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Sources of geothermal power are

What are the sources of geothermal energy. Geothermal heat and nuclear power are sources of energy. Sources of geothermal power are brainly. Why are geothermal power plants clean sources of electricity. Sources of geothermal power are answers.com. What are the different sources of geothermal energy. How is geothermal power produced.

1. What is Geothermal Energy? Geothermal energy comes from heat inside the earth. The word “geothermic” comes from the Greek words geo, meaning “earth”, and thermal, meaning “heat.” People around the world use geothermal energy to produce electricity, to heat buildings and greenhouses, and for other purposes. Earth’s core lies almost 4000 miles below the earth’s surface, the double-layer core consists of very hot molten iron surrounds a solid iron center. Temperature estimates of the main range from 5,000 to 11,000 degrees Fahrenheit (F). Heat is continuously produced inside the earth by the slow decay of radioactive particles which is natural in all rocks. In the core of the earth is the mantle, thought to be partly rock and partly magma, the mantle is about 1,800 miles thick. the outermost layer of the earth, insulating crust, is not a continuous sheet of rock, like the shell of an egg, but is divided into parts called plates. These plates of continents and ocean floor move away from each other and pushed against each other at the rate of about an inch each year in a process called drift of continents. Magma (melted rock) can come quite close to the surface where the crust is thinned, broken or fractured by plate tectonics. When this heat near the surface is transferred to the water, a form of usable geothermal energy is created. Geothermal energy is called a renewable energy source because the water is fed by rain, and the heat is continuously produced from the earth. 2. History of Geothermal Energy Many ancient peoples, including the Romans, Chinese and Native Americans, used hot mineral springs for bathing, cooking and heating. Water from hot water sources is now used worldwide in spas, for heating buildings, and for agricultural and industrial uses. Many people believe hot mineral springs have natural healing powers. Using geothermal energy for electricity generation is a relatively new industry. It was started by a group of Italians who built an electric generator in Larderello in 1904. Their generator was powered by the natural steam eruption from the earth. The first attempt to develop geothermal energy in the United States came in 1922 at the geyser steam field in northern California. The project failed because the pipes and turbines of the day could not withstand the abrasion and corrosion of the particles and the impurities that were in the steam. Later, a small but effective hydrothermal plant opened to geysers in 1960. Today 28 plants are operating there. Electricity is now produced by geothermal power in 21 countries, including the United States. 3. Where is Geothermal Found? What does it mean to look at geothermal energy as? Some visible features Geothermal are volcanoes, hot springs, geysers and fumaroles. But you can’t see most geothermal energy. Usually geothermal energy is in depth. There can be clues out of the ground to what it exists underground. Geologists use many methods to find find resources. They can study aerial photographs and geological maps. They can analyse the chemistry of local water sources and the concentration of metals in the soil. They can measure changes in gravity and magnetic fields. However, the only way to be sure of the existence of a geothermal resource is to drill wells to measure underground temperatures. The Earth is a hotbed of geothermal energy. The most active geothermal resources are usually found along the boundaries of the main plates, where earthquakes and volcanoes are concentrated. Most of the geothermal activity in the world occurs in an area known as the “Ring of Fire”. The Ring of Fire runs along the Pacific Ocean and borders Japan, the Philippines, the Aleutian Islands, North America, Central America and the Pacific Ocean. South America. 4. Today’s Geothermal Energy There are four main types of geothermal resources: hydrothermal, geo-pressed, hot dry rock and magma. Today hydrothermal resources are the only ones to be widely used. The other three resources are still at an embryonic stage of development. Hydrothermal resources have the common ingredients of water (hydro) and heat (thermal). These geothermal reservoirs of steam or hot water occur naturally where the magma gets close enough to the surface to heat groundwater trapped in fractured or porous rocks, or where the water circulates deep along the faults. Hydrothermal resources are used for different energy purposes depending on their temperature and depth. Low Temperatures: “Direct Use” or Heating When the temperature of a hydrothermal resource is around 50F and above, it can be used directly in thermal baths or to heat buildings, grow crops, heat fish ponds or for other uses. Hydrothermal resources suitable for heating are found throughout the United States and in almost every country of the world. Most people in Iceland and more than 500,000 people in France use geothermal heat for their public buildings, schools and homes. In the United States, geothermal heat pumps are used in 45 states to heat and cool homes and buildings. Idaho, Oregon, Nevada and a few other states use geothermal energy to heat entire districts. Heat from geothermal resources is also used to dry ceramics, wood, vegetables and other products. High Temperature: Electricity Production When the temperature of a hydrothermal resource is around 220F and above, it can be used to generate electricity. Most geothermal resources producing electricity have temperatures ranging from 300 to 700 F, but geothermal reservoirs can reach almost 1,000 F. Two main types of hydrothermal resources are used for electricity generation: dry steam tanks (predominantly and hot water tanks (predominantly liquid). Dry steam tanks are rare but highly efficient in generating electricity. The Geysers in California is the largest and most known dry steam tank. Here, steam is obtained by drilling wells from 7,000 to 10,000 meters deep. In a dry steam tank, natural steam is conveyed directly from a geothermal well to a A turbine generator. Exhausted steam (condensed water) can be used in the plant cooling system and re-filled into the tank to maintain water and pressure levels. Hot water geothermal tanks are the most common type. In a preeminance tank of liquids, the hot water does not vaporize in steam because the tank is saturated with water and is under pressure. To generate electricity, the hot water is conveyed by geothermal wells to one or more separators, where the pressure is lowered and the water flashes in steam. The steam then operates a turbine generator to produce electricity. The steam is cooled and condensed and used in the cooling system of the plant or re-rolled into the geothermal tank. A binary cycle power plant is used when the water of a hot water tank is not hot enough to flash steam. Instead, low temperature hot water is used to heat a liquid that expands once heated. The turbine is powered by the expanded and pressurized liquid. Subsequently, the fluid is cooled and recycled to be heated more and more times. 5. Production and economy of geothermal energy The geothermal energy is used in many parts of the world. The most popular geothermal energy sources in the United States are found in Western states and Hawaii. Some moderately hot geothermal resources also exist in Dakota along the Atlantic coast, in Arkansas and Texas. One day we could also be able to use this resource. Most geothermal energy is produced in four states: California, Nevada, Utah and Hawaii. Today the total installed capacity of geothermal power plants in the United States is 3,200 megawatts (MW) equal to the energy equivalent of three nuclear power plants. The size of American geothermal power plants vary from a few hundred kilowatts to over 130 megawatts. In 1994, geothermal energy produced 18 billion kilowatt hours (kWh) of electricity, or 0.3% of the electricity used in this country. However, this was sufficient to satisfy the electricity requirement of over three million families. California derives 6% of its electricity from geothermal, more than any other state. Geothermal supporters claim that the production of geothermal energy will grow over the years, despite the production of geothermal energy has reached the peak in 1987 and has since decreased. Geothermal supporters claim that at least 400 MW more than capacity are scheduled for the next five years and value that geothermal energy could provide 10% of the western power of the western United States by the end of the century. Geothermal energy economy Geothermal power plants can produce cheap electricity as some conventional electric. The production of electricity from hydrothermal plants costs 4.5-7 cents per kWh. In comparison, the new coal-fired power plants produce electricity at about four cents per kWh. The initial construction costs of geothermal power stations are high because geothermal wells and power stations must be built simultaneously. at the same time.The production costs of electricity over time are lower thanks to the stability and predicting the price and fuel availability. The fuel must not be imported or transported to the power plant. The power plant is literally located above its fuel source. Even geothermal power plants are excellent energy sources for the basic load. The energy of the basic load is the energy that electric companies must provide all day. Basic geothermal power plants sell electricity continuously, not only in peak periods, when the demand for electricity is high. Until recently, the supply companies were required to purchase the less expensive electricity, without taking into account the environmental impact. Federal and state agencies for energy and environment are studying ways to prefer preference to non-polluting energy sources such as geothermal energy. 6. Geothermal energy and environment Geothermal energy is a renewable energy source that causes a few damage to the environment. The geothermal steam and hot water contain natural traces of hydrogen sulfide (a gas that smells of rotten eggs) and other gases and chemicals that can be harmful to high concentrations. Geothermal power plants use «scrubberâ» systems to purify the air from sulphide acid and other gases. Sometimes gases are transformed into marketable products, such as liquid fertilizers. The new geothermal power plants can even re-finish these gases in geothermal wells. The geothermal power plants do not burn fuels to produce electricity, such as fossil fuel power plants. Geothermal power plants issue less than 1-4% of the quantity of carbon dioxide (CO2) emitted by carbon control panels. The emissions of sulfur compounds produced by motor vehicles and fossil fuel systems also contribute to an extent significant to the acid rains. The geothermal power plants, on the other hand, emit only about 1-3% of the sulfur compounds of coal and oil plants. The well-designed binary cycle electrical power plants do not produce emissions. Geothermal power plants are compatible with many environments. They were built in the deserts, in the midst of the crops and in the mountain woods. Geothermal development is often allowed in federal territories because it does not significantly damages the environment. Before granting the authorization, however, studies must be carried out to determine the effect that a plant can have on the environment. The geothermal characteristics of national parks, such as geysers and fumaroles in the national parks of Yellowstone and Lassen, are protected by law, so geothermal energy is not exploited in these areas.

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