DESTRESS

Demonstration of soft stimulation treatments of geothermal reservoirs

Elif Kaymakci

Elif Kaymakci is a chemical engineer, experienced in project management across multiple conventional power plant projects for more than six years. She graduated from Europa Universität Flensburg in Germany with a master's degree in Renewable Energy and Environmental Management. During her Master's degree course, she joined the geothermal energy R&D team at Energie Baden-Württemberg AG (EnBW), wrote her master thesis on the optimization of the Bruchsal geothermal power plant and has been working as a project manager in geothermal energy projects at EnBW R&D since November 2017. Her area of specialization is power plant engineering, thermodynamics and economics.

"The impact analysis of soft stimulation on the techno-economic performance of a geothermal power plant considering risk factors"

The investigation of risk factors as well as the economic effect of soft stimulation on the techno-economic performance of a geothermal power plant is a part of the DESTRESS project. In this talk, the topics of uncertainty/risk factors and economic evaluation of geothermal power plants are combined. The integration of uncertainty into the techno-economic evaluation of projects is not entirely new in industries that deal with underground resources, but it is a step that needs to be further developed.

Through a decision analysis approach, which is one of the synergies coming from the oil and gas industry, the techno-economic evaluation with uncertainty is integrated into decision making. This approach shall mature decisions in project development and operation, thereby enhance the success of geothermal projects. The quantification of risk factors performed in this study enables the integration of uncertainty into techno-economic modelling. A techno-economic model of geothermal heat and power plants, which is developed to determine the impact of technical and economic risk factors on levelized cost of heat and electricity will be the focus of this talk. The model consists of three main parts: the reservoir, the thermal fluid cycle and the heat or power plant, respectively, and it is applied to three selected demonstration sites. The aim is to demonstrate the "integrated geothermal energy model" (IGEM) and evaluate soft stimulation measures, including uncertainty caused by risk factors.

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