**What Are The Advantages Of Alternative Energy Resources?**

**I. Introduction**

 Energy is the ability to do work. If an object can exert a force or move something, it has energy. The energy for everyday activities, such as driving a car, turning on a light, or controlling the temperature of a classroom, comes from resources. The three categories of energy resources are nonrenewable, inexhaustible, and renewable.

 Most energy resources used to generate electricity are nonrenewable. Nonrenewable energy sources are used faster than they can be replaced by natural Earth’s processes. Fossil fuels such as coal, oil, and natural gas are examples of nonrenewable resources. Nonrenewable energy sources are common because the technology to use them is well-developed and they are less expensive than other energy sources. Theses energy sources are, however, limited in supply and can be very polluting. For these reasons, alternative energy sources are constantly being explored.

 Alternative energy sources are sometimes classified as inexhaustible or renewable. Inexhaustible energy resources are sources of energy that are constant and will not run out in the future. Renewable energy sources are resources that can be replaced by nature or by humans within a relatively short period of time, the life span of humans. Examples of alternative energy sources include wind, solar, hydroelectric, geothermal, and biomass energy. In comparison to nonrenewable energy sources, alternative energy sources are less polluting but generally more costly. Cost is a very important factor that must be considered when determining what type of energy to use in an area.

 The cost of implementing alternative energy sources is related to the environmental factors of the location in question. In this investigation, you will examine alternative energy sources and the setting in which they are most advantageous.

**II. Procedure**

 1. Start the activity by going to the following website :

 <http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT13/CT13.html>.

 2. Click “Energy Sources”.

 3. Click an alternative energy source to test it. Open the “Reference Tool” to read more

 information about the energy source.

 4. Select an option under Daily Precipitation, Winds, and Topography to build the city.

 5. Click “Generate” to test the energy source with the settings you chose.

 6. Record your findings in the Table.

 7. To build a new city, click “Reset” and repeat steps 1 - 4 for seven more scenarios.

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|  **Energy Source** |  **Options Selected** |  **Energy Produced** |  **Expense** |
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**III. Analysis & Conclusions**

 1. What are the differences between nonrenewable, renewable, and inexhaustible energy

 resources? Give an example of each type of energy.

 **Nonrenewable** : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 *Example* : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Renewable** : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 *Example* : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Inexhaustible** : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 *Example* : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 2. Energy resources other than non-renewable energy sources are generally referred to as

 alternative energy sources. Why is it important to develop alternative energy sources?

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 3. Based on the results of the activity, what type of settings are most suitable for each of

 the following five energy sources. Explain your answer.

 **Hydroelectric** : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 **Wind** : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 **Solar** : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 **Geothermal** : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 **Biomass** : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 4. Given an isolated desert city with little wind and long dry days, throughout the year,

 what alternative energy source would you recommend? Explain your answer.

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 5. Currently only about 10% of energy in the United States comes from the alternative

energy sources. The remaining energy comes from non-renewable energy sources like

coal, oil, and natural gas. Why do you think this might be?

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