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Geothermal Exploration by Utilizing Slim Hole Drilling Systems - Cost and GHG Emission Reductions

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Abstract

Compared to other renewable energy sources - such as wind and solar - geothermal energy is stored under the surface of the Earth. Exploration and exploitation require drilling to assess the in-situ resource. High upfront cost of drilling activity makes the attractiveness of potential projects low. To reduce the risk of exploration slim hole drilling systems can be utilized to decrease the requirements for machinery, material, emission, and footprint. Slim hole drilling has been present for decades, but the utilization in exploration is still limited. The objective of this paper is to show the advantages and disadvantages of slim hole drilling systems and to compare to a normal sized well, in terms of cost, material requirement, equipment requirement, footprint and GHG emissions.

Keywords
Renewable energy, wind and solar energy - geothermal energy, exploration, exploitation GHG emissions.