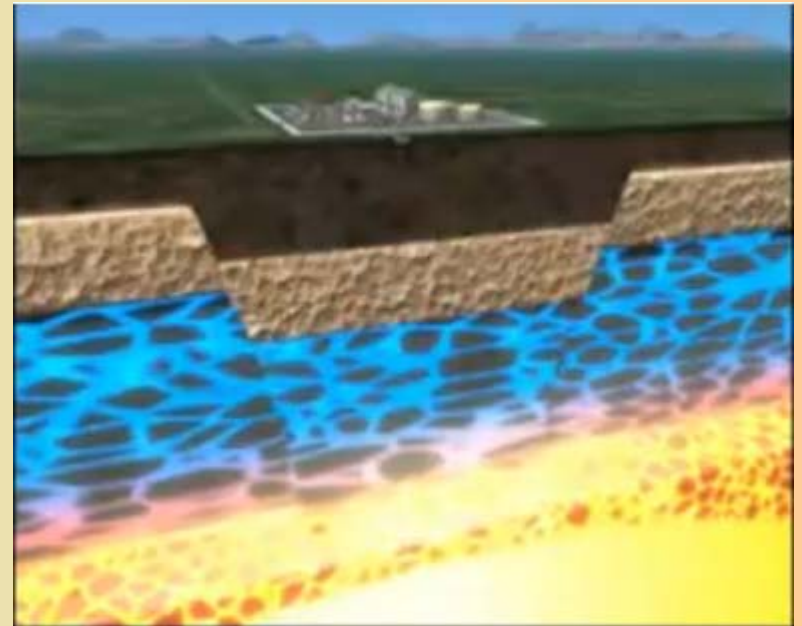


How a Geothermal Plant Works

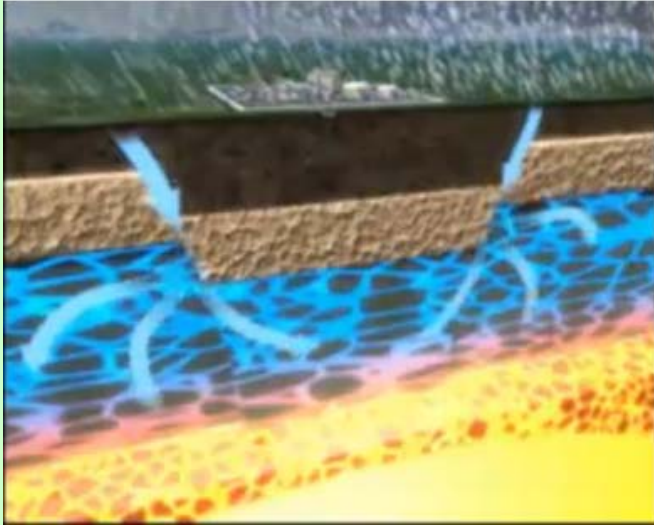


Unlike other power plants that rely on coal or other fossil fuels to create electricity for homes and businesses, geothermal power plants use superheated fluids from the earth's geothermal resources to generate electricity.

The natural heat of the earth creates geothermal resources. This heat comes from molten rock, called magma, located at the earth's core deep below the geothermal resource.

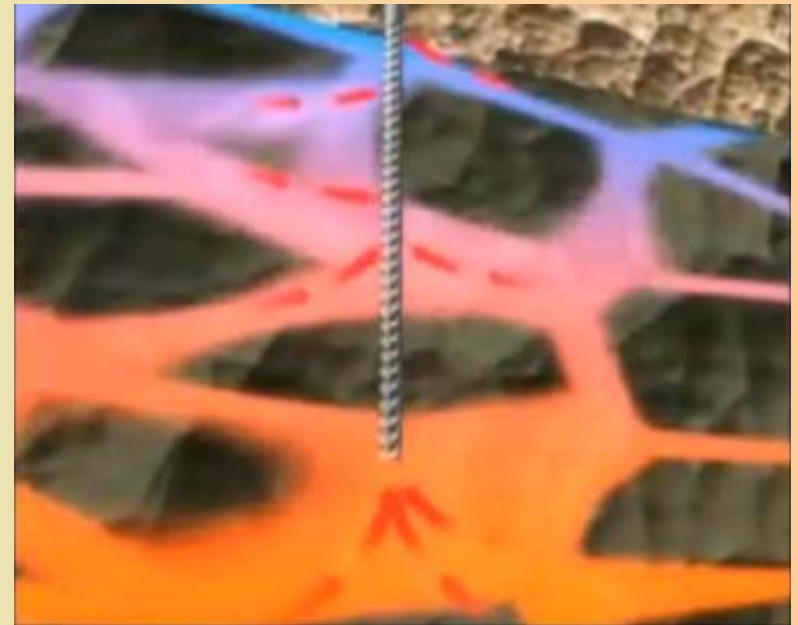


How a Geothermal Plant Works



Over thousands of years, rainwater seeps through cracks in the earth's surface and collects in underground reservoirs. The magma heats the water until it becomes a superheated fluid.

To reach the superheated fluid, wells are drilled 5000 to 10000 feet below the surface of the earth. These wells, called production wells, bring the superheated fluid to the earth's surface where it can be used to generate electricity for homes and businesses.

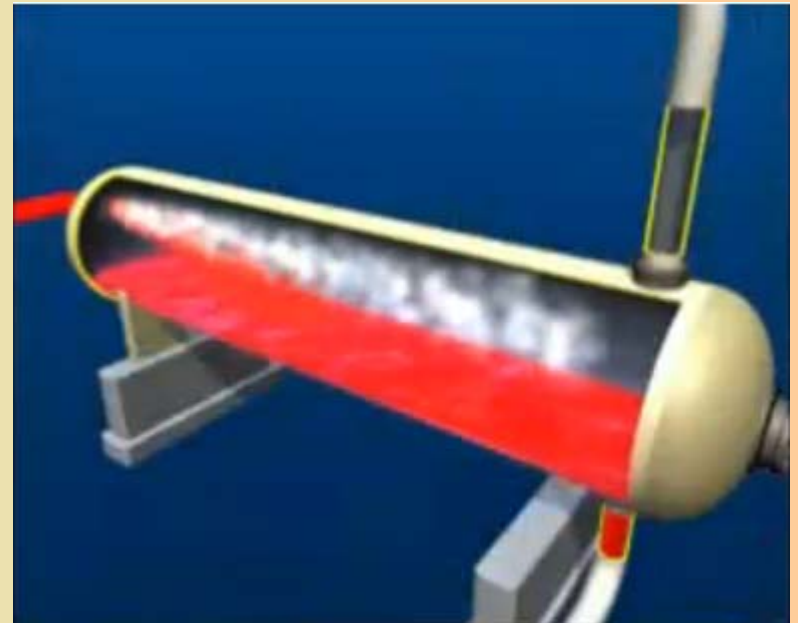


How a Geothermal Plant Works

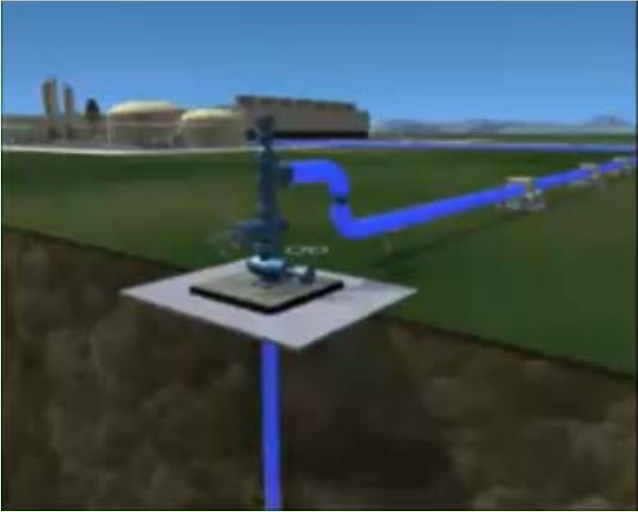


Under its own pressure, superheated fluid from the geothermal resource flows naturally to the surface through production wells. As liquid flows toward the surface, the pressure decreases, causing a small portion of the fluid still within the well to separate or “flash” into steam.

At the surface, the superheated fluid and steam mixture flows through surface pipelines and into a wellhead separator. Inside the separator, the pressure of the superheated fluid is reduced. This causes a large amount of the superheated fluid to rapidly vaporize and flash into high-pressure steam.

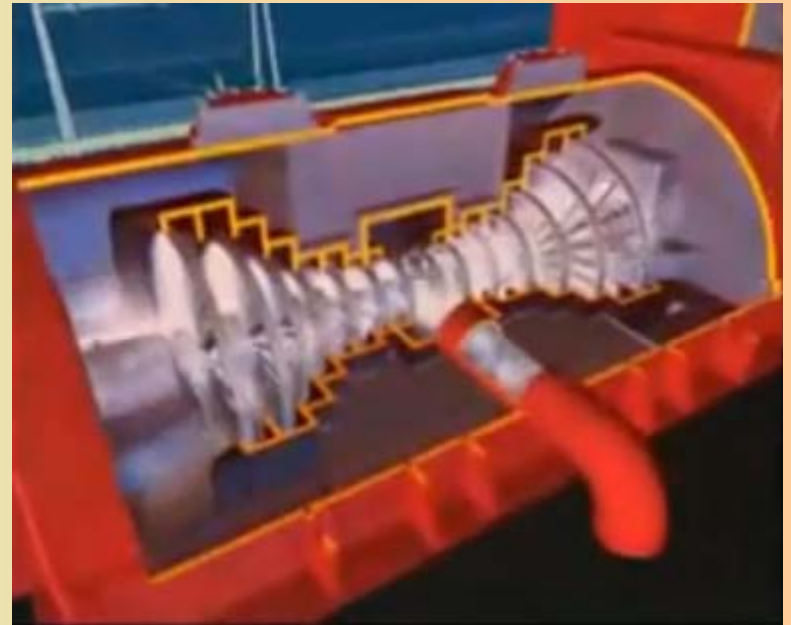


How a Geothermal Plant Works

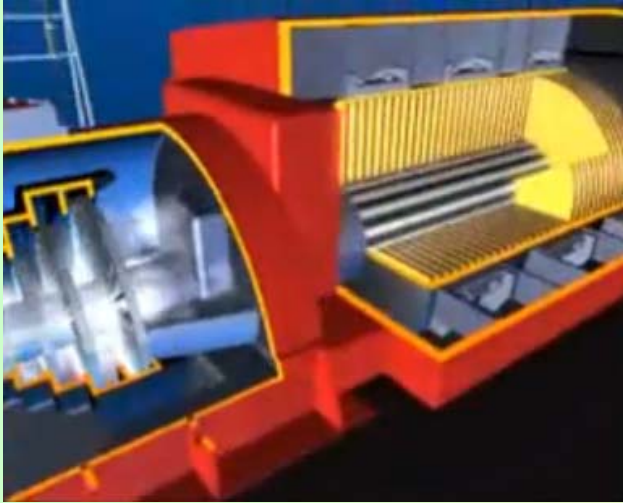


All the steam is delivered to a turbine. The fluid that is not flashed into steam flows into the reactor clarifier system and is then returned to the geothermal reservoir through injection wells.

Turbines are the primary piece of equipment used to transform geothermal energy into mechanical energy. Pressurized steam created from the geothermal superheated fluid flows through pipelines to large steam turbines. The force and energy in the steam is used to spin the turbine blades.

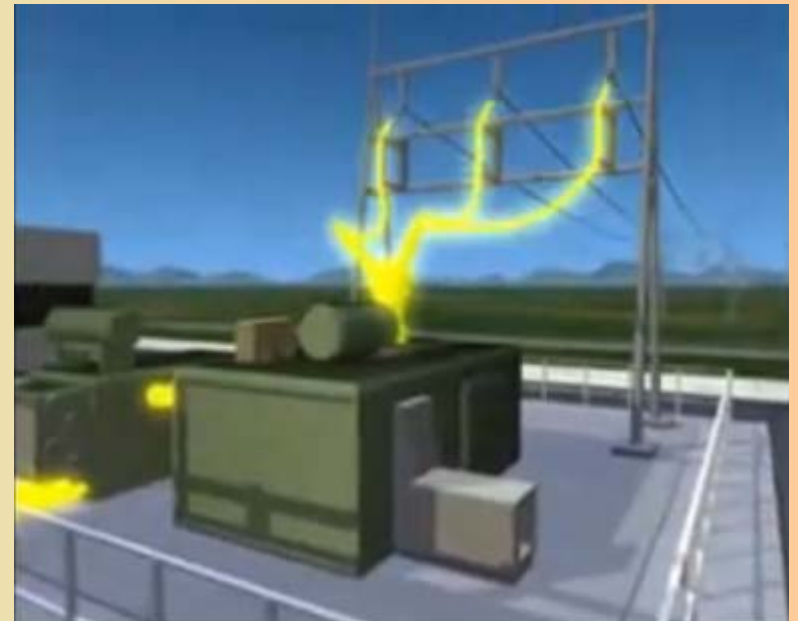


How a Geothermal Plant Works

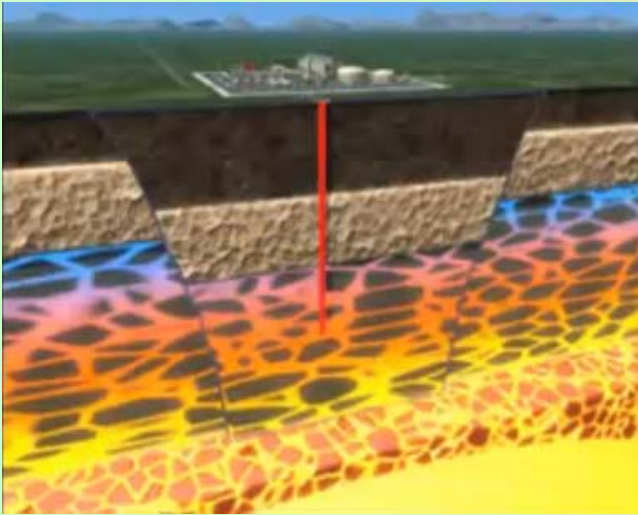


The turbines turn a shaft directly connected to an electrical generator. An electrical charge is created when magnets rotate within the generator. Large copper bars carry the electrical charge to a step-up transformer outside the plant.

Within the transformer, the voltage is increased before the power is sent to the power lines that carry it to home and businesses.

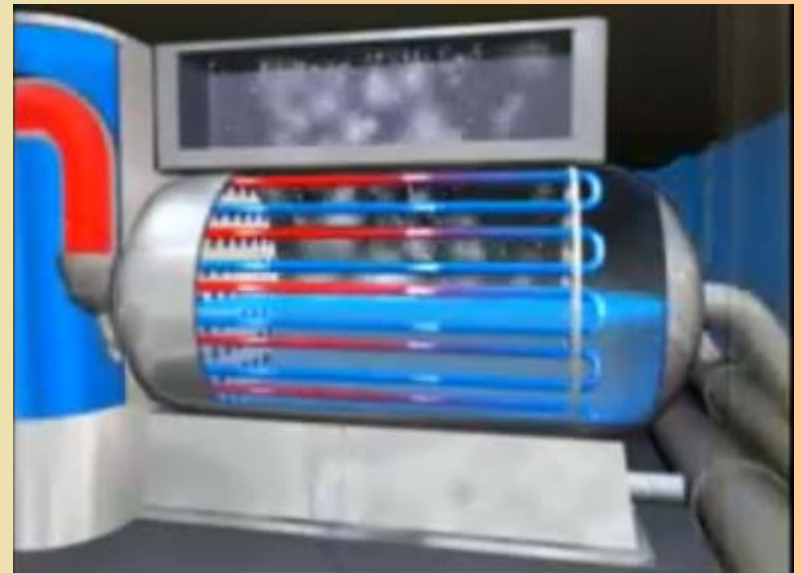


How a Geothermal Plant Works

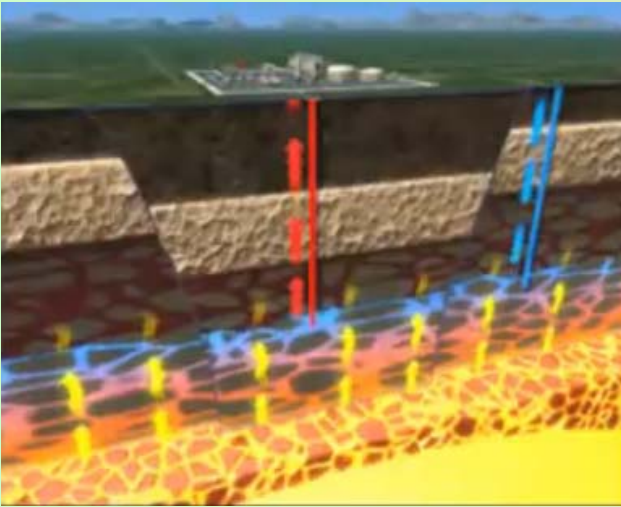


Geothermal energy is a sustainable resource because, with proper management, a geothermal resource can remain a renewable source of energy. Water trapped deep within the earth will naturally replace the superheated fluid that is drawn from the geothermal resource through surface wells.

However, it is possible to deplete the geothermal resource by removing the fluid faster that it can be naturally replaced. To help prevent this, the steam used in the geothermal power plant passes through a condenser that turns it back into fluid.



How a Geothermal Plant Works



This condensed fluid, along with the fluid that did not flash to steam, is injected back into the underground reservoir. Magma naturally reheats the fluid so it can be used again.