logos do competitors use?
- What are the accompanying marketing activities? (Can we afford those other marketing activities?)
- Who are the partners sharing the logo (if partnering)?

Still for the purpose of creating a good logo design, as for the questions just mentioned, some general mistakes have to be avoided during the design of a logo. These mistakes include:

- Too many “signals” (e.g. graphical symbols, colours, data, pictorial information) in the logo or associated with the logo could be cumbersome for beholders.
- Too technical information could be a problem if observers are not addressed properly,
- If a certain object or activity (a product or a service) is already perceived in close conjunction with a certain logo or with specific, the creation of a totally different logo for an object or activity within the same generic category may confuse beholders,
- Dishonesty: it is not good to give wrong information on the logo, or associate the logo with something that is not true.

To illustrate the potentials and pitfalls of logos in the sense of the above discussion, in the next section we present some logos and discuss their features with respect to the questions and potential mistakes mentioned there.

Commenting Some Logos

IMRE is an MBA Study Programme of Technische Universität Bergakademie Freiberg dedicated to the International Management of Resources and Environment. Its logo (See Figure 5), if placed outside of any dedicate context, will not be understood by persons not familiar to this programme. However,

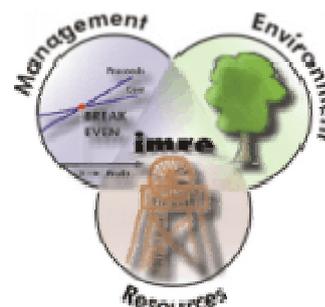


Figure 5: Logo of IMRE. Source: IMRE, 1999

placed in the context of the academic institution in which the programme is taught, it will be easily associated with the management of resources and environment because it has:

- A management part represented by the term “management” and a graph representing a break-even-point,
- A resources part represented by the terms “resources” with a drawing representing mining activities,
- An environment part represented by the term “environment” with a green tree.

Hence, one can see that the questions asked above can be answered properly and that the potential mistakes pointed out can be avoided.

The Department of Molecular Genetics of Weizmann Institute of Science (Israel) has a logo (See Figure 6) that nobody, apart from specifically qualified scientists, will understand. In reality, however, in the case of this logo, it is not required that non-experts do not understand the logo, since it is used in a very particular context with reference to a very specific audience which is familiar with the “reality” depicted in the logo. Hence, since the label is addressing a very specific group of target persons, it fulfils its objectives.

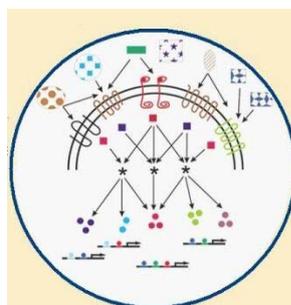


Figure 5: Logo of Department of Molecular Genetics of Weizmann Institute of Science. Source: Weizmann Institute of Science, n.d.



Figure 7: Logo of Ozark Shooters. Source: Ozark Shooters Sports Complex, n.d.

with one hand and holding something in the other hand, he is smoking a tobacco-pipe, he is weirdly dressed, and some music is being played ... This may be seen as a logo which is too complex⁴. But as explained above, there is no bad logo, and it would be necessary to do a detailed investigation about the motivations of the company for using this logo, the reality which the logo is reflecting behind, the target audience attracted by it and the level of information about the reality reflected by the logo already known by this audience.

The McDonalds logo (figure 8) is a simple M, and it is known by almost everybody in the world. It is also highly probable that beholders can associate it with the issuing company in the sense that, in the perception of the beholders, they have a connotation with something very definite related to this company, from the products served, the convenience of the service, the atmosphere of the restaurants, the take-away aspect of the service, to negative aspects, such as the health risks associated with frequent consumption of the products and the like. Whatever this “something” may be, we can definitively conclude that there exists a recognition effect. This recognition effect is achieved because the company, instead of using a logo that represents exactly its activities (which might be very difficult or even impossible to show in a logo), it spends millions of dollars on advertising¹³ the product behind the logo, and hence it achieves its worldwide target.

Similar to the McDonalds logo, the logo of DHL (See Figure 9) is not representing the “reality” behind the activities of the company and, in contrast to McDonald’s most people will not even know what the

Ozark shooters sports complex has a logo (See Figure 7) that could be very cumbersome to understand for beholders. (From the website it is not clear if it is a company offering shooting facilities or if it is a shooting school). The logo has too many colours and it contains very little information. Somebody is shooting

abbreviation stands for⁵. The logo will probably not enjoy the same level of recognition as the McDonalds logo, but all potential users are familiar with it.

Considering the logo of Unilever (See Figure 10), one would have to state that the level of abstraction is very high and, worldwide, the degree of recognition is not very high. The logo would have no meaning at all if it were not accompanied by the name of the organization (Unilever) for which it is supposed to stand. Even so, this name may not be familiar to many observers, even when they are consumers of products of this organization.

When it comes to an interpretation of the meaning of the logo in terms of the reality it represents, the audience it is supposed to address, the conditions of use, most people will have no concrete understanding. The reason seems to be that the overwhelming amount of people does relate to the many branded products of the company which have their own logos and which are supposed to be the real vehicles of marketing. The “blue U” logo is obviously addressing those persons with an interest in the company as such and who may be familiar with it. Under these circumstances, the logo may meet their expectations.

The discussion of this very short list of logos has revealed that logos contain letters, symbols and combinations of letters and symbols. It also showed that they should be well designed in order to be used by companies to identify themselves or their products and services, to be communicated or even to be placed on the market. With some of these thoughts in mind, attempts were started up to design a logo for geothermal energy.

Designing a Logo for Geothermal Energy

Although geothermal energy can be described as one of the best environmentally friendly energy sources, it is not yet known by potential consumers in comparison with other renewable energy source, such as solar energy⁷. From a marketing point of view, this is important, because solar heating energy is a technology directly competing with low temperature geothermal energy in terms of the services rendered. In respect of



Figure 9: Logo of DHL. Source: DHL, n.d.



Figure 10: Logo of Unilever. Source: Unilever group, n.d.



Figure 8: Logo of McDonalds. Source: McDonnald's, n.d.

this lack of information, the logo for geothermal energy should have as one objective an improvement of the awareness of geothermal energy with potential consumers. For this purpose, it was considered necessary to start the process of the design of the logo with creative group meetings bringing potential customers together and asking their opinion about geothermal energy.

A creative group meeting is a sort of brainstorming⁸ to judge the feeling of participants about a certain subject. The subject could be a problem, in the sense that participants lack information about it, but an appropriate design of the meeting will largely avoid this problem. Hence, any subject or topic can be dealt with in such a brainstorming meeting. Participants come to this meeting unprepared and they are not told beforehand what is going to be discussed: The organizers of the meeting should create a very relaxed atmosphere so that participants can speak out easily and as deeply as possible express their minds.

The two meetings organized were expected to generate three outcomes which are described as follows:

- What ideas, impressions, information from the participants about energy in general and geothermal energy in particular could be relevant for designing the logo?
- How well are participants informed about geothermal energy?
- Are participants willing or will be willing to use geothermal energy in the future? Why?

The first outcome was directly related to the design of our logo, whilst the second and third outcomes could lead to the suggestions for some other marketing tools (apart from the logo) to be developed in the future in order to increase the success of the geothermal energy supply chain.

First Creative Group Meeting

The first creative group meeting was held at TU Bergakademie Freiberg¹⁸⁹. All participants were students (from many countries) and most of them did not know much about geothermal energy. The conclusions from that meeting can be summarized as follows. Appendix 1 contains the list of questions presented during the meeting and some of the answers given.

- Most people did not know much about geothermal energy (nobody even thought about geothermal energy when asked to name energy sources!!!),
- Most people preferred solar energy because it is luxurious, fancy,...and already better known,
- Nobody knew that geothermal energy was the most environmentally friendly alternative energy source,
- Some people were wondering whether it is possible to have geothermal energy everywhere,
- The cost was also considered to be very important: is it cheaper than energy from traditional grid? How much to invest? When is a return on investment to be expected?
- Some technical questions were important, such as the technological life time of the installations? How many years of guarantee are granted by suppliers? How often is maintenance needed? Is geothermal energy “dirty or clean”?

The general outcome was that geothermal energy is not yet known. As a consequence of that conclusion, it is important to notice that intense marketing is needed.

Second Creative Group Meeting

The second creative group meeting took place in GIZeF¹⁰. Participants were potential customers (people already interested in geothermal energy), and geothermal energy providers (that is people working for the geothermal energy industry with sufficient knowledge of the field and the present situation). Again, the main result of that meeting was that even people who know and are interested in geothermal energy are not completely convinced about its usefulness and take a hesitating stand. They are questioning the financial aspects and they even still need some technical enlightenment.

The meeting also revealed some positive statements about geothermal energy. Among the positive comments received, the low level of maintenance and the independence of mineral oil were mentioned. The fact that positive comments and opinions were given leads to a second conclusion, according to which there is hope for the future if more work on properly communicating geothermal energy is being performed. Appendix 2 contains a table in German with some pros and cons of geothermal energy generated during the second creative group meeting.

As general outcome of the two creative group meetings, it can be stated that it is very important to understand the “Voice of the Customer”, i.e. the opinions, attitudes and expectations of customers with respect to geothermal energy. Hence, our outcomes can be added to those already present in the analysis of the House of Quality for geothermal energy¹¹. These outcomes also reveal that the design of a logo for geothermal energy is certainly necessary but it is by no means sufficient and other activities within the marketing context have to be implemented. This is why the next section presents some recommendations for marketing activities that can be performed by the supply chain.

Recommendations of Marketing Activities for the Supply Chain

The two creative group meetings led to the conclusion that intense marketing is needed for geothermal energy to become known and therefore more used. We came then out with some recommendations for further marketing purposes. It should be noticed that many of these recommendations are not very expensive:

- Define a clear mission statement,
- Create a slogan (Appendix 4 of presents a list of all the slogans that were generated throughout this research. The supply chain can in the later stage adapt one of those slogans),
- Design a leaflet explaining how geothermal energy works and make this leaflet available in some strategic points like universities, supermarkets, sport centres and by request,
- Convince the already users of geothermal energy to hang a board out their houses showing that they use geothermal energy provided by the supply chain. The board could also show that geothermal energy is excellent in terms of environmental protection, and the quality assurance of the supply chain providing this geothermal energy,
- Create and administrate geothermal forums on the internet,
- Mail some targeted people with questions like:
 - o Would you like to receive info about geothermal energy? If yes contact...(provide email address and telephone numbers)
 - o Would you like to share information about geothermal energy? If yes contact the geothermal energy supply chain

- Make an attractive website¹²:
 - o Quiz about geothermal energy
 - o Forums of discussion Principles (how geothermal energy works, user manual)
 - o General useful information:
 - What is important to know about geothermal energy before deciding to use it,
 - What are the steps of implementation if one decides to use geothermal energy,
 - What type of houses are suitable (actually tell people that every house is possible)
 - o Compare geothermal energy to other energy sources in terms of environmental protection, costs, maintenance, condition of use and many other aspects,
- Make a small model of a house with geothermal energy that can be transported to a fair or any event to show people how geothermal energy works and how it can be easily implemented,
- Make a video about steps of implementation of geothermal energy,
- Make presentations at universities (students are future consumers),
- Organize fairs and open days. Find appropriate location for such events, e.g. Existing (old) buildings or new buildings and explain there how geothermal energy could be implemented.

Design of a Logo for the Supply Chain

Setting Requirements for the Logo on the Basis of Background Information

The background information that we used during the design of the logo was mostly based on findings from the previous chapter in this report. Part of this information came from the creative group meetings and another part resulted from a study of logos with respect to geothermal energy already being used by various suppliers in the industry. The outcomes of the meetings were compared with the results from the study of the labels. The procedure and its outcomes can be described as follows:

- At the end of both creative group meetings, we asked participants to write word, or texts or draw something that, according to them, can be used for the representation of geothermal

energy. The outcomes of this writing and drawing were interpreted to obtain an understanding of the (spontaneous) feelings, attitudes and preferences of the participants with respect to the logo to be designed. To the best of our understanding, one can state that the general picture obtained from this exercise was rather confusing.

- The inspection of logos already being used revealed that the heat exchange between the house use between the house and the earth is represented by blue and red arrows. Clearly, red stands for “hot” and blue stands for “cold” and the arrows are signals of the heat transfers. Since this feature is generally used in logos for geothermal energy and probably well known to beholders, we decided to use it for the design of our logo.
- Most logos used also have a symbol depicting the sun. The inspection and the analysis of that feature revealed that it is not advisable to use the “sun” in the logo because, technologically speaking, there is no influence of the sun on the geothermal energy the systems being studied in this paper. Hence, given the principle of honesty (or avoiding the mistake of dishonesty), potential customers should not be misled by a logo containing a graphical representation of the sun if there is no real explanation for that.
- Technologically speaking, geothermal energy is not limited to heating a building as it can also be used for cooling. (In a certain sense, one would have to state that the geothermal energy systems studied in this paper represent technologies for air conditioning.) For this reason we decided that it is important to highlight this feature in the logo¹³.
- Taking into account the principles that logos should be simple and honest (or, avoiding the mistakes of too many signals and of dishonesty), we decided to use a representation of the globe as an indicator that the energy is coming from the Earth.
- Since the logo must also serve the purpose of the suppliers of geothermal energy in the sense that they can identify themselves with it, see the advantages it may create for their business and assist them in sustaining their marketing activities, intensive discussions took place with representative members of the geothermal

energy supply chain about their specific wishes and desires. In particular, intensive discussions among the authors themselves and with participants of the second creative group meeting lead to the conclusion that the logo should display not only the reality of geothermal energy but also attract sympathy for the technology. This lead to the idea of a happy/laughing house.

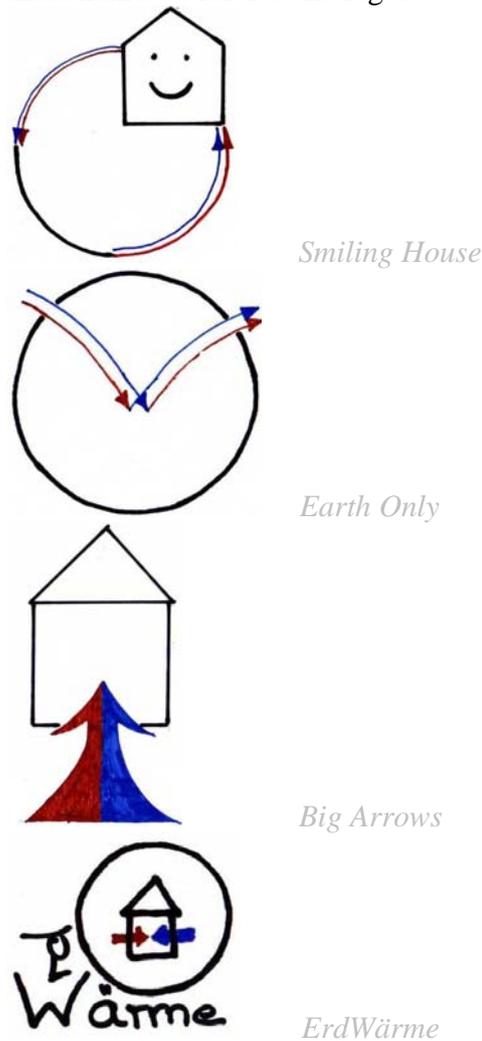
Procedure for the Design of a Logo

With all the background information and the conclusions taken from them, as described in the previous section, we drafted around 20 logos which were then put up for a selection, in order to arrive at a final choice. Using our conclusions as requirements for the design of the final version of the logo, the selection procedure took place in two steps.

The first selection was made by the authors in co-operation with members of the supply chain. This first selection was very simple and it could be performed very fast. All 20 logos were compared one to each other and checked with respect to the requirements set in the previous paragraph. As a result, four logos were retained for further study after the first step of the selection procedure.

The four logos selected were then subject to the second step of this selection procedure. This second step consisted of a survey to choose the best out of the four pre-selected logos. For that purpose, a specific and dedicated questionnaire for the survey was drafted and presented to more than 200 persons. The participants were mostly acquaintances, friends, colleagues, and members and employees of the supply chain. Basically, the questionnaire consisted of a table containing one logo in every column and participants were asked to give scores to each logo and add their comments on that logo. The scores were set from 1 till 4, with 4 representing the best choice and 1 showing the worst choice. Clearly, 2 and 3 were scores in between the scores 1 and 4. Participants were explained not to give the same score to two different logos. Statements showing “no opinion” were not allowed. The layout of the questionnaire can be found in appendix 3. The questionnaire was mostly submitted by e-mail, but in some cases we had also the opportunity to submit them directly on hard copy to the persons surveyed. The second step of the selection was made on the basis of the answers given to the questionnaire. For that purpose, three different computations were made.

The first one consisted in adding up all scores given to each logo, leading to a classification of all four logos in place one, place two, place three and place four. The second computation consisted in adding up only the “top” scores of 4 given to the logos. Again, an analogous classification was obtained. In order to control for the specific desires and wishes of the suppliers of geothermal energy, the third computation was a repeat of the second computation by limiting ourselves to the “top” scores of four given by those participants working in the field of geothermal energy. The second step of the selection procedure could be ended in that way. The types of computations did not have any influence on the ranking of the four logos. We present here the four logos with names that were assigned to them for identification according to the order of preference. Further in this report we use these names to refer to the logos.



Results of the questionnaire

The outcomes of computations one, two and three are represented in figures 11, 12 and 13 respectively.

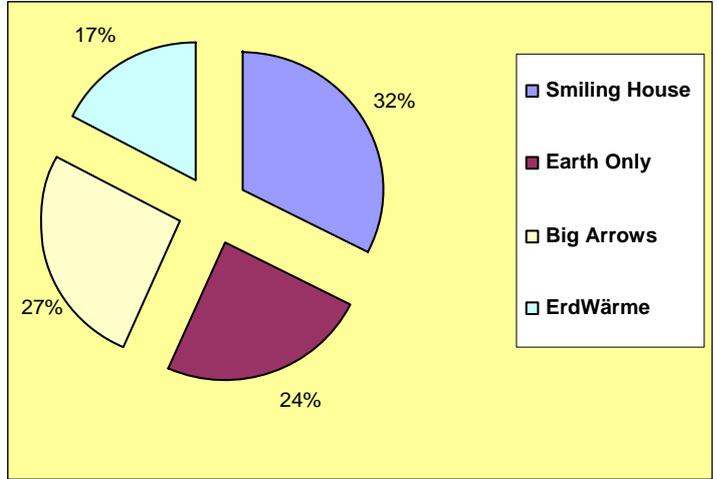


Figure 6: Results of the Survey for Choosing the Best Logo – Computation 1

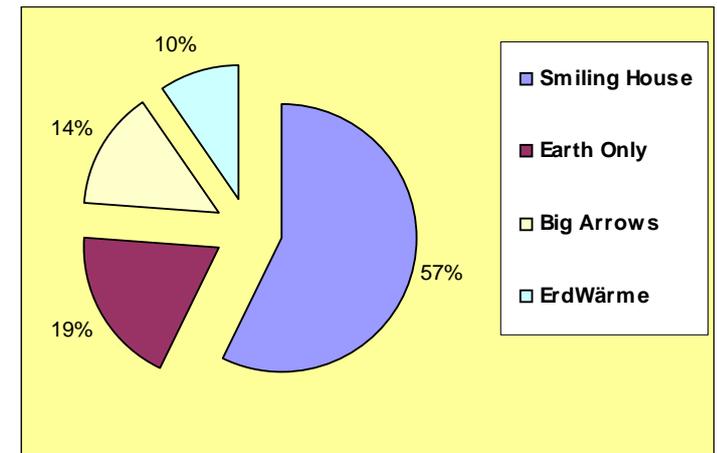


Figure 7: Results of the Survey for Choosing the Best Logo – Computation 2

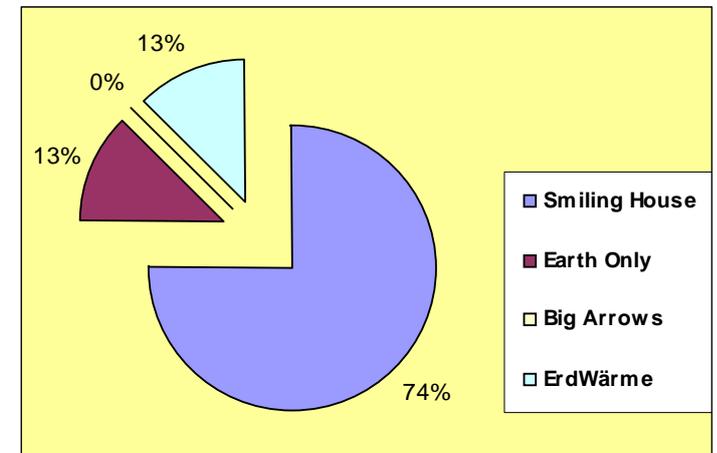


Figure 8: Results of the Survey for Choosing the Best Logo – Computation 3

We received 63 answers to the questionnaire for the survey meeting the requirements that we gave to the survey¹⁴.

The three computations showed the “Smiling House” logo as the best choice, coming every time in first place. The logo “Smiling House” received 32%, 57% and 74% for the first, second and third computations, respectively. The second and third computations must be considered as more significant since only the best logo chosen by the participants to the survey is taken into account. Hence, 57% of all participants found the “Smiling House” as the best logo and up to 74% of participants, members of the supply chain, preferred the “Smiling House” as their logo.

All the results showed that “Smiling House” was far the most preferred logo by participants to the survey. We found interesting to make a bottom-up analysis to check whether this logo was meeting the requirements we set and then could be used by the supply chain.

The important requirements we set were:

- Blue and red arrows showing respectively the cooling and heating,
- No indication of the sun,
- Earth’s globe,
- Sympathy with smile/laugh

Indeed “Smiling House” meets or at least for the authors seems to meet all these requirements. Then arose the question why some participants of the survey did not choose this “Smiling House” as best logo? To answer or find an appropriate answer to this question, we found necessary to analyze the comments wrote by participants to the survey. All comments are condensed in appendix 5¹⁵. Reading through and analyzing these comments did not give a straightforward answer to the question mentioned above but rather led us to two points:

- The other 3 logos did not satisfy most participants. For example most of the participants found “ErdWärme” too complex, “Big Arrows” not understandable and “Earth Only” unclear.
- We understood why most participants to the survey chose “Smiling House” as best logo and most importantly which improvements could be made to this logo. For example, most of participants found the smile very positive and nice for a logo but also suggested colouring the house or part of the house green to show the environmental friendliness of geothermal heating and cooling.

Even though we could not say exactly why some people did not chose “Smiling House” as best logo, we suggest this “Smiling House” logo to be used by the supply chain with the following modifications got from comments of the survey and from our further thinking and analysis:

- Show clearly that the circle is the Earth,
- Redraw the house to have good proportionality of house and earth,
- Show the network by adding few circles to the earth,
- Colour the house or part of the house green to show the environmental friendliness of geothermal energy,
- Make a good proportionality of the globe, arrows and house,
- Make a research about the colouring to be sure that the meaning of colors used in the logo will be understood.

These modifications in fact are already implemented, but for copyright reasons we cannot publish the final logo.

Summary

The paper describes the process of the design of a logo for the geothermal energy supply chain. Requirements for designing a successful logo have been developed using literature, creative group meetings organized during the research and study of existing logos in the market. Based on these requirements many logos have been designed. From those many logos, we developed a methodology to select the best logo. The methodology consist in an analysis of a survey submitted by internet or directly to participants asking the participants to choose the best logo according to their own opinion and to eventually comment upon them. This methodology has been very useful and led to the selection of the “Smiling House” as the best logo. Creative group meetings organized during the research also delivered insight into other marketing activities which should be considered by the geothermal energy supply chain.

The logo is very important since it helps to identify activities representing in it. Consumers save the logo in their mind as a total substitute of these activities and, possibly, the companies supplying them. It is therefore very important to take some time and design a logo that will be understood and accepted by potential consumers of the products made by the company represented by the logo.

Renewable energy sources go beyond consumer satisfaction since they add value in the sense of environmental care. Amongst the renewable energy sources, geothermal energy is one of the best in terms of environmental care and, hence research should focus on strategies to market it. Hence, we definitely encourage more scientists and marketers to work towards the marketing of renewable energy sources.

Notes

1. See Zoque Lopez, L.: “Analysis of the Use of Geothermal Heating/Cooling Systems for Residences in the Region of Saxony (Germany) Applying the Quality Function Deployment Method (Qfd)”
2. Adapted from: Kotler, P., Keller, K.L. (2006): “Marketing Management”, 12e Edition, PP 394-395
3. Adapted from Solomon et al. (2006): “Marketing: Real People, Real Choices”; PP 276.
4. May be the targeted people understand the logo but it seems to be very complex.
5. McDonalds spent more than \$700 Millions in 2005 in advertisement and was ranked 9th in top spending for advertisement in the USA. Full ranking can be found at: <http://adage.com/images/random/megabrandcharts06.pdf>, Retrieved August 12, 2006
6. The name DHL comes from the first letters of the last names of the three company founders, Adrian Dalsey, Larry Hillblom and Robert Lynn, who, in 1969, began to personally ship papers by airplane from San Francisco to Honolulu, beginning customs clearance of the ship's cargo before the actual arrival of the ship and dramatically reducing waiting time in the harbor. See <http://www.dhl.com/publish/g0/en/about/history.high.htm>, Retrieved August 15, 2006.
7. During our first creative group meeting, people really showed their preference for solar energy compared to geothermal energy. Also it seems that there is more information about solar energy in the media.
8. Many ideas to organize the creative group meetings where adopted from: Manktelow, James: “Brainstorming: Generating many radical and useful ideas”; available online at <http://www.mindtools.com/brainstm.html>, Retrieved April 3, 2006.
9. TU Bergakademie Freiberg is a University in the region of Saxony in the east of Germany. More information about this prestigious University can be found at: www.tu-freiberg.de
10. GIZzeF (Gründer- und Innovationszentrum Freiberg/Brand-Erbisdorf GmbH) is a technologic center with branch in Freiberg. More information about Gizef could be found at: www.gizef.de
11. See Zoque Lopez, L.: “Analysis of the Use of Geothermal Heating/Cooling Systems for Residences in the Region of Saxony (Germany) Applying the Quality Function Deployment Method (Qfd)”, P 13.
12. Example of dynamic website could be www.solifer.de
13. In fact, the questionnaire used in the report on the House of Quality revealed that people do not have a high esteem for the cooling properties of geothermal energy. This outcome is not in conflict with the fact that the properties exist. See Zoque Lopez, Luisa: “Analysis of the Use of Geothermal Heating/Cooling Systems for Residences in the Region of Saxony (Germany) Applying the Quality Function Deployment Method (Qfd)”
14. In fact, we thought at least 40 answers would be reasonable to analyze and so 63 was even better.
15. The comments are exactly what participants wrote. There is no modification on the grammar or the language; this to be sure that the meaning is not changed.

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Appendix 1: Discussion during the first creative group meeting

We present here the questions ask to participants during the first creative group meeting. Questions are followed by different answers received from participants.

Question: what energy source would you choose?

- 1 Sun: because I read a paper explaining how good it is for the environment
- 2 Biomass: because it is good for the nature and can easily be implemented in my country
- 3 Combination: to be sure that I will always have energy home (I can combine solar, geothermal (for heating/cooling), biomass); because one environmental energy source usually alone is not enough
- 4 Geothermal: Because I like it and I think it is environmental friendly
- 5 Personalized approach: because the source depends on the location
- 6 Solar, and combination to be sure to always have energy
- 7 Solar: because it is a gift from God

Question: What do you associate with solar energy?

- 1 The cost and pollution: it is very expensive and also the production of solar panels pollutes a lot
- 2 Stylish, modern, luxurious, fashion
- 3 Good: because shows awareness and responsibility towards the nature for the people using it
- 4 Somebody said solar is God given but 95% of the energy so far used is from the earth (coal, gas, geothermal...)

Question: What do you think about geothermal energy?

- 1 Is it feasible?
- 2 Depends a lot on the geology of the location
- 3 How does it work?
- 4 People don't know anything about it
- 5 It people don't know anything then it will be easy to convince them; i.e. It is not a problem
- 6 Only experienced people would like to use it
- 7 Technical how does it work? Shall I quit my house for some days during the installation or maintenance? How much does it cost? Do I have any guarantee?
- 8 Mining in the area could be an advantage because people can trust the drilling company
- 9 Geothermal is disadvantaged compare to other source: People need to know the details about how it works and so on...
- 10 Can the pipe break down? What liquid is inside?

Question: What can motivate you to choose geothermal energy?

- 1 Price
- 2 Environment
- 3 Price and environment
- 4 Jobs (can give more jobs to geologists)
- 5 Price (cost and environment)
- 6 Independence (I have my own system)

General remarks

1 I would like to have information about geothermal energy: How it works, the risks (if any), the material used for pipes, the liquid inside pipes...

2 I don't think this group can be very creative because we are almost all environmental management students and our minds are blocked

Appendix 2: Pros and Cons of Geothermal Energy

These pros and cons were the result of the second creative group meeting.

Pro	Contra
Unabhängigkeit von Erdöl	Abhängigkeit vom Stromlieferanten (ca. ¼)
Investitionskosten in 6-7 Jahren amortisiert	Anfängl. Investitionskosten bei Heizung geringer
1000 €/pro Jahr gespart	Keine Förderung (Grund: keine Lobby, keine Referenzen, ...)
	Problem Innengestaltung (z.Bsp. Altbau)
Standort Freiberg: 30-50 Immobilien mit geotherm. Energie	Zu wenig Erfahrungen
Weniger wartungsintensiv	Unsicherheit
	Solarenergie populär: sichtbar, in aller Munde

Baustellen:

- Standards/Garantien
- Sichtbarkeit = Plakette: Dieses Haus wird mit Erdwärme beheizt
- Netzwerk von Firmen
- klare Kalkulierbarkeit der Kosten

Warnung vor unseriösen Anbietern

Appendix 3: Questionnaire for Choosing the Best Logo

Durando Ndongsok

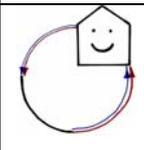
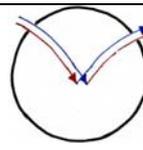
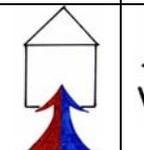
MBA IMRE (TU-Freiberg) durandong sok@yahoo.com

Please I'm designing a label for geothermal energy (heating and cooling with energy from within the earth). I have four labels and would like you to help me choosing the best one.

It is simple! Just give some score to the labels in the table below from 1 till 4 (4 being the best) according to your preferences. Please do not give the same score to different labels ☺

To make it easy for you, you can use plain email text and just write the score after the names given to different labels.

This is optional: It can happen that you have some comments about layout, colouring, design...they are very welcome.

Name →	Smiling House	Earth Only	Big Arrows	ErdWärme
Label →				
Score →	Score:	Score:	Score:	Score:
Comments if any →				

Appendix 4: List of Slogans Generated During the Research

We present here a list of slogans generated during the research. Most of these slogans are the fruit of our imagination. Some were just generated during creative group meeting sessions and any discussion made anytime with anyone about geothermal energy.

Slogans

- Cooling or heating a house? choose the cleanest energy: Geothermal; Choose the best group: (name of the group)
- I heat my house with perfect quality geothermal heating from (name of the group)
- It is clean, it's discreet ... it's geothermal energy
- Why searching away when I'm just beneath you ... geothermal heating and cooling
- Save money, save resources, no pollution and still a warm or cool house
- A warm or cool house by saving money, Saving resources and protecting the environment---> Geothermal energy for your house
- Earth power hot spot
- Make the mother earth your friend
- Learn and use
- Be good neighbour - use geoenergy
- Safe for the future
- Geoenergy - better future

- Need energy that is near you? Geothermal energy
- No extraction, No waste, coming naturally from the earth
- Feel free to choose your energy sources, one of the best environmental friendly is geothermal energy
- Reliable - well grounded
- Deep feeling
- Secure, independent
- The best from mother earth
- Safe, green and environmental friendly energy
- Your energy - your future
- Earth as your sustainable partner
- Earth for you ---> Geothermal energy
- 100% clean, our best quality assurance keeps you smiling
- Earth provides the cleanest, (name) provides the best quality
- Hot? Cold? Never mind! Keep Smiling!
- Keep smiling, it is always available
- Save money and environment
- The earth gives you all, also heating and cooling
- Perfekt geothermie, weil wir bergbau kennen

Appendix 5 Comments Received from Participants to the Survey for Choosing the Best Logo

Smiling House	Earth Only	Big Arrows	ErdWärme
color the house green and make sure that the circle is earth			Too much to see
Are you joking?	The best for me as you can see the energy exchange	Doesn't make sense, I can't see any symbol of the earth.	Can you change "Wärme" into English?
	Too Philosophic	Represent well the technology	
Put something like continents so that people can understand it is the earth			
	It is quite unclear	This is quite clear, but to be a logo, I think it's not artistic in the sense of proportionality	This can be really cool, but I don't understand the sign above the letter "W"
	I prefer bigger distance between the two lines		
Look a bit childish, may be circle could be smaller	Should be clear that it is earth	Like how the arrows look, don't like the house	Arrows are going from somewhere else but earth
Looks very friendly and simple	Looks quite serious. The circle is always good idea for label	Reminds me for a tree house	Appear a little like a child drawing
	I would make the earth in green and blue colors and in the point where the arrows are meeting I would make a small house		
Looks like something from a cartoon			
Nice house and smile, it is just too plain	I won't understand this if you put it on the street except there's another explanation about	I like this, and it would be better if you put also the smiling house into this logo, it will be nicer	I don't like the eyes that you put upper W letter
Simple, positive and nice	Simple and understandable	it's ok too but I prefer the picture with earth	complicated
	I would at least hint the continents, then people will understand that circle represent the earth		too complex
Logo should be simple. Make circle more clear that it is the earth			
Good, but not enough	No expression	Where are they (arrows?) going	Excellent, it is easy for children to understand
Simple, positive	Not so easy to understand	Good, but this house also be smiling	A bit complicated
	Erde nicht sofort als solche erkennbar	Eventuell Erdoberfläche Boden hinzufügen	
Linien noch etwas kräftiger			
	Zu wenig aussagekraft		Zu verspielt
	Kombination mit Smiling House möglich?		Verstehe ich nicht
Kreislaufgedanke, Smily=positiv, Affinität zu Haus mit Sonne, Strichstärke dicker = mehr Symbolcharakter	input/output, etwas zu dicht zusammen	zu eingeschränkt auf "Haus", Erdwärme und Geothermie ist mehr (auch Fläche, Industriebauten, ...)	Verspielt, inhaltlich unklar
freundlich, Kreis=Erde=Energie (warm, kalt), Symbol Kreis bindet Haus gut mit ein, Verbindung Erde-Energie-Haus	Kreissymbol=gut, Pfeile nicht harmonisch	Haus=Dreieck+Quadrat, Pfeile: uneinheitliche Geometrie	zu viele Symbole, die auch zusammenhanglos erscheinen
Haus ist zu kindhaft, Pfeile etwas verstärken	Kugel vielleicht als Erdball stilisieren	Logo wäre mir zu länglich	