

**EUROPEAN TECHNOLOGY & INNOVATION PLATFORM (ETIP)**  
**on**  
**DEEP GEOTHERMAL**

organised  
by  
EGEC

**UNCONVENTIONAL GEOTHERMAL TECHNOLOGY (EGS)**

by

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# WORLD CLIMATE CHANGE IS A WORLDWIDE PROBLEM

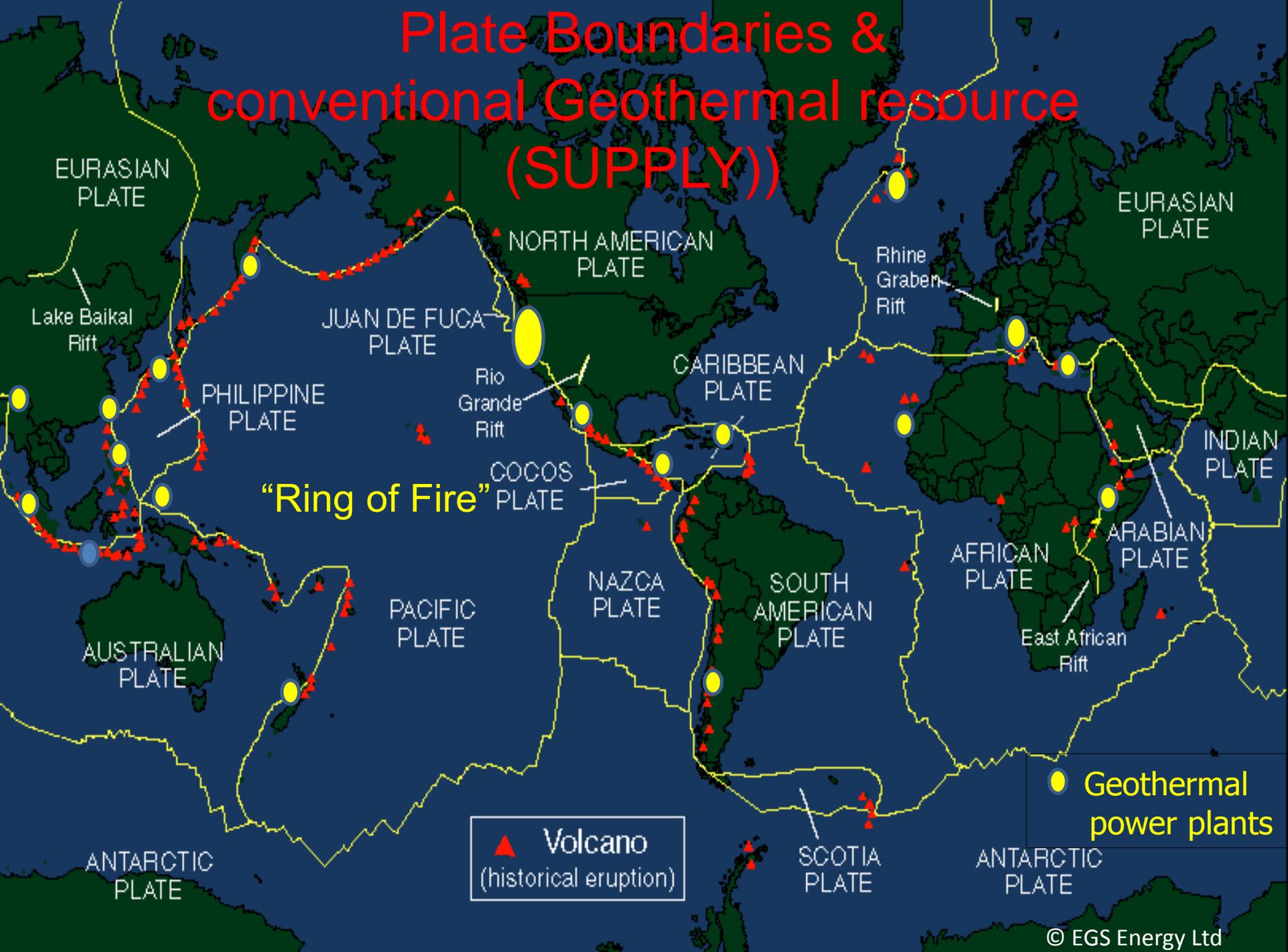
A MEETING WAS HELD AT THE WORLD BANK IN WASHINGTON DC  
ON 5<sup>th</sup> March 2015 under IGA/UNECE\*/World Bank

One of the item which was highlighted was  
**the disparity**  
between  
**conventional geothermal resource**  
and  
**high density of population in the world.**

ie **SUPPLY & DEMAND**  
for geothermal energy

\*= United Nations Economic Commission for Europe

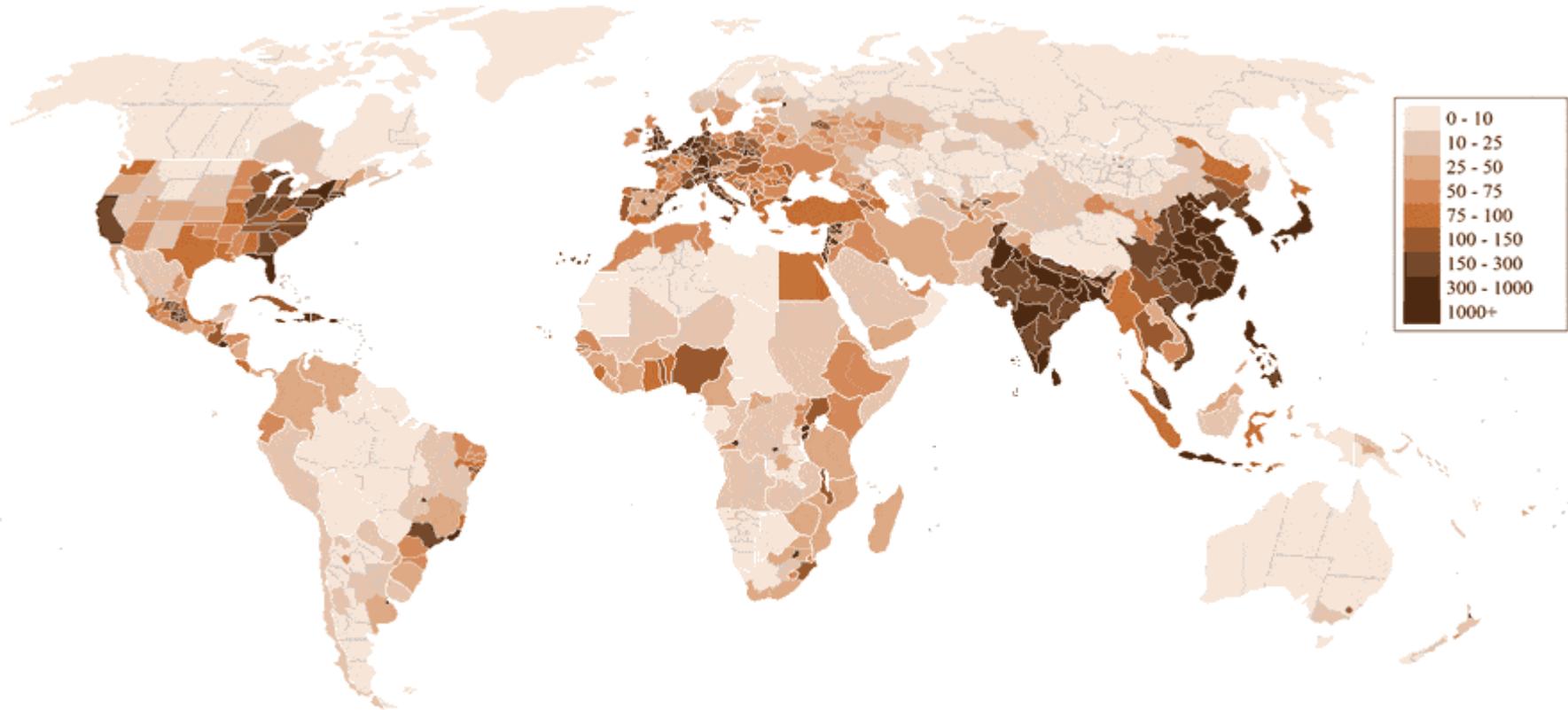
# Plate Boundaries & conventional Geothermal resource (SUPPLY)



▲ Volcano  
(historical eruption)

● Geothermal power plants

# World Population Density (people/km<sup>2</sup>) (DEMAND)



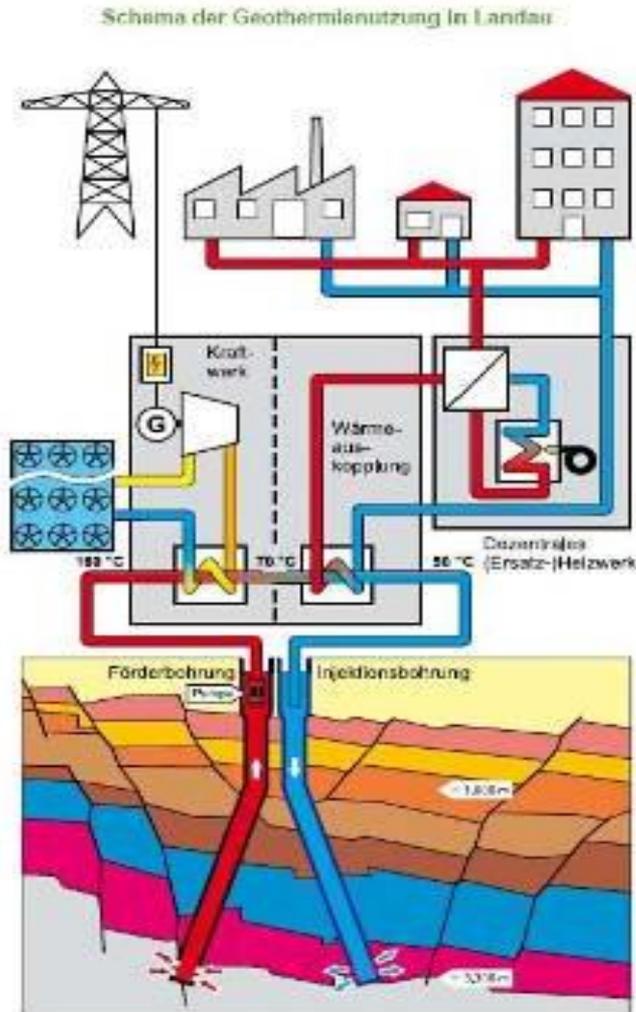
World population is ~7 billion (estimated by the UN)  
geothermal is devoid of the population density

If Geothermal Energy is going to play  
an important part in  
industrialised & populated area  
then

**new & unconventional type of  
geothermal resources (EGS)**

needs to be identified and exploited  
where the population density is high and  
not on the margins of continents.

# Commercial EGS project in Insheim, Germany



## COMMERCIAL PROJECTS AT

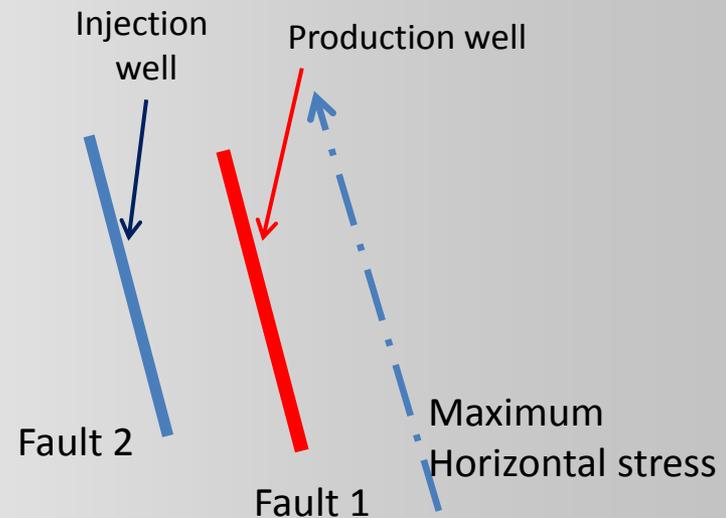
Landau & Insheim

Temp ~165°C

Flow 60-80 l/s

Power output ~ 4MWe

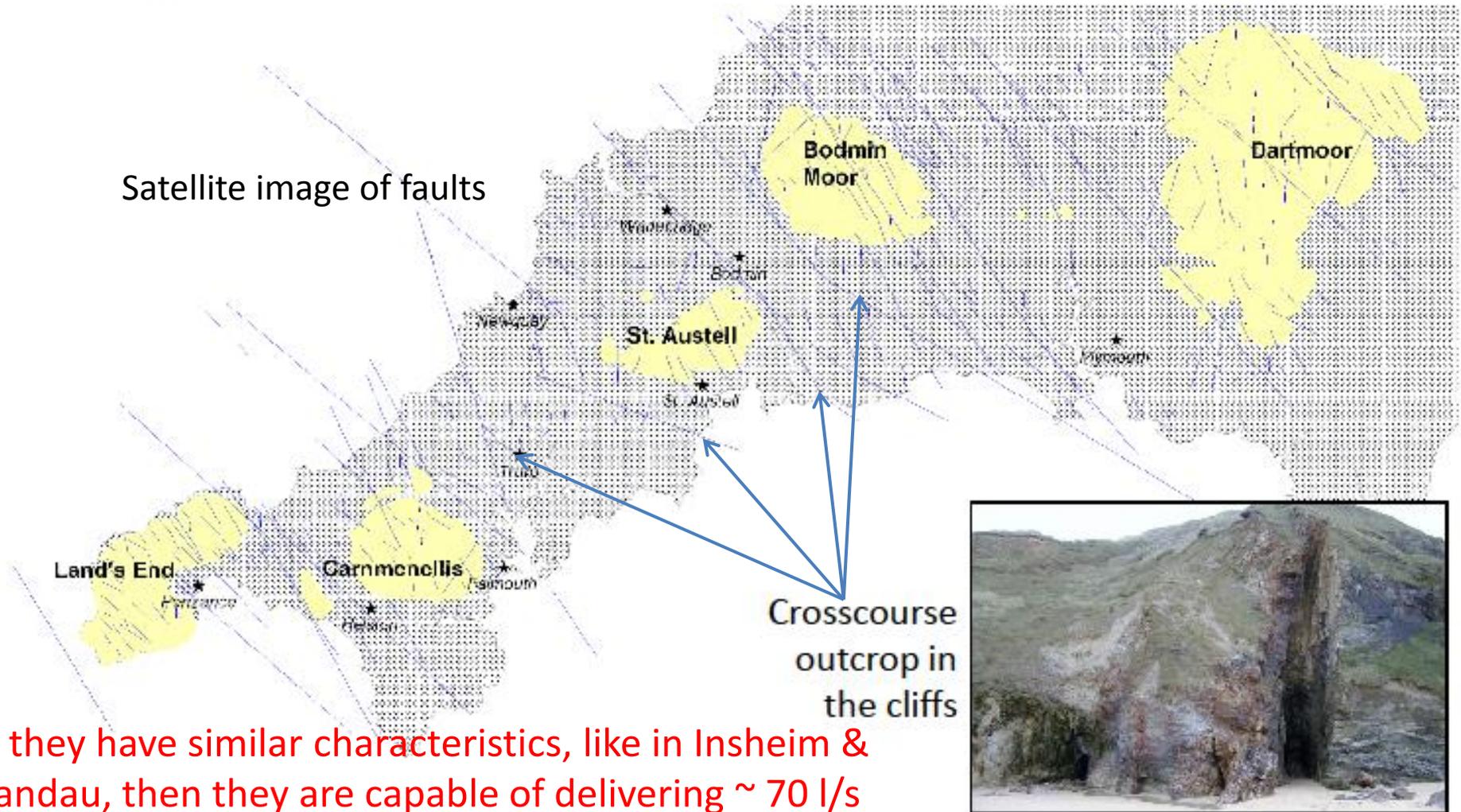
Supply space heating network  
near populated area (very important)



New Concept of accessing deep permeable faults in igneous basement

# Major fault zones

Satellite image of faults



If they have similar characteristics, like in Insheim & Landau, then they are capable of delivering ~ 70 l/s indefinitely. These can be like having a hydrothermal system in igneous rock.

# A CHINA CLAY PIT IN ST. AUSTELL



**BEFORE**

**eden project**

**AFTER**



**Test the EGS concept at the  
Eden Project, Cornwall**

# WHY?

1. The use of deep conductive faults is a European idea and came from the European Research project at Soultz, France & the concept works in Rhine Graben.
2. These faults can be like having a hydrothermal system in igneous rock and therefore more widely available than hydrothermal systems.
3. Will establish a European Leadership for EGS market in the world.
4. Create a European Centre of Excellence which will include a number of Universities from Europe to unify the European research on this topic
5. Almost a million visitors go to the Eden project each year and this will make the general public aware of the benefit of geothermal energy.
6. It will show that former mining areas can be converted to re-usable environmentally friendly sites.
7. Further technology will be developed to improve the economics.
8. It will demonstrate to other European nations that geothermal energy can be assessable using this technology, both heat and power.
9. European Commission will be able to help the climate change issue by supporting development of such projects in populated areas of the world.
10. International cooperation will be encouraged. IEA/GIA and EGEC will be apart of the supervisory group who will advice on the future direction of this technology.

# Thank you

