Regulation and Public acceptance

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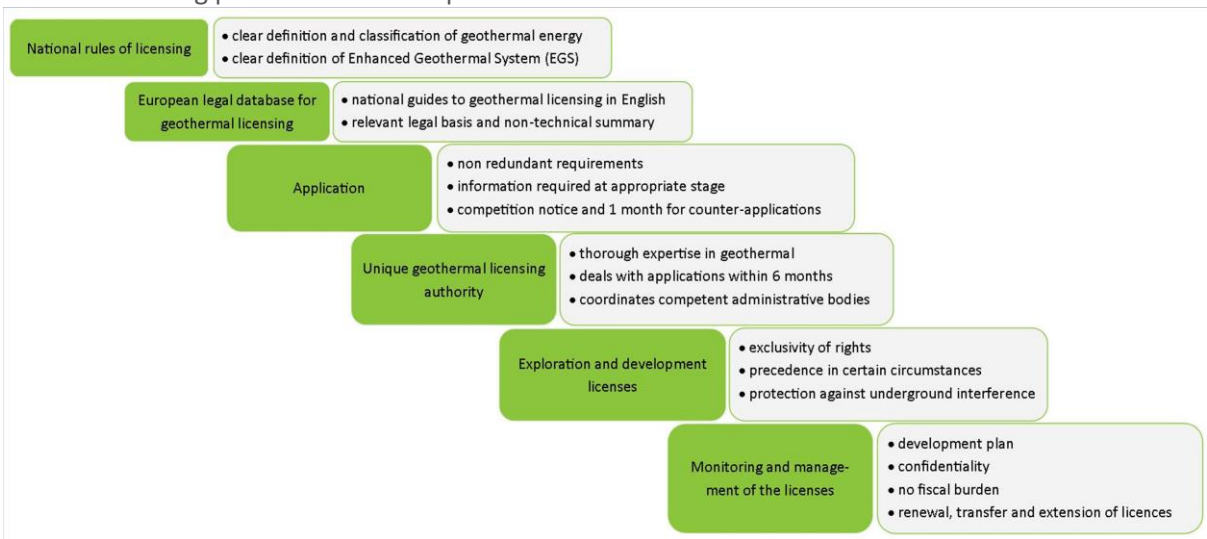
Regulatory Barriers

- Many European Countries are still in the process of setting up unique geothermal licensing authorities.
- There are still regulatory barriers which can cause delays and increase cost within geothermal Electricity projects.

Licensing Procedures

An advised licensing process was developed within GEOELEC:



Standardisation and Schemes

- A Geothermal Reporting Code provides standardised terms and classification scheme in addition to rules and template regarding presentation of project status and facts for public reporting.
- A regulated, supervised and international Geothermal Reporting Code is believed to be of best use for the Geothermal Community to attract international investors.
- In 2013 there are two existing codes, in Australia (AGEA) and Canada (CanGEA).
- GEOELEC does not recommend investing in a specific European Geothermal Reporting Code, rather uphold a wait and see strategy and continue international discussion.
- An Expert Group on Resource Classification set up by the UN Economic Commission for Europe has begun to look at modifying the UNFC-2009 scheme to include all renewable energy, including geothermal energy. This would create an international, regulated scheme and standardisation.
- To create international consensus active participation of the European industry in international discussion is suggested, supporting the UN EC Expert Group.

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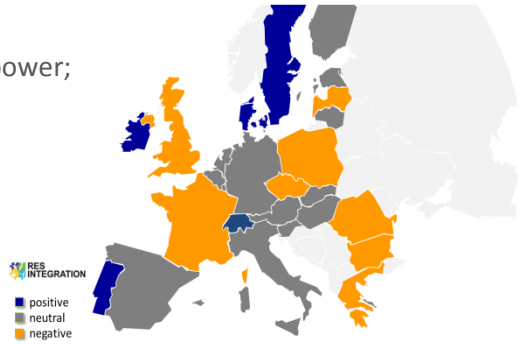
Grid Access

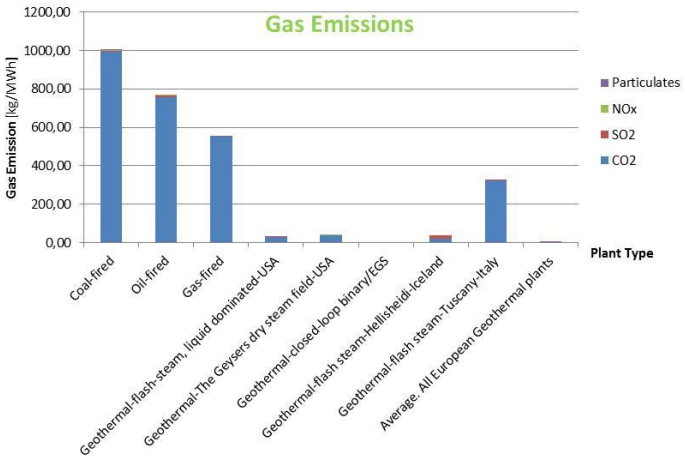
- No technical barrier to the integration of geothermal power;
- Need to fully implement the RES directive;
- Transparency to grid access conditions;
- Long term stability of grid connection fees;
- Geothermal is dispatchable and will play a role in stabilising the grid.



Grid development process (Binda, et al .,2012)

Environmental Issues

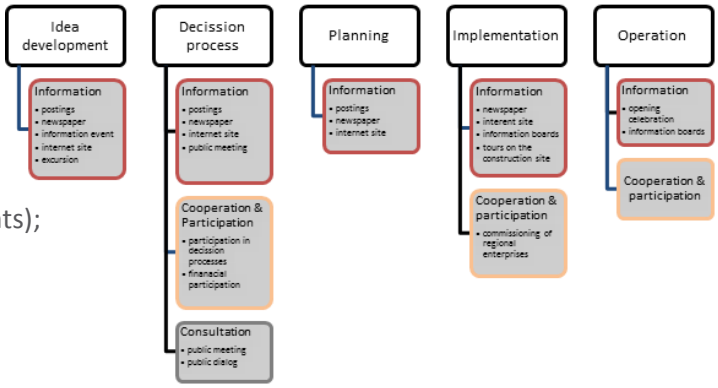
- Small footprint that leaves little permanent scarring;
- Normal construction site disturbance and waste;
- Buildings, cooling towers and pipelines create minimal visual impact;
- Reinjection of geothermal fluid into the aquifer of origin does not contaminate groundwater;
- Hydraulic stimulation uses 99% water, harmless chemicals and no proppants, following environmental rules;
- Induced micro-seismicity can occur due to re-injection but is monitored and can be controlled.

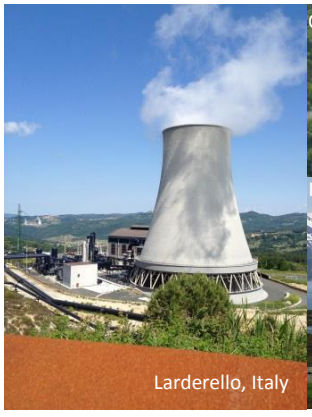


Public Acceptance

- Social acceptance is an important factor in site selection due to
  - environmental issues;
  - missing involvement issues;
  - financial issues (in case of e.g. municipal grants);
  - NIMBY (Not In My Back Yard) acceptance issues;
  - local energy production.

- Best practice advise from GEOELEC:




Larderello, Italy


ORC. Berlin, El Salvador


Kalina Cycle. Husavik, Iceland

Lessons learned come from all over the world. For public acceptance it is usually best to choose colour, layout and architectural style that enable the power plant to blend into its surroundings. Tradition can also play a part as in Larderello where the cooling tower structures are considered regional trademarks.


Hellisheiði, Iceland

ORC. Bruchsal. Germany