

Research alliances and their impact
on the EU Research Agenda

What is the Universities position within
Energy Research & Education Networks?

... a case study on Geothermal Energy.

Prof. Dr. Rolf Bracke
Director / International Geothermal Center
Member of the EPUE Platform

BOCHUM UNIVERSITY
of Applied Sciences

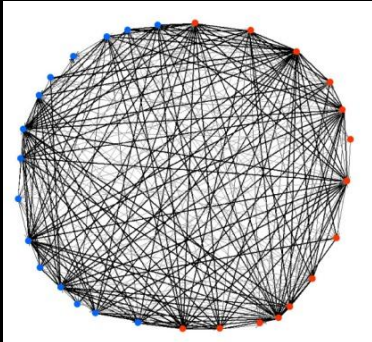
HRK, Hochschulrektorenkonferenz
Berlin, 17-18 January 2013

CONTENT

1. The Bochum Research Network as an example for succesful impact on political R&D agendas
2. EUA-Activities
3. EERA-Activities
4. Conclusions

School of
Geothermal
Technology

Bochum
University
of Applied
Sciences



R&D
Department
of Bochum
University

Academic
Education
Ba / Ma Sc.
Programs

major operations need major networks

School of Geothermal Technology

Geo-technology Laboratories

Bochum University AS

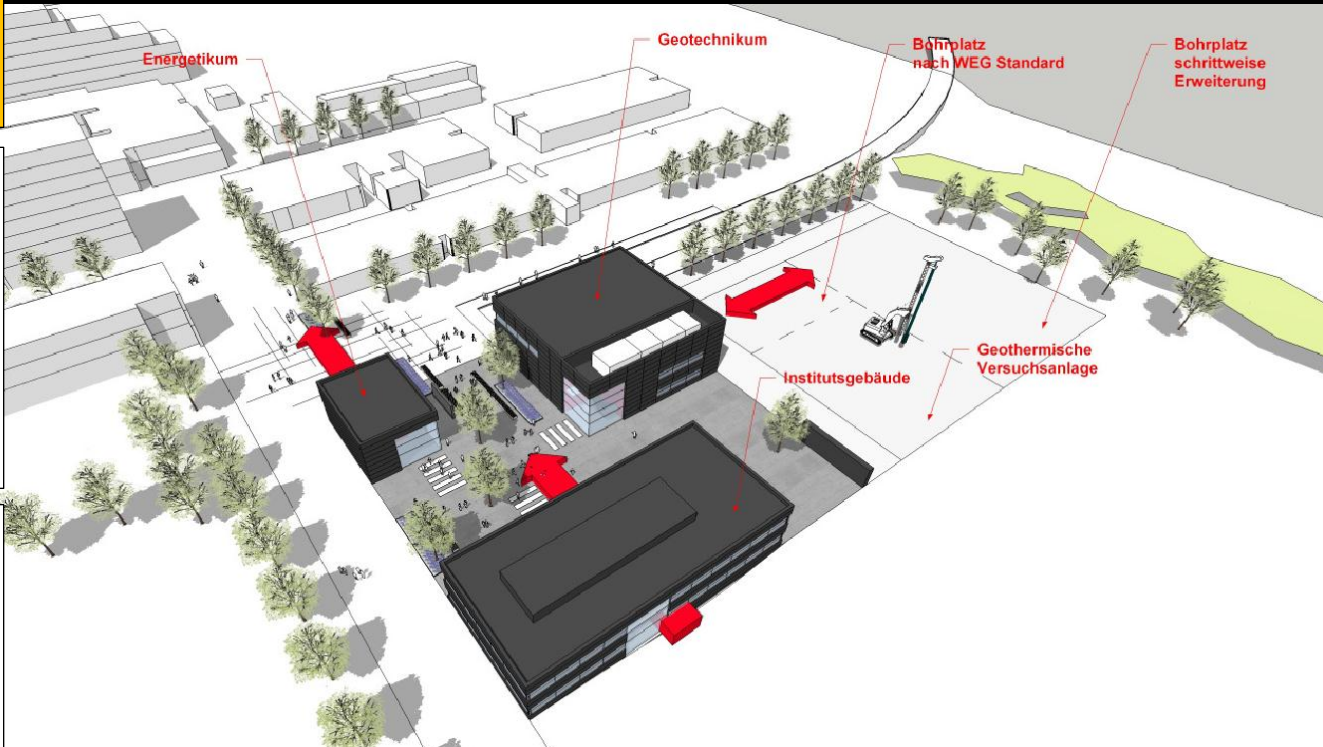
Research-Laboratories national & international

R&D Department of Bochum University

Academic Education Ba / Ma Sc. Programs

14 Mio. EUR Invest by NRW / EU

University-Industry Research Labs for Geotechnologies



School of Geothermal Technology	Geo-technology Laboratories	AGES
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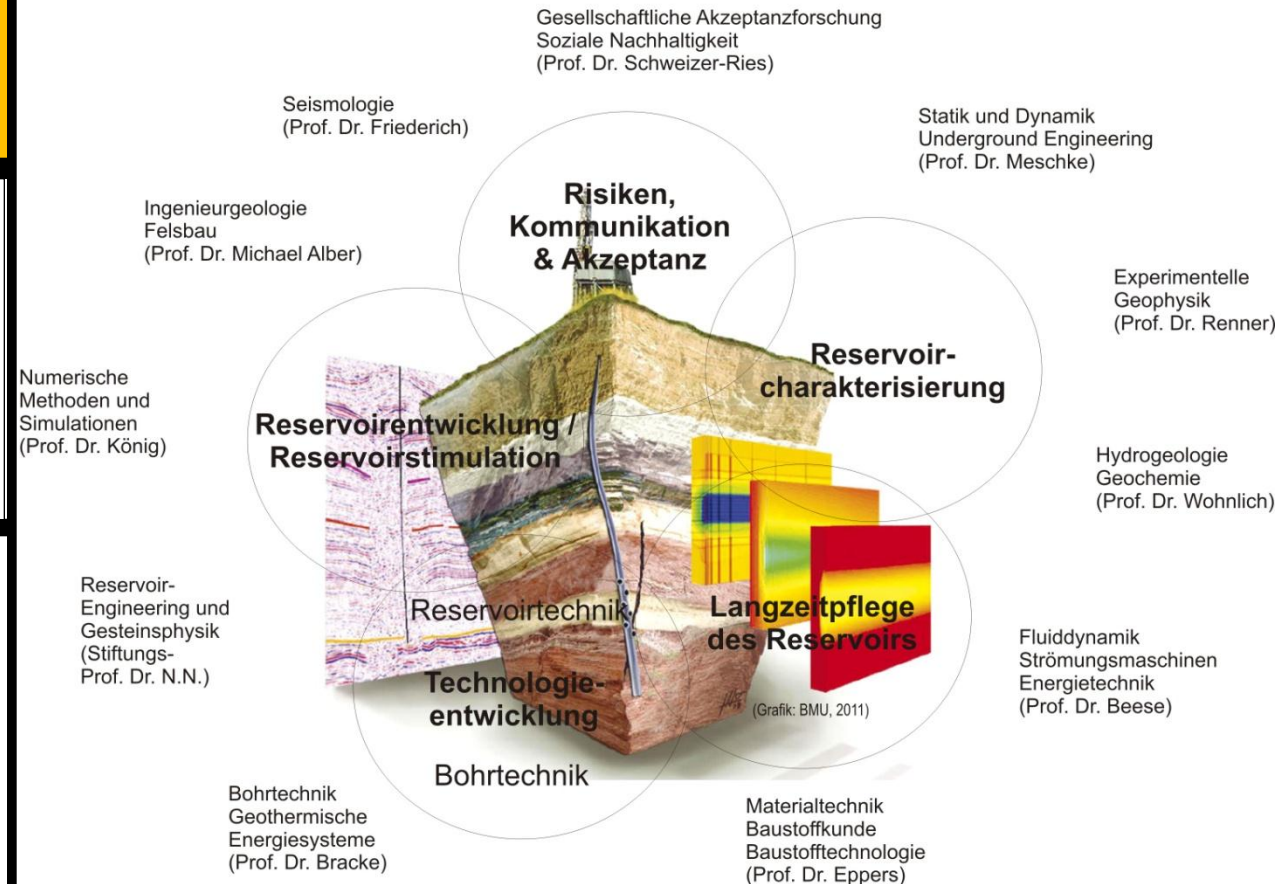
Bochum University AS	Research-Laboratories national & international	Bochum Graduate School <i>Applied Research on Enhanced Geothermal Systems</i>
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R&D Department of Bochum University Academic Education Ba / Ma Sc. Programs	14 Mio. EUR Invest by NRW / EU University-Industry Research Labs for Geotechnologies	Bochum University AS & Ruhr University 11 Academic Chairs
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Hochschule Bochum
Bochum University
of Applied Sciences



Bochum Graduate School Applied Research on Enhanced Geothermal Energy Systems - AGES



School of Geothermal Technology	Geo-technology Laboratories	AGES	Geothermal Economy Association & Energetikum
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Bochum University AS	Research-Laboratories national & international	Bochum Graduate School <i>Applied Research on Enhanced Geothermal Systems</i>	Companies Support by Industry, Technology-Providers, Chamber of Crafts
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R&D Department of Bochum University Academic Education Ba / Ma Sc. Programs	14 Mio. EUR Invest by NRW / EU University-Industry Research Labs for Geotechnologies	Bochum University AS & Ruhr University 11 Academic Chairs	Profit-oriented; Construction Drilling, Utilities, Consultants; Marketing, Sponsoring, Professional Trainings.
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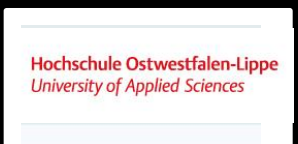


Bauconsult & Sachverständigen Büro
Dr.- Ing. Ulrich Güttler



<p>School of Geothermal Technology</p>	<p>Geo-technology Laboratories</p>	<p>GZB</p>
<p>Bochum University AS</p>	<p>Research-Laboratories national & international</p>	<p>Public Bodies, Universities, Administr., Governmental Org., Chambers</p>
<p>R&D Department of Bochum University Academic Education Ba / Ma Sc. Programs</p>	<p>14 Mio. EUR Invest by NRW / EU University-Industry Research Labs for Geotechnologies</p>	<p>Non-profit Association of Public Institutions Management of the IGT, Networking, Communication</p>

German Universities



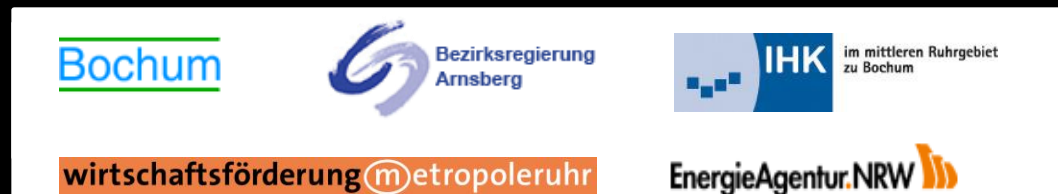
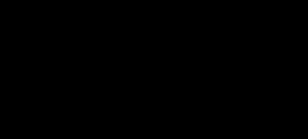
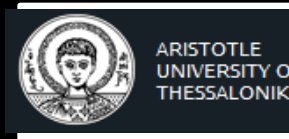
Associated International Universities

<p>School of Geothermal Technology</p>	<p>Geo-technology Laboratories</p>	<p>GZB</p>
<p>Bochum University AS</p>	<p>Research-Laboratories national & international</p>	<p>Public Bodies, Universities, Administr., Governmental Org., Chambers</p>
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German Universities




Associated International Universities



School of Geothermal Technology	Geo-technology Laboratories	AGES	Geothermal Economy Association & Energetikum	GZB	Energy Agency. NRW Geothermal Network
Bochum University AS	Research-Laboratories national & international	Bochum Graduate School <i>Applied Research on Enhanced Geothermal Systems</i>	Companies Support by Industry, Technology-Providers, Chamber of Crafts	Public Bodies, Universities, Administr., Governmental Org., Chambers	State of Northrhine-Westfalia
R&D Department of Bochum University Academic Education Ba / Ma Sc. Programs	14 Mio. EUR Invest by NRW / EU University-Industry Research Labs for Geotechnologies	Bochum University AS & Ruhr University 11 Academic Chairs	Profit-oriented; Construction Drilling, Utilities, Consultants; Marketing, Sponsoring, Professional Trainings.	Non-profit Association of Public Institutions Management of the IGT, Networking, Communication	Network-management Cluster of Excellence of the Energy Economy in NRW

School of Geothermal Technology	Geo-technology Laboratories	AGES	Geothermal Economy Association & Energetikum	GZB	Energy Agency. NRW Geothermal Network	Geothermie. RUHR
Bochum University AS	Research-Laboratories national & international	Bochum Graduate School <i>Applied Research on Enhanced Geothermal Systems</i>	Companies Support by Industry, Technology-Providers, Chamber of Crafts	Public Bodies, Universities, Administr., Governmental Org., Chambers	State of Northrhine-Westfalia	Science-to-Business Transfer
R&D Department of Bochum University Academic Education Ba / Ma Sc. Programs	14 Mio. EUR Invest by NRW / EU University-Industry Research Labs for Geotechnologies	Bochum University AS & Ruhr University 11 Academic Chairs	Profit-oriented; Construction Drilling, Utilities, Consultants; Marketing, Sponsoring, Professional Trainings.	Non-profit Association of Public Institutions Management of the IGT, Networking, Communication	Network-management Cluster of Excellence of the Energy Economy in NRW	Technology-and Knowledge Transfer, Business-Development

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R&D Department of Bochum University Academic Education Ba / Ma Sc. Programs	14 Mio. EUR Invest by NRW / EU University-Industry Research Labs for Geotechnologies	Bochum University AS & Ruhr University 11 Academic Chairs	Profit-oriented; Construction Drilling, Utilities, Consultants; Marketing, Sponsoring, Professional Trainings.	Non-profit Association of Public Institutions Management of the IGT, Networking, Communication	Network-management Cluster of Excellence of the Energy Economy in NRW	Technology-and Knowledge Transfer, Business-Development	International Office of the Geothermische Vereinigung / Bundesverband Geothermie

International Geothermal Center	Geo-technology Laboratories	AGES	Geothermal Economy Association & Energetikum	GZB	Energy Agency. NRW Geothermal Network	Geothermie. RUHR	GtV-BV International	 International Geothermal Association
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Bochum University AS	Research-Laboratories national & international	Bochum Graduate School <i>Applied Research on Enhanced Geothermal Systems</i>	Companies Support by Industry, Technology Providers, Chamber of Crafts	Public Bodies, Universities, Administr. Governmental Org., Chambers	State of Northrhine-Westfalia	Science-to-Business Transfer	National Geothermal Association	International Association
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Network driven by the Universities with large acceptance by the industry and politics

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EUA-Activities

SET Plan Energy Education and Training Initiative on Geothermal Energy

EU-SET PLAN: ENERGY EDUCATION AND TRAINING INITIATIVE ON GEOTHERMAL ENERGY



E. Schill

R. Bertani, C. Boissavy, M. Gaia, T. Kohl, H. Palsson, A. Pereira,
A. Manzella, I. Nardini, B. Sanner, J. Uhde, P. Younger, J.D. van
Wees,

European Strategic Energy Technology Plan
-SET Plan-

working group: EERA > EUA



EUA- Universities Education Programs

very heterogenous results!

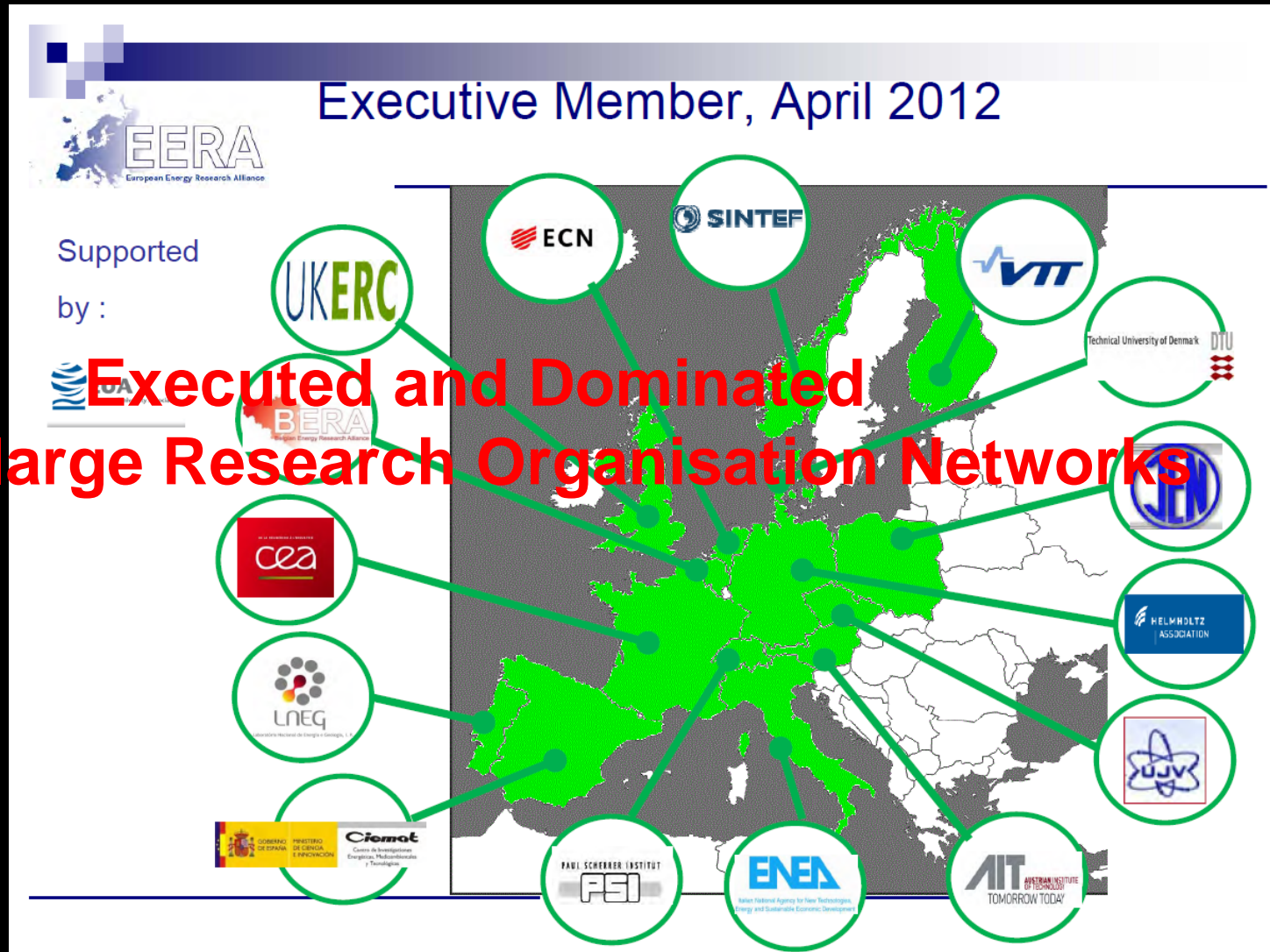
SET Plan Energy Education and Training Initiative on Geothermal Energy

by Schill, E.:
Workshop Education,
DGK2012;
13.11.2012, Karlsruhe

Ongoing education	Undergraduate and Bachelor	Master	Post-graduate and other
Austria		several courses	
Bulgaria			ISS course
France		several courses	
Germany ¹	several modules training and certificate	1 full Master (120 ECTS); several modules	professional training courses ISS course
Greece ²	several courses	several courses	ISS courses
Hungary		several courses	
Iceland	-	several modules 1 Master	UNU-GTP (see above)
Italy	several courses, several modules	Several modules	several, non periodic, courses
Macedonia			ISS course
Netherlands	several modules (2ECTS each)	several modules (2ECTS each) 1 course (1 ECTS)	
Norway		1 course	2 courses
Poland			ISS courses
Portugal			ISS courses
Romania ³	several modules	several modules	5 courses on demand (ICTG)
Slovenia			ISS course
Spain	several modules	several modules	
Sweden ⁴		courses	Professional training
Switzerland ⁵	Training and certificate	1 full Master (120ECTS) 5 courses (16ECTS) Several 1-day courses	CAS (10ECTS)
Turkey ⁶	several courses	several courses	Professional training Short courses ISS courses

from: Leppävuori, E. & Huenges, E.:
Opening Statement; European Workshop
on Future Utilization of Geothermal Energy
in Urban Areas, 15.11.2012, Brussels

EERA-Activities



from: Leppävuori, E. & Huenges, E.:
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EERA-Activities



EERA Joint Programmes

■ Joint Programmes launched 2010

- PV: ≈ 100 professionals*
- Wind: ≈ 130 professionals*
- Geothermal: ≈ 350 professionals*
- Smart Grids: ≈ 100 professionals*
- Bioenergy: ≈ 120 professionals*
- CCS: ≈ 270 professionals*
- Mat. Nucl.: ≈ 150 professionals*

Participation increasing
New organisations joining


* Full time Equivalent

www.eera-set.eu



from: Leppävuori, E. & Huenges, E.:
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EERA-Activities



Growing of Joint Programmes

2010

12 participants
from 7 countries

➔

2012

25 participants
+ 4 candidates
from 11 countries

~200 person year/year

only 7 Universities (ca 25%)

- Aachen
- Bari (IT)
- Bochum
- Darmstadt
- Mailand (IT)
- Triest (IT)
- Zürich (CH)

~350 person year/year

Short Name	Country	Human Resources committed
BRGM		
CEGL		
CNR		
CNRS		
CRES		
ETH Zürich		
GFZ Potsdam		
ISES		
ISOR		
KIT		
LIAG		
TNO	Netherlands	13

Short Name	Country	Human Resources committed
U Bern	Switzerland	10
U Bari	Italy	6
U Bologna	Italy	6
U Coimbra	Portugal	6
U Ferrara	Italy	5
U Glasgow	UK	3
U Göttingen	Germany	8
U Hannover	Germany	5
U Leuven	Belgium	8
U Oslo	Norway	10
U Bari	Italy	6
U Trieste	Italy	5
TU Darmstat	Germany	11

JP Geothermal Energy

from: Leppävuori, E. & Huenges, E.:
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EERA-Activities



EERA Summary

- EERA wants to mature and develop strategic industry *technologies*
 - *using all available research capacities*
 - *in close co-operation with industry and funding organisations, but*
 - *in open co-operative framework using the finest and most excellent technologies available in Europe*
 - *and if accessible worldwide*
- First years indicate a very good start, but next steps needs to follow.

Inventory of R&D capacities of the Universities needed !

EERA-Activities

European Workshop
on Future Utilization of Geothermal Energy
in Urban Areas by GFZ/KIT,
15.11.2012, Brussels

INVITATION TO THE EUROPEAN WORKSHOP ON FUTURE UTILIZATION OF GEOTHERMAL ENERGY IN URBAN AREAS



UNDER THE PATRONAGE OF COMMISSIONER OETTINGER



GEOTHERMAL ENERGY – THE PLUS FOR THE FUTURE ENERGY MIX

The priorities of the energy policies aim to ensure a secure, efficient, competitive and sustainable energy system for citizens and business, integrating a very large share of renewables.

We have great challenges ahead for the future of European urban areas. In combination with other renewable geothermal energy will play an important role, in providing an environmental sustainable, the availability and efficiency of the energy production, distribution and use.

At the first European geothermal energy workshop for urban areas, specialists from all over Europe will discuss state-of-the-art technology, current and upcoming projects and present solutions for future developments. I will be concluding the event with a keynote speech.

Günther H. Oettinger
European Commissioner for Energy

SCHEDULE

THURSDAY, 15 NOVEMBER 2012

- 12.30 p.m. **Official Welcome**
- || Jasmin Battista, European Commission – Energy, Member of the Cabinet of Günther H. Oettinger
 - || Organizers: Prof. Dr. Eberhard Umbach, Karlsruhe Institute of Technology (KIT), President and Prof. Dr. Reinhard Hüttli, German Research Center for Geosciences (GFZ), Chairman of the Board and Scientific Executive Director
- 12.50 p.m. **Opening Statements**
- || European Energy Research Alliance on behalf of the chairman Erkki KM Leppävuori, President & CEO of VTT Technical Research Centre of Finland by Prof. Dr. Ernst Huenges, German Research Centre for Geosciences (GFZ), Coordinator of Joint Programme on Geothermal Energy
 - || Ing. Giovanni Lelli, Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Commissioner
 - || Dr.-Ing. E.H. Martin Herrenknecht, Herrenknecht AG, Chairman
- 1.20 p.m. **Geothermal Energy in Urban Areas**
- || Prof. Dr. Thomas Kohl, Scientific Executive Director of Geology, Karlsruhe Institute of Technology (KIT)
- 1.45 p.m. **European Flagship Projects I.**
- || **Geothermal production in the Paris Basin – the largest urban utilization in Europe**
Eric Lasne, CFG Services, General Manager
 - || **Geothermal energy in the Munich metropolitan area**
Dr. Erwin Knappek, Former Mayor of Unterhaching, Wirtschaftsforum Geothermie e.V. (WFG) and Dr.-Ing. Christian Pletl, Stadtwerke München GmbH
- 2.25 p.m. **Break**
- 3.05 p.m. **European Flagship Projects II.**
- || **Geothermal heat for Vienna**
DI Dr. Michael Kotschan, Geothermiezentrum Aspern GmbH, Vienna, Director
 - || **European showcase project Soultz-sous-Forêts/Strasbourg**
Dr. Albert Genter, G.E.I.E. EMC, Scientific Coordinator and Dr. Thomas Kölbel, EnBW Energie Baden-Württemberg AG, Research and Innovation, Senior Manager
- 3.45 p.m. **Geothermal Success Stories**
- || **Hundred years expertised geothermal power provision in the Tuscany area**
Francesco Starace, Enel Green Power, Chief Executive Officer
 - || **Geothermal energy technologies for the future**
N.N.
- 4.15 p.m. **Political Keynote**
- || Günther H. Oettinger, European Commissioner for Energy
- 4.45 p.m. **Discussion and Conclusion**
- || Prof. Dr. Thomas Kohl and Prof. Dr. Frank Schilling, Karlsruhe Institute of Technology (KIT)
- 5.15 p.m. **Get-Together**

Universities do NOT really drive the political discourse!

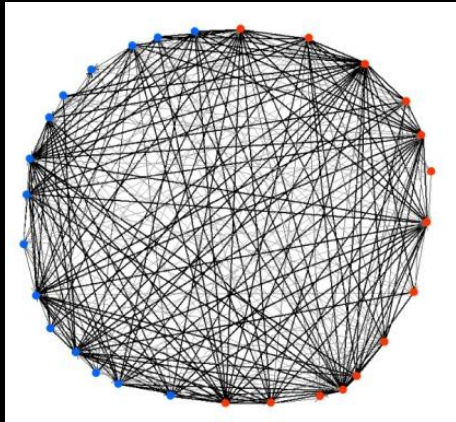
Conclusions

R&D Activities on Geothermal Energy within the EU-SET Plan are mainly directed by the large Research Organisations.

Universities are junior partners in the process.

A specific EUA-profile and a clear visibility is missing.

- > Enforce real EUA-networking activities within EPUE.
- > Identify EUA-key players and driving forces (individuals) and give them administrative support to speed up the networking process.
- > Give such EUA/EPUE-Network an „official“ character as representatives of THE Universities within specific SET-Plan Activities / EU Organisations



Dankeschön & Glückauf!