

TSX : MXY



**NORTH AMERICA  
OPERATIONS  
AND  
PROPERTIES**



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 **PROPERTIES USA**

**OPERATIONS:**

**SODA LAKE POWER PLANT, NV - 13.5 MW**

**ADVANCED STAGE PROPERTIES:**

<b>McCoy:</b>	Nevada
<b>PANTHER CANYON:</b>	Nevada
<b>DESERT QUEEN:</b>	Nevada
<b>THERMO:</b>	Utah

**EARLY STAGE PROPERTIES:**

<b>BALTAZOR HOT SPRINGS:</b>	Nevada
<b>BEOWAWE:</b>	Nevada
<b>BUFFALO VALLEY:</b>	Nevada
<b>COLUMBUS MARSH:</b>	Nevada
<b>DIXIE VALLEY:</b>	Nevada
<b>GLASS BUTTES:</b>	Oregon
<b>GRANITE SPRINGS:</b>	Nevada
<b>MOPUNG HILLS:</b>	Nevada
<b>NORTH VALLEY:</b>	Nevada
<b>QUARTZ MOUNTAIN:</b>	Nevada
<b>SODA LAKE EAST:</b>	Nevada
<b>UPSAL HOGBACK:</b>	Nevada

## SODA LAKE GEOTHERMAL POWER PLANT

### ASSET:

- 2,881 hectares [ 7,119 acres]
- Nameplate capacity 23 MW, currently producing 13.5 MW
- Team of experienced geothermal plant operators
- 30 year power purchase agreement
- Geothermal Reporting Code 20 MW Reserves, 41 MW Indicated Resources

### UPSIDE:

- Target Power Purchase Agreement re-price to market
- Elimination of administration, legal, head office charges
- Plans to increase plant generation to 37 MW
  - Optimization of current production and re-injection strategy
  - Plant refurbishment and upgrades completed

### SODA LAKE GEOTHERMAL PLANT

The Soda Lake Operation is located in the southwest portion of Churchill County, Nevada, approximately 11 km northwest of the city of Fallon and 115 km east of Reno. The Soda Lake Operation consists of 2,881 hectares (7,119 acres) of private and federal lands.

The Soda Lake Operation is accessible by paved and gravel roads. Two major highways, Interstate 80 and U.S. Highway 50, are located in close proximity to the project area. The power plants and all production and injection wells are accessible on all weather gravel and dirt roads.

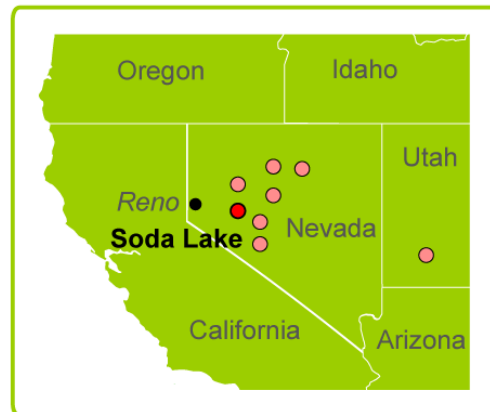
The Soda Lake Operation is in close proximity to 120 kilovolt ("kV"), 230 kV and 345 kV transmission lines. Additionally, the area is served by a regional railroad line, which passes immediately to the south.

The Soda Lake Operation sells all electricity to NV Energy Company, a wholly owned subsidiary of Sierra Pacific Resources Company, Reno, Nevada, under two 30-year power purchase agreements.

Our Soda Lake Operation is comprised of two power producing facilities, Soda Lake 1 and Soda Lake 2, with a total installed gross nameplate capacity of 23.1 MW. Soda Lake I has an installed gross nameplate generation rating of 5.1 MW and is equipped with a water-cooled condensing system. Soda Lake II has an installed gross nameplate generation rating of 18 MW and is equipped with an air-cooled condensing system. Soda Lake 1 and Soda Lake 2 came on line in 1987 and 1991, respectively.

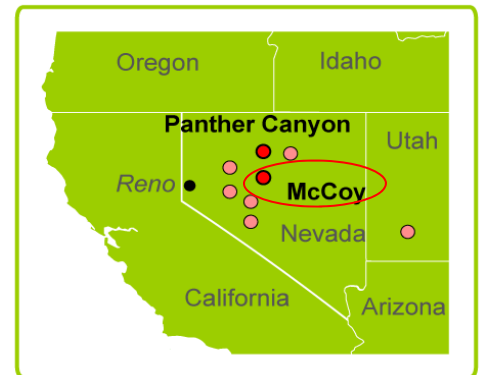
Electricity sales from the Soda Lake Operation have averaged 8 MW net over the period 2005 to 2008. We intend to increase output to the nameplate capacity of 23 MW by the end of 2010 by drilling new production and injection wells and upgrading surface piping and existing equipment. By 2013 Magma intends to add additional power generation units to increase the facility's output to at least 37 MW.

A Geothermal Reporting Code estimate was prepared for Soda Lake with GeothermEx acting as the Qualified Person. The recent field optimization study resulted in a comprehensive data set that was used for the reservoir estimate. Proved Reserves of 20 MW and Indicated Resources of 41 MW have now been established for the property. This compares with a previous P<sub>90</sub> estimate of the geothermal reservoir's gross generating capacity of 29 MW.



## McCOY HOT SPRINGS - NEVADA

- 7,815 hectares [19,312 acres], NW Nevada
- extensive geothermal exploration in 1972 – 82
  - geology, geochemistry, geophysics
  - 52 temperature gradient holes, 3 slim holes
- Heat flow calculation potential -  $P_{90} = 80$  MW (Inferred Resource)
- Magma 24 month plan: resistivity, seismic, drill program



## McCOY HOT SPRINGS

The McCoy Property is located in Nevada 50 km northwest of the community of Austin, Nevada, and straddles the boundary between Churchill County on the west and Lander County on the east. It consists of a total of 7,815 hectares (19,312 acres) covering 27 more or less contiguous sections of land.

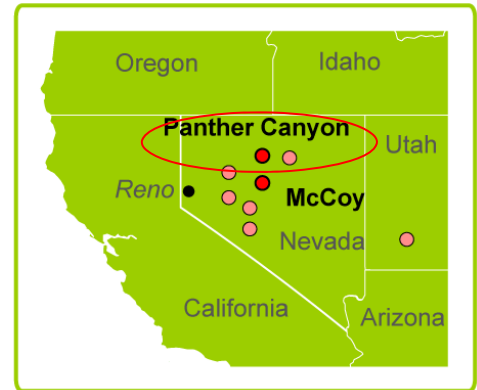
AMAX Exploration, Inc. ("AMAX") performed geophysical, geochemical, and geological surveys in the area of the McCoy Property in the late 1970's and early 1980's and formed a geothermal development unit consisting of 15,135 hectares (37,417 acres). AMAX let its interest expire during the weak energy market period in the mid-1980's. AMAX drilled fifty-two shallow temperature gradient holes ranging in depth from 30 metres to 100 metres; two intermediate depth exploration wells (66-8 to 765 metres, and 14-7 to 613 metres); and three intermediate depth thermal gradient wells (25-9 to 610 metres, 38-9 to 620 metres, and 28-18 to approximately 600 metres). Temperatures of fluids produced from 500 metre depths reached 102°C. Temperature gradients in the shallow holes varied from 28°C per kilometre to 522°C per kilometre. AMAX estimated the areal coverage within the 200°C isotherm to be more than 12,140 hectares (30,000 acres).

Magma is evaluating all data and available databases. The likely resource delineation program will include acquisition of 3D reflection seismic data over the McCoy Property in order to define the fault and fracture system followed by in-fill gravity, magnetics, and electrical field surveys. This data will be modeled using 3D analysis and visualization techniques to select locations for drilling two to four intermediate depth (1,000 to 2,000 metres) slim holes from which flow tests will be conducted. Because of the large number of shallow temperature gradient holes already available in the area, it is unlikely new shallow holes will be drilled.



## PANTHER CANYON - NEVADA

- 4,515 hectares [11,157 acres], NW Nevada
- extensive geothermal exploration in 1978 - 82
  - geology, geochemistry, geophysics
  - 85 temperature gradient holes
- Heat flow calculation potential -  $P_{90} = 34$  MW (Inferred Resource)
- Magma 24 month plan: resistivity, seismic and drilling program



## PANTHER CANYON

The Panther Canyon Property is located in Nevada approximately 50 km south of the community of Winnemucca, Nevada, in the Grass Valley, Pershing County. It consists of 4,515 hectares (11,157 acres) of federal public lands that were acquired by Magma at a U.S. Bureau of Land Management ("BLM") lease auction in August 2008.

There is a low voltage power line that lies approximately 6 km west of the Panther Canyon Property and a 345 kV line that runs east to west located approximately 8 km NNW of the property.

Exploration was conducted at Panther Canyon in the 1970's and 1980's by the U.S. Geological Survey in cooperation with the Lawrence Berkeley National Laboratory as part of its ongoing assessment of geothermal sites in the western United States. Aminoil USA, Inc. ("Aminoil"), and Sun Oil Company continued temperature gradient hole drilling and also performed geophysical, geochemical, and geological surveys in the area. Aminoil established a geothermal development unit in 1978 consisting of 12,250 hectares (30,270 acres) that they let expire during the weak energy market period in the middle 1980's.

Out of a total of more than eighty shallow and intermediate depth temperature gradient and heat flow holes drilled in the southern Grass Valley, 58 were drilled in the vicinity of Panther Canyon. These holes ranged in depth from 25 metres to as deep as 457 metres, and gauged bottom hole temperatures from 17.2°C to 94.1°C. Likewise, temperature gradients ranged from a low of 31.2°C per kilometre to a high of 290°C per kilometre. Although no geochemical data on fluids is available for the Panther Canyon Property, data from nearby Leach Hot Springs provides some insight into possible maximum reservoir temperatures that could be anticipated. The maximum reservoir temperature beneath Leach Hot Springs itself has been estimated to be between 139°C and 182°C using silica and Na-K-Ca geothermometer calculations, respectively. Aminoil determined that using mixing model equations, the subsurface temperature may exceed 200°C, and if one considers a 75% cold groundwater dilution factor for silica, that anticipated temperature could reach 250°C.

Geophysical data acquired by various parties included gravity, ground magnetics, magnetotelluric, standard resistivity, bipole-dipole, dipole-dipole resistivity, P-wave delay, microearthquake behavior, seismic ground noise, and active seismic refraction and reflection.

Magma is evaluating all existing data and available databases and have completed in-fill gravity and magnetics field surveys. The likely resource delineation program will include acquisition of 3D reflection seismic data over the prospect in order to define the fault and fracture system followed by in-fill electrical field surveys. This data will be modeled using 3D analysis and visualization techniques to select locations for drilling two to four intermediate depth (1,000 to 2,000 metre) slim holes from which flow tests will be conducted.



## DESERT QUEEN - NEVADA

- 5,448 hectares [13,464 acres], NW Nevada
- 6 km from 12.5 MW Desert Peak plant
- extensive geothermal exploration 70's to 80's including 13 holes
- Heat flow calculation potential  $P_{90} = 36.4$  MW (Inferred Resource)
- Magma 24 month plan: geophysics, deep drilling program
- Temperature Gradient program started March 2010



## DESERT QUEEN

The Desert Queen Property is located adjacent to the Hot Springs Mountains in west-central Churchill County, Nevada. The site is approximately 38 km north of the town of Fallon and is contiguous with, or near to, the Desert Peak and Brady-Hazen Hot Springs geothermal facilities and our Soda Lake Operation, three of the nine producing geothermal fields in the state of Nevada. The total land currently under lease at the Desert Queen Property, including both the U.S. Bureau of Land Management ("BLM") and private leases, is 5,448 hectares (13,464 acres).

The property is approximately 8 km from the two major 345 kilovolt ("kV") lines, located on the northwest side of Interstate 80, that originate at the Valmy power plant. The substation at the Desert Peak geothermal facility, approximately 9.5 km to the southwest of the Desert Queen Property, connects to a 115 kV line that parallels Interstate 80 into the Reno area.

Geothermal exploration in the Brady's Hot Springs and Desert Peak area was conducted by the U.S. Geological Survey ("USGS"), the U.S. Bureau of Reclamation, and a number of private entities over a period of more than 20 years mainly because it was the site of the hottest surface temperature gauged in the state of Nevada. Beginning in 1973, Phillips Petroleum Company conducted a three-year exploration program that focused primarily on the Desert Peak area, but extended into the Desert Queen site. Of the 53 temperature gradient holes that Phillips drilled, twelve were in the Desert Queen area. These holes were drilled to an average depth of 91.4 metres (300 feet). In addition, they drilled eight stratigraphic holes, one of which, was in the Desert Queen area. It was drilled to a total depth of 425 metres (1,395 feet) where a temperature of 101°C (214°F) was gauged.

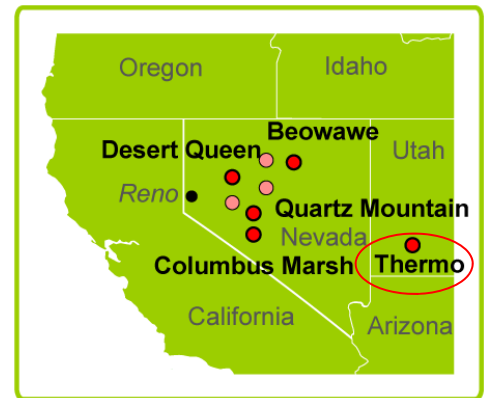
In 2007, the Great Basin Center on Geothermal Energy at the University of Nevada, Reno conducted a shallow (two metre) temperature probe survey over the area of the Desert Queen Property. Results of that survey defined a north-northeast-trending shallow temperature anomaly approximately six km long and two km in width, defined by the 25°C isotherm. The maximum temperature reached 43°C against a background temperature of 23°C.

Magma is evaluating all data and available databases located at the University of Nevada, Reno and the Nevada Division of Minerals. The likely resource delineation program will include acquisition of 3D reflection seismic data over the prospect in order to define the fault and fracture system as well as in-fill electrical field surveys. This data will be modeled using 3D analysis and visualization techniques to select locations for drilling two intermediate depth (1,000 to 2,000 metre) slim holes from which flow tests will be conducted.



## THERMO - UTAH

- 713 hectares [1,761 acres] - SW Utah
- extensive geothermal exploration in 1980's including 2,221 m well
- adjacent to new 10 – 20 MW Raser geothermal plant under construction
- Heat flow calculation potential -  $P_{90} = 20.4$  MW (Inferred Resource)



## THERMO HOT SPRINGS

The Thermo Hot Springs Property is located in Utah approximately 50 km south-southwest of the Roosevelt Hot Springs in Beaver County, Utah. It consists of a single 713 hectare (1,761 acre) U.S. Bureau of Land Management ("BLM") lease parcel.

An existing transmission line runs in close proximity to the southern boundary of the leasehold position, which is currently being partially used by Raser Technologies, Inc. ("RTI") to send power to the city of Anaheim, California.

The Thermo Hot Springs Property lies on the eastern edge of the Basin and Range geomorphic province of the western United States. The two Thermo hot spring deposits are oriented north-northeast. Each deposit is approximately 1 km long, 50 to 200 metres wide and 4 to 8 metres high. The mounds are made up of mostly windblown sand, travertine debris and siliceous sinter. Regional gravity data suggest that a subsurface fault with several hundred feet of displacement (down to the west) passes through the hot springs area.

Geothermometry estimates prepared by several different authors suggest reservoir equilibrium temperatures between 140 and 200°C. Republic Geothermal, Inc. drilled a 2,221 metre deep exploration hole, designated Escalante 57-29, approximately 1.6 km west-southwest of the hot springs mounds. The hole passed through 350 metres of alluvium, 610 metres of Miocene volcanic rocks, 540 metres of sedimentary and metamorphic rocks and bottomed in granite.

There are records of at least 21 temperature gradient holes drilled in the immediate area of the Thermo Hot Springs. The known thermal anomaly lies within the area of the Thermo Hot Springs Property. Temperature gradients from wells in the immediate area range from 11 to 178°C per kilometre with an average temperature of 42°C per kilometre.

Magma is evaluating all data and available databases located at the Great Basin Center for Geothermal Energy, the Utah Geological Survey, the University of Utah, Southern Methodist University, and various private and academic sources. The likely resource delineation program will include acquisition of 3D reflection seismic data over the property in order to define the fault and fracture system, followed by in-fill electrical field surveys. These data will be modeled using 3D analysis and visualization techniques. We will also select locations for drilling intermediate depth (1,000 to 2,000 metres) slim holes for the purposes of conducting flow tests. If warranted by positive results from the proposed exploration program, future exploration programs may involve drilling one or more such slim holes as well as shallow temperature gradient holes.



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