

Shallow geothermal energy

The new French regulation

Florence JAUDIN

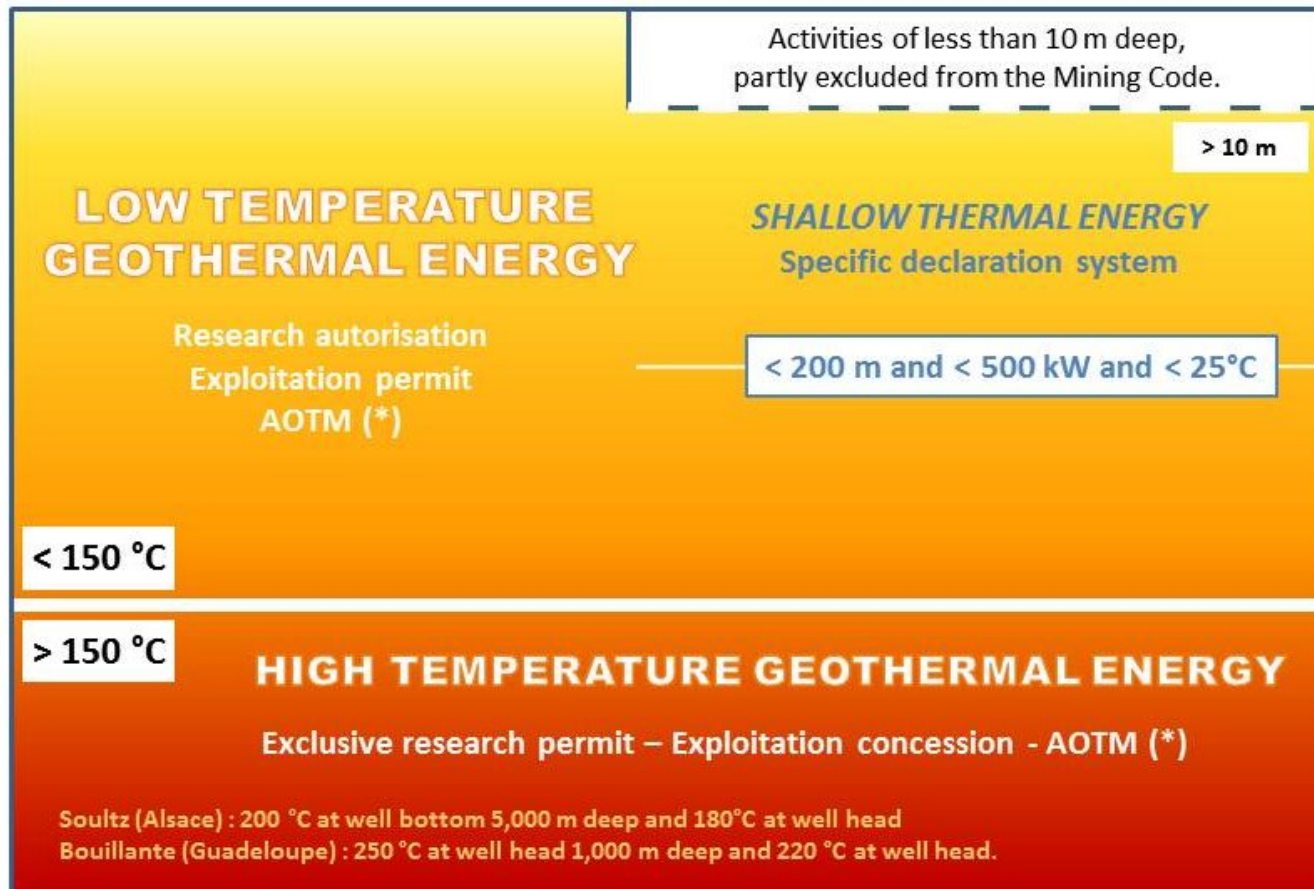


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The new frame of the shallow geothermal energy



(*) Mining work authorisation : impact study, public enquiry

The new criteria of the shallow geothermal energy :

Vertical heat exchangers:

Depth \lt 200 meters ;
Thermal capacity \lt 500 kW.
Outside of Risk areas (cf,Maps)

Ground water:

Depth \lt 200 meters;
Thermal capacity \lt 500 kW.
Water T° \lt 25°C;
Reinjection in the same aquifer
Water flow rate \lt **defined flow**
Outside of Risk areas (cf,Maps)

Shallow geothermal energy

Decree 2015-15 of 8th January
enter into force July 1st, 2015

It is backed by 4 Executive Decisions

- Decision on **general requirements**.
- Decision on the **qualification of drilling companies**
- Decision on the **cartography of statutory zones**.

On a national scale, this relates to two maps, one for closed-loop exchangers and one for open-loop exchangers handling zone 10 at 200 m. These maps may be broken down, on a regional level, for 3 depth intervals: 10-50 m, 10-100 m and 10-200 m.

- Decision on the **expert approval**.

In addition, a **teleservice** shall be dedicated to the declaration of shallow geothermal energy systems (www.geothermie-perspectives.fr).

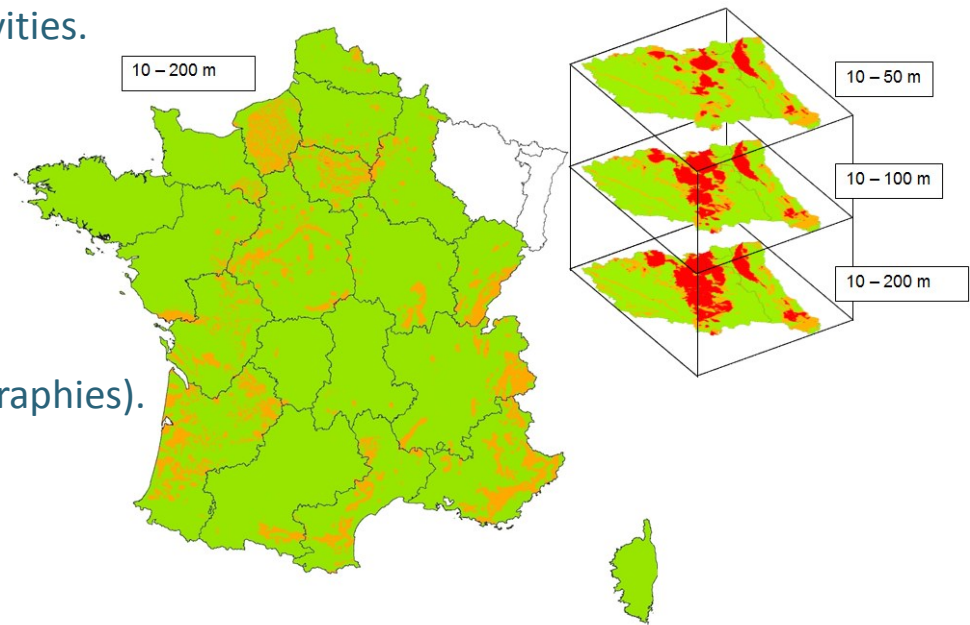


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Cartography of statutory zones

This is based on 9 feared phenomena:

- 1 - Subsidence/raising related to evaporitic levels
- 2 - Subsidence/collapse related to cavities (excluding mines).
- 3 - Subsidence/collapse related to mining cavities.
- 4 - Ground movements (or landslides).
- 5 - Pollution of soils and groundwater.
- 6 - Artesian phenomenon.
- 7 - Aquifer communication.
- 8 - Rising groundwater.
- 9 - Saltwater wedge (only for regional cartographies).



Summary of procedures

Type of geothermal energy	General conditions	Administrative system
Air-ground heat exchangers, energy geostructures or cages	None	Mining Code not applicable
Horizontal closed-loop heat exchangers (depth < 10 m)	Less than 10 m deep	Mining Code not applicable
	Depth < 10 m and power < 500 kW and flow rate < 80 m ³ /h and reinjection into same groundwater	Mining Code not applicable
Open-loop geothermal heat pumps (groundwater) of a depth of 10 to 200 m	Depth > 10 m and < 200 m and power < 500 kW and flow rate < 80 m ³ /h, with reinjection into same groundwater and in green or orange zone	Simplified declaration
	Depth > 200 m or power > 500 kW or flow rate > 80 m ³ /h or no reinjection into same groundwater or red zone	Authorisation reviewed by the Government departments
Closed-circuit geothermal heat pumps (vertical sensors) of a depth of 10 to 200 m	Depth > 10 m and < 200 m and power < 500 kW and in green or orange zone	Simplified declaration
	Depth > 200 m or power > 500 kW or red zone	Authorisation reviewed by the Government departments

And then

A wider reform of the mining Code is committed.

This reform could constitute an opportunity to widen the geothermal science to all the exchanges of temperature, including the cooling (or air conditioning).



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Thank you!

f.jaudin@brgm.fr



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