Intelligent Energy Europe

Project Fact Sheet

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INTEGRATION OF GEOTHERMAL ENERGY INTO INDUSTRIAL APPLICATIONS (IGEIA)

Programme area:	*Altener, Geothermal Energy, RES heat, Small scale RES applications – VKA7.4 & VKA6.2*
Status:	ongoing
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Partners:	*UBeG, Germany* *SWECO, Sweden* *EST Setubal, Portugal* *Enpro, Estonia*
Website:	*http://www.saunier-associes.com/igeia*
Objective:	*Increase the number of geothermal heating & cooling installations in industrial sites*
Benefits:	*Enable the industrial sector to evaluate the use of geothermal energy and show the economical advantages*
Keywords:	*Geothermal energy, Industry, Economical benefits*
Duration:	*12/2006 – 05/2009*
Budget:	703,692 € (EU contribution: 50,00 %)
Contract number:	EIE/06/001/SI2.447570

IGEIA Integration of Geothermal Energy into Industrial Applications

Short description

The objective is to help the development of geothermal heating and cooling into industrial sites. Indeed the industrial sector offers a very attractive target for geothermal use…but the number of applications in Europe is small. The main barriers on this market are the lack of examples, so we want to show the industry that a geothermal system is possible and less expensive than conventional energy technologies!

The five partners in Portugal, France, Germany, Sweden and Estonia cover the three main climatic conditions in Europe: Mediterranean, Temperate and Nordic.

The project is firstly to study the installation of geothermal system in Germany, France and Sweden on 3 industrial sites: supermarkets, pipes manufactory, shopping centre. Secondly we try to customize a "geothermal product" with common pay back periods and finally we replicate these examples in Portugal and Estonia to validate our data. A brochure and two events will present our results.

Expected and/or achieved results

The main purpose of the first 18-months of IGEIA project was to study the industrial sector in Portugal, France, Germany, Sweden and Estonia in order to determine the most interesting sectors to integrate geothermal systems.
The survey included also a research on local climatic conditions for geothermal energy: ground temperature, weather conditions, regulations…
3 industrial partners were finally chosen after 6-months of investigations on specific industrial sites. An energy audit has determined the energy use and quantified the potential of energy savings. A feasibility study, both technical and

economical, has been carried out on these 3 industrial sites. A common framework was elaborated to evaluate the pertinence of the geothermal project.

This first six months were also dedicated to establish the IGEIA Advisory Committee with industrial partners and two European industrial organizations: Eurocommerce and Eurochambres.

The partners hoped that geothermal energy would be more used in all industrial sectors. From this point of view, until the interim date, the main achieved results of the IGEIA project were as follow:

- *Presentation of local conditions (climate, geology, regulations…) for geothermal energy in France, Germany, Sweden, Portugal and Estonia (WP2): the market report D7 underlined in its first part, all of the important factors, when installing a geothermal solution.*
- *Industrial market of Geothermal H&C in the 5 partners countries (WP2): The number of applications in Europe is relatively small. The market report D7 pointed out the most interesting sectors to install geothermal energy.*
- *Investigations to identify industrial sites where a geothermal application can be integrated and the energy usage evaluated. In WP3, S&A-UbeG and Sweco convinced the commercial center 'Au carré d'or', the supermarket 'Aldi' and the pumps manufacturer 'ITT Flygt' to install a geothermal system. Firstly, reports D8 described how the geothermal energy was used on the 3 industrial plants.*
- *Geothermal H&C market report in 5 partners countries (WP2,3&4): The market for geothermal applications is well established only in the following European countries: Sweden, Germany, France. Nevertheless, in other countries such as Estonia and Portugal, geothermal energy has a great potential, although we have not yet been able to gain a self-sustaining market. Emerging markets in the EU may benefit from lessons learnt on more developed markets applications. The feasibility studies realised in WP4 for France, Sweden and Germany must be replicated in WP6 for Portugal and Estonia.*
- *In order to replicate the installation, the 3 feasibility studies must be carried out with the same frame. Deliverables D9-10 report results of these financial and technical feasibility studies applied for the 3 selected sites.*
- *A crucial task began by establishing a reliable methodology to customize the integration of a geothermal application into the industry per climactic regions. (WP5)*
- *Inventory of EU and national financial incentives for Geothermal H&C (WP4): In the guide D11, each country presented a description of the EU, national and regional funds. This guide examined different incentives that can be obtained by industrials and promoted the geothermal energy use in the industrial field.*
- *Website (WP7): the IGEIA website was designed and improved (www.saunier-associes.com/igeia); an interactive interface was created with numerous sections. The newest versions of deliverables and data are continuously uploaded.*
- *Portugal organised a common workshop with other IEE projects (WP8).*
- *Press releases: articles intended for professional press were written, and submitted in Sweden, France, Germany, Estonia, and Portugal. They will be published in the coming weeks. Est. Setubal published several articles on the Internet concerning the IGEIA project (as mentioned on our website).*

Lessons learnt

3 main preliminary lessons learnt:

1) It is important to discuss first the terminology to make sure that we have the same point of view. For example, it was important to start by defining the "industry", to be sure we work on identical and comparable industrial activities.
2) Project meetings offer a great opportunity to discuss project management but also to share information about different techniques. A presentation of several innovative tools was held: simulation software, applications (Underground Thermal Energy Storage), Thermal Response Test… We learnt about other technologies developed in Europe. Hence, this project offers a good opportunity to widespread the knowledge about geothermal applications also within design offices.
3) It is essential to communicate by email and phone between two project meetings to ensure a good management of the WPs and to be informed about constantly of the project progress. This also allows to share information about that can be encountered.