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A REVIEW

Geo thermal energy - Clean, safe and renewable - A review study

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Abstract : The rising demand of energy and exhausting sources of fossil fuels has compelled people all over the world towards a renewable, clean energy source *i.e.* geothermal energy. Geothermal resources are reservoirs of hot water that exist or are human made at varying temperatures and depths below the Earth's surface. In side the great depths of the Earth, the temperature (1,250 °C) and pressure is sufficient to melt rock into magma which is termed as lava (750°C) once it comes out of the crust. This heat content is harnessed as geothermal energy and utilized for heat applications as well as generation of power. The majority of the world's geothermal resources are located in the tropical Pacific Rim (Ring of Fire). The types of geothermal resources are categorized as convective hydrothermal systems; EGSs; conductive sedimentary systems; coproduction, with water from oil and gas fields; geopressure systems; and magma energy. Mostly, geothermal fluid can be used directly or indirectly depending on the enthalpy. High-temperature geothermal resources are primarily used for energy production, whereas low to medium ones are particularly equipped for non-electric applications. The extraction of geothermal energy from the grounds leads to a release of greenhouse gases like hydrogen sulfide, carbon dioxide, methane and ammonia etc. However, the amount of gas released is significantly lower than in the case of fossil fuels. Moreover, geothermal energy has proven its capacity to be a reliable, clean, and uninterrupted sustainable renewable energy.

Key Words : Geothermal energy, Extraction methods, Enhanced systems, Direct heat applications, Power plant technologies, Hybridized systems

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