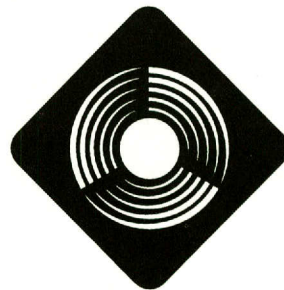


RENEWABLE ENERGY AND SUSTAINABILITY



RENEWABLE ENERGY
THE INFINITE POWER
OF TEXAS

FACT SHEET 1 A RESOURCE FOR CLASSROOMS AND TEACHERS

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Highlights

UNIVERSITY OF TEXAS PAN AMERICAN
EDINBURG, TEXAS 78539-2999

"WE DO NOT INHERIT THE EARTH FROM OUR PARENTS, WE BORROW IT FROM OUR CHILDREN." CHIEF SEATTLE

- ◆ A new energy era is dawning
- ◆ Earth is a spaceship
- ◆ Renewable energy use is sustainable
- ◆ Global warming can upset the balance of life
- ◆ Sustainable energy is the fuel of the future-starting now



TEXAS STATE DOCUMENT
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New Energy Era

Many scientists believe that by the year 2030, when students in school today are grown and have their own families, they will be using new sources of energy.

Instead of building new coal-burning power plants to generate electricity for your home, your house may have a roof with special shingles that convert sunshine into electricity.

Or out in the countryside, there will be farms with something new. Among the grazing cattle

and fields of crops will be huge towers with slow-turning propellers that convert wind energy into electricity.

Your house could have large, south-facing windows that gather free light and heat from the sun. And your refrigerator and other appliances may only use one-half to one-fourth the energy of those we use today.

Today we rely on fossil fuels – coal, oil and

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natural gas. There is only a limited supply. In other words, they are nonrenewable resources. Fossil fuels also create pollution when they are burned. The renewable energy you may use cannot be used up, and it does not make pollution. It is sustainable energy.

Earth is a Spaceship

As we orbit the sun through space, we carry with us a limited supply of air, fresh water, coal, oil and natural gas. All of our trash and pollution must stay with us "on board" our spaceship. As world population grows we use more supplies. Pollution also increases.

Spaceship earth is so huge that in the past, people believed that its resources would never run out. Some also thought that it could not be hurt by pollution. Recently, many people have decided that we are treating the earth badly.



SPACESHIP EARTH All of our trash and pollution must stay with us "on board" our spaceship.

This is not fair to future generations who will inherit this planet.

Sustainability

Sustainability means that we make sure we meet our energy needs now without preventing future generations from meeting theirs.

Eventually, we will run out of nonrenewable energy supplies like coal, oil and natural gas. Long before that, the pollution caused by using these energy sources will become a serious problem.

RENEWABLE ENERGY SOURCES:

- solar thermal • solar electricity • wind
- biomass • hydroelectric • geothermal
- energy efficiency

NON-RENEWABLE ENERGY SOURCES:

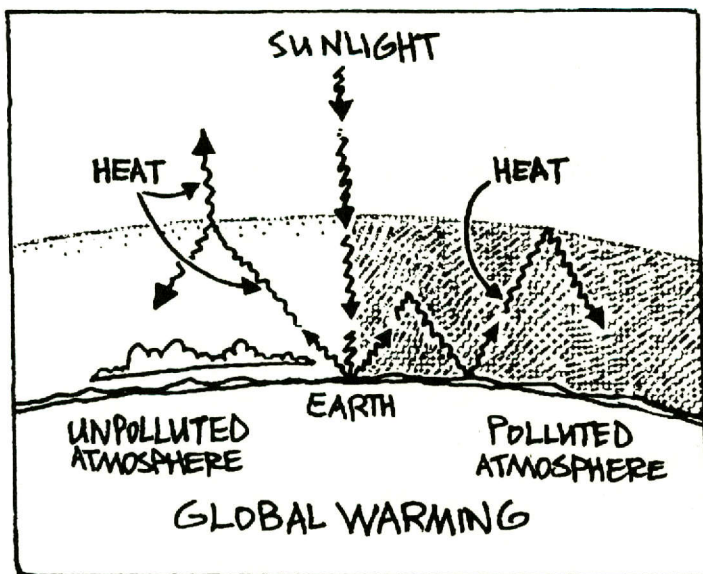
- coal • oil • natural gas • uranium

Global Warming

Today, scientists are concerned about global warming. The earth and its atmosphere act like a greenhouse – light from the sun strikes the earth and changes into heat. The atmosphere surrounding earth acts like the glass on a greenhouse. Light can pass through the atmosphere (or glass) but heat cannot escape as easily. This causes a gentle warming on our planet as heat builds up. Some heat is lost to space. It creates a delicate balance for life on earth.



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GLOBAL WARMING Pollution in our atmosphere traps more of the sun's heat energy causing global warming.

We are upsetting the balance by burning fossil fuels. They produce gasses like carbon dioxide (CO_2) that trap more heat and cause excessive global warming.

Because of this concern, some scientists recommend that we change the way we use energy. They argue that we could cut our energy use by 50 percent just by improving the efficiency of lights, machines, buildings and cars. And they suggest that by the year 2030, half of this reduced amount could come from renewable resources such as the sun and wind.

New Energy Technology

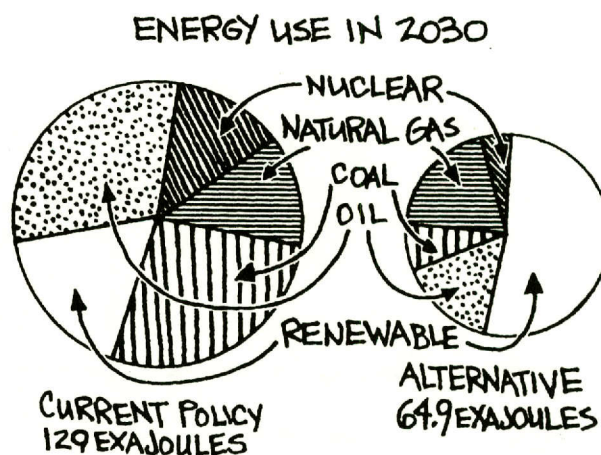
We are starting to change the way we use energy. New energy technology, like compact fluorescent light bulbs, are available today. One

compact fluorescent bulb uses one-fourth the energy of a typical incandescent bulb. It also saves more than \$30 over its lifetime.

Wind farms are being built that produce energy more cheaply than burning fossil fuels. Roof shingles that make electricity directly from sunshine are available now, although they are still expensive.

The cost of using sustainable energy will continue to drop. A new era of energy use is dawning. Clean, inexhaustible energy can power the future of this generation.

Sustainable energy is the fuel of the future - starting now!



FUTURE ENERGY USE The United States now uses about 90 Exajoules of energy in a year. By the year 2030, half of all our energy could come from renewable sources if we learn to use energy more efficiently.

Helpful Organizations

Comprehensive educational source for renewables:

CREST CENTER FOR RENEWABLE ENERGY AND SUSTAINABLE TECHNOLOGY

777 North Capitol Street, N.E. #805

Washington, D.C. 20002

(202) 289-5370

email: info@crest.org

<http://www.crest.org>

Research and education on uses of solar energy:

ENERGY CENTER

UNIVERSITY OF TEXAS AT EL PASO

P.O. Box 645

El Paso, Texas 79968

1-888-879-2887

<http://wattwatchers.utep.edu>

Educational resources on Texas renewable energy:

TEXAS SOLAR ENERGY SOCIETY

P.O. Box 82022

Austin, TX 78708-2022

(512) 451-7207

e-mail: info@txses.org

<http://www.txses.org>

Resources

TEXAS RENEWABLE ENERGY EDUCATION CAMPAIGN

Texas is in the midst of a major campaign to develop thought-provoking educational materials on renewable energy. The campaign includes:

(1) the first-class video, "The Infinite Power of Texas," (2) 20 fact sheets for students and adults, and (3) a powerful World Wide Web site on the Internet. Begin your search for Texas-specific information on renewable energy at: <http://www.InfinitePower.com>

ON THE INTERNET:

<http://www.InfinitePower.com/factsheets/fs1.html>

Spirit Lake Wind Powered School

<http://www.spirit-lake.k12.ia.us/html/jbolluyt/WIND.htm>

Debate on Renewable Energy

<http://www.txses.org>

<http://www.csn.net/solar/factbase.htm>

Global Warming

www.edf.org/pubs/FactSheets/e_GWFact2.html

Find Out About Your Electricity

http://www.edf.org/programs/energy/green_power/x_calculator.html

<http://www.infinitepower.org/carboncalc.html>

<http://www.infinitepower.org/electric.html>

Center for Excellence in Sustainability

<http://www.sustainable.doe.gov/>

CD-ROM:

The Sun's Joules. (source: CREST, 202-289-5370, info@crest.org)

The Greening of the White House. (source: CREST)

ARTICLE:

Mid East Oil Forever? by Romm & Curtis

(<http://www.theatlantic.com/atlantic/issues/96apr/oil.htm>)



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