

Enhanced Geothermal Systems:

What society knows today, what CHPM2030 will revolutionise tomorrow



CHPM2030

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What is CHPM2030?

CHPM2030 (Combined Heat, Power and Metal extraction from ultra-deep ore bodies with an aim of implementation by 2030) is a H2020 project funded by the European Union and working on a unique disruptive technology that will combine geothermal energy development and minerals extraction.

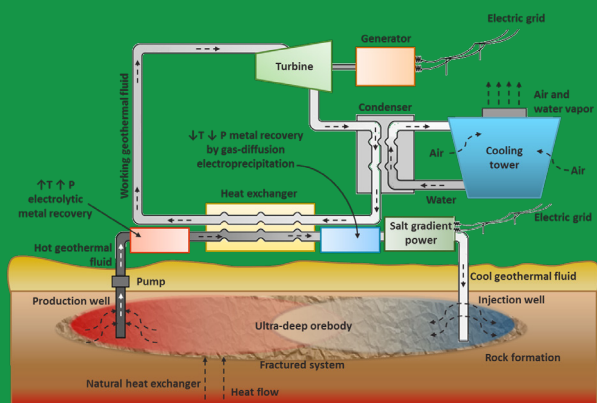
It will respond to two challenges:

The European energy market makes efforts to become less dependent on imported fossil fuels and to reduce the environmental impact of its energy supply. A major option, geothermal energy is already being used worldwide, including in many parts of Europe, because it is clean, renewable and constant.

Europe has another major challenge: securing the supply of critical raw materials, in particular metals, for industry and society. The dependency on metals is growing every year, despite significant efforts in the development of recycling and substitution.

What is the goal of CHPM2030 and how will it be achieved?

CHPM2030 develops an "orebody-EGS (Enhanced Geothermal System)" that will serve as a basis for the development of a new type of facility used for the co-production of energy and metals, in order to improve the economics of geothermal energy production.



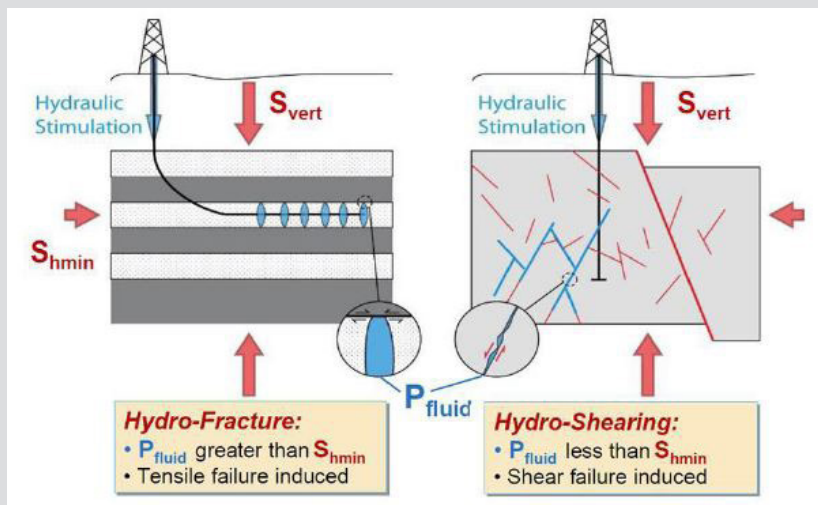
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Why start there?

- › We need to know more about the rock-mechanical and geochemical characteristics of ore bodies to identify the best targets;
- › We need to know the EGS-relevant properties of these ore bodies, such as their chemical composition, the solubility of metallic minerals, and their fracture systems and suitability for geo-engineering techniques.

What are the options?

- › Suitable mineralisation types are skarn, porphyry, vein-type, MVT and VMS deposits;
- › The EGS technology is available and needs high investments, but not always it meets environmental requirements.



Comparison between hydroshearing and hydraulic fracturing (Altarock, 2016).

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- › For several reasons such as their spatial extension and depth, multiple fractures and dissolvable carbonate matrix, skarns are one of the most promising deposits. This type of mineralisation will allow the CHPM concept to be quite flexible.
- › The EGS technology is not widely accepted because of the public perception of hydraulic fracturing. CHPM2030 will assess the applicability of the laser technique and of hydraulic shearing techniques to open up pre-existing fractures. These new methods can help to reduce the environmental risk.



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Photo: Courtesy Vigdís Harðardóttir, Iceland Geological Survey

