GEOELEC Project Overview

Regional Workshop

Germany, Poland, Czech Rep., Slovakia, Hungary, Austria, Switzerland

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European Geothermal Energy Council

Offenburg, 29/02/2012
Objective of GEOELEC project is to

- convince decision-makers about the potential of geothermal electricity in Europe: Create awareness and improve perception among policy makers
Objective of GEOELEC project is to...

- *stimulate banks and investors in financing geothermal power installations.*

- **Geothermal project development has high upfront costs and can take several years: 3-6 years, need innovative mechanisms for funding**
Objective of GEOELEC project is to...

- attract key potential investors such as oil and gas companies and electrical utilities to invest in the geothermal power.
- Geothermal projects are capital intensive

<table>
<thead>
<tr>
<th>Type</th>
<th>Capital costs, € million /MWe installed</th>
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</thead>
<tbody>
<tr>
<td>EGS</td>
<td>7</td>
</tr>
<tr>
<td>Binary-ORC</td>
<td>6.3</td>
</tr>
<tr>
<td>Flash steam</td>
<td>5</td>
</tr>
<tr>
<td>Dry steam</td>
<td>4</td>
</tr>
</tbody>
</table>
Results

• GEOELEC will result in an action plan towards more geothermal electricity generation in Europe, with the objective to double installed geothermal power capacity in Europe by 2020.

• GEOELEC will also result in setting concrete actions to reach these objectives:
  ➢ conditions for financial feasibility,
  ➢ a regulatory framework, and
  ➢ public acceptance.
<table>
<thead>
<tr>
<th>List of Participants</th>
<th>Country Code</th>
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</thead>
<tbody>
<tr>
<td>European Geothermal Energy Council</td>
<td>EGEC</td>
</tr>
<tr>
<td>Bureau De Recherches Géologiques Et Ministres</td>
<td>BRGM</td>
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<td>Centre For Renewable Energy Sources And Saving</td>
<td>CRES</td>
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<td>Consiglio Nazionale Delle Ricerche</td>
<td>CNR-IGG</td>
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<td>Istituto Di Geoscienze e Georisorse</td>
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<td>Asociacion De Productores De Energias Renovables</td>
<td>APPA</td>
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<td>Gaßner, Groth, Siederer &amp; Coll.</td>
<td>GGSC</td>
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<td>EnBW Energie Baden-Württemberg AG</td>
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<td>Mannvit</td>
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<td>Helmholtz Zentrum Postdam - Deutsches Geoforschungszentrum</td>
<td>GFZ</td>
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<td>Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzoek - TNO</td>
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<td></td>
<td>NL</td>
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Work Flow Chart (June 2011 – November 2013)
Work Programme

Prospective for geothermal electricity in Europe

Resource assessment
- Methodology: Geoelec Resource Assessment Protocol
- Data compilation with 7 regional workshops (London, Valencia, Milano, Athens, Utrecht, Offenburg, Vilnius)
- An online web GIS on EGS potential in the EU-27

Electricity demand and grid infrastructures
- Technical conditions for grid access
- Match the demand: site selection

Forecasts and prospective
- A prospective study 2020/2030/2050 on the geothermal potential in Europe (January 2013)
Work Programme

Financing geothermal power projects

Project financing & estimating of costs
• A software to evaluate financial viability of geothermal projects
• LCOE

Risk insurance
• Promote the creation of risk insurance schemes

Drilling costs & rigs
• A European database on drilling costs & performance
• Best practice drilling handbook

Guide to boost investment in the geothermal sector
• Practical reference tool for banks, developers and investors
Work Programme

Regulatory, social and environmental conditions

Regulatory barriers
- Licensing procedures, legal conditions for grid access
- Geothermal reporting code review

Environmental issues

Public acceptance

Potential CO2 emissions reduction
Work Programme

Education and employment in the geothermal sector

Employment survey

Training activities
• 3 Training courses in France, Italy and Germany (2012/2013)
Work Programme

Communication

Website: www.geoelec.eu

Publication
- Geoelec Final Report (5500 copies in total, 100 pages, several languages)
- Geoelec Factsheets (4000 copies, brochure 16 pages, several languages)
- Newsletter (First in October 2011, every 4 months)

Events
- 7 promotional workshops (FR, DE, EL, ES, IT, HU, NL) and 1 Final Conference
- Face-to-face meetings with decision makers, banks, investors etc.

Promote the creation of National Geothermal Committee
- Official body providing recommendations for geothermal development
Thank You!

Visit www.geoelec.eu