

**Objective** sight words (alternative energy sources, renewable, toxins, propel, wind turbines, switched, generators, consistent, efficiently, by-products);  
 concepts (alternative sources: what, where, why, when, and how)



<b>Vocabulary</b>	
<b>alternative energy sources</b>	<b>switched</b>
<b>renewable</b>	<b>generators</b>
<b>toxins</b>	<b>consistent</b>
<b>propel</b>	<b>efficiently</b>
<b>wind turbines</b>	<b>by-products</b>

# Alternative Energy Sources

## Wind, Solar, Geothermal, and Hydroelectric Power

By: Sue Peterson

There are many reasons to use alternative energy sources.

One reason is to reduce pollutants and greenhouse gases.

Alternative or renewable energy sources help to reduce the amount of toxins that are a result of traditional energy use.

These alternative energy sources help protect against the

harmful by-products of energy use and help to preserve many of the natural resources that we currently use as energy sources.

There are many alternative energy sources: wind power, solar power, geothermal power, and hydroelectric power are some examples.

**Wind Power.** Wind power is the ability to capture the wind in a way to propel the blades of wind turbines. When the



blades rotate, this movement is switched into electrical current with the help of an electrical generator.

In older windmills, wind energy turned mechanical machinery to do

the physical work like crushing grain to make bread or pumping water to get water. Wind towers are built on wind farms, and usually there are several towers built together. In 2005, the worldwide use of wind-powered generators was

less than 1% of all of the electricity use combined. There are several advantages of this energy source: there is no pollution, it never runs out, farming and grazing can still take place on the same land as the wind turbines, and wind farms can be built anywhere. One disadvantage is that you need a consistent wind to get enough power. If the wind speed decreases, less electricity is produced. Large wind farms can also have a negative visual effect for people who live nearby.

**Solar Power**. Solar energy is used for heating, cooking, making electricity, and even taking salt out of saltwater so the water can be drinkable and used for additional purposes that do not need the salt. Solar power uses sunlight that hits the solar thermal panels to convert the sunlight to heat either air or water.

Other methods of using solar power

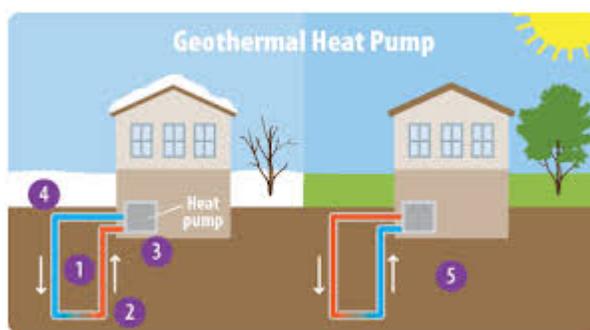
include simply opening up blinds or shades and letting the sunlight pass into the room or using some type of mirror to



heat water and produce steam. One advantage of solar power is that it is renewable. As long as there is sunlight, you will be able to harness the power from it. There is also no pollution and it can be used efficiently to heat and light things. You can see the benefits of solar energy in heating swimming pools, spas, and water tanks in many cities across the country.

**Geothermal Energy**. Geothermal means “earth heat”. This energy captures the heat energy under the Earth. Hot rocks under the ground help to heat water to produce steam. If holes are dug in this area of the ground, then the steam shoots up and is purified

and used to drive turbines, which in turn gives power to electric generators. The



advantages of this type of energy is that there are no harmful by-products, it is self-sufficient once the geothermal plant is

built, and the plants are generally small so there is no negative visual effect on the area surrounding the plant.

**Hydroelectric Energy**. The power that comes from the potential energy of water that is dammed up supplies energy

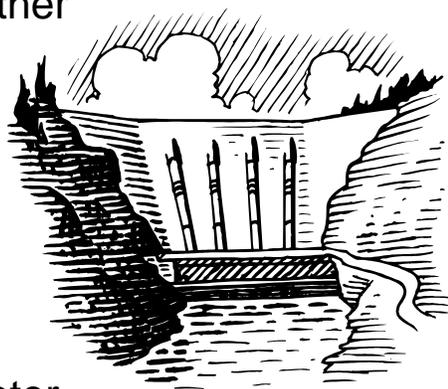
to a water turbine and generator. Another

example of this energy is to make

use of tidal power. Today, electric

generators can be powered by hydro

power that can run backwards as a motor



to pump water for later use. An advantage is that you can

control the use of the energy by controlling the water. You

can also generate water all the time as there are no outside

forces that prevent this from happening. Furthermore, there

is no pollution in using this type of energy. In fact, you can

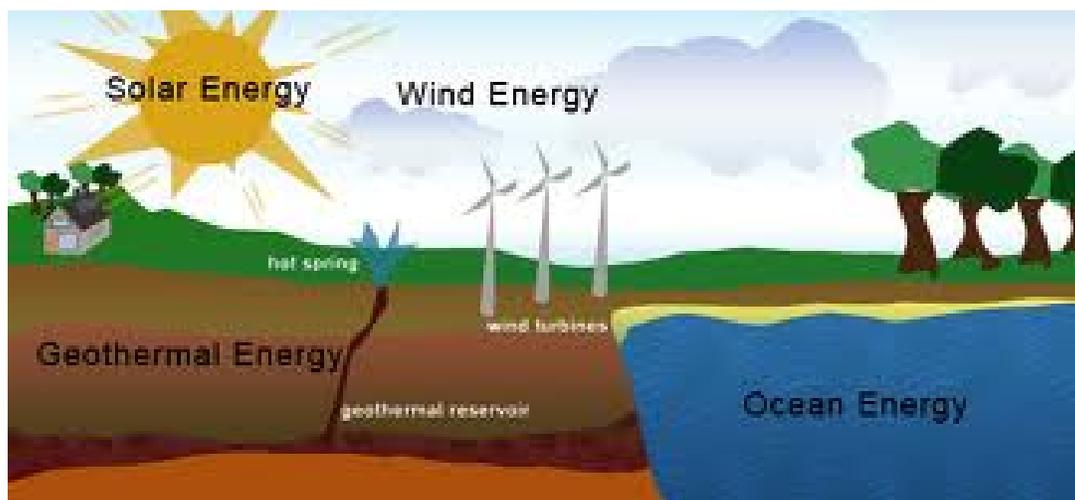
reuse the water that is used for hydroelectric power. The

disadvantages are that dams are expensive to build and

maintain. There also needs to be a powerful enough supply

of water in the area to produce energy.

In Conclusion. In your lifetime, there will be more advances made in the field of energy. Your generation will need to value the natural resources that human life needs on this earth. You will need to be part of the ongoing and individual application of alternative energy sources so the Earth stays healthy and our resources stay renewed.



## Practice

### Language Work

A. Write the words.

toxins

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wind turbines

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switched

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generators

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by-products

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B. Use each word in a sentence. Underline the word used.

renewable

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propel

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consistent

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efficiently

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C. Phonics work. The word “efficiently” ends in the suffix “ly”. When “ly” is added to the adjective “efficient”, the new word “efficiently” becomes an adverb. Write **one word** that ends in the suffix “ly” that when added to an adjective becomes an adverb. (Be careful. Not all words that end in “ly” are adverbs. For example, the suffix “ly” can also be added to a noun to form an adjective (e.g., ghost + ly = ghostly.)

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D. Word Search. Find the alternative energy sources in the word search: wind, solar, geothermal, and hydroelectric.

J	C	Y	G	R	E	N	E	A	T
W	I	J	E	X	T	B	O	X	T
E	R	D	S	X	E	T	Y	E	V
R	T	Y	F	S	R	J	G	K	F
D	C	V	Z	B	X	A	W	U	C
N	E	T	T	X	O	A	L	D	M
I	L	X	C	E	D	Z	R	O	W
W	E	V	W	K	U	X	J	J	S
Z	O	I	C	D	A	O	W	Z	K
Z	R	A	G	H	I	K	G	G	U
D	D	Z	P	R	C	K	N	G	I
B	Y	A	V	U	M	N	Z	K	L
G	H	H	K	Y	K	A	S	U	A
G	E	O	T	H	E	R	M	A	L
H	U	D	R	L	N	S	R	K	T

**Multiple-Choice Questions** (Put an X in front of the correct answer.)

1. What are **some examples** of alternative energy sources?

- a. wind power
- b. solar power
- c. geothermal power
- d. hydroelectric power
- e. all of the above

2. Which type of power means “earth heat”?

- a. coal
- b. minerals
- c. geothermal
- d. hydroelectric

**Definitions** (Write the meaning of each word as it is used in the text.)

1. toxins

2. propel

3. switched

**Extended Response** (Answer in complete sentences.)

1. What is **one** reason cited in the text to use alternative energy sources?

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2. Reread the last paragraph of the text. What does the author encourage the readers to do to keep the earth healthy and to renew resources?

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3. Fill in the chart with at least **one advantage** and **one disadvantage** for each alternative energy source:

	<u>Advantages</u>	<u>Disadvantages</u>
Wind		
Solar Power		
Geothermal		
Hydroelectric		

## Answer Sheet

Answers for Matching, Multiple-Choice Questions, and Extended Response

### Alternative Energy Sources

#### Multiple-Choice Questions

1. e
2. c

#### Extended Response (Accept reasonable answers.)

1. Using alternative energy sources helps to reduce pollutants and greenhouse gases. (Mention at least one reason.)
2. The author tells the readers that they need to value the natural resources that we need on Earth. They need to use alternative energy sources so the Earth's resources are protected.
3. See text for advantages and disadvantages of each energy source so the chart can be completed accurately.