

Economic analysis of Enhanced Geothermal Systems (EGS). A review of software packages for estimating and simulating costs

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This review presents an economic analysis of Enhanced Geothermal Systems, which are a way of making efficient, large-scale use of the enormous resources offered by geothermal energy. Existing software packages for estimating and simulating costs, conventionally used in studying Enhanced Geothermal Systems facilities have been examined, focusing on EURONAUT, the top European software, and the US GEOPHIRES package. The latter is currently the newest package for economic studies of Enhanced Geothermal Systems: it can simulate not only electricity production but also the output of heat for direct use and the combination of both systems, i.e. Combined Heat and Power. The main findings obtained with these two tools are presented, including sensitivity of analysis and a comparison of the Levelized Costs of Electricity with other electricity generating technologies. Finally, and based on the study conducted, different approaches are proposed in order to obtain better results from the initial assumptions and parameters used in areas still to be explored by software packages. © 2016 Elsevier Ltd. All rights reserved.

Economic analysis

Enhanced Geothermal System

EURONAUT

GEOPHIRES

Hot Dry Rock

Levelized Costs of Electricity and Heat

Cost benefit analysis

Cost estimating

Economic analysis

Electric power generation

Geothermal wells

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Sensitivity analysis

Software packages

Enhanced geothermal systems

EURONAUT

GEOPIRES

Hot dry rock

Levelized costs

Electric power system economics