

## Potential Impact of Reservoir Engineering R&D on Geothermal Energy Costs\*

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### Abstract

A tutorial program for use on personal computers is being developed to evaluate the sensitivity of geothermal energy costs to potential technological improvements. Reservoir engineering R&D will reduce risk to the funding organization and in turn reduce the risk premium paid on a loan. The use of a risk premium was described as an investment banker's option at the November 1986 "Future of Geothermal Energy Conference" in San Diego, California.

In the sensitivity analysis, we propose to calculate an energy cost: (1) at the predicted production parameters of temperature, drawdown rate, etc., and (2) at the most likely worse case values. The differential higher

cost of the worse case over the predicted case is the risk premium. Thus R&D that improves reservoir definition will reduce the worse-case-minus-predicted-case difference and the financial risk premium. Improvements in reservoir engineering can then be quantified in terms of reduced energy costs.

This paper will discuss the proposed approach to obtain critique of the procedure and provide the best logic for use in evaluating the potential impact of reservoir engineering R&D.

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