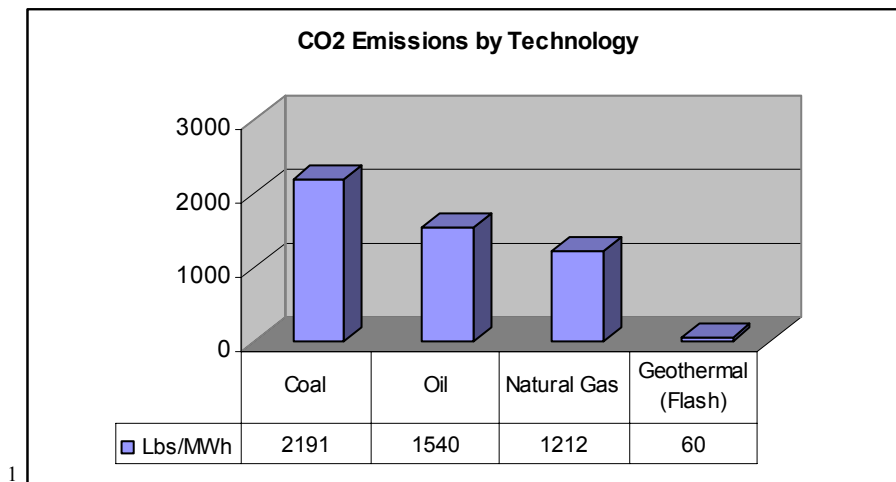




GEA Issue Brief

Geothermal Energy and Greenhouse Gas Emissions

- Electricity generated from geothermal energy is environmentally friendly, renewable, and sustainable. There are no combustion-based emissions from geothermal power plants.
- Geothermal resources emit greenhouse gases as part of natural processes which are independent of human intervention.
- Resources utilizing binary geothermal power plants report near zero emissions.
- The amount of natural emissions from high temperature steam–flash geothermal power plants varies widely, depending upon the resource. Even these emissions are low, however, compared to fossil fuel power plants. According to DOE, the average geothermal power plant reports 60 to 90 pounds of CO₂ per megawatt hour (MWh) compared to 2,000 pounds of CO₂ per MWh for coal-fired power generation.

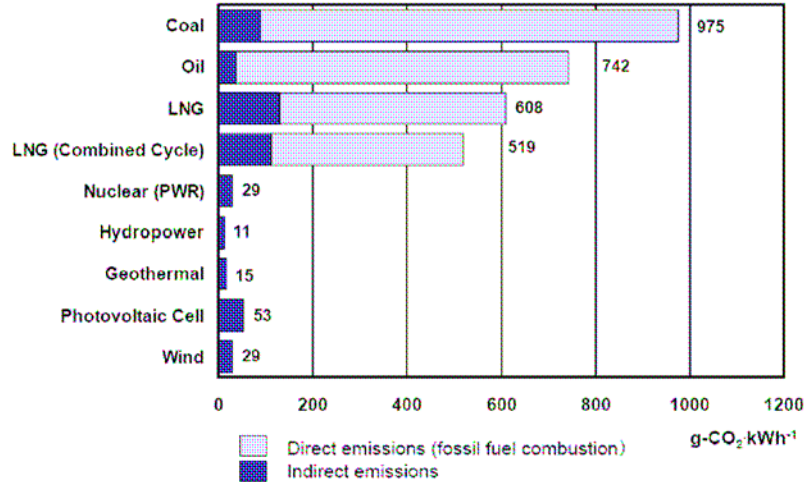


- Geothermal power plants are relatively self-sustained fuel systems contained within the boundaries of the power plant location. Geothermal emissions are

¹ Source: Average emission rates in the United States from oil-fired generation from EPA *Clean Energy Impacts* (2005); coal and gas: Platt's Research and Consulting, based on data from EPA's Continuous Monitoring System (2003); geothermal: DOE data (2000).

more appropriately compared with those of other power plants when the complete fuel cycle is considered.

Life-Cycle CO₂-Emission Factors of Electricity Generation



Data: Central Research Institute of Electric Power Industry, Tokyo, Japan, March 2000/ August 2001 2

- Low GHG emissions and the ability to provide reliable baseload power make geothermal energy part of the solution in the effort to mitigate the effects of global warming and climate change.
- The geothermal industry has a history of environmental responsibility and is committed to providing energy consumers with clean, reliable, and safe electricity.

Suggested Additional Reading (available at <http://www.geo-energy.org/>):

- Geothermal 101: Basics of Geothermal Energy Production and Use. This 53-page booklet covers the basics of geothermal energy, from the types of power plants in use to common myths with numerous charts, graphs and pictures.
- A Guide to Geothermal Energy and the Environment. This 87-page booklet covers a wide range of environmental topics as well as provides an introduction to geothermal energy as this resource is being used today.

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