

**Project No. TREN/05/FP6/S07.59572/019892**

**Project Acronym: ASTECH**

**Project title: Advanced sustainable energy technologies for cooling and heating applications**

**Instrument: Specific Support Action**

**Thematic Priority: Priority 6.1 “Sustainable Energy Systems”**

**DELIVERABLE 4.1h  
“Workshop on heat pump in Spain  
May 2008”**

**Date of preparation: 30 may 2009**

**Partner in charge: EVE**

**Start date of project: 01.09.2006**

**Duration: 30 months**

**Project coordinator name:**

Bernard Thonon

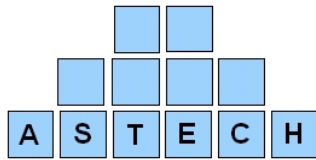
**Project coordinator organisation name:**

ASSOCIATION GRETh (GRETh)

**Revision:**



**SIXTH FRAMEWORK PROGRAMME**



*Advanced Sustainable Energy  
Technologies for Cooling and  
Heating applications*



SIXTH FRAMEWORK  
PROGRAMME

**COUNTRY: SPAIN**

**Organized by: EVE**

**WP 6: Dissemination-Evaluation**

**Task : Conference and training**

**Deliverable n°: D6.4**

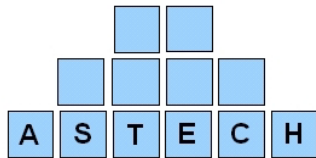
**Partner: EVE**

**Event name: GEOTHERMAL EXCHANGE AND DRILLING INDUSTRY**

**Venue: Durango (Bizkaia)**

**Date and time: 29<sup>th</sup> May 2008,**

**Organiser: EVE in collaboration with Azterlan**



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## 1. PILOTE TRAINING ACTIONS

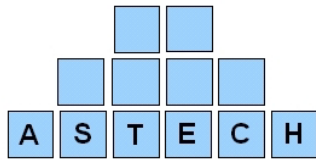
Location	Durango (Bizkaia)	Deliverable No.	6.4
Date	29 <sup>th</sup> May	Time	9:00-17:00
Organised by:	EVE in collaboration with Azterlan		
Address	Azterlan		
City	Durango		
No. attendees	42		

## 2. OVERVIEW

*The seminar “Geothermal exchange and drilling industry” took place on 29<sup>th</sup> May in the head office of Azterlan in Durango. The event was organised by Ente Vasco de la Energía in collaboration with Azterlan.*

*This presentation forms part of the strategy for disseminating the European project named ASTECH, whose objective is to promote the usage of renewable energy technologies for heating and cooling purposes, including geothermal energy.*

*Despite the interesting use of geothermal exchange as an alternative to conventional systems, there is a lack of knowledge in this field among air conditioning industry agents. This seminar was intended to be an approach of this technology to the world of air conditioning and drilling industry. In particular, to these very last ones, because the cost of drilling can represent 70% of over-investment in any implementation.*



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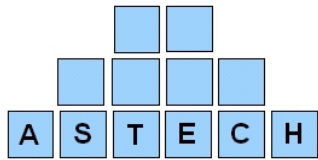
**Organized by: EVE**

### **3. METHODOLOGY / MATERIALS USED**

The session was opened by José M<sup>a</sup> Murua from Azterlan followed by Juan C. Vicuña from EVE with a brief presentation of the objectives of the conference.

The presentations began with the intervention of Iñigo Arrizabalaga from EVE explaining the general fundamentals of geothermal energy, typologies, advantages and barriers to be eliminated, and the development experienced in other countries. Then, entering the world of the drilling industry, its requirements and methodology, Juan Franqueza from Edasu spoke on peculiarities of small plants (<100kW) and Gonzalo Mayoral from Termoterra talked on drilling of large plants (> 100kW ). Subsequently, types of pipes and welds used in these installations were explained in detail. The person in charge of this talk was Francisco Perez from Agruquero. Pablo Martinez from Pesa Engineering spoke on types of fillers used, methods and equipment. And as a final technical speech Miguel Madero from Giroa Geotermia introduced collectors and mechanical rooms, important parts of the geothermal installations. To explain legal aspects (permits, concessions...) and financials (grants, feasibility) Víctor Peñas from Ur agentzia and Guillermo Basañez from EVE intervened. Finally, the case study of Azterlan was presented. The responsables for doing so were Iñigo Arrizabalaga from EVE and José M<sup>a</sup> Murua from Azterlan.

For more information go to annex A.



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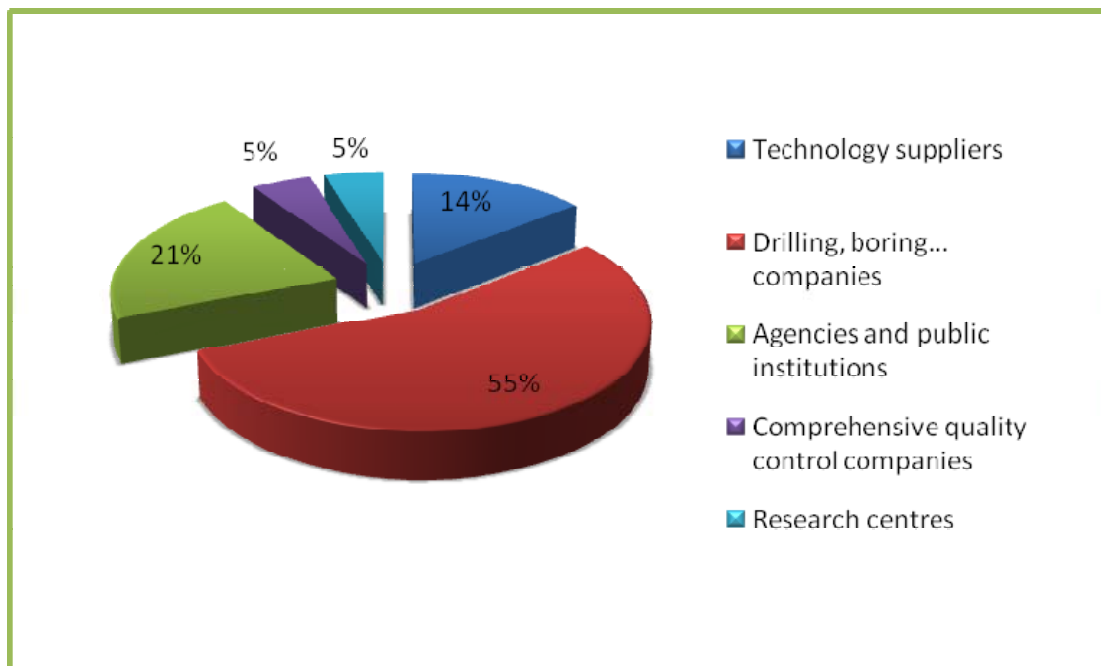
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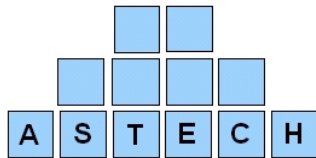
**Organized by: EVE**

#### 4. ATTENDEES PROFILE

The total number of attendees for this seminar was 42, of which a large majority came from companies whose main activity is the drilling and boring, a total of 55% of attendees. Another 14% came from equipment supplying companies for such activities and 21% from institutes and public agencies. The remaining 10% was split equally among people dedicated to comprehensive quality and people belonging to technology centres.



**Figure 1:** Business activity of the attendees companies



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## **5. EVALUATION OF THE CONFERENCE**

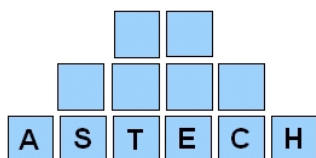
The conference was a success both for the quality of the speakers and the high level and input from attendees. The exchange of ideas and feedback was very fruitful and this demonstrates the interest and potential of the geothermal technology.

The background of the people gathered there was diverse, from technology suppliers, to public institutions and research centres but many of them were drilling companies.

The visit to the installation received special mention and good evaluation from participants' side as well as the choice of the topics of the speakers. The topics were as varied as; the state of the art of the technology and configurations of facilities, legal aspects and feasibility studies.

# ANNEX A

## “CONFERENCE ABOUT GEOTHERMAL EXCHANGE AND DRILLING INDUSTRY”



**ASTECH PROJECT**  
**AZTERLAN, 29th MAY 2009**  
 PROGRAMME

BEGINNING	END	SUBJECT	SPEAKER	COMPANY
09:00	09:15	Registration.		
09:15	09:30	Introduction. Seminar objectives.	D. José M <sup>a</sup> Murua D. Juan C. Vicuña	AZTERLAN EVE
09:30	10:00	IG. Fundamentals, typologies, applicability and development in other countries.	D. Iñigo Arrizabalaga	EVE
10:00	10:30	Drilling in small instalations (<100 kW)	D. Juan Franqueza	EDASU
10:30	11:00	Coffe break		
11:00	11:30	Drilling in large installations (>100kW).	D. Gonzalo Mayoral	TERMOTERRA
11:30	12:00	Pipes: regulations, techniques of welding. Trials and testing	D. Francisco Pérez	AGRUQUERO
12:00	12:30	Fillers: types, justification, methods and equipment placed on site	D. Pablo Martínez	PESA ENGINEERING
12:30	13:00	Colectors and mechanic rooms	D. Miguel Madero	GIROD GEOTERMIA
13:00	13:30	Legal aspects: permits, concessions and conditions	D. Victor Peñas	URAGENTZIA
13:30	15:00	Lunch break		
15:00	15:30	Economic aspects: subvention and feasibility	D. Guillermo Basañez	EVE
15:30	16:00	Case study: Azterlan project	D. Iñigo Arrizabalaga	EVE
16:00	16:30	Discussion		
16:30	17:00	Visit to Azterlan's geothermal exchange installation (200 kW)	D. José M <sup>a</sup> Murua D. Iñigo Arrizabalaga	AZTERLAN EVE
17:00	17:00	Closing	D. Juan C. Vicuña	EVE

## ANNEX B



Mr. Franqueza, from Perforaciones Edasu (Edasu Drilling Company) presentation and Mr Vicuña (EVE, Workshop Chairman)



Mr. Peñas, from URA (Basque Government Water Agency) talking about regulations.

ANNEX B



Mr. Basñez (EVE) explanation about grants and geexchange fostering policies.



Mr. Mayoral (Termoterra) talking about drilling in medium scale geothermal projects.