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Environmental aspects of geothermal technologies: the contribution of GEOENVI to the description of risks and impacts and related mitigation measures

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Despite the main contribution that deep geothermal technologies bring to the energy transition from fossil to renewable resources in many European countries, in some regions these technologies are confronted with a negative perception, particularly in terms of environmental performance, which could seriously hamper their market uptake.

The evaluation and effective communication of environmental issues is the main target of the European GEOENVI Project, launched in the framework of the H2020 programme (GA 818242) and started on November 2018. Among the various activities, a main part is currently focused on describing the adverse and benign effects on the environment that technologies potentially bring with their development, and providing accurate and current information about the best practices and available technologies to avoid, whenever possible, or otherwise minimise the unavoidable adverse effects to the environment produced by geothermal development.

The environmental effects from geothermal development have been categorized based on safeguard subjects, i.e., endpoint indicators, emphasizing environmental burdens.

The analysed adverse environmental effects considered of relevance for the geothermal development and analysed for the project are:

- Effects of surface operations: energy and water consumption and emissions to the environment;
- Waste production from surface operations
- Surface disturbance, including vibration, noise, visual, land occupation and dust
- Leaks due to surface installations and operations
- Liquid/solid effusions and waste
- Degassing
- Radioactivity
- Ground surface deformation
- Seismicity
- Interconnection of aquifers and disturbance of non-targeted aquifers
- Reservoir physical and chemical modifications

The presentation will describe the mapping of the environmental risks and impacts as well as mitigation measures performed by the project, and how they are being organised on public Wiki pages and database.

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