

Results of the ECOGI deep geothermal project

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Abstract

The ECOGI geothermal project, located in the Upper Rhine Graben, was initiated in 2011. It is designed to deliver a power of 25 MW_{th} at the “Roquette Frères” bio-refinery in Beinheim in order to cover around 25% of the process heat needed by this industrial site. The drilling site is located in Rittershoffen, 6 km east of Soultz-sous-Forêts, in Northern Alsace, France. The project is supported by the “ADEME”, the “Conseil Régional d'Alsace” and “SAF Environnement”. ECOGI is a joint venture; the shareholders are “Electricité de Strasbourg” Group, “Roquette Frères” and a public institution “Caisse des Dépôts et Consignation”.

Old petroleum seismic profiles available in the vicinity of the project were reprocessed using modern techniques and an updated geological interpretation of the Rittershoffen horst structure was proposed in 2011. The drilling of the first vertical well GRT-1 started in autumn 2012. The well reached a final depth of two and a half kilometre end of 2012 within the fractured crystalline basement. A reservoir development strategy was then designed in order to optimize and enhance the hydraulic properties of the well. These operations were applied in two sequences, respectively in April 2013 and June 2013 for the main operations. This strategy was successful, as the hydraulic properties of the GRT-1 reached the target for industrial development of the project. The reservoir temperature also reaches the predictions, with temperatures above 160°C. An advanced seismological monitoring of the reservoir has been set up, allowing real-time location of the induced seismic events, thus offering the best support for decision makers during operation to avoid events that could be felt by population. The drilling of the second well started in March 2014.

Keywords: EGS, deep geothermal energy, fractured basement, stimulation, Rittershoffen, France