



# PERFORMANCE TASK: Alternative Energy Earth Scientist

## BIG IDEA:

- Energy is neither created nor destroyed. Energy can be transformed from one form to another, but transformation between forms often results in the loss of useable energy through the production of heat.
- People acting individually and/or as groups influence the environment.

## ESSENTIAL QUESTIONS:

- How do energy transformations explain that energy is neither created nor destroyed?
- How do humans influence the environment?

## OVERVIEW:

Modern societies use a tremendous amount of energy each day. Many countries are looking for alternative forms of energy that can help make them less reliant on fossil fuels and the countries that supply these fuels. Some are also looking for forms of energy that are more environmentally friendly than fossil fuels. You can help these countries by educating government officials on the many benefits of geothermal energy and how it can be utilized. It will also be important to educate citizens on the potential impact of geothermal energy.

## **GOAL:**

The government of a Caribbean nation is looking to become less dependent on fossil fuels, and government officials have shown an interest in geothermal energy. You have been asked to provide information related to geothermal energy to these officials so they can make an informed decision regarding future energy endeavors.

## **ROLE:**

You are an earth scientist who has been sent by a geothermal company in Hawaii to present scientific information regarding geothermal energy to the national government. Your task is to present information regarding the value of geothermal energy and practical examples of communities and countries around the world that are currently using this resource.

## **AUDIENCE:**

The audience is a team of government officials, as well as community and scientific leaders from this country. They will need to be convinced that geothermal energy is a valuable and worthwhile investment. Additionally, they will want to see how you suggest they share this information with the citizens of their country.

## **SITUATION:**

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## RESOURCES:

[Hawaii State Energy Office - Securing the Renewable Future » Geothermal](http://energy.hawaii.gov/renewable-energy/geothermal)

<http://energy.hawaii.gov/renewable-energy/geothermal>

[Puna Geothermal Venture \(PGV\) Hawaii](#)

See attached PDF “1981 EIS Preparation Notice”

[Energy.gov - Geothermal Energy](http://energy.gov/eere/geothermal/geothermal-energy-us-department-energy)

<http://energy.gov/eere/geothermal/geothermal-energy-us-department-energy>

[Energy.gov - Geothermal Basics](http://energy.gov/eere/geothermal/geothermal-basics)

<http://energy.gov/eere/geothermal/geothermal-basics>

[Clean Energy Hawaii App](#)

\*contact [Denissa@MEDB.com](mailto:Denissa@MEDB.com) for free download

<https://itunes.apple.com/us/app/clean-energy-hawaii-stem/id399143221?mt=8>

## PRODUCTS:

### Brochure

- Create an informational brochure to be distributed to the people of the country in order to educate them about this new energy source. This should be simple to read and should highlight the personal benefits, environmental benefits, and potential economic benefits. This brochure can be done by hand, with the use of software, or through a web-based tool. In your brochure, be sure to compare geothermal energy to the traditional source of energy used to illustrate the many benefits and also point out any drawbacks. Be sure to include definitions of scientific vocabulary used, as many people will be unfamiliar with these terms. Also, include a chart or graph demonstrating in percentages, the financial gains or losses in the economy of other countries that have switched to geothermal energy sources.

### Oral Presentation

- Develop a 2-3 minutes oral presentation using visual aids and multimedia resources as desired. The purpose of the presentation is to educate and convince the government that geothermal energy is an environmentally friendly and beneficial energy source for the people of this island.

### **Scientific Diagram**

- - Construct a diagram that shows the process of geothermal energy being distributed from the Earth to an individual's home as heat and/or electricity. This drawing should have appropriate labels and include the various parts needed to create this energy system. Create this product so that it is easy to understand and so that it could support an oral presentation on this topic.

### **Webpage (Elementary)**

- Create a website that the people and government officials can refer to to learn more about geothermal energy and how it would benefit the island. The website should also highlight ways in which other countries are currently using geothermal energy. (Potentially the other products created in this task could be utilized to provide information and visual resources for the website.)