

NEAL HOT SPRINGS GEOTHERMAL

Project Overview:

As Oregon's first commercial geothermal power facility, the Neal Hot Springs geothermal power plant is a state of the art, zero emission project that uses heat from the earth to generate electricity. With an annual average net production of 22 MW the project, located in Malheur County, Oregon, produces about 191,000 megawatt-hours annually, enough to supply the energy needs of about 24,000 homes.

Developed and constructed by U.S. Geothermal, in partnership with Enbridge, Neal Hot Springs began commercial operations in November 2012 and is contracted to deliver electricity to the Idaho Power grid for both Idaho and Oregon communities for the next 25-years.



Neal Hot Springs at a glance:

Location:

Malheur County, OR in the community of Vale (approx. 90 miles northwest of Boise, ID)

Net Production:

Annual Average of 22 MW of zero emission power (35 MW gross)

Annual Yield:

191,000 MWh (corresponding to the annual consumption of about 24,000 homes)

Energy Purchaser:

Idaho Power (25-year Power Purchase Agreement)

Interconnection:

Idaho Power Company

Carbon Dioxide Offset:

Eliminates about 375,000 tons of CO₂ emissions per year – when compared to the emissions generated by a similar-sized coal-fired generation facility.

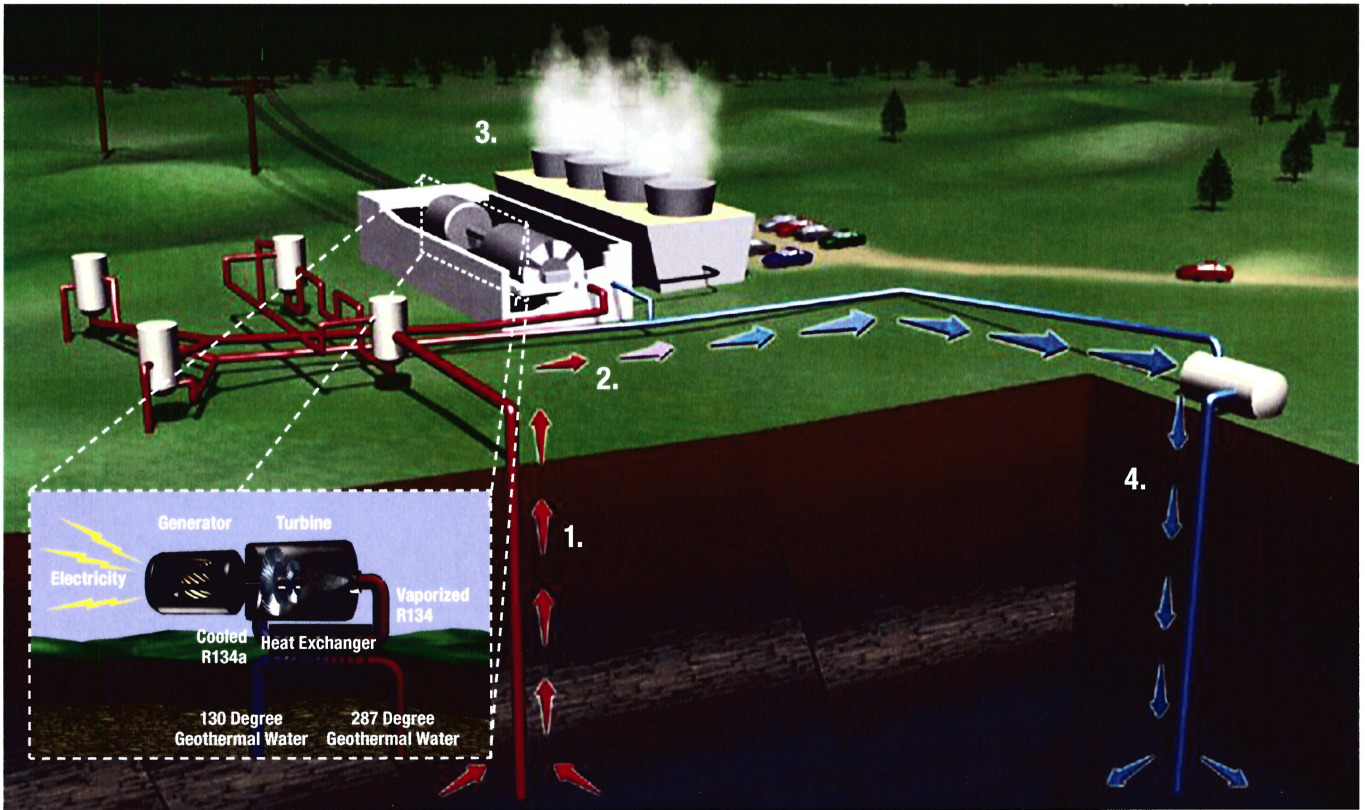
Jobs created:

150 on-site jobs at peak construction and 12 full-time employees.

Developers:

Neal Hot Springs is a joint project between Enbridge Inc. and U.S. Geothermal Inc. The project was constructed and is operated by U.S. Geothermal, a renewable energy company that develops, owns and operates geothermal plants, providing communities with clean, green energy from renewable sources.

Enbridge Inc., a Canadian company, is a North American leader in delivering energy and is recognized as one of the Global 100 Most Sustainable Corporations in the World.



Geothermal: How It Works

Geothermal energy is a zero emission energy source obtained from the heat of the earth's core. The high temperatures in the earth's core are a result of heat trapped during the formation of our planet.

1. GETTING THE WATER

Production wells are used to pump or remove hot (287 degree) geothermal water from the ground and move that water through a geothermal power plant.

2. TURNING THE TURBINES

The geothermal power plant is where the heat exchange and power generation takes place. The turbines contain a refrigerant identical to a car's air conditioner refrigerant, R134a. As the geothermal heat is transferred to the R134a, the R134a is converted from liquid to vapor, expanding, increasing in pressure and turning the turbines that drive the electrical generator. The geothermal water and the R134a are kept separate in the heat exchangers.

3. CONVERTING VAPOR TO LIQUID

The cooling system converts the R134a from vapor to liquid so that it can be reused resulting in a closed loop, zero emission power plant.

4. RETURNING THE WATER

At the injection well, used 130 degree geothermal water is injected back into the ground.



For more information please call (208) 424-1027.

