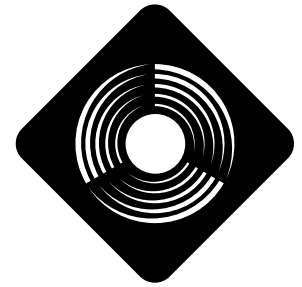


RENEWABLE ENERGY FOR THE HOME

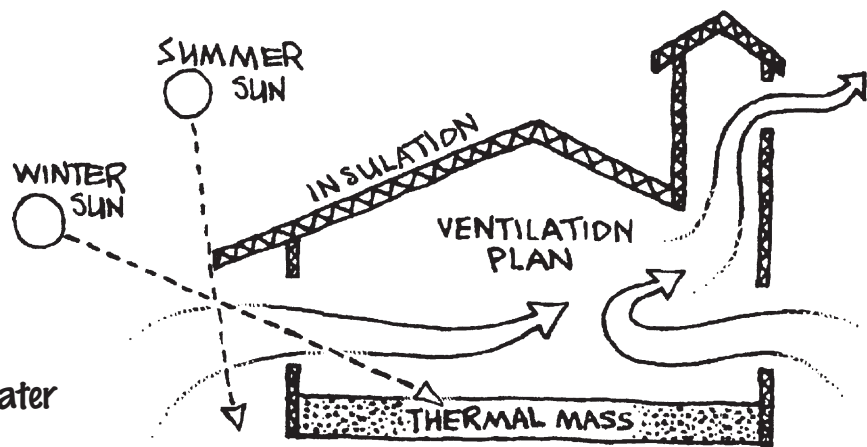


RENEWABLE ENERGY
THE INFINITE POWER
OF TEXAS

FACT SHEET 4 A RESOURCE FOR CLASSROOMS AND TEACHERS

Highlights

- ◆ Heating and cooling your home
- ◆ Drying clothes without gas or electricity
- ◆ Cooking with renewables
- ◆ Using renewables to pump water
- ◆ Playing and working the clean way



NATURAL HEATING & COOLING OF THE HOME

Low winter sun through south-facing windows helps heat the home in the winter. Overhangs keep the high summer sun out, while windows allow cooling breezes through.

Earth-Friendly Energy

You can make use of earth-friendly, renewable energy sources in your home. Renewable energy comes from sources that we cannot use up, such as the sun and wind. It almost always causes less pollution than our more typical sources of energy, such as oil, coal, natural gas and nuclear.

Renewable energy is sustainable, so it can provide for your energy needs now and in the future without doing great harm to the environment and human health. This kind of energy can also save you money.

Using Renewable Energy for your Home

HEATING YOUR HOME

■ **PASSIVE SOLAR ENERGY**

Have you ever felt how hot it gets in a car on a sunny, winter day? The sun's rays can also be used to heat your home. South-facing windows allow sunshine in when the sun is low in the

winter sky. A proper roof overhang above these windows can keep out the hot sun in the summer when it is high in the sky.

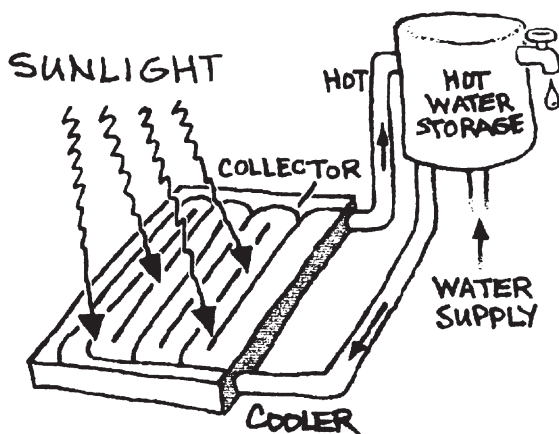
■ WOOD STOVES AND FIREPLACES

Under certain circumstances, burning wood can be an earth-friendly, renewable source of heat. But the wood should come from dying or diseased trees, or trees that had to be cut down for other reasons. And well-designed stoves and fireplaces can limit the amount of smoke these fires produce, minimizing air pollution.

COOLING YOUR HOME

■ NATURAL BREEZES

Natural breezes offer free cooling in the fall, spring and summer. Open the windows on the side of the house facing the breeze and also on the opposite side of the house. This allows the breeze to flow easily through your home.



SOLAR WATER HEATING Renewable energy from the sun can be used to heat water for household use.

■ THERMAL CHIMNEY

This uses the principle that warm air rises to the top of tall spaces and is replaced below by cooler air. In a two-story house, open the first floor windows and a window at the top of the stairs.

■ THERMAL MASS

Have you noticed how cool a well-shaded concrete sidewalk feels even when the summer air is hot? Floors made of tile, concrete, stone or earth can make a house feel much cooler in the summer. This can help minimize or eliminate the need for air conditioning.

CLOTHES DRYING WITHOUT GAS OR ELECTRICITY

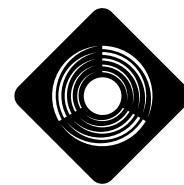
■ CLOTHESLINE IN THE WIND

Hang the wash on a clothesline instead of throwing it into an energy-guzzling dryer. You will be using free energy from the wind and sun. The sun helps whiten and sanitize the wash, eliminating the need for harsh chemicals, such as bleach, in the washer.

HEATING WATER

■ SOLAR WATER HEATERS

Water easily absorbs heat from the sun. A passive solar water heater uses a solar collector, usually on the roof, to heat water. Then the natural movement of the heated water, a process called convection, transports it into the water tank in your home. A passive solar water heating system can supply 50 percent or more of your household's hot water needs.



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COOKING WITH RENEWABLES

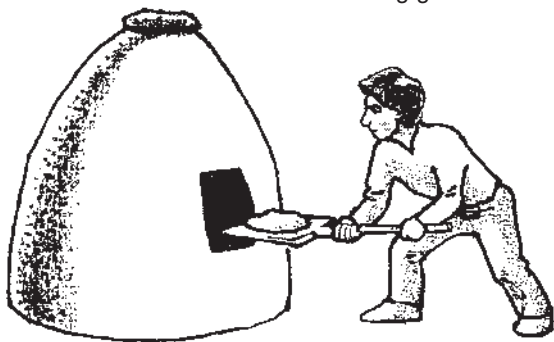
■ SOLAR COOKERS

A solar cooker works by concentrating the heat-producing rays of the sun through one or two layers of glass onto food that is placed in an insulated box. A dark-colored cooking pot with a glass lid also will work.

■ HORNOS

Hornos are outdoor, wood-fired brick or earthen ovens that cook food using radiant heat. Heat the oven with a wood fire for three or four hours. Then remove the embers. The oven remains hot, and several hours of baking can begin.

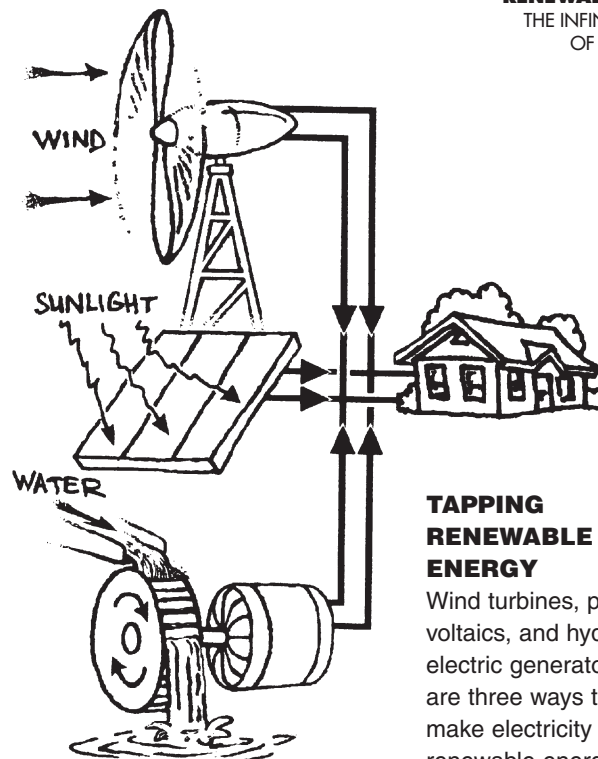
HORNOS Bake food without using gas or electricity



ELECTRICITY GENERATION THE RENEWABLE WAY

■ PHOTOVOLTAICS

Photovoltaic, or PV, systems convert sunlight, the world's most abundant source of energy, into electricity. This power can be used in rural places where an electrical connection isn't available, or they can provide power for a house in the city.



TAPPING RENEWABLE ENERGY

Wind turbines, photovoltaics, and hydroelectric generators are three ways to make electricity from renewable energy.

■ WIND

The power of wind can be seen in a hurricane or tornado when trees are uprooted and buildings demolished. Wind energy can be harnessed for useful purposes with wind turbines throughout Texas. The mountains of west Texas and the plains of the Panhandle, which are very windy areas, are especially good places for this.

■ WATER

Hydropower, or water power, has historically been used for grinding grains in grist mills. Today it is one of the cheapest ways to produce electricity. While hydropower creates no air pollution, dam construction can hurt aquatic life and reduce water quality.



WATER PUMPING

■ WINDMILLS

There are about 80,000 windmills operating in Texas. Most of these pump water for livestock, but windmills can be used to pump water for people as well.

PLAYING & WORKING THE CLEAN WAY

■ ENERGY SAVING TOYS

Many toys require batteries or electricity to make them operate. Look for solar-powered toys such as race cars and speed-boats. Or choose manual toys for which you supply the power. Battery operated toys can be powered by reusable batteries re-energized in a solar recharger.

■ ENERGY SAVING TOOLS

Mowing the lawn is more fun, and better for the environment, with a manual push mower instead of a gasoline powered one. Manual mowers, trimmers and rakes use renewable human power and cost less to buy, operate and maintain. Solar rechargeable flashlights and lanterns, portable solar showers and water purifiers are also good choices.

Resources

FREE TEXAS RENEWABLE ENERGY INFORMATION

For more information on how you can put Texas' abundant renewable energy resources to use in your home or business, visit our website at www.InfinitePower.org or call us at 1-800-531-5441 ext 31796. Ask about our free lesson plans and videos available to teachers and home schoolers.

ON THE WORLD WIDE WEB:

solstice.crest.org
www.nrel.gov
www.eren.doc.gov

BOOKS:

THE PASSIVE SOLAR ENERGY BOOK

Edward Mazria. Rodale Press. 1979.

SAVING ENERGY

Jacqueline Dineen. Raintree Steck-Vaughn. 1995.
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RENEWABLE ENERGY

Jacqueline Dineen. Raintree Steck-Vaughn. 1995.
Grades 3 through 6.

THE PASSIVE SOLAR HOUSE/USING SOLAR DESIGN TO HEAT AND COOL YOUR HOME

James Kachadorian. Chelsea Green Publishing Co. 1997.



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