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Geothermal Power Generation from Carbon Dioxide Sequestration Uses Renewable Resources

Geothermal Power Generation: Clean Energy from Carbon Dioxide Sequestration

Technology No. z09126

Environmentally Friendly Geothermal Power Generation from Carbon Dioxide Sequestration

A geothermal power generation system has been designed that will allow a power plant to be run from geothermal heat energy and uses carbon dioxide (CO_2) gases accumulated from carbon dioxide sequestration. This method of geothermal energy production is twice as efficient as traditional geothermal power systems because it uses carbon dioxide in place of groundwater as the working fluid. Water is significantly more difficult to heat in low temperature thermal wells and the hydrofracturing required to use water as the working fluid has been linked to earthquakes. This geothermal power generation system could be used at more locations throughout the world, and without the potential of seismic shocks.

Note: This technology is licensed to TerraCOH. The company provides the technology to capture emissions from burning fossil fuels to create carbon-neutral electricity. If you have questions, please contact us.

Geothermal Power Generation is Environmentally Friendly and Uses Renewable Resources

Like most geothermal systems, this power plant is environmentally friendly, provides energy from renewable resources, and the energy provided is reliable over time. The system pumps CO_2 into the earth through a well, where the carbon dioxide is trapped in an existing geologic formation, heated, and put under high pressures. The high temperature CO_2 then rises through

another well to drive a turbine that is connected to a power generator. After passing through the turbine, the carbon dioxide is reinserted into the cycle, forming a closed-loop system.

FEATURES AND BENEFITS OF GEOTHERMAL POWER GENERATION SYSTEM WITH CO_2 SEQUESTRATION:

- Geothermal power generation is environmentally friendly, uses renewable resources, and provides reliable energy
- Carbon dioxide has a larger heat extraction efficiency and better subsurface fluid mobility compared to water
- Uses CO_2 gases accumulated from carbon dioxide sequestration and could use CO_2 produced in existing coal or gas fired power plants for additional revenue
- Avoids hydrofracturing which is a potential earthquake risk in current water-based geoexchange systems
- Geothermal power plant could be used in conjunction with CO_2-based enhanced oil recovery systems by allowing recovery of heat energy along with the recovery of oil
- Allows for geothermal power generation in lower temperature areas not suitable for water-based systems

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