

**Abstract:****Title: HOCLOOP project – Verification test at Ullrigg in Stavanger****By: Ola Vestavik, Geotherma, Stavanger**

A new drilling and completion technology has been proposed for geothermal energy production through a horizontal closed loop well, acronym HOCLOOP. The HOCLOOP project, funded by the EU Horizon Europe research and development programme, aims to demonstrate this technology in a full-scale operation. The project is conducted in a co-operation between the industry and research institutions in Finland, Belgium, France, Italy, Germany, Poland and Norway. The project includes the development and validation of models for heat flow, investigation of using alternative fluids to water and investigation of potential EU pilot sites, environmental assessment, and social acceptance. As the project has entered the full-scale well test phase, including the evaluation of the solution in a thermal response test programme, this presentation will provide an overview of the project's goals and partial results. It will also focus on the analysis of the proof-of-concept results, such as verifying the performance of the new equipment components and configurations and validating thermal flow models through the thermal response test in the well. The test program is planned to be conducted at the Ullrigg Drilling and Well testing facility in Stavanger, starting in October 2024.

It is expected that the solution will enable geothermal energy exploitation in new regions, with or without hydrothermal reservoirs. The solution is anticipated to integrate with other renewable energy sources, enhancing power supply reliability and grid stability, while being applicable to various geological conditions. Furthermore, it aims to address key challenges in geothermal energy, including emissions, seismicity, and environmental concerns.