

# RESULTS FROM A FIELD-WIDE NUMERICAL MODEL OF THE GEYSERS GEOTHERMAL FIELD, CALIFORNIA

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## ABSTRACT

A numerical simulation model of The Geysers geothermal field, California, has been developed using reservoir and production data provided by UNOCAL, Calpine, NCPA and CCPA. The model was originally developed by UNOCAL and was based primarily on data from the Unocal-NEC-Thermal (U-N-T) lease areas; the purpose of this study was to extend the model by incorporating data from other field operators and to use the recalibrated model to forecast future production trends.

The model was successfully calibrated against pressure data from individual observation wells and field-wide isobaric maps. Forecast runs were then made for two production scenarios;

- wellhead pressures will reduce by 40 psi over the next five years and then remain constant;
- wellhead pressures will remain constant at their present levels.

The results show that the reduction in wellhead pressure allows an additional 1 million lbs/hr to be produced over the next ten years; equivalent to 55 MW(net) additional power production.

However, the results also show the field production will continue to decline from the present level of approximately 23 million lbs/hr to 8.5 million lbs/hr by the year 2014; equivalent to a reduction in overall power production from the present level of 1,250 MW (net) to 475 MW(net).

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