

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

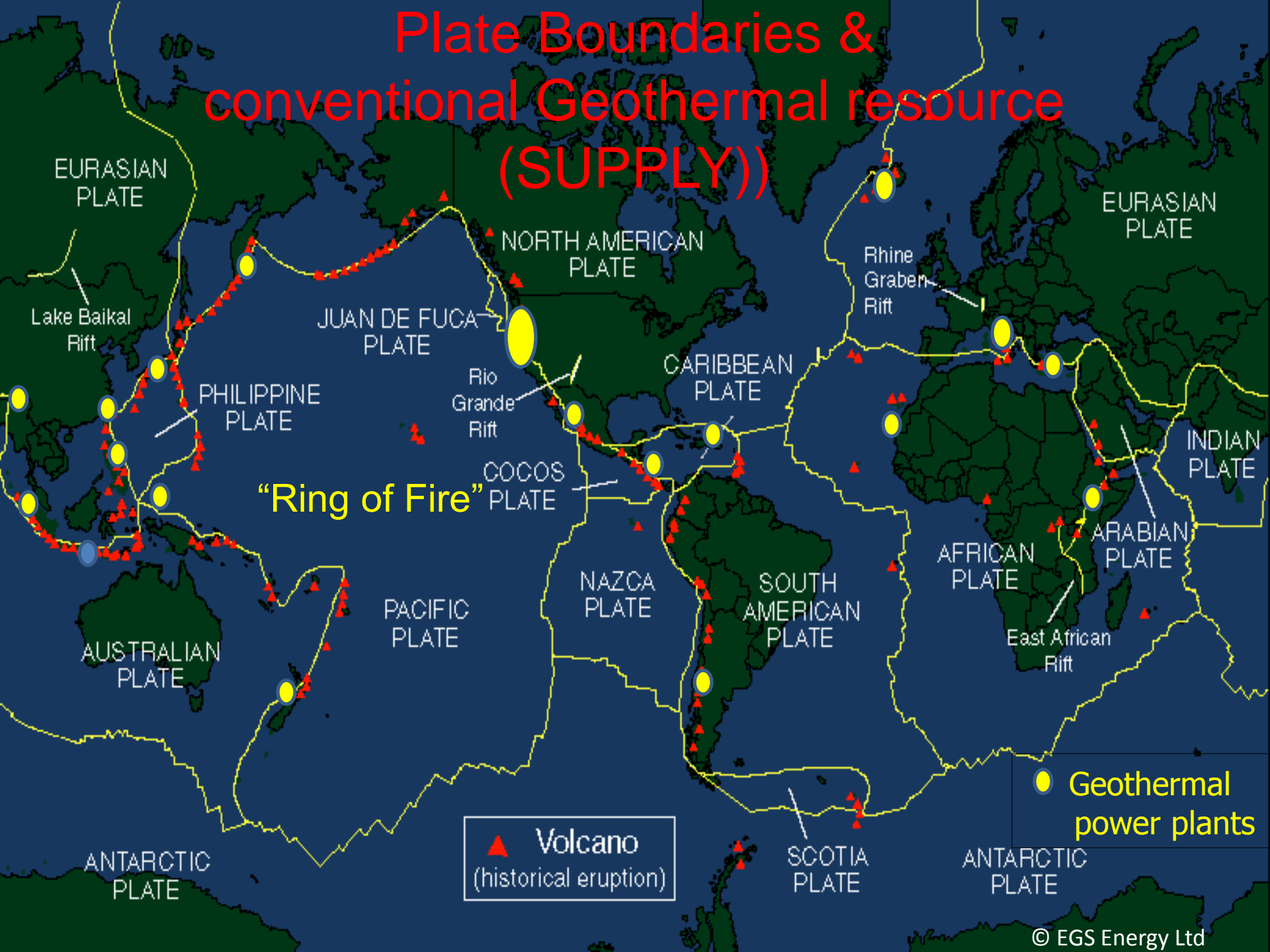
A MEETING WAS HELD AT THE WORLD BANK IN WASHINGTON DC
ON 5th March 2015 under IGA/UNECE*/World Bank

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

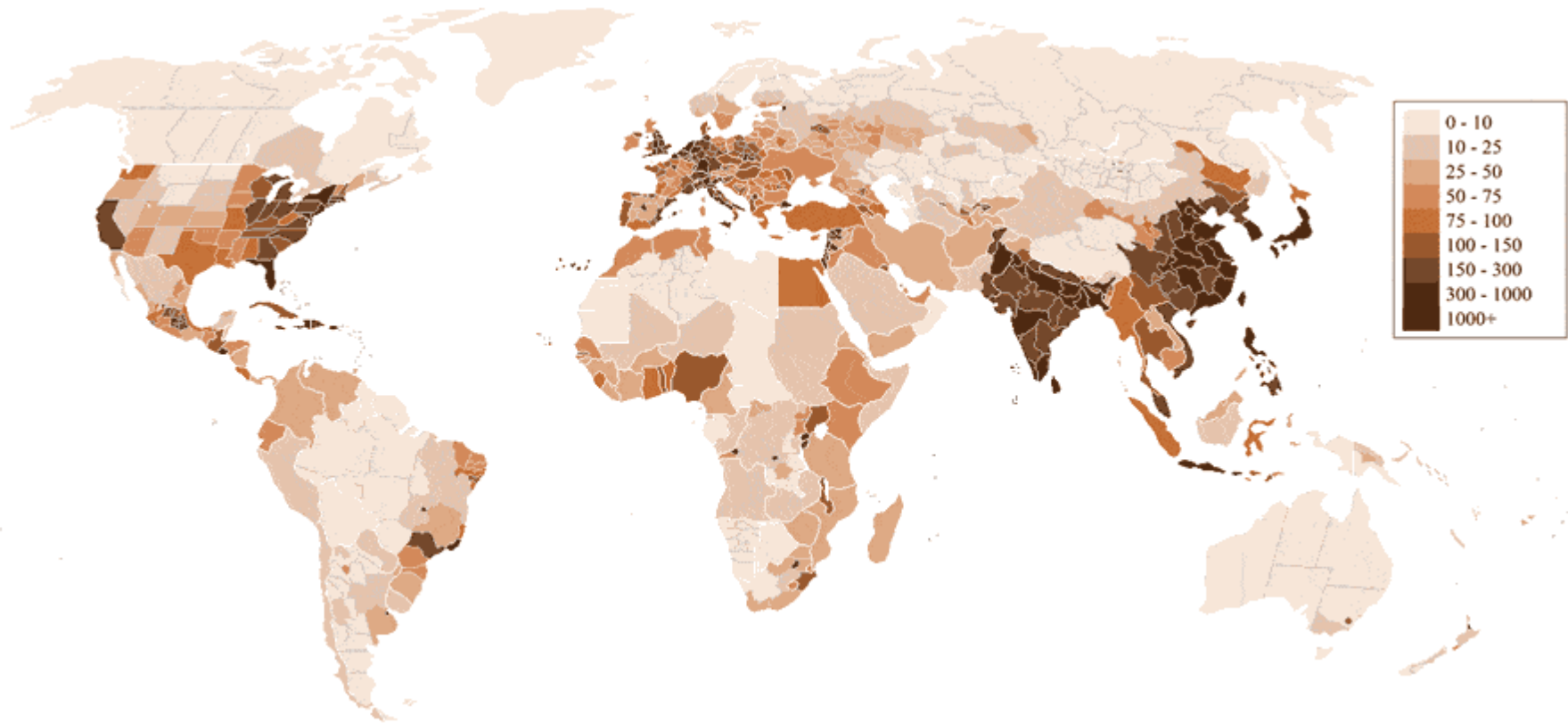
ie **SUPPLY** & **DEMAND**
for geothermal energy

*= United Nations Economic Commission for Europe

Plate Boundaries & conventional Geothermal resource (SUPPLY)



World Population Density (people/km²) (DEMAND)



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

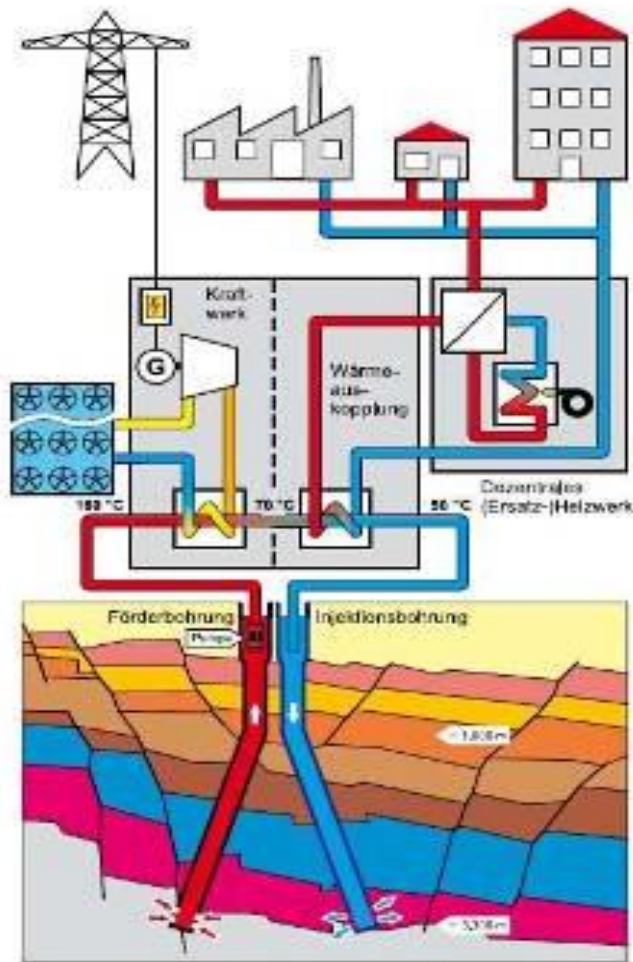
If Geothermal Energy is going to play
an important part in
industrialised & populated area
then

**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

Schema der Geothermianutzung in Landau



COMMERCIAL PROJECTS AT

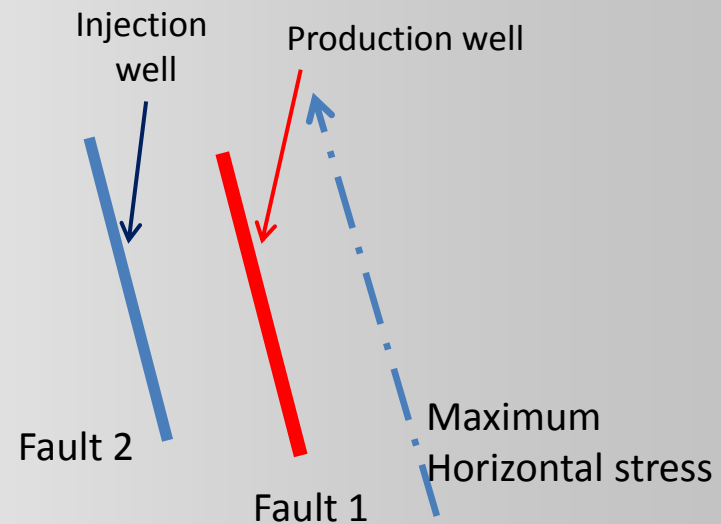
Landau & Insheim

Temp ~165°C

Flow 60-80 l/s

Power output ~ 4MWe

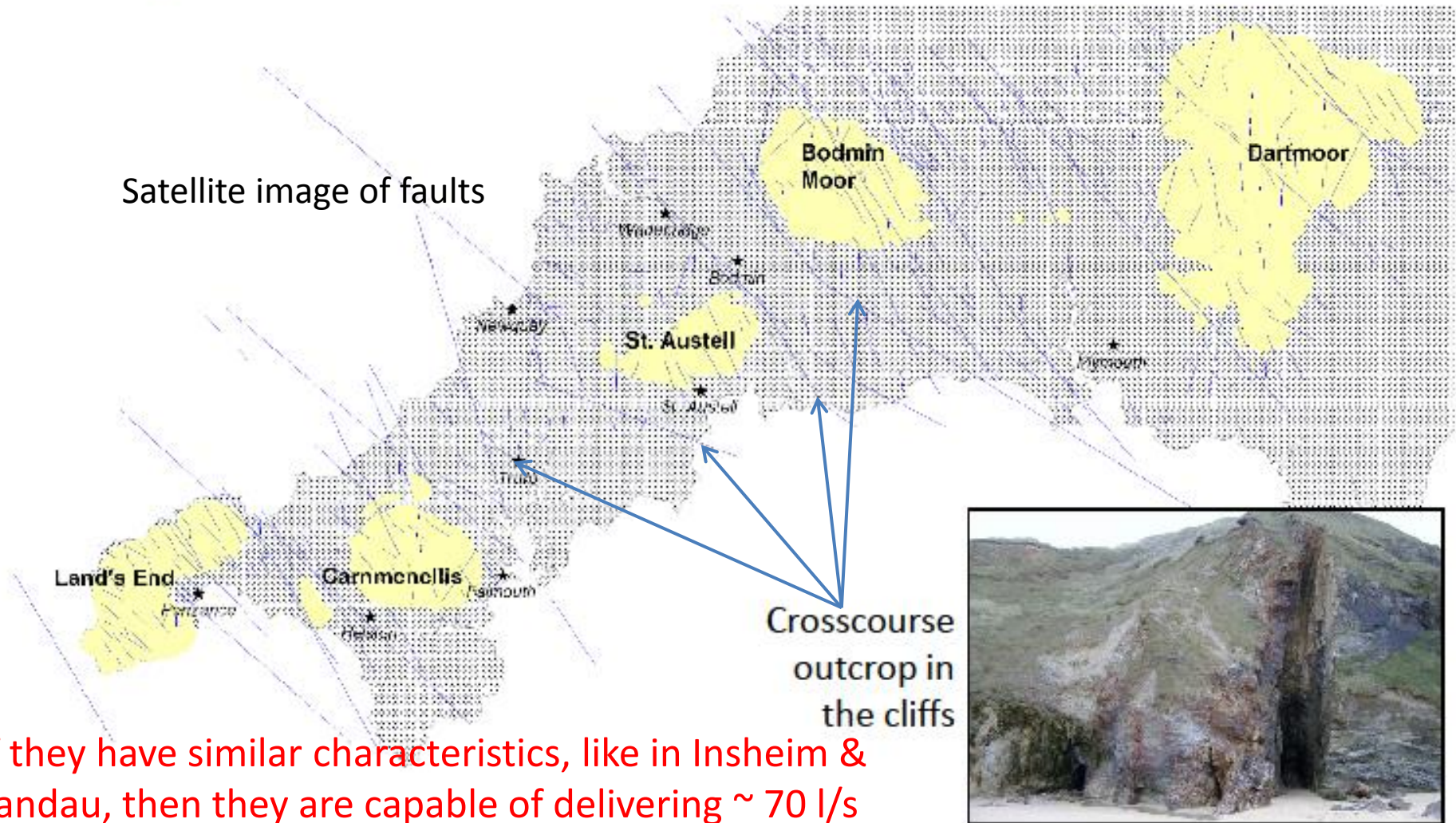
Supply space heating network
near populated area (very important)



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

