

Join the national conversation!

ARE GREEN TECHNOLOGIES WORTH THE INVESTMENT?

Word Generation - Unit 2.15

Focus Words

conserve | renewable | invest | proceed | maximize

WEEKLY PASSAGE



The BigBelly is a solar powered trash can. About 50 of them have been installed in different locations around the city of Boston. The BigBelly compacts its contents automatically and only needs to be emptied once or twice a day. Normal public trash cans usually need to be emptied more than fifteen times a day into garbage trucks. The BigBelly reduces the miles garbage trucks drive, and thus is a “green” technology.

Green technology, also known as CleanTech, can help to **conserve** the natural environment and **maximize** resources. A lot of money is **invested** into programs for recycling, water purification, and **renewable** energy. Renewable energy uses natural resources that are quickly replenished by nature, such as sunlight, wind, and ocean tides. Supporters say that CleanTech programs minimize the damage done to the world by humans. They claim that renewable sources of energy are better for the environment.

Other groups argue that green technologies have costs as well as benefits. For example, the BigBelly trash cans in Boston cost up to 6,000 dollars each. Do they save enough money by keeping garbage trucks off the streets to be worth it? The electricity that powers CleanTech electric cars is sometimes made in power plants that use oil. Do electric cars reduce pollution or increase it?

What do you think about this debate? How high a price should we pay for green technology? Do you wonder whether all the programs called “green” are better than what is already out there? If so, how would you **proceed** to inform yourself?

Are green technologies worth the investment?

FOCUS WORDS OF THE WEEK

conserve : (verb) to protect from loss

FORMS:

EXAMPLES OF USE:

NOTES:

renewable : (adjective) can be replaced

FORMS:

EXAMPLES OF USE:

NOTES:

invest : (verb) to spend, expecting future benefit

FORMS:

EXAMPLES OF USE:

NOTES:

proceed : (verb) to move on

FORMS:

EXAMPLES OF USE:

NOTES:

maximize : (verb) to increase to the greatest possible amount

FORMS:

EXAMPLES OF USE:

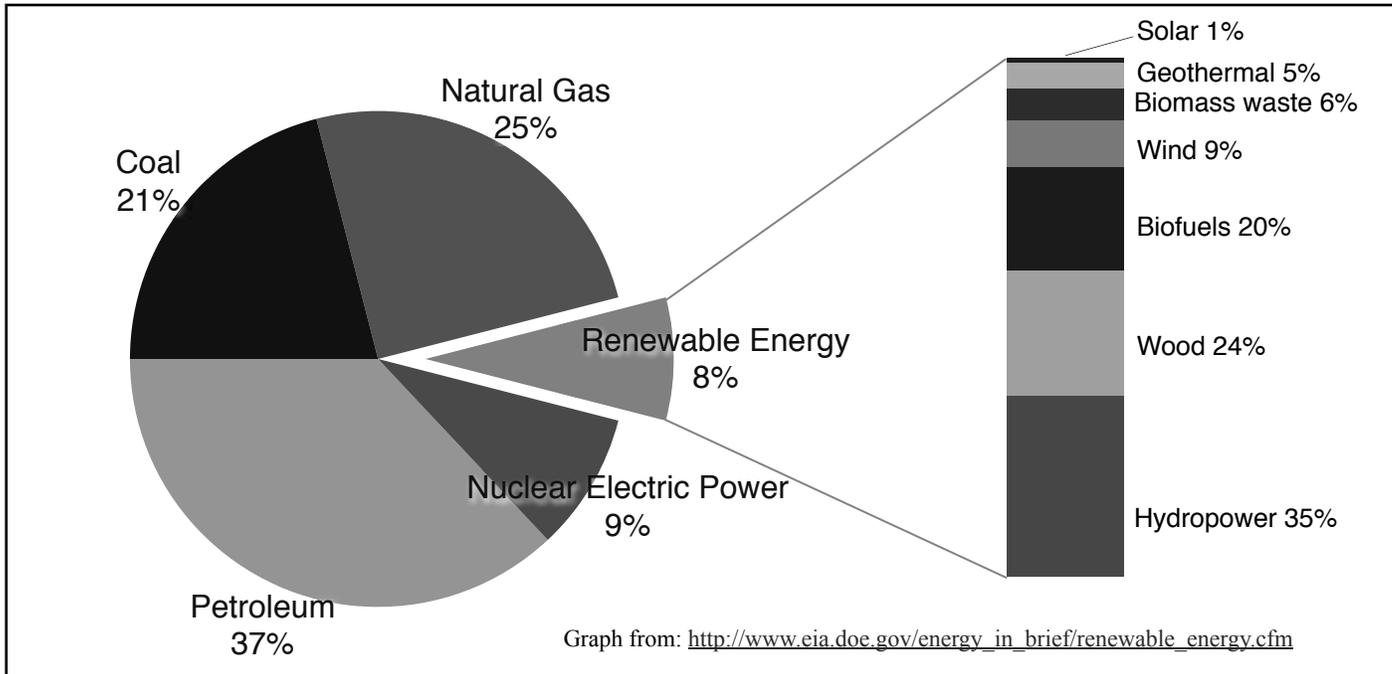
NOTES:



Are green technologies worth the investment?

PROBLEM OF THE WEEK

As Americans worry about **conserving** resources, more people are thinking about **renewable** energy. The Obama administration promised to **proceed** toward **maximizing** production of cleaner energy, and has **invested** in wind and other renewable energy sources. However, most of America's energy still comes from non-**renewable** sources like oil and gas.



Option 1: Which of the following is true?

- A) Americans get more of their energy from coal than from petroleum (oil).
- B) Americans get more of their energy from coal than from all **renewable** sources combined.
- C) Americans get more of their energy from natural gas than from petroleum.
- D) Americans get more of their energy from hydropower than from nuclear electric power.

Option 2: Eight percent of the energy Americans consume comes from **renewable** energy sources. Of this, 9% comes from wind. What percent of America's total energy consumption comes from wind?

Discussion Question: Nations around the world are **investing** in **renewable** energy. In 2005, 8% of the energy produced by the European Union came from **renewable** sources. To **maximize** renewable energy production, the EU set a goal of producing 20% of its energy from renewable energy sources by 2020. In 2010, this change is **proceeding** on schedule: the EU is on track to meet its goal. Should the US set a similar goal? Why or why not?

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THINKING SCIENTIFICALLY

Sekou is giving a report on **renewable** energy.

“Scientists say **conserving** energy is not enough. We need to switch to **renewable** sources of energy like wind, water, and sun. To **maximize** our efforts, people around the world must work together.”

Sekou **proceeds**. “Two scientists named Mark Jacobson and Mark Delucchi have a plan to meet all the world’s energy needs with renewable energy by 2030. Their plan would require governments to **invest** a total of 100 trillion dollars.”

“What about using renewable energy here at school?” asks Nadia.

“Good question!” says Sekou. “I wonder if there is a renewable energy source that would both decrease our school’s emissions and save us money...”

→ Sekou did some more research on renewable energy to learn about cheap ways to decrease emissions from the school and took notes to share with the class. She calculated how much each energy source would cost her school.

Sekou’s Notes:

Energy Source	Statistics by unit		Statistics for our school (using 20 megawatt hours per year)	
	Cost (\$ / MWh)	CO ₂ Emission (tons / GWh)	Cost (\$ / year)	CO ₂ Emission (tons / year)
Coal	100.1	1145	2002	22.9
Natural Gas	67.1	338	1342	6.76
Wind	86.6	20	1732	0.4
Solar	144.3	31	2886	0.56

Data Source: <http://www.eia.gov/tools/faqs/faq.cfm?id=427&t=3>

Which energy source is the least expensive?

Discuss what other information should be collected before proposing using any of these renewable sources in your district. What might school leaders want to know?

Which energy source emits the least carbon dioxide?

Are any of the energy sources both inexpensive and healthy for the environment?

Are Green Technologies worth the investment?



DEBATING THE ISSUE

Get ready...

Pick one of these positions (or create your own).

A "Green technology" is good. It saves the environment.

B Not all "green" technologies are worth the investment.

C "Green technologies" are only worth the investment to the people who can afford them.

D "Green technology" is sometimes no better than the programs already in place.

E _____

Get set...

Be ready to provide evidence to back up your position during your class discussion or debate. Jot down a few quick notes:

GO!

Be a strong participant by using phrases like these.

I believe that...

I agree with you, but...

You make a good point, but have you considered...

Can you show me evidence in the text that...

