Geothermal ERA-NET

PR Geo Workshop

Content and results of the discussion

November, 2015

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PR Geo
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Table of Contents

List of Tables

List of Figures

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Executive summary

The lack of public acceptance for geothermal energy installations hampers the further development of geothermal energy in many countries. The origin of the sceptical view on geothermal energy varies from the lack of information on the technology to wrong conflict management from project owners. As a result, political decision makers and potential investors have concerns about possible risks in implementing geothermal projects, and social resistance often results in significant slowdowns of projects.

In order to address the challenges and potentials in a better and increased communication related to geothermal energy, JA-PR-Geo organized a workshop on November 4th 2015, where 5 internationally well-known speakers with outstanding track-record on PR activities related to geothermal energy were invited.

The abstracts of the workshop presentations highlight positive and negative examples of public acceptance of geothermal energy and discuss its consequences in a wider context including the population, various energy and development policies at national, regional and local levels, as well as impacts on the operator company itself.

One conclusion of the workshop was that although PR work has been reinforced within the project operators in recent years, it still can and must be optimized, especially by streamlining focused messages to the different target groups. It was also concluded that there has been often a lack of conceptual considerations for PR activities, without which a forward-looking PR work is hardly possible. Instead of being pro-active providing opportunities for open discussion of sensitive topics, PR activities often only respond to questions of the locals, which are frequently based on lack of knowledge, or on malevolent purposes of the media. Therefore, all possibilities have to be used to make geothermal energy and various technologies better known among the public.

It also has to be emphasized that each geothermal energy project is unique, which applies both to the geological and technical characteristics as well as to the socio-demographic conditions. Therefore, general communication methods and measures cannot be applied, but project tailored PR strategies have to be established and performed. Furthermore, PR work can only be successful if it manages to create a basis of trust, in which early, honest and strategically oriented communication has a crucial role.

1 Introduction

Geothermal energy is an important component of the future energy supply in Europe, offering a wide range of possible applications and having a great potential of development in many European countries. However, the advantages of using geothermal energy are little known, and media reports often spread information on its disadvantages to make headlines. The lack of public acceptance for geothermal energy installations hampers the further development of geothermal energy in many countries. The origin of the sceptical view on geothermal energy varies from the lack of information on the technology to wrong conflict management from project owners e.g. in the case of induced earthquakes. As a result, political decision makers and potential investors have concerns about possible risks in implementing geothermal projects, and social resistance often results in significant slowdowns of projects.

To make sure that geothermal energy can play its optimal role in Europe's future energy supply, it is essential to address strategic groups of political decision makers, potential investors and the public to mitigate the possible concerns that may block an increased use of geothermal technologies.

The basic task of public relations is to establish, strengthen or expand the contact between a client or employer and a defined stakeholder group. For this purpose, a number of media and non-media communication tools are available.

1.1 Workshop Background

In order to address the challenges and potentials in a better and increased communication related to geothermal energy, a workshop was held on November 4th 2015. The following speakers were invited.

Burkhard Sanner,
European Geothermal Energy Council, Brussels

Anna Pellizzone,
Università degli Studi di Milano, Italy

Albert Genter,
ES Géothermie, France

Anna-Lena Köng,
Risk Dialogue Foundation, Switzerland

Hubert Hegele,
gec-co GmbH, Germany

The speakers all having outstanding track-record in PR activities related to geothermal energy were carefully selected to have the maximum possible coverage in terms of topics, as well as geographical distribution. The next chapter comprises abstracts of the presentations.

2 Workshop abstracts

2.1 Introduction to public perception of geothermal energy – a European perspective

Burkhard Sanner, European Geothermal Energy Council, Brussels

A basic problem in perception of geothermal energy is that we normally cannot feel it. We feel:

- the heat of the sun
- the force of the wind
- the power of waves
- …and the heat of the earth?

The heat of the earth can actually be experienced in volcanic areas (better not too close), and in hot springs.

As a consequence, geothermal heat in the past was mainly perceived in volcanic context. Volcanoes were seen as a brutal force and bringing danger, but also providing the sites of most fertile soil and of thermal spas. Names chosen for such sites are telling: Bocca del inferno, Boca del infierno (mouth of hell); Valle del Diavolo (devil´s valley, Larderello)

Already some early explanations for volcanoes were not too far from the truth: Fire inside the earth, and an explanation for thermal springs is water heated by this fire. Figures 1 and 2 are from a book 350 years old, Mundus Subterraneus by Athanasius Kircher (1664).

Figure 1 Systema Ideale Pyrophylaciorum Subterraneorum

Modern knowledge on geothermal energy is important to understand the advantages and to be able to correctly consider the risk. When EGEC had the first public event (EGEC Business Seminar in Ferrara 1999), the "Ferrara Declaration" was agreed, including the following sentence: *Our task is to make sure, that every European will learn what the words "Geothermal Energy" mean.*

Figure 2: De aestu et calore Thermarum eiusque causa (on flow and heat of thermal springs and their cause)

When EGEC started work in Brussels in 1998, also most politicians perceived geothermal energy as something "far away", in Iceland, and elsewhere in volcanic areas, and not suitable for use in most of Europe.

In the Renewable Energy House, were EGEC resided from 2006-2014, we pushed for having at least a shallow geothermal installation. The 4 borehole heat exchangers and geothermal heat pump proved that geothermal energy can be harvested very close, right in the heart of Brussels. Since the inauguration in March 2006, with then president of the EC Jose Manuel Barroso, the perception of geothermal energy with the EU organizations changed.

There are many ways how to make geothermal energy better known in the public at large:

- Museum and exhibitions, as we need to make geothermal energy visible. Numerous excellent examples exist, but more is needed; an example is (was?) the GSHP demonstration in Museum of Nature, St. Gallen, Switzerland, installed in 1993
- Media
- Books for the public at large, articles in magazines and newspapers
- Features on TV or radio, clips and animations in the internet
- Presence of geothermal activists in panel discussion, talk shows, interviews, events…
- Stamps
- …and many more

There are several possible ways people take a stance on geothermal energy:

- Unknown…
- Something unimportant, simply to ignore
- A clean, sustainable solution for energy
- I want to have one for my own house
- Obscure and dark, too complicated to understand
- Danger from deep below!

The possibilities and advantages are not widely known: Geothermal energy is reliable, and not dependent on weather and climate. It can provide baseload as well as flexible power production, can be used for heating and cooling, and is unobtrusive with low visibility.

However, news of adverse events travels fast, and find more interest than business as usual or even as good news:

- Earthquakes (Basel 2006, St. Gallen 2013) and induced seismicity
- Artesian wells
- Swelling layers and ground heaving

Within Europe, opposition to geothermal energy is strongest in parts of Germany. There are several reasons:

- Poor (and late) communication by project developers
- Forwarding of information from elsewhere, often exaggerated, and sometimes not even related to the issue in question (e.g. using the shallow geothermal events in Staufen as reason for opposing deep EGS)
- A tendency to oppose everything new (even solar); wind has hard times for getting new sites approved

Other industries exist since long, and their negative aspects are not basically questioned anymore. Earthquakes and seismic events are a frequent result of mining (coal, potassium) or of hydrocarbon exploitation; land subsidence is a normal result of deep mining, e.g. in the North of the Ruhr area in Germany; groundwater contamination is often a consequence of transportation accidents with trucks or trains. All this is lamented, but are seen as necessary collaterals. Other collaterals, like noxious emissions from power generation or heating (fossil fuel or even biomass), or global warming, are not taken seriously enough, while possibly adverse effects of technologies that can reduce such emissions (as wind or geothermal) are highlighted.

Iceland is the place that we can call as "where geothermal energy is at home". However, for many centuries, the geothermal manifestations were used for bathing only. The only proof of heating in the old times is from Snorri Sturluson, who used in the 13th century water from a hot well (Snorralaug, "Snorri´s bath") not only for bathing, but adding a channel for heating his house also. Still in the 1860s a visiting German scientist, Carl Vogt, wondered why the Icelanders did not use the hot water for heating, but burned whatever biomass they could find.

Today, heating in Iceland is mainly based on geothermal, and electric power to a good share is from geothermal sources. Now discussions started on noxious gas emissions and radioactive residuals in Iceland – and there is need for communication also here!

Within the last years, several EU-funded projects looked into potential and barriers of the different geothermal technologies. All projects are finalised now, and the results, containing reports on public acceptance and a lot of valuable information for the discussion, can be found on the internet:

- GeoElec, on geothermal power: http://www.geoelec.eu
- GeoDH, on geothermal district heating: http://geodh.eu
- Regeocities, on shallow geothermal: http://regeocities.eu/
- and within Regeocoties a public promotion campaign: http://www.heatunderyourfeet.eu/

2.2 Two Italian case studies on public engagement with geothermal energy

Anna Pellizzone, Università degli Studi di Milano, Italy

We conducted two case studies in order to assess the social acceptance of geothermal energy in Central and Southern Italy respectively and the analysis is ongoing (Pellizzone et al. 2015, Pellizzone et al. 2013). Our research was carried out within two larger scientific projects that aim at assessing the potential of geothermal resources in the country from geological, technological, social and economics perspectives.

From a geological point of view Italy has any possible reason to be considered a geothermal country. Balneological uses have been rooted in the Italian culture since the roman time, and thermal uses of geothermal energy in Italy are among the largest in Europe. Italy was a pioneering country in exploiting the potential of geothermal resources for energy power production. Already in 1904, when Piero Ginori Conti successfully experimented with the generation of electricity from geothermal steam, the first geothermal power plant was built in Larderello in Tuscany (Luzzini, 2012) and presently the country ranks in the top five countries worldwide for geothermal power production. According to the European Geothermal Energy Council, Italy is expected to produce by 2020 an electricity installed capacity of 1965MW and 15.600 GWh, which is the 4.2% of the national energy demand (Zervos et al., 2011). Data collected in 2010 show that the geothermal production in Italy is now only 1.8% of the total national electricity production, but it is about 25% for Tuscany, where the two major geothermal areas of the country are located: Larderello- Travale/Radicondoli and Mount Amiata (Bertani, 2012).

In spite of the geothermal Italian highlights and although over the last decade there has been an increasing interest in the use of geothermal technologies exploiting low temperature resources, there appears to be little knowledge or understanding of the potentials of this renewable energy source and its implications for the general society. Although the importance of the role of social research in energy studies has long been recognized, social sciences currently play a surprisingly marginal role in energy research (Pidgeon et al., 2014, Stirling, 2014). Engineers, scientists, economists and policy makers focus on technical details and often ignore the importance of taking into account the lifestyles of the communities and their social norms (Sovacool, 2014).

Published studies on social acceptance of geothermal energy are very few and most of them are quite recent. Polyzou and Stamataki (2010) used a survey to study social acceptance of geothermal energy on the Greek islands of Milos and Nisiros, where public information and the active involvement of citizens were considered essential elements of project design and management. Dowd et al. (2011) developed an engagement workshop aimed at providing the general public in Australia with the opportunity to interact with scientists' experts in geothermal energy: the results show a general support for the technology, low levels of knowledge of the technology, and some concern about induced seismicity and water usage associated with geothermal systems. Carr-Cornish and Romanach (2012) explored public views on geothermal energy in Australia using a mix of media analyses, online and face-to-face focus group and a questionnaire distributed during focus group. Geothermal energy was perceived positively in the battle against climate change and for promoting low carbon societies, while the perceived risks are related to economic feasibility, technical uncertainties, potential seismic activity and water pollution.

In recent years, European Union's mission to encourage scientific innovation and develop a knowledge-based society capable of creating new jobs and prosperity, while preserving the environment and meeting societal needs, has merged into the Responsible Research and Innovation approach. One of the pillars of RRI is to embed considerations of societal needs and ethics in the innovation process and that requires the involvement of social sciences. This approach strongly encourages "upstream" engagement (see Jasanoff, 2007) of stakeholders (politicians, manager, citizens, associations, etc.) already in the early stages of the innovation process. This allows all stakeholders to (i) be aware of the consequences of their actions and of the range of options open to them, (ii) evaluate outcomes and options of every possibility in terms of ethical values, including equality, autonomy, sustainability, democracy and efficiency, and (iii) use these considerations as functional requirements to design and develop new research, products, and services (Van den Hoven et al., 2013).

Our research is in line with RRI idea that society should be involved in the very first stages of innovation process: in this paper we present relevant results of an assessment of public views on eventual geothermal energy development in Central (Viterbo) and Southern Italy (Palermo), but the study was carried out under two much wider research projects, VIGOR and Atlante Geotermico del Mezzogiorno, with the aim to explore the feasibility of geothermal energy utilization in southern Italy. The research has three primary objectives: (1) to explore the views and opinions of local communities regarding the potential of geothermal energy applications; (2) to contribute to the growing literature on social acceptance of geothermal energy; (3) to make an exercise with public engagement within new energy technologies. To explore attitudes and public views towards geothermal energy technologies, we performed two case studies using a mix of qualitative and quantitative methods. Our case study has two basic components: (1) Focus Group studies were conducted on four different groups of citizens and stakeholders from the selected area for each case study. (2) Two surveys were conducted on a sample of 400 citizens each, calibrated by gender, age, education, job condition, and residence.

Comprehensively, results from the two case studies indicate that there is considerable openness towards, and interest in, the potentiality of geothermal power exploitation in the considered areas, however concerns are also present. Findings clearly indicate that the issue is shrouded in uncertainty (for example the results also indicate that views on geothermal energy are less formed amongst citizens than views on technologies that exploit and harness solar and wind energy) and that the Italian public expresses a diffused lack of trust in decision-making processes.

Energy question are very politicized at the moment and participants perceive apparent contradictions between political, citizens and companies' interests. In this sense a developing strategy for stakeholders to become mutual responsive is strongly needed. Both focus groups and surveys show that participants feel very involved in the discussion, however they also made clear that more information about geothermal technologies is needed in order to adequately engage public in the innovation process. Scientists and researchers are perceived as the most reliable source of information in order to objectively evaluate pro and cons of geothermal technologies.

Although the two case studies show many similarities, some differences shaped by the different territorial context are also present. Local peculiarities can induce site-specific sensibilities about questions as pollution, corruption or unemployment. This is coherent with place attachment theory, according to which place identities play a key role in shaping communities attitudes towards innovation or single projects.

Taken together, these factors are likely to strongly impact eventual further developments in this sector. The results clearly show the need for further societal dialogue supported by a sound communication action strategy as the first stage in a public participation. Local distinctive traits are also important, therefore more systematic and comparable case studies are needed.

2.2.1 References

Bertani, R., 2012. Geothermal power generation in the world 2005-2010 update report. Geothermics 41, 1-29.

Carr-Cornish, S., Romanach, L., 2012. Exploring community views toward geothermal energy technology in Australia. CSIRO, Pullenvale, Australia. https://publications.csiro.au/rpr/download?pid=csiro:EP129117&dsid=DS5.

Dowd, M., Boughen, N., Ashworth, P., Carr-Cornish, S., 2011. Geothermal technology in Australia: Investigating social acceptance. Energy Policy 39, 6301-6307.

Jasanoff, S., 2007. Science & Politics Technologies of humility. Nature 450, 33.

Luzzini, F., 2012. L'industria principesca. Piero Ginori Conti e l'impianto geotermico di Larderello. Acque Sotterranee - Italian Journal of Groundwater 3, 97-98.

Pellizzone, A., Allansdottir, A., De Franco, R., Manzella, A., Muttoni, G., 2015. Exploring public engagement with geothermal energy in southern Italy: a case study. Energy Policy, 85, 1-11.

Pellizzone, A., Allansdottir, A., De Franco, R., Manzella, A., Muttoni, G., 2013. Assessment of social acceptance of geothermal energy exploitation in southern Italy, European Geothermal Congress, 3-7 June, Pisa.

Pidgeon, N., Demski, C., Butler, C., Parkhill, K., Spence, A., 2014. Creating a national citizen engagement process for energy policy. Proceedings of the National Academy of Science of the United States of America 111,13606-13613.

Polyzou, O., Stamataki, S., 2010. Geothermal Energy and Local Societies - A NIMBY Syndrome Contradiction? World Geothermal Congress, 25-29 April, Bali, Indonesia < http://www.metal.ntua.gr/uploads/4245/855/Gothermal_energy-Local_societies.pdf

Sovacool, B. K., 2014. Diversity: Energy studies need social science. Nature 511, 529-530.

Stirling, A., 2014. Transforming power: Social science and the politics of energy choices. Energy Research & Social Science 1, 83–95.

Van den Hoven, J., Jacob, K., Nielsen, L., Roure, F., Rudze, L., Stilgoe, J., Blind, K., Guske, A., L., Martinez Riera, C., 2013. Options for Strengthening Responsible Research and Innovation. Report of the Expert Group on the State of Art in Europe on Responsible Research and Innovation. doi: 10.2777/46253. http://ec.europa.eu/research/swafs/pdf/pub_public_engagement/options-for-strengthening_en.pdf.

Zervos, A., Lins, C., Tesnière, L., 2011. Mapping Renewable, Energy Pathways towards 2020. European Renewable Energy Council. http://www.repap2020.eu/fileadmin/user_upload/Roadmaps/EREC-roadmap-V4_final.pdf

2.3 Social Acceptance of Geothermal Energy in Alsace

Albert Genter, ES Géothermie, France

2.3.1 Introduction

The Upper Rhine Graben (URG) is characterized by a series of geothermal anomalies. During the last 35 years, geothermal projects have been developed in France, Germany and Switzerland in order to exploit the local geothermal energy for heat or electricity production. Then, several deep geothermal projects were initiated in order to mainly exploit deep sedimentary clastic formations and/or the top crystalline basement (Figure 3). Some projects were fully abandoned due to the absence of permeability (Cronenbourg, France) or stopped due to induced micro-seismic event (M=3.4) felt by the local population (Basel, Switzerland). In Northern Alsace, the Soultz-sous-Forêts pilot site, initiated in 1987 with the HDR concept and slightly evolving to the EGS concept, had some concerns with induced seismic events felt during hydraulic stimulation operations done in 2000 and 2003 (Cuenot et Genter, 2015). A local maximal magnitude event of 2.9 was felt and generated some fears in the local population as it was mentioned in some in local newspapers on June 2003. Following those felt events, a total of about 70 complaints against potential house damages were done by local inhabitants. Presumed damages were mainly fissures which were evaluated by experts from insurance companies. They concluded that there were no structural damages related to induced seismicity (Lagache et al. 2013). Those events represent the first social acceptance issue with local population at Soultz.

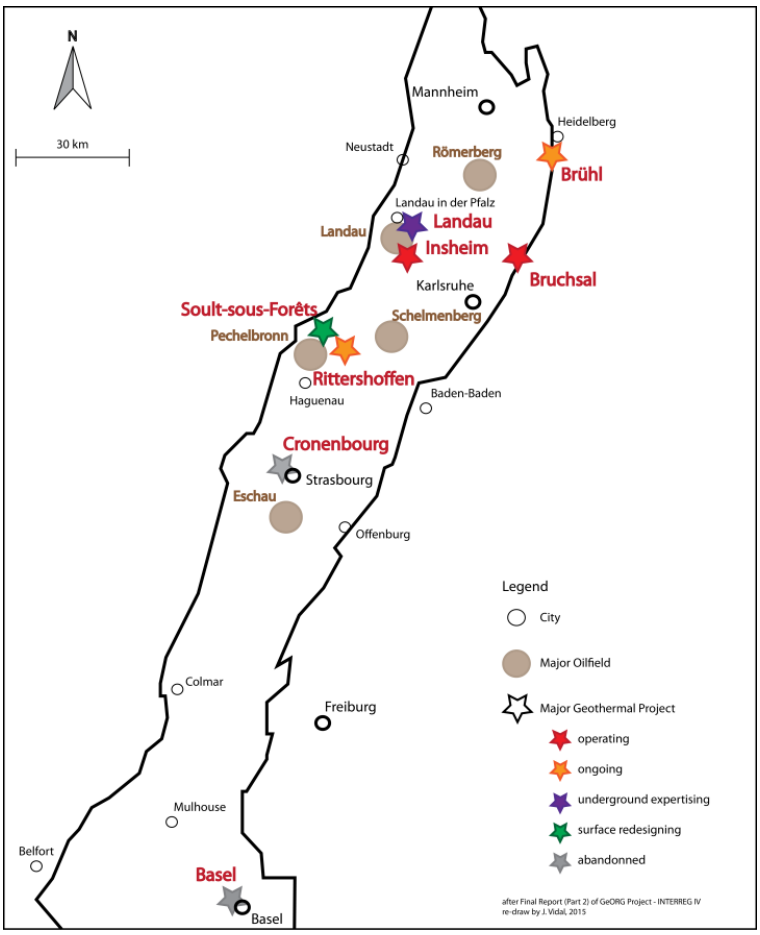


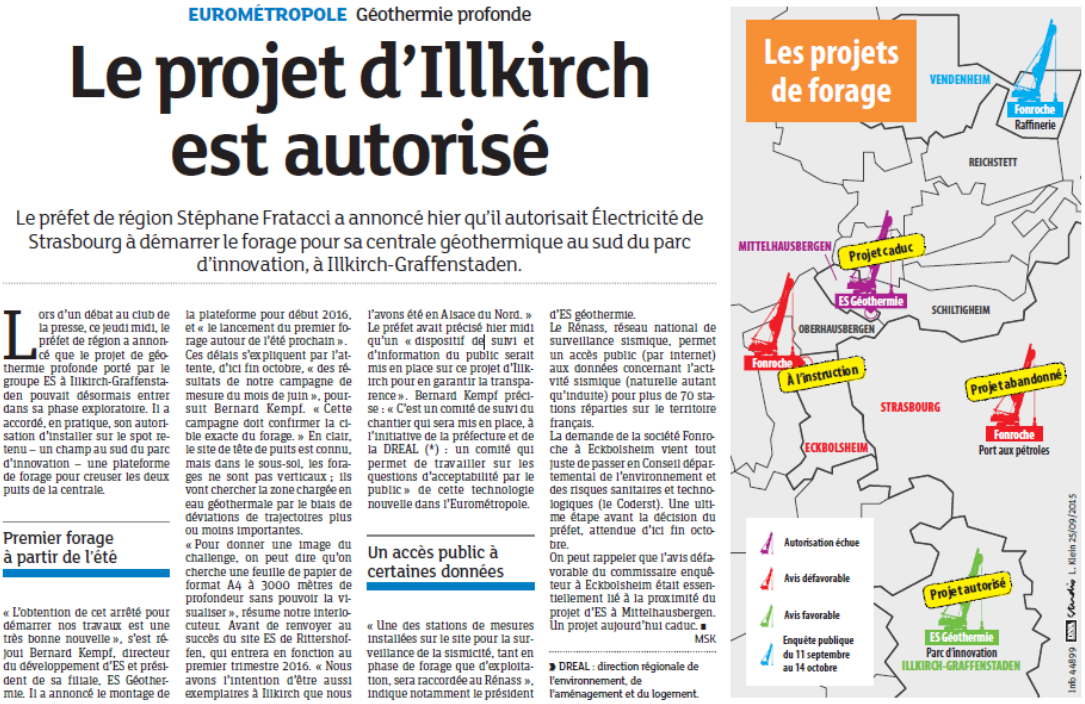
Figure 3: Deep geothermal projects in the Upper Rhine Graben

Then, from the research Soultz site, several deep geothermal projects were launched in the URG such as Landau (2006) and Insheim (2009) in Germany. More recently, in Rittershoffen (France), a geothermal doublet has been drilled at the interface between sediments and the top fractured basement (Figure 4). In parallel, the first social acceptability study never conducted in France before for a geothermal project, was carried out with the contribution of the two villages which surround the power plant, namely Soultz-sous-Forêts and Kutzenhausen (Lagache et al., 2013). The main results demonstrated a rather good social acceptance by the inhabitants in this rural area. It could be partly explained by the strong cultural heritage from local population due to the occurrence of the former oil exploitation related to the development of the past Pechelbronn oil field where more than 5000 oil wells were drilled. During geothermal exploitation, some induced seismic events were felt in Laudau and they contributed to generate acceptability issues on the German part of the URG. At Soultz, no micro-seismic event was ever felt during the geothermal circulation phases from 2005 to 2014.

In parallel to deep geothermal energy projects, at least two shallow geothermal projects located in Staufen im Breisgau (Bad-Wurtemberg, Germany) and in Lochwiller (Alsace) had serious structural damages on roads and buildings. On 2007, shallow geothermal boreholes were performed in the historic town of Staufen. These led to significant structural damage to buildings related to an uplift of cm-scale due to a swelling anhydrite formation (Sass et Burbaum, 2010). In 2008 in Lochwiller, similar issues happened on individual buildings as well as on pavement (Geoderis, 2014). All those damages were regularly published from local to national French or German media and generated a very bad image of geothermal energy. Lochwiller and Staufen represented now counterexamples in the geothermal community. They are often used by local associations which are against deep geothermal energy, even though they correspond to very shallow geothermal projects.

2.3.2 Towards a geothermal rush in Alsace

Due to a new feed-in tariff reviewed on 2010 in France for the kWh produced by geothermal energy, several energy companies have applied for exploration permits in Alsace and in Strasbourg more specifically. Thus, in the Strasbourg area, 4 different licenses have being evaluated by the mining authorities. Those geothermal projects target large-scale normal faults which must be reached by deep drilling at roughly 3 km depth. In spring 2015, during the mining procedure for obtaining the authorization of drilling a doublet, public inquiries have been carried out in this urban area. Before, during and after those public inquiries, local populations including residents' associations, were mobilized against those projects and have organized and conducted communication activities to the detriment of deep geothermal energy. Main fears were related to the occurrence of induced micro-seismic events, or the possibility of contamination of groundwater during drilling operations. Following the four public inquiries, three investigating commissioners reported for a negative opinion for Port aux Pétroles (Robertsau), Eckbolsheim and Mittelhausbergen area, against only one favorable opinion with some minor reserves, which has since turned into a favorable opinion for Illkirch-Graffenstaden area. Energy developers have abandoned the Port aux Pétroles project due to a strong opposition from a residents' association. The Mittelshausbergen project is obsolete for administrative reasons related to the mining law. The Eckbolsheim project is in its final evaluation stage by the mining authorities and has been accepted by the Strasbourg prefecture mid-October 2015. The Illkirch project is also accepted and a geothermal doublet could be done accordingly (Figure 5).



EUROMÉTROPOLE Géothermie profonde

Le projet d'Illkirch est autorisé

Le préfet de région Stéphane Fratacci a annoncé hier qu'il autorisait Électricité de Strasbourg à démarrer le forage pour sa centrale géothermique au sud du parc d'innovation, à Illkirch-Graffenstaden.

Lors d'un débat au club de la presse, ce jeudi midi, le préfet de région a annoncé que le projet de géothermie profonde porté par le groupe ES à Illkirch-Graffenstaden pouvait désormais entrer dans sa phase exploratoire. Il a accordé, en pratique, son autorisation d'installer sur le spot retenu – un champ au sud du parc d'innovation – une plateforme de forage pour creuser les deux puits de la centrale.

Premier forage à partir de l'été

« L'obtention de cet arrêté pour démarrer nos travaux est une très bonne nouvelle », s'est réjoui Bernard Kempf, directeur du développement d'ES et président de sa filiale, ES Géothermie. Il a annoncé le montage de la plateforme pour début 2016, et « le lancement du premier forage autour de l'été prochain ». Ces délais s'expliquent par l'attente, d'ici fin octobre, « des résultats de notre campagne de mesure du mois de juin », poursuit Bernard Kempf. « Cette campagne doit confirmer la cible exacte du forage. » En clair, le site de tête de puits est connu, mais dans le sous-sol, les forages ne sont pas verticaux ; ils vont chercher la zone chargée en eau géothermale par le biais de déviations de trajectoires plus ou moins importantes.

« Pour donner une image du challenge, on peut dire qu'on cherche une feuille de papier de format A4 à 3000 mètres de profondeur sans pouvoir la visualiser », résume notre interlocuteur. Avant de renvoyer au succès du site ES de Rittershoffen, qui entrera en fonction au premier trimestre 2016. « Nous avons l'intention d'être aussi exemplaires à Illkirch que nous l'avons été en Alsace du Nord. »

Le préfet avait précisé hier midi qu'un « dispositif de suivi et d'information du public serait mis en place sur ce projet d'Illkirch pour en garantir la transparence ». Bernard Kempf précise : « C'est un comité de suivi du chantier qui sera mis en place, à l'initiative de la préfecture et de la DREAL (*) : un comité qui permet de travailler sur les questions d'acceptabilité par le public » de cette technologie nouvelle dans l'Eurométropole.

Un accès public à certaines données

« Une des stations de mesures installées sur le site pour la surveillance de la sismicité, tant en phase de forage que d'exploitation, sera raccordée au Rénass », indique notamment le président d'ES géothermie.

Le Rénass, réseau national de surveillance sismique, permet un accès public (par internet) aux données concernant l'activité sismique (naturelle autant qu'induite) pour plus de 70 stations réparties sur le territoire français.

La demande de la société Fonroche à Eckbolsheim vient tout juste de passer en Conseil départemental de l'environnement et des risques sanitaires et technologiques (le Coderst). Une ultime étape avant la décision du préfet, attendue d'ici fin octobre.

On peut rappeler que l'avis défavorable du commissaire enquêteur à Eckbolsheim était essentiellement lié à la proximité du projet d'ES à Mittelhausbergen. Un projet aujourd'hui caduc. ■

MSK

(*) DREAL : direction régionale de l'environnement, de l'aménagement et du logement.

Figure 4: Example of article published in a local newspaper in Alsace related to geothermal energy development

2.3.3 Media press analysis in Northern Alsace

From 2014 to 2015, about 130 articles have been published in local newspapers about geothermal energy in Alsace but also on websites from residents' associations. About 75% of those articles had a negative to neutral message, and thus, for 25% of them, a positive one (Figure 5). Due to this strong opposition, in the framework of a research project (LabEx G-Eau Thermie Profonde, http://labex-geothermie.unistra.fr/), a team of social scientists from Strasbourg University started to evaluate how to deal with a public inquiry by taking into account the view of the residents as well as the energy operators (Chavot et al., 2015).

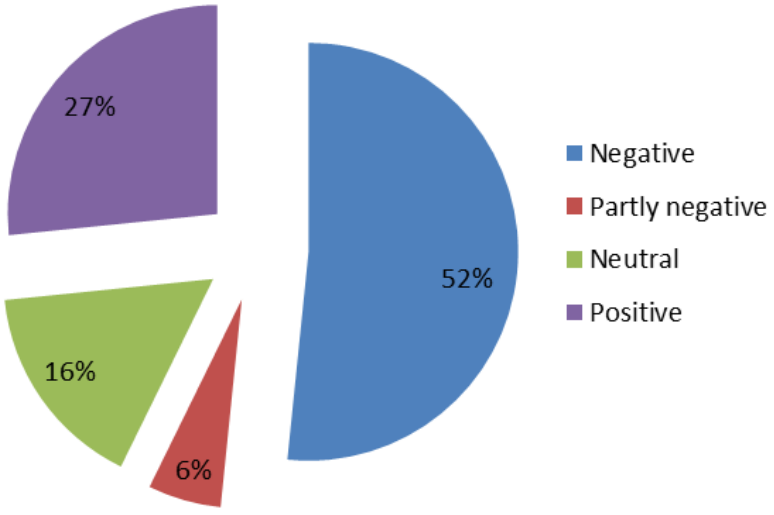


Figure 5: Chart of the percentage of articles with negative, partly negative to neutral, neutral and positive messages collected in the articles from local newspapers or websites in Alsace

To better understand the urban context of Strasbourg, it should be pointed out that for over one year, a residents' association has openly attacked one deep geothermal project due to the proximity of a zone Seveso. Their whole strategy was to demonize deep geothermal energy through local media. It was amplified by local politicians because of the approaching local elections beginning on 2015. The list of complaints was long: permanent reference to counterexamples selected in shallow geothermal energy, accusation of complicity between industrial operators and public authorities, and a strong dependence of public subsidies for industry. Everything was exhibited by self-declared experts who never asked beforehand to discuss in deep those issues. It turns out that the vast majority of these allegations were completely unfounded even biased and introduced some confusions. Geothermal community must admit that our discipline is rather complex and cannot be simply explained. Therefore, the best strategy for improving social acceptability will be first, to educate and largely communicate and, second to promote best practices, and success stories in Alsace (like Rittershoffen) to convince that this energy is clean, sustainable and environmentally friendly.

2.3.4 References

Chavot Ph., Masseran A., Serrano Y., (2015). How to deal with a public inquiry? Views from residents and deep geothermal energy project stakeholders in Alsace. ***European Geothermal Workshop*** EGW2015, 19-20 October 2015, Strasbourg, France.

Cuenot N., Genter A., (2015). Microseismic activity induced during recent circulation tests at the Soultz-sous-Forêts EGS power plant. Proceedings ***World Geothermal Congress*** 2015, Melbourne, Australia, 19-25 April 2015.

Geoderis, (2014). Avis sur l'origine des désordres survenus sur la commune de Lochwiller, Bas-Rhin, France, ***Open file report Geoderis,*** E2014/003DE-14ALS3301, 49pp.

Lagache L., Genter A., Baumgartner J., Cuenot N., Kolbel Th., Texier P., Villadangos G., (2013). How is evaluated acceptability of an EGS project in Europe: the Soultz-Kutzenhausen geothermal project? EGC2013 ***European Geothermal Conference*** Pisa, Italy, 3-7 June 2013.

Sass I., Burbaum U., (2010). Damage to the historic town of Staufen (Germany) caused by geothermal drillings through anhydrite-bearing formations, ***Acta Carsologica*** 39/2, 233-245, Postojna 2010.

2.4 Engaging the Public on Geothermal Energy; Public Acceptance, Fairness and Trust

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Trust takes an effect on acceptance, via the perception of risks and benefits (Figure 6). Fair engagement procedures may help to build and sustain society's trust in geothermal projects and their owners both on local and national levels.

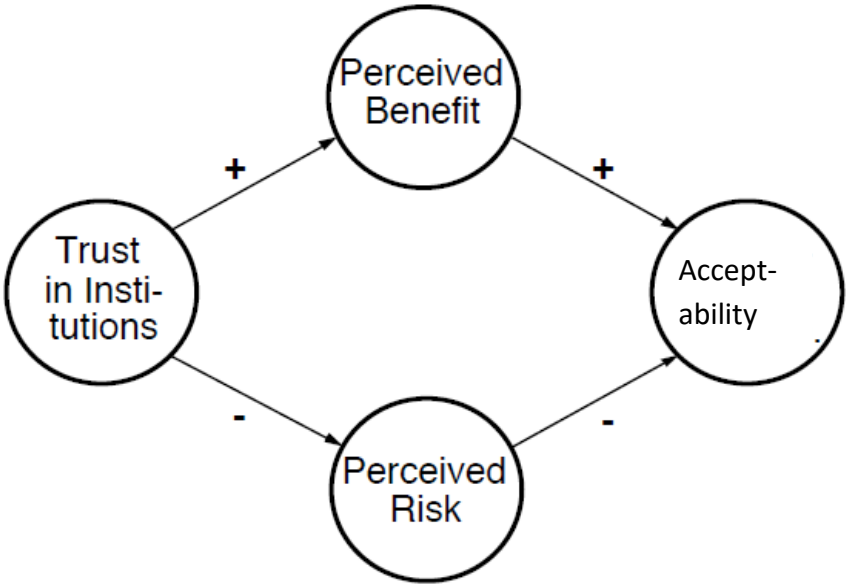

Figure 6: The importance of trust (Siegrist, 2000)

It became clear that the development and use of geothermal potential strongly depend on public acceptance and the interests of different stakeholders. To promote robust decisions and sustainable confidence in geothermal projects, a site-specific participation process is central. This is confirmed by the case study of Groß-Gerau - a geothermal energy project to where the Risk Dialogue Foundation moderates the current civil participation process. Based on the practical experience and scientific expertise they recommend a three-stage process of participation (Figure 7)

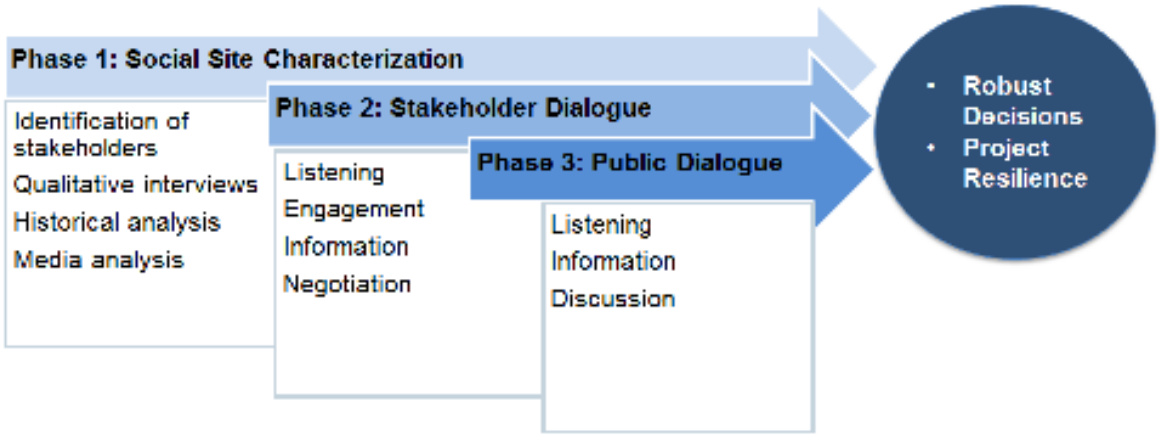

Figure 7: Public engagement process

The first phase is a site-specific performance analysis. The aim is to identify in qualitative interviews and media analysis perceptions, hopes, fears, questions, and concerns of stakeholders and citizens around the topic of geothermal energy as well as other local issues and to design the participation process.

The aim of the second phase "Stakeholder Dialogue" is to discuss in joint talks between stakeholders and project developers the specific concerns of the stakeholders and formulate conditions at which a widely accepted implementation of the project is possible. For this purpose, an advisory board of 20 members representing a broad range of stakeholder groups (including local government officials) was established in November 2012. The advisory board organized itself in four working groups addressing the following topics: Environmental issues (1), cost effectiveness and local benefits (2), risk governance (3) and communication (4). During the project in Gross-Gerau, the target was to collect all the questions, needs and concerns of the community. In result 31 requests have been fulfilled before the project could start.

In the third phase, "public dialogue" the general public as well as the direct neighbours are involved. It was developed based on the findings of the social site characterization. The aim was to engage as many residents of the region in the development of the geothermal project as possible (Figure 8).

Figure 8: Phase 3: Public Dialogue; Information and Dialogue Events

2.5 TIGER Research Project – What to know about geothermal communication and acceptance in Germany

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To plan a project without acceptance is quite uncomfortable. It doesn't matter if it is an infrastructure project, a society project or an energy project. In all those different types of projects it is necessary to involve society, involve different stakeholders and develop rooms and ways to set up a proper base for public acceptance. Especially recently citizens want to become more and more involved in projects that affect their living environment. This new interest in politics is accompanied by a higher information and participation need. Information and participation need are both factors influencing the acceptance of a project.

Acceptance is a flexible condition. Never be safe that acceptance maintains in the same condition without doing anything. Projects, especially with a long run go through different phases, in which public acceptance can change frequently. There is no safety to receive the same acceptance level in all project stages. Public involvement is necessary to obtain public acceptance. In the hypothesis of Pettigrew an important point of the reduction of prejudices is a permanent long-term contact between public and project developer.

In the TIGER project (www.tiger-geothermie.de), which was government-funded by the Federal Ministry for Economic Affairs and Energy, the main aim is to determine the acceptance of geothermal energy based on different geothermal projects in different phases of project realizations – from a green field to a fully operational geothermal power plant. Therefore, we combined technical aspects, social knowledge and regional characteristics regarding geothermal energy to find out which acceptance obstacles are given in different stages of a geothermal project. Finally, we compared the results of different locations. Within the TIGER Project we also evaluated different ways of information channels on different local sites to know which way is the most effective way to communicate with the public.

2.5.1 Data collection of (social) knowledge on geothermal energy

In the first step we have done some quality interviews to determine recognized advantages and disadvantages of geothermal energy by citizens. As result we generated some tag clouds to get an idea of the main fears (unknown risks, costs, earthquakes) and main benefits (sustainability, local energy supply, renewable energy). In a second step TIGER used empirical approaches, especially semi-automatical text mining on different websites, to quantify the attitude towards geothermal energy. In the last step both approaches were combined to get most accurate findings. It also made possible to rank the active and passive ways of information (Table 1).

Table 1 TIGER: active and passive information channels

Ranking	Active Information	Passive information
1	Round table	Article in the local newspaper
2	Information event	Flyer / Information brochures
3	Open day	Website of the project
4	Visit of other power plants	Unofficial Media (e.g. church newsletter)
5	Citizen telephone	App for smartphones
6		poster

2.5.2 Technical aspects

Furthermore, TIGER identified technical scopes for actions, which are possible to change in order to get a better public acceptance of a geothermal project. It was analysed, which operations and components are in the position to disturb people. These disturbances can be divided in ideally perceived or felt, smelled, heard and foreseeable. The findings can be in principle transferred to other projects that are already in operation or currently under construction. Numerous technical scopes for actions have been determined. The most important is the architecture and the exact location of the geothermal power plant. For these elements, they must be considered early enough and have an impact on the local acceptance.

2.6 Conculsions

Based on this evaluation a dialogue process can be planned. In summary transparency, dialogue and early information (Figure 9) are more the most important aspects. These facts combined with a shaped public communication and knowledge of the potential geothermal site are the base for a trusted relationship between the project and the population.

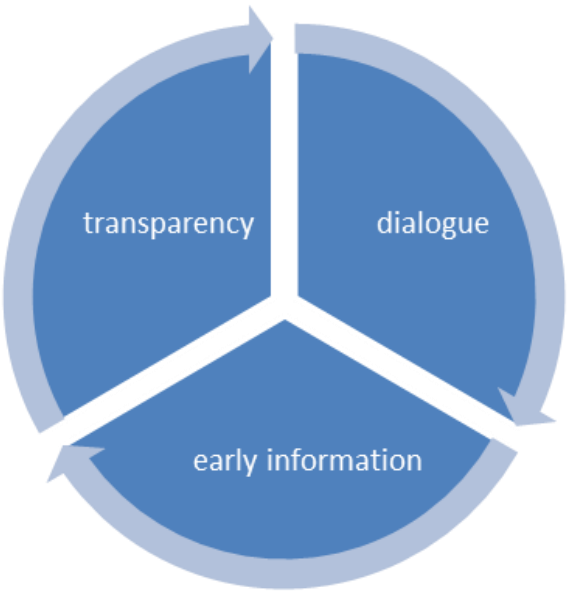

Figure 9: Main aspects for a better understanding between public and project developer

2.6.1 References

Pettigrew, T. F. & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*, 751–783.

3 Conclusions

After the presentations a general discussion was conducted. One conclusion was that the PR work has been reinforced within the project operators in recent years, however it still can and must be optimized, especially by streamlining focused messages to the different target groups. It was also concluded that there has been often a lack of conceptual considerations for PR activities, without which a forward-looking PR work is hardly possible. Instead of being pro-active providing opportunities for open discussion of sensitive topics, PR activities often only respond to questions of the locals, which are frequently based on lack of knowledge, or on malevolent purposes of the media (e.g. using the downsides of shallow geothermal events as reason for opposing deep EGS). Therefore, all possibilities have to be used to make geothermal energy and various technologies better known among the public.

It also has to be emphasized that each geothermal energy project is unique, which applies both to the geological and technical characteristics as well as to the socio-demographic conditions. Therefore, general communication methods and measures cannot be applied, but project tailored PR strategies have to be established and performed.

Although different types of project examples were presented and discussed at the workshop, it was generally concluded that the acceptance of geothermal projects is a question of trust. PR work can therefore only be successful if it manages to create a basis of trust, in which early, honest and strategically oriented communication has a crucial role.

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