## 7th European Geothermal Workshop - Characterization of Deep Geothermal Systems



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## Optimization of heat extraction from sedimentary reservoirs for CPG electricity generation

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The primary goal of the present work is evaluation and comparison of vertical and horizontal well placements and their impact on the power output of a CPG (CO2 Plume Geothermal) system. Performances of vertical and horizontal wells arranged in a repeated five-spot pattern are evaluated for single- and multi-phase flow cases. Numerical models were developed in MOOSE (Multiphysics Object Oriented Simulation Environment), tested and compared against each other and previous studies. Simulations show that the reservoir will respond differently to different well configurations, with buoyancy playing a major role in its response. The study discusses the accuracy of present models, the effects of buoyancy, phase mobilities and different well placements on the power output of CPG systems.

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