OpERA
Operational Issues of Geothermal Energy Installations in Europe

Expert Workshop
1 + 2 October 2015
Vaals (NL/D)

Hjalti Páll Ingólfsson
Project Manager
Geothermal ERA NET Coordination Office

The Geothermal ERA NET is supported by the European Union’s Seventh Programme for research, technological development and demonstration under grant agreement No 291866
Geothermal energy contributes to the Energy Union

Geothermal energy is environmentally friendly.

It produces reliable baseload **power** and **heat** – all the more important to balance intermittent supplies from other renewable energy sources.

Geothermal is a renewable energy source and independent of weather conditions.

Geothermal energy is indigenous and contributes to Europe’s security of supply.
The Geothermal ERA-NET Consortium

Lead partner is Orkustofnun operating the Geothermal ERA NET Coordination Office

Started 2012 for 4 years
Budget 2 mill. €

Good geographical balance (North-West to South-East Europe) Partner countries chosen a.o. on basis of their 2020/2050 geothermal ambitions
The three Pillars of the EU Geothermal Policy

**ERA NET vision is to**
- minimize the fragmentation of geothermal research,
- build on European know-how and know-who to utilize geothermal energy
- structure large opportunities in the utilization of geothermal energy through Joint Activities (JAs).

**One important element of the Geothermal ERA NET is to**
- link together the geothermal industry pillar, the research pillar and the policy pillar
- increasing cooperation and consultation between those pillars and stakeholders
- strengthen geothermal assessment and policy recommendation.
Organisational structure / work packages

**WP1 – ICELAND**
Coordination, Management & Dissemination

**WP2 – NETHERLANDS**
Information exchange on national incentives and status of geothermal energy

**WP3 – ITALY**
Towards a EU Geothermal Database

**WP4 – GERMANY**
Development of joint activities

**WP5 – SWITZERLAND**
Engaging with stakeholders

**WP6 – ICELAND**
Transnational Mobility & Training

**WP7 – ITALY**
Implementation of joint activities

ERA NET + or other SET PLAN input
Task 2.1 Initial Information Exchange

D2.1 December 2013
>ready

D2.2 October 2013
>ready
## Technical & non-technical barriers & opportunities

(task 2.2a)

### Shortlist of barriers and opportunities for geothermal development

**Technical and non-technical issues**

<table>
<thead>
<tr>
<th>Country</th>
<th>Barriers</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

---

**10-bullet lists (per country)**

- Clustering workshop
- Report (barriers & opportunities)

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Orkustofnun, Iceland

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**Diagram titles:**
- Innovative concepts
- New application concepts
- Technology
- Multi-source systems for heat production
- Exploitation of offshore resources
- Innovative drilling and operation
- Power distribution and transmission
- BAT
- Videos of international projects
- Summary report on geothermal barriers & opportunities
## Technical/non-technical barriers & opportunities

### 7 B&O clusters

<table>
<thead>
<tr>
<th>A1 Regulations</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>A2 Economics &amp; risk-mitigation</th>
</tr>
</thead>
</table>
a investment  
b operational support  
c risk mitigation

<table>
<thead>
<tr>
<th>A3 New/innovative concepts and applications</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>A4 Operational issues</th>
</tr>
</thead>
</table>

<table>
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<tr>
<th>A5 Sub-surface knowledge/data</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>A6 Structuring the geothermal sector</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>A7 Public and education</th>
</tr>
</thead>
</table>
a public acceptance  
b visibility & dissemination  
c education and training

Report > ready sep’14
Future RD&D needs for geothermal development (task 2.2b PTJ/RvO)

10-bullet lists (per country)

clustering workshop

report
### RD&D needs

#### RD&D clusters

<table>
<thead>
<tr>
<th>Cluster</th>
<th>A reservoirs (general)</th>
<th>B reservoir modelling</th>
<th>C reservoir exploration</th>
<th>A operational issues</th>
<th>B injection issues</th>
<th>C pumps &amp; components</th>
<th>A dissemination</th>
<th>B acceptance</th>
<th>C reporting code/statistics</th>
<th>A innovative concepts</th>
<th>B heat</th>
<th>C power cycle</th>
<th>A reservoir creation</th>
<th>B seismicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 Reservoirs</td>
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<td>B2 Operation</td>
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<td>B3 PR &amp; data</td>
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<tr>
<td>B4 New concepts</td>
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<tr>
<td>B5 Anthropogenic influence</td>
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<tr>
<td>B6 Drilling</td>
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</tbody>
</table>

Report > ready sep’14
Propose (joint) actions

> ready nov ‘14

> basis for wp4: development of joint activities

> All reports available on: www.geothermaleranet.eu
### Common Challenges in Geothermal EraNet countries

#### Barriers & Opportunities clusters

<table>
<thead>
<tr>
<th>Barriers &amp; Opportunities clusters</th>
<th>RD&amp;D needs clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 Regulations</td>
<td>...</td>
</tr>
<tr>
<td>A2 Economics &amp; risk-mitigation</td>
<td>...</td>
</tr>
<tr>
<td>A3 New/innovative concepts and applications</td>
<td>↔ B4 New concepts</td>
</tr>
<tr>
<td>A4 Operational issues</td>
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<td>A5 Sub-surface knowledge/data</td>
<td>↔ B1 Reservoirs</td>
</tr>
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<td>A6 Structuring the geothermal sector</td>
<td>↔ B3 PR &amp; data</td>
</tr>
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<td>A7 Public and education</td>
<td>↔ B5 Anthropogenic influence</td>
</tr>
<tr>
<td></td>
<td>↔ B6 Drilling</td>
</tr>
</tbody>
</table>

#### 9 clusters

1. Regulations (A1)
2. Economics & Risk-mitigation (A2)
3. New/innovative concepts & applications (A3/B4)
4. Operation (A4/B2)
5. Subsurface/reservoir knowledge (A5/B1)
6. Structuring the geothermal sector (A6)
7. Public & Education (A7/B3)
8. Anthropogenic Influence (B5)
9. Drilling (B6)

**All clusters are relevant for the progression of geothermal energy in Europe**
How to collaborate?

JA1 Information exchange (groups)
- regular meetings,
- workshops,
- visits, idea factories, etc.

JA2 Joint work
- Joint assignment: detailed study on specific issue

JA3 Joint call
- Jointly developing new insights, new systems

• Appropriate (and feasible) JA-type should be chosen for a specific challenge
• JA’s can evolve from JA1 > JA2 > JA3
• Effectiveness/Impact more important than amount of €’s
How to start/organise joint activities?

- Bottom-up
- Bi- or multilateral
- Based on countries preferences (within the clusters)

At least two countries to take the initiative

**The Geothermal Era Network as a continuing vehicle to launch JA’s!**
Joint Activities

As a result 7 Joint Activities (JA) on different topics were proposed:

- **NWW** – New ways of working: Financial Instruments and Funding of RD&D and Geothermal Projects
- **OpERA** – RD&D Knowledge Exchange on operational issues of geothermal installations in Europe
- **PRGeo** - RD&D Knowledge Exchange on public relations for geothermal energy
- **New Concepts** for geothermal energy production and usage
- **ReSus** - RD&D Knowledge Exchange on reservoir sustainability
- **Tuning EGIP** (European Geothermal Information Platform) for target users
- **Geostat** - Towards Consistency of geothermal data
The objective is to organize and pool national financial and human resources as well as national research infrastructures, to accelerate research and innovation.

Building on relationships with industry and researchers and bridge the gap between research and the market with innovative solutions.

Focus on what is often called “deep” geothermal energy.

The scope includes the integration of geothermal reservoirs into novel energy system concepts (e.g. use of reservoirs for energy storage, CO2 storage, integration with near-surface geothermal applications).
## Next steps towards the Geothermal ERA NET Cofund Action

<table>
<thead>
<tr>
<th>Action</th>
<th>Finished by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification of relevant contacts in potentially participating countries</td>
<td>September 2015</td>
</tr>
<tr>
<td>Invitation letters to potential participants &amp; flyer</td>
<td>September 2015</td>
</tr>
<tr>
<td>Distribute first draft proposal</td>
<td>September 2015</td>
</tr>
<tr>
<td>Preparatory meeting 1</td>
<td>November 2015</td>
</tr>
<tr>
<td>2nd draft proposal</td>
<td>December 2015</td>
</tr>
<tr>
<td>Deadline for letters of commitment</td>
<td>February 2016</td>
</tr>
<tr>
<td>Preparatory meetings 2, 3, teleconferences and subsequent drafts</td>
<td>First quarter 2016</td>
</tr>
<tr>
<td>Submission of the proposal</td>
<td>5 April 2016 (provisional)</td>
</tr>
</tbody>
</table>
www.geothermalenanet.eu
OpERA
an introduction

Paul Ramsak
Netherlands Enterprise Agency
Geothermal ERANet KnowlEx leader
OpERA steering committee

OpERA Expert workshop
Vaals (NL/D/B)
1+2 oct 2015
OpERA

Operational Issues of Geothermal Installations in Europe
Common Challenges in Geothermal EraNet countries

9 clusters

1. Regulations (A1)
2. Economics & Risk-mitigation (A2)
3. New/innovative concepts & applications (A3/B4)
4. Operation (A4/B2)
5. Subsurface/reservoir knowledge (A5/B1)
6. Structuring the geothermal sector (A6)
7. Public & Education (A7/B3)
8. Anthropogenic Influence (B5)
9. Drilling (B6)

All clusters are relevant for the progression of geothermal energy in Europe
7 Joint Activities

NWW
OpERA
PRGeo
ReSus
EGIP
New Concepts
GeoStat
Why OpERA?

WP2 identified several barriers and RD&D-needs related to operation of geothermal installations.

**Crucial for LT performance of Geothermal Installations**

- **RD&D-Needs:**
  - Operational Issues
    - Aggressive thermal water
    - Pumps & components
    - Well cleaning & completion
    - High NCG concentrations
    - Power plant emissions
    - Gas treatment
  - Injection Issues
    - Re-injection (mentioned 3x)
    - Underground storage
    - Re-injection methods (binary)
    - Geochemistry during re-injection
  - Pumps & Components
    - Underground equipment
    - Efficient & durable pumps
    - Pumps

- **Barriers:**
  - Resource exploitation
  - Operational issues
  - Environmental impact
  - Geochemistry & injectivity
  - Reinjection
Why OpERA?

- Mentioned by:
- Therefore: Knowledge exchange on operational issues can help to:
  - Use knowledge on already solved problems European-wide
  - Cluster research efforts
  - Merge budgets for a higher output
Why OpERA? Example Germany

- Corrosion
- Gas
- NORM
- Seismicity
- Scalings

https://www.google.de/maps/
How to collaborate?

**JA1** Information exchange (groups)
- regular meetings, workshops, visits, idea factories, etc.

**JA2** Joint work
- Joint assignment: detailed study on specific issue(s)

**JA3** Joint call
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- Appropriate (and feasible) JA-type should be chosen for a specific challenge
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The Concept of OpERA

Overview of Operational Issues in participating countries

Trans-national knowledge and information Exchange

First approach for trans-national cooperation on specific topic

Building the base for further cooperation, if the benefit of this approach is proven
First Joint Activity: OpERA

• OpERAtional issues of geothermal installations
• workshop – october 2015
  - Scaling
  - Corrosion
  - Gas content
  - Reinjection

• follow-up
  - Expert group > solved/unsolved issues/best practices (JA1)
  - Joint studies (JA2/JA3)
  - ...
OpERA – the EuRopeAn team

Coordination
D + NL  🇩🇪  🇳🇱

EraNet Partners
IS + SLO + H + I + F + CH
🇮🇸  🇷🇺  🇸🇮  🇫🇷  🇮🇹  🇫🇷  🇨🇭

Extra Partners
DK + A  🇩🇰  🇦🇺
OpERA Participants

• Selected group of experts
• Invitation only
• Operators, hands-on consultants & researchers

37 participants from 11 European countries. 27 speakers

• Building a network
• OpERA as a platform to solve Operational Issues on a European scale
• You’re part of that network!

We need to solve operational problems for Geothermal Energy to flourish
OpERA Program

DAY 1 oct 2015 12:00-22:00

Registration & Welcome Snack

Welcome & Introduction

Ia Country overviews

Break

Ib Country overviews

Summary, Conclusions & Follow up

Dinner

DAY 2 oct 2015 9:00-17:00

II Scaling

Break

III Scaling & Gas content

Lunch

IV Corrosion

Break

V Reinjection

Final discussion, Conclusions & Next Steps
Preliminary Program (status: 09/09/2015 update)
Thursday, 1st of October 2015:
Moderator: Dario Frigo (Pilinus Chemical Consulting)
12:00 - 12:45 Registration and Welcome Snack
12:45 - 13:30 Welcome & Introduction
Era-NET Coordination Office
OpERA Steering Committee
Ministry of Economic Affairs Netherlands
Rijksdienst voor Ondernemend Nederland
13:30 - 15:10 Session I: Country overviews
13:30 - 13:50 Hungary - Annamária Nádor (MFGI)
13:30 - 14:10 Italy - Adele Manzella (CNR)
13:40 - 14:30 Netherlands - Martin van der Hout (DAGO)
14:00 - 14:50 Slovenia - Andrej Lapanj (GeoZS)
14:50 - 16:10 Germany - Florian Elchinger (Hydrodothermal GmbH)
15:10 - 15:30 Coffee break
15:30 - 17:10 Session I: Country overviews (continued)
16:30 - 16:50 Iceland - Gudri A Johannesson (OrkuStofnun)
16:50 - 17:00 Switzerland - Bernd Freg (Nagra)
16:00 - 16:30 France - Christian Boissay (AFPG)
16:30 - 17:00 Denmark - Søren Berg Lorentzen (DGDS)
17:00 - 17:20 Austria - Gregor Götz (GBA)
17:10 - 18:15 Summary, Conclusions and Follow up
Dario Frigo (Pilinus Chemical Consulting)
Paul Ramsak (RVO)
Stephan Schreiber (PUL)
18:00 - 22:00 Dinner at Kasteel Vaalsbroek

Friday, 2nd of October 2015:
Moderator: Dario Frigo (Pilinus Chemical Consulting)
09:00 - 10:15 Session II: Scaling
09:00 - 09:16 Netherlands - Rudo Prins (Aardwarmecluster 1 KKP BV)
09:16 - 09:30 Hungary - Janos Szanyi (Szege University)
09:30 - 09:46 Italy - Giordano Montegrossi (CNR)
09:46 - 10:16 Discussion - Dario Frigo (Pilinus Chemical Consulting)
10:15 - 10:35 Coffee break
10:35 - 11:50 Session III: Scaling & Gas content
10:35 - 10:50 Germany - Andreas Rauch (geoc-co GmbH)
10:50 - 11:05 Netherlands - Niels Hartog (KWR)
11:05 - 11:20 Iceland - Bjarni Mar Julluson (Reyjavik Energy)
11:20 - 11:30 Discussion - Dario Frigo (Pilinus Chemical Consulting)
11:50 - 13:00 Lunch at venue
13:00 - 14:15 Session IV: Corrosion
13:00 - 13:20 Iceland - Ingibjorg Om hordbomsion (ISGR)
13:05 - 13:20 Germany - Simona Regenspurg (GFG)
13:40 - 14:15 Discussion - Dario Frigo (Pilinus Chemical Consulting)
14:15 - 14:35 Coffee break
14:35 - 16:05 Session V: Reinjection
14:35 - 14:50 Netherlands - Wart van Zonneveld (P irocultura)
14:50 - 15:05 Hungary - Mihaly Haski
15:05 - 15:20 Germany - Marion Schindler (BESTEC GmbH)
15:20 - 15:35 Slovenia - Egen Tomaž (Petrol Geoterm d.o.o.)
15:35 - 16:05 Discussion - Dario Frigo (Pilinus Chemical Consulting)
16:05 - 17:00 Final Discussion, Conclusions and Next steps
Dario Frigo (Pilinus Chemical Consulting)
Paul Ramsak (RVO)
Stephan Schreiber (PUL)

Venue
Kasteel Vaalsbroek, Vaalsbroek 1, Vaals, NL
www.bijzondere.nijen/vaalsbroek/vaalsbroek
(about 7 km from Aachen Central Station)
let OpERA begin...
OpERA Moderator

Dario Frigo
Contact Geothermal Energy
coordinator WP2 Information Exchange

www.rvo.nl/aardwarmte
www.rvo.nl/topsector-energie

Paul Ramsak
+31-88-602 2275
paul.ramsak@rvo.nl

NL Enterprise Agency
Geothermal ERA-NET

www.geothermaleranet.eu
OpERA welcome

Paul Ramsak
Netherlands Enterprise Agency
OpERA steering committee

OpERA Expert workshop
Vaals (NL/D/B/(M))
1 oct 2015

https://youtu.be/Un0VLiPKKyg?t=17s
Welcome to the Dutch Mountains
Welcome to Vaalsbroek
Skiing in the Dutch Mountains
Almhütte in the Dutch Mountains
Wine from the Dutch Mountains
VAALS
DRIELANDENPUNT
The greater Dutch Mountains

Genk (B)
Sittard-Geleen (NL)
Heerlen (NL)
Aachen (D)
Maastricht (NL)
Liège (B)
RVO South
Jülich
PtJ
Vaals
Over 3½ Million people... living in the greater Dutch Mountains
Charlemagne from the ... mountains
746 - 800 - 814 - Now
Geothermal naturally!
# Geothermal wells in Aachen

## Aachen-Innenstadt

<table>
<thead>
<tr>
<th>Name</th>
<th>Temperatur</th>
<th>Förderung</th>
<th>Nutzung</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiserquelle</td>
<td>52°C</td>
<td>12 m³/h</td>
<td>Mineralwasser</td>
</tr>
<tr>
<td>Rosenquelle AC</td>
<td>47°C</td>
<td>43 m³/h</td>
<td>Carolus Thermen, Quellenhof</td>
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<tr>
<td>Nikolausquelle</td>
<td>31°C</td>
<td></td>
<td>ungenutzt</td>
</tr>
<tr>
<td>Großer Monarch</td>
<td>26°C</td>
<td></td>
<td>ungenutzt</td>
</tr>
<tr>
<td>Komphausbadquelle</td>
<td></td>
<td></td>
<td>ungenutzt</td>
</tr>
</tbody>
</table>

## Burtscheid

<table>
<thead>
<tr>
<th>Name</th>
<th>Temperatur</th>
<th>Förderung</th>
<th>Nutzung</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landesbadquelle</td>
<td>70°C</td>
<td>69 m³/h</td>
<td>Kurklinik</td>
</tr>
<tr>
<td>Schwertbadquelle</td>
<td>67°C</td>
<td>2 m³/h</td>
<td>Kurklinik</td>
</tr>
<tr>
<td>Rosenquelle BS</td>
<td>62°C</td>
<td>14 m³/h</td>
<td>Kurklinik</td>
</tr>
<tr>
<td>Schlangenbadquelle</td>
<td>50°C</td>
<td></td>
<td>ungenutzt</td>
</tr>
<tr>
<td>Kochbrunnen</td>
<td>44°C</td>
<td></td>
<td>ungenutzt</td>
</tr>
<tr>
<td>Mephistoquelle</td>
<td>39°C</td>
<td>6 m³/h</td>
<td>Mineralwasser</td>
</tr>
<tr>
<td>Gartenquelle</td>
<td>34°C</td>
<td></td>
<td>ungenutzt</td>
</tr>
<tr>
<td>Michaelisquelle</td>
<td>32°C</td>
<td></td>
<td>ungenutzt</td>
</tr>
<tr>
<td>Pockenpützchen,</td>
<td>28°C</td>
<td></td>
<td>ungenutzt</td>
</tr>
<tr>
<td>Pockenbrunnchen und Schlangenquellchen</td>
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</tbody>
</table>
Charlemagne came...
Had a look at the geothermal waters...
...and decided to stay
Geothermal naturally!

The last renewable capital of Europe ... below the Dutch Mountains
One of the best states ever… including the Dutch Mountains
Treaty of Meerssen 870

The start of the trouble...decided in the Dutch Mountains
Welcome to OpERA

www.geothermalera-net.eu
Contact Geothermal Energy
coordinator WP2 Information Exchange

www.agentschapnl.nl/aardwarmte

Paul Ramsak
+31-88-602 2275
paul.ramsak@agentschapnl.nl

NL Agency
Geothermal ERA-NET

www.geothermaleranet.eu
OpERA „Operational Issues across Europe“
Next Steps

WP4: Development of Joint activities
Dr. Stephan Schreiber
Project Management Jülich
Geothermal Energy and Cross-cutting Programs
Overview

› The Publication

› The OpERA Expert Working Group

› Follow-up Joint Activities
The Publication

› …should summarize the results of the last two days

› …should give an overview of the existing solutions for operational issues in 2015

› …should give an overview of the most urgent operational issues which have to be solved
The Publication

› Est. 20-30 pages

› Geothermal ERA-NET Publication

› Available via the Geothermal ERA-NET website

› Promoted by the country representatives of the ERA-NET Members
The Publication - Structure

1. Introduction (Approach, concept etc.)
2. Status of operational issues in Europe
   a) Country A
   b) Country B
   c) …
3. Corrosion issues
   a) General, solved and unsolved issues
   b) Examples from different countries
4. Scaling issues
   a) General, solved and unsolved issues
   b) Examples from different countries
5. Gas issues
   a) General, solved and unsolved issues
   b) Examples from different countries
6. Re-injection issues
   a) General, solved and unsolved issues
   b) Examples from different countries
7. Conclusions
8. Recommendations for support of specific RD&D topics
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7. Conclusions
8. Recommendations for support of specific RD&D topics
The Publication – Workload and Timeframe

› Request for contributions (country- or topic-specific)
  › Mid October 2015

› Estimated only ca. 1-2 pages per expert

› Submission of your contribution
  › End of November 2015

› Review
  › December 2015

› Publication
  › January-February 2016
The Expert Group

- Paul & Stephan
- Annamária
- Andrej
- Hjalti Páll
- Adele
- Søren
- Martin
- Florian
- Christian
- Bernd
- Gregor

+ Experts for specific topics & Examples:
  - ENEL, IT
  - Low T°C expert, IC
    - You
    - You
    - You
    - ...

Follow-up: Future JA

› Discussion and decision on the next steps (JA2/JA3)
  › Next week

› Implementation of follow-up JA
  › Until April 2016

› Start
  › April 2016

› All activities related to a follow-up JA will be in parallel to the work of the expert group
What do you think?

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OpERA „Operational Issues across Europe“
Summary and Follow-up

WP4: Development of Joint activities
Dr. Stephan Schreiber
Project Management Jülich
Geothermal Energy and Cross-cutting Programs
Overview

› The Concept
  › Step 1a: The MAGNA CARTA
  › Step 1b: Expert Publication (Follow-up)
  › Step 2: Future Joint Activities & possible level (JA2?/JA3?)

› Summary and Results of Day 1
The Concept of OpERA

› Summary of operational issues in the participating countries

› Trans-national knowledge and information Exchange

› First approach for trans-national cooperation on specific topic

› Building the base for further cooperation, if the benefit of this approach is proven
The Concept of OpERA

1. OpERA WS on Operational Issues in Europe
2. Expert Working Group
3. Possible ERA-NET follow-up JA (JA2/JA3)
4. "Magna Carta"
5. European Cooperation Projects

The Magna Carta:
"Operational Issues of geothermal installations in Europe"
2015
The „MAGNA CARTA“
The „MAGNA CARTA“ – The next logical step

› Deepen the cooperation by forming an expert group
Follow up: The Expert Group

› Task:
  › Summarize the Magna Carta and the Results of the WS in a publication

› Who?
  › You + the OpERA steering committee

› Timeframe?
  › End of 2015 – early 2016

› Workload?
  › Managable (~1DINA4 page per expert, layout by us)
Follow-up: Future JA (JA2/JA3?)

› Based on the results of the workshop, the urgency of RD&D and the need for cooperation in Europe can be quantified
› The Geothermal ERA-NET Committee will discuss the results and findings next week in Brussels
› A decision on possible follow-up JA
› At least further cooperation schemes for the field of operational issues will be proposed.
› All activities related to a further JA will be in parallel to the work of the expert group
Summary and results

With this concept in mind…

…Let’s have a look at the Magna Carta