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Commentary

Geothermal Energy as Substitution Source for Electricity

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DESCRIPTION

Geothermal energy is the intensity stored within the earth that can be used directly (without any conversion) or to produce electricity *via* a geothermal energy plant. Geothermal energy is heat that exists within the earth. The term geothermal is derived from the Greek words geo (earth) and therme (heat). Because heat is constantly produced inside the earth, geothermal energy is a renewable energy source. Geothermal heat is used for bathing, heating buildings, and generating electricity.

Because geothermal energy is derived from the almost enormous quantity of heat produced by the Earth's core, even in geothermal areas that depend on a reservoir of hot water, the volume extracted can be re-injected, making it a renewable energy source. Hence, geothermal energy is a renewable energy source.

Heat is a type of energy, and geothermal energy is heat stored within the earth that can be used by humans when transferred to the surface. Geothermal energy has a wide range of applications, from direct use and no transformation to the production of electricity *via* geothermal power plants. Even though the earth contains vast amounts of thermal energy, only a small portion of it is available for human. Geothermal energy is a renewable resource that may be considered a solution to the world's current environmental and energy shortage problems.

Certain regions are particularly appealing for the source of geothermal energy; these are usually thermally effective areas in the earth's crust, near the boundaries of tectonic plates. Some areas located on the Pacific Ring of Fire, provide a significant benefit in terms of its potential for developing geothermal energy power plants, since the natural gradient of temperature of the subsoil near the earth's surface is abnormally high in this area due to volcanic activity. Such circumstances are thought to be favorable for the use of geothermal energy.

Geothermal power plant construction is becoming more common, with many projects planned in, United States, Mexico, Canada, Australia, Japan, New Zealand, China, Taiwan, France, Thailand, Costa Rica, Chile, Ecuador, Austria, El Salvador, Italy, Guatemala, Indonesia, Kenya, Ethiopia, Nicaragua, Philippines, and the Bolivia.

Geothermal energy is a renewable natural resource that owns by the particular state and manages according to the many laws enrolled by the government, which states that all natural renewable resources exist to the nation. A governmental entity is in charge of managing such resources (the Ministry of the Environment). To use and exploit geothermal resources, legal permits, concessions, and environmental licenses must be obtained.

Despite the fact that geothermal energy is a hygienic, renewable, and environmentally viable technology for producing electricity, it clearly has characteristics that necessitate planning and implementation environmental management measures at all stages of the process. This permit would implicitly protect all other permits, authorizations, and/or adjustments required for the project's use, exploitation, and/or effects on renewable resources over its useful life.

Geothermal technologies have several environmental advantages over traditional power generation methods such as

- Emissions are minimal.
- Some geothermal plants produce solid materials, or sludges, that must be disposed of in designated areas. Some of these solids are now extracted for sale (for example, zinc, silica, and sulphur), making the resource even more valuable and environmentally friendly.
- Salts and dissolved minerals in geothermal fluids are typically injected back into the reservoir with excess water at a deeper well below groundwater sources. This recycles geothermal water while also replenishing the reservoir. Because it recycles the treated wastewater, this system will extend the life of the reservoir.

The summary is that geothermal energy is a viable option for achieving this goal. Geothermal components are estimated to contribute at least 1400 GWh of electric power per year by 2025. If the full potential is realized, power generation could reach up to 17,400 GWh/year by 2025.

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