

# Geothermal energy: A clean accessible energy

MULTI-DISCIPLINARY APPROACH  
TO OPTIMISING GEOTHERMAL ENERGY

## Models to protect cultural heritage from climate change and natural hazards

Geothermal energy is a clean homegrown energy source with low emissions that generates baseload or dispatchable electricity, heat or the combination of both. It is always and fully available. Geothermal energy offers high flexibility, but is still the most under-utilised renewable source due to its inherently harsh environments which corrode materials and cause scaling issues resulting in high capital, operational and maintenance costs.

## European geothermal projects - Task Force

Five complementary projects funded by Europe's Horizon 2020 Research and Innovation programme are working to increase the efficiency of geothermal plants by facilitating the development of drilling monitoring systems.

## Key results



Development of systems for improving geothermal materials and making them resilient and long-lasting



Development of drilling monitoring systems to reduce production and maintenance costs

## Challenges



### SCIENTIFIC

Secure, clean and efficient energy



### TECHNOLOGICAL

Developing automated machine learning-based analysis methods to predict drilling parameters using sensor-based data-driven models



### INDUSTRIAL

Improving geothermal power plant to withstand the harsh geothermal environment and making them more efficient



The HRB - Horizon Result Booster is an initiative funded European Commission, Directorate General for Research and Innovation, Unit J5, Common Service for Horizon 2020 Information and Data.

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## Who benefits?



Large  
Enterprises



Research  
and Academia



Policy Experts  
and Activists



Geothermal  
operators

Join our community.  
Discover how photonics is making  
such a difference to daily lives.

**GEO**DRILL



**GeoDrill** - Geo-Drill focuses on reducing drilling cost with increased Rate of Penetration (ROP) and reduced tripping with improved tools.  
[geodrillproject.eu](http://geodrillproject.eu)

Grant Agreement No. 815319

**GEO**HEX



**GeoHex** - GeoHex aims at developing advanced materials with anti-scaling and anti-corrosion properties for cost-efficient and improved heat exchanger performance for geothermal applications.  
[geohexproject.eu](http://geohexproject.eu)

Grant Agreement No. 851917

**GEO**SMART



**GeoSmart** - The GeoSmart project is working on methods to store heat energy when demand is low so that it can be released when demand is high.  
[geosmartproject.eu](http://geosmartproject.eu)

Grant Agreement No. 818576

**GEO**-COAT



**Geo-Coat** - The Geo-Coat has developed new high-performance coatings to provide required bond strength, hardness and density for geothermal applications.  
[geo-coat.eu](http://geo-coat.eu)

Grant Agreement No. 764086

**pti**Drill



**OptiDrill** - OPTIDRILL is improving the use of geothermal resources thanks to the combination of enhanced monitoring systems and datadriven modules, responsible for optimising several aspects of the drilling process.  
[optidrill.eu](http://optidrill.eu)

Grant Agreement No. 101006964



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