



Newsletter

*ENhanced Geothermal
Innovative Network for Europe
co-ordination action*



N°10 – January 2008

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<http://engine.brgm.fr>

Editorial

The final conference (Vilnius, Lithuania, 12-15/02/2008): a milestone towards EGS demonstration projects

The heat engine of the Earth represents an infinite and renewable source of energy that could potentially satisfy a significant part of our needs. While conventional geothermal resources already cover a wide range of uses for power and heat production in profitable conditions, the development of engineered geothermal systems still requires significant R&D investment. A large scientific and industrial community has been involved for more than 20 years in promoting Enhanced Geothermal Systems (EGS) and has been recently assembled in ENGINE, a Coordination Action of the 6th Framework Program, aimed at coordinating on-going actions concerning Unconventional Geothermal Resources. The achievement of this project will be a handbook defining best practices and proposing a road map for future demonstration projects. The main results will be presented during the final conference that will be held in Vilnius, Lithuania (12-15 February 2008).



Vilnius city (Lithuania).

The project, that joins 35 partners (4 of them from Third Countries) and 19 countries, started on 1st November 2005 and up to now, 2 conferences (launching and mid-term) and 7 workshops have been organised. All material elaborated during the project are available through the web site at <http://engine.brgm.fr>. Proceedings, reports, abstracts and slides can be downloaded, presenting an updated framework of activities concerning (i) investigation, (ii) drilling, stimulation and reservoir assessment, (iii) exploitation, economic, environmental and social impacts.

The enhancement challenge requires the development of innovative methods for exploring, developing and exploiting geothermal resources that are not economically viable by conventional methods. This definition embraces different tracks for enlarging access to heat at depth in order to provide continuous base load-power and to contribute to reach the target of the European Strategic Energy Technology Plan, i.e. 20% renewable market penetration in 2020.



Steam from the EGS
Soutz experiment (France).

Lessons learned from the Soutz EGS experiment, the sustainable development of the Larderello field in Italy, and the Icelandic geothermal power network, among other case histories, show a learning curve effect and a continued reduction in cost through R&D developments. Based on the Soutz experience, and thanks to significant progress in binary power plant technology, a new EGS power plant was done in the Upper Rhine graben in the German side and others projects are planned for the coming years.

There is a sound knowledge shared by the European scientific community to promote geothermal projects and active links with the International Energy Agency and other EGS programs in US, Australia and Japan. In that scope, ENGINE Coordination Action provides that conditions are gathered to promote new EGS demonstration projects through a common approach between R&D teams and stakeholders, providing an added value for European energy resources and industry development. What could be the next move in this direction? Calibration of this learning curve and quantification of geologic and technical risks are among the main issues that come out from the contact with the stakeholders and that were debated during the Leiden workshop (Netherlands). Each stage of development of EGS includes several phases and involves pluridisciplinary approaches that can be run in parallel or successively. Decisions are taken at critical moments of the development of the project, marked by go/no go milestones. Review of best practices and lessons learned from the different projects and partners enable the definition of a workflow on which well proven methods and risk assessment can be identified. Concerning each main topic, proven methodologies have been reviewed. Their objectives and main outcomes were presented during the different conferences, workshops and meetings and will be synthesized in the European Reference Manual. Concerning each topic, gaps and barriers must now be identified and evaluated in terms of risk-related and probability of success. R&D themes and investments required to overpass these gaps and barriers could then be defined and constitute a road map for the R&D task force mobilised during the ENGINE co-ordination action for the next years.

In conclusion, it is important on one hand to evaluate the investment and the expected savings on cost operation at the 2020 horizon for each R&D initiative and industrial project. On the other hand, it must be demonstrated that geothermal energy can contribute to achieve the goals defined in the European Strategic Energy Technology Plan. These are our priorities for the next months, until the closure of ENGINE, and for the next years, through EGS demonstration projects. The ENGINE task force is now operational and motivated for developing EGS at European scale.

Back to the Leiden workshop

Workshop 7 of the ENGINE project “**Risk Analysis for Development of Geothermal Energy**” was hosted 7th to 9th November 2007 in Leiden, the Netherlands. The workshop was held at “Naturalis” - National Museum of Natural History, located just outside the main centre of Leiden. This workshop was attended by 26 participants from 8 countries. The workshop focused in particular on lessons learned and future best practice guidelines for Decision and Risk management for scenario and parameter uncertainty in performance assessment and asset development, building largely on results from WP 6, 7 and 8. The first day has been devoted fully to presentations, the second day to discussions.



Leiden down-town (The Netherlands).

The presentations of day 1 dealt with lessons learned and best practice risk analysis and the future outlook for uptake of EGS. The presentations covered different aspects of risk assessment: a) optimum decision and risk techniques for assets and prospects performance assessment, b) compliance to regulatory (HSE) constraints, including operational hazards analysis, and c) Public relations issues.

Taking lessons and outlooks presented on day 1 as starting point, the discussion on day 2 focused on how to contribute to answers to key questions, to be delivered by ENGINE: a) What we assumed on (EGS) resource potential for power production before ENGINE? b) Are Unconventional Geothermal Resources, UGR promising for power production? c) What are critical (knowledge) gaps/barriers in current workflow to reach considerable uptake of Power production?



Naturalis - National Museum of Natural History (Leiden, The Netherlands).

The workshop has outlined an exploration portfolio in which we can identify 4 promising groups sharing similar key performance aspects. In the future we should be capable to identify more prospects to be added to the resource portfolio, through using generalized key success factors for prospectivity of the various groups to other areas. Furthermore we need to improve success rates of exploration and performance of identified prospects by improving exploration strategies and workflows. In addition we need to solve technological gaps and adopt new technology to improve techno-economic performance.



Workshop participants.

The Book of Abstracts as well as the files of both presentations and posters are already available on the [ENGINE Workshop 7 Web Pages](#). The final contributions will be published in February 2008 on a CD-ROM.

ENGINE Final Conference in Vilnius, 12-15/02/2008

Registration deadline: 31/01/2008.

The Final Conference of the ENGINE project will be held at [Le Méridien Villon Hotel](#) in Vilnius from 12 to 15 February 2008. The organization of [the Final Conference](#) is managed on the ENGINE Web site. All participants, from the ENGINE network or from any other institutions, must **register before Thursday 31 January**.



Cathedral of Vilnius (Lithuania).



St. Anne's and the Bernardine Monastery Churches in Vilnius (Lithuania).

Reception of the participants will start at 11 am on Tuesday 12 February and will be also possible on Wednesday morning at the conference hotel. An icebreaker will be offered on Tuesday evening at the hotel at 7 pm. A conference dinner will take place in Vilnius City on Wednesday evening. Conference buses will drive participants between the conference hotel and dinner location. The excursion will be organized on Friday 9 am - 5 pm.

The conference programme (provisional)

The provisional conference program is presented on the [Final Conference Web page](#). For any question, feel free to contact the conference chairpersons (p.ledru@brgm.fr, sliupa@geo.lt).

	9-14	14-17	17-19	after 19
Tuesday 12		WP meetings*		Ice breaker
Wednesday 13	Opening Session	Conference	Steering committee#	Conference diner
Thursday 14	Conference	WP meetings*	Executive Group#	
Friday 15	Field trip			

* Restricted to the ENGINE partners.

Restricted to members.

Presentations

Oral presentations for the Final Conference are dedicated to invited speakers and ENGINE workpackage leaders. Five posters sessions are defined according to the ENGINE tracks:

- 1 - Information and dissemination system,
- 2 - Investigation of Unconventional Geothermal Resources and EGS,

3 - Drilling, stimulation and reservoir assessment,

4 - Exploitation, economic, environmental and social impacts,

5 - Risk evaluation for the development of geothermal energy.

Accommodation & Venue - Le Méridien Villon

The ENGINE Final Conference will take place at the Le Méridien Villon Resort and Convention Centre both for meeting and accommodation. It is located 15 km NE from Vilnius and is accessed by speedway Vilnius-Panevezys (the maps are available on the Hotel's website).

How to go to Le Méridien Villon Resort Convention Centre

The Le Méridien Villon is located 28 km from Vilnius Airport. Taxi can be arranged by indicating the request in the Accommodation Booking Form (price 29 Euro). The taxi driver will be holding "ENGINE-Villon" poster at the main entrance to be recognized.

The complimentary shuttle bus operates between the city centre and the hotel. Please check Le Méridien Villon Website.

Guidelines for Accommodation

Please do not use the Hotel's website for booking your accommodation.

The participants of the conference are asked to make their own reservation using the special ENGINE Accommodation Booking Form. The Form should be sent directly to the Le Méridien Villon by fax or e-mail (addresses are indicated in the Form). The participants of the ENGINE conference have special **reduced** prices for the accommodation.

Two days before the conference and two days after the conference the reduced prices, as indicated in the Accommodation Booking Form, are valid for the Conference participants. The Accommodation Booking Form is available on the Final Conference Website on the "[Accommodation & Venue - Le Méridien Villon](#)" menu.

[Visit Le Méridien Villon Website](http://www.lemeridien.lt) at <http://www.lemeridien.lt>.

More information is available on the [Final Conference Web pages](http://engine.brgm.fr) at <http://engine.brgm.fr>.



Le Méridien Villon (Vilnius, Lithuania).

The focus of the conference

is to bring together European partners active for the environmentally friendly exploitation and use of geothermal resources. The conference represents an outstanding forum for communication and knowledge exchange on recent developments in this field. It offers the chance to get in contact with representatives from science, industry, policy makers and organizations from around the world, who have a shared interest in the progress of geothermal energy. The conference programme covers the broad spectrum of geothermal technology development in a variety of themes.

The ENGINE project

is a joint initiative of 35 partners from 16 European and 3 non-European countries supported by the 6th Framework Programme of the European Commission.

Its main objective is the coordination of current R&D activities with respect to Unconventional Geothermal Resources and Enhanced Geothermal Systems. For more information please visit the website <http://engine.brgm.fr>.

An Exhibition

will be organised with the main objective of strengthening and creating new links between R&D teams, investors and industrials from Western and Eastern Europe

Location

Hotel Le Méridien Villon

Registration

Registration at the conference website <http://engine.brgm.fr> following the link [conferences&workshops Final conference](#)

Registration deadline: January 31, 2008

Abstract submission deadline: January 16, 2008

Organisation Committee

Saulius Sliupa, IGGL, Lithuania; Patrick Ledru, BRGM, France;

Scientific Committee

Philippe Calcagno, BRGM, France; Albert Genter, GEIE Soultz, France; Ernst Huenges, GFZ Potsdam, Germany, Martin Kaltschmitt, IE Leipzig, Germany; Costas Karytsas, CRES, Greece; Thomas Kohl, Geowatt, Switzerland; Jan-Diederik van Wees, TNO, Netherlands; Adele Manzella, IGG, Italy; Sverrir Thorhallsson, ISOR, Iceland.

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The conference is organised by



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ENGINE

Enhanced Geothermal Innovative Network for Europe

Final Conference

12-15 February, 2007

Vilnius, Lithuania



PRELIMINARY PROGRAMME

February 12, 2008

11:00-12:00
Registration
14:00-17:00
Work package meetings
19:00
Icebreaker at Le Méridien Villon

February 13, 2008

8:30-9:00
Registration
9:00-11:00
Opening Session
11:00 11:30
Press conference/Coffee break
11:30 13:00
Synthesis and Best Practices, Priorities,
Research needs
13:00-14:00
Lunch
14:30 16:00
Synthesis and Best Practices, Priorities,
Research needs
16:00-17:00
Poster session / coffee break
17:00 19:00
Meeting of the Executive Group
17:00 19:30
Visiting the City of Vilnius
19:30 23:00
Gala Dinner in Vilnius

February 14, 2008

09:00-11:00
International perspective for the development of
geothermal energy and Enhanced Geothermal
Systems
11:00-11:30
Poster session / Coffee break
11:30-13:00
Project generation and discussion
13:00-14:00
Lunch
14:00-15:00
Project generation and discussion
15:00-17:00
Work package meetings
17:00-19:00
Steering committee meeting

February 15, 2008

9:00-17:00
Field trip

Oral presentations for the Final Conference are dedicated to invited speakers and ENGINE workpackage leaders.

Submission of abstracts for **poster** presentations is open to every participant. Five posters sessions are defined according to the ENGINE tracks:

- 1- Information and dissemination system
- 2- Investigation of Unconventional Geothermal Resources and EGS
- 3- Drilling, stimulation and reservoir assessment
- 4- Exploitation, economic, environmental and social impacts
- 5- Risk evaluation for the development of geothermal energy