Proposed Joint Activity

Financial Instruments and Funding of Geothermal Projects

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Gunter Siddqi
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Geothermal ERA NET Meeting
Brussels, Belgium
5 October 2015
Overview of the presentation

- Objectives and Structure of the Project
- Funding of Geothermal Projects
Overview of the presentation

- Objectives and Structure of the Project
- Funding of Geothermal Projects
The Overall Objective

• To improve the synergies between different players

• Better understanding of this financial landscape - to highlight barriers and recommend practical solutions

• Knowledge exchange will enhance cooperation and lower barriers and improve joint programming and better funding instruments and opportunities.
Process description

• Analyse the financial instruments that are available and – and map the operational structure of the different national funding bodies

• Highlight the main barriers and opportunities, and how these instruments can more easily work together
# The Team – 10 Countries

## Steering Committee

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## Participants

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Aims, Outputs and Priorities

Proposed Joint Activity

Financial Instruments and Funding of R&D and Geothermal Projects
Structure of the Project

Increase Utilisation and Opportunities of Financial Instruments and Funding to R&D and Geothermal Projects in Europe to increase Growth of Geothermal Activities, Energy Security, Savings and Quality of Life

- Increased knowledge, Cooperation, Utilization and Effectiveness of Geothermal Funding for R&D Activities
- Increase knowledge, Cooperation, Access and Financing Possibilities for Geothermal Projects

Outputs

- Priority 1: Mapping of funding policy for geothermal R&D activities
- Priority 2: Highlight barriers and opportunities of geothermal R&D activities
- Priority 3: Mapping of geothermal financial and funding project policy
- Priority 4: Highlight barriers and opportunities of geothermal funding instruments
Activities and Deliverables

Activities:
- Coordinated desk research – meeting with experts – collection of data from countries
- Evaluation of existing instruments and national markets
- Working meetings e.g. with stakeholders regarding relevant topics
- Drafting report
- Evaluation of option regarding - possible Joint Call

Deliverables:
- Report - Recommendations for financial instruments for the development of geothermal R&D and for the development of geothermal projects in Europe.
- Conclusion Seminar - Barriers & Opportunities and Policy recommendation.
  - National research funding
    - Needs –Barriers – Opportunities and Policy recommendation.
  - Financial funding for geothermal projects
    - Needs –Barriers – Opportunities and Policy recommendation
- Implementation of Joint Call
# Process description – draft timing

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Three important Geo EU Pillars

More cooperation and communication necessary at European level, National level and Company level

Industry, RD&D, Banks, etc - Cooperation
- Practical information
- Using existing information
- Highlight barriers
- Financial - opportunities
- Awareness – building
- Policy - recommendation
Overview of the presentation

- Objectives and structure of the project
- Funding of Geothermal Projects
The Survey – Geothermal Projects

- There are no common grounds.
- Each country has its own system.
- Geothermal is not high on the agenda by most partners and statistics on geothermal as part of renewable is very limited.
In regard to if projects can be funded from abroad the answers are very varied. From a straightforward yes to a straightforward no, and something in between.

There are funding schemes within Europe;
- Regional Policy, ERDF, Cohesion Funds
- EIB, EBRD, etc.
- National funding,
- EFTA EEA Grants,
- Etc.,
The Survey – Geothermal Projects

• Countries indicated fewer barriers to geothermal projects than geothermal RD&D

• Around half the participants report no technological, commercial or organizational barriers to geothermal projects

• Majority of participants report political barriers

• Opportunities mentioned in regards to geothermal projects are more specific, referring to certain areas and projects that could be beneficial.
The Survey – Geothermal Projects

• Most answers did not highlight barriers, except regarding economical and political
# The Survey – Geothermal Projects

## National Support for Renewable Energy Projects

### Use of different support & policy instruments for electricity, heating & cooling

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### Direct use of geothermal energy for heating (e.g. district heating systems)

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### Small heating and cooling applications (e.g. shallow geothermal heat pumps, etc.)

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### Other measures

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### National support for fossil fuels (oil, gas, coal)

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Sources: Geothermal ERA-Net, 2015
The Main Geothermal Problems

Unclear vision on geothermal issues at the European level - 62%
Lack of commitment to the geothermal sector by national government - 52%
Lack of collaboration and coordination between stakeholders (e.g., stakeholders) - 45%
Lack of continuous education within the sector - 33%
Too few geothermal training opportunities - 29%
Unappealing operational environments for companies within the sector - 29%
Lack of appropriate trainers - 29%
Lack of national collaboration and coordination between educational and research institutions - 23%
Lack of training opportunities for individuals within similar sectors that are not geothermal - 19%
Unappealing image of the geothermal sector - 19%
Too few geothermal courses at the tertiary level - 18%
Unappealing working conditions of employees within the geothermal sector - 14%
Lack of staff mobility opportunities - 14%
Lack of international collaboration and coordination between stakeholders - 14%
Little variety of geothermal courses at the tertiary level - 14%
Lack of student mobility opportunities - 10%
Little variety when it comes to geothermal training opportunities - 10%

Factors deemed of high importance as contributors to a lack of human resources within the geothermal sector. Educational factors are coloured green, policy/sectorial factors red and industry factors purple.

Unclear vision and lack of cooperation is one of the biggest problem for the geothermal sector - including regarding financing.
Financial barriers

- Risk associated to the first drilling and its coverage;
- Capital intensive (2,2 Mio € / MWth);
- Need new business models to make GeoDH economically viable;
- Fragmented and very limited support financial support; unfair competitive with conventional sources
Geothermal Financial Barriers - GeoDH

Source: GeoDH

PHASE 1
Prospective for Geothermal DH
- Potential Study
- Resource Assessment

PHASE 2
Socio-Economical Conditions
- Financing geothermal DH projects
- Regulatory conditions

PHASE 3
Dissemination
- Promotion of geothermal DH
- Best practices
- Training courses

Awareness raising
Attracting more financing
Transfer of best practice
How can we scale up Geothermal Financing?

Global view – WB / IFC

Sponsors
- Geothermal Expertise
- Local knowledge
- Financial Resource
- Scale to be able to finance on a corporate/portfolio basis

Regulatory / Sector Framework
- Transparent, predictable and sustainable
- Geothermal Incentives
- Standardized contracts
- Public role in bearing geothermal resource risk?

Scaling up Geothermal Financing

Technologies
- More accurate and faster resource assessment
- Faster and less costly drilling
- Reduction in US$ per MW and equipment lead-time

Lenders
- In-house resource engineer (or close collaboration with outside resource consultant)
- Geothermal financing experience
- Creativity and innovation

Source: IFC
Geothermal DH capacity Installed in Europe, 2013 (MWth)

Source: EGEC
Geothermal DH Potential in Europe

Actual Geothermal DH production towards the 2020 target (ktoe)

Source: EGEC
The Geo - Technical & Regulatory Barriers

**Barriers to Geothermal Development**

**District Heating**

**Technical barriers**

- Lack of wide and detailed information on geothermal energy resources
- Renovation of DH

**Regulatory barriers**

- Lack of national/regional/local geothermal regulatory framework
- Length and administrative burden of licensing procedures for exploration and drilling;
- Management of cascade uses
The Geothermal ERA - Opportunities

Conclusion: 3 Factors Affecting Geothermal District Heating

- Awareness of Potential of GeoDH
- Financing
- Responsive Policy Environment
The Geothermal ERA- Opportunities

- We are preparing a report on the subject.
- Additional inputs from you are welcomed

Financial Instruments and Funding of RD&D and Geothermal Projects Barriers and Opportunities
ERA NET - Preparing the Report

Communicate with principal stakeholders and others

Gaining expert knowledge – on financial barriers and opportunities

Prepare Policy Recommendation for better Financial Framework and more Capital for Geothermal Activity

Prepare and Implement Joint Financial Geothermal Activities (e.g. transnational funding activities)