

# ASSESSING THE RYE PATCH GEOTHERMAL FIELD, A CLASSIC BASIN-AND-RANGE RESOURCE

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## *Keywords:*

*Rye Patch, Basin-and-Range, Reserve Assessment, Power Capacity*

## **ABSTRACT**

The Rye Patch geothermal field is a classic Basin-and-Range resource with a “blind” anomaly, moderate temperature and “deep circulation” as the source of heat. This paper presents a conceptual model of the field based on lithologic, geophysical and temperature logs as well as production, injection and pressure interference data from 8 deep wells drilled to date. For the hottest well in the field (405°F), we have conducted wellbore heat transfer modeling to resolve a major observed discrepancy between the flowing and static temperature profiles, the latter being shown to be affected by downflow of cooler water. The conceptual model has been developed to fit all available resource information, and had been used to estimate reserves: a minimum of 36 MW and a most-likely level of 64 MW for a 20-year project life. Based on well test data, the maximum gross power production capacity from the existing wells is estimated at 21 MW. The existing wells are capable of supplying the 12.5 MW plant installed at the site if one or two additional wells are drilled for injection.

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