

## Emerging Geothermal Technologies

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### Abstract

Geothermal energy can contribute to the worldwide energy supply with thousands of megawatts of clean, renewable energy which can be used as a base load.

This work presents a review of the state of the art of the technological development, the economic aspects and the energy potential that the various types of geothermal resources (hydrothermal, hot dry rock/enhanced, geo-pressurized, marine and magmatic) could contribute to the world energy portfolio and to the CO<sub>2</sub> emission reduction by 2050.

It is expected that until the year 2030 the geothermal market continues to be dominated by the exploitation of high- and medium-temperature hydrothermal resources, mainly due to their favorable economics.

Also by 2030, it is expected that the commercial viability of enhanced geothermal systems has been fully demonstrated, and that by 2050 they contribute with significant amounts of energy that represents at least 50% of the geothermal market.

In the longer term magmatic and marine resources could also contribute important amounts of energy.