

# Renewable Energy Resources for Texas



**RENEWABLE ENERGY**  
THE INFINITE POWER  
OF TEXAS

## HIGHLIGHTS

- Texas has more renewable energy potential than any other state
- Every Texas community can use clean, renewable energy affordably
- Developing Texas' renewable resources will help the State's economy

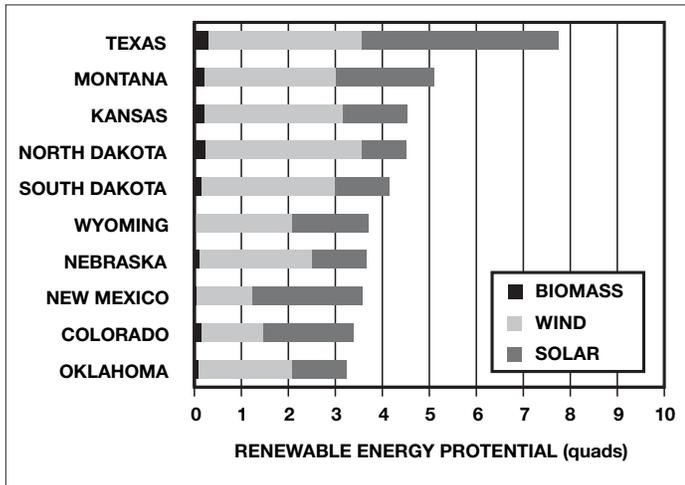
## SUMMARY

Due to its size and diverse climate, Texas has tremendous potential to use clean, renewable energy resources such as wind, solar and biomass. These resources are plentiful, large enough in fact to meet all of our State's energy needs. These technologies do not create pollution and are available as large systems (power plants) and as smaller systems (for home use). Thanks to rules established by the Texas government, our State must have 2,000 Megawatts of electricity that comes from renewable resources by the year 2009. Not only does renewable energy help our environment, but it also means good business and creates jobs for our local communities.

## WHAT IS RENEWABLE ENERGY?

Renewable energy is energy that comes from sources that are always available in the natural world and cannot be used up. Following are examples of renewable energy and their resources:

- Solar energy – energy that is produced from the sun whether it is in the form of sunlight particles that can create electricity (solar electricity or photovoltaics) or in the form of heat to warm water or air space
- Wind energy – energy that is produced from the natural movement of the wind; also considered a form of solar energy because wind is created by differences in the amount of heat that the sun sends to different parts of the earth
- Biomass energy – energy that comes from materials that were once living like plants or some types of garbage
- Geothermal energy – energy that comes from heat generated deep inside the Earth from items like hot rocks, hot water and steam
- Hydroelectric energy – energy that is produced from moving or falling water
- Tidal/wave energy – energy that is produced when ocean tides or waves change or move across the ocean or sea



**TEXAS IS #1 IN RENEWABLE POTENTIAL** This figure, based on a study done for the United Nations, shows that Texas can develop more clean, renewable energy than any other state.

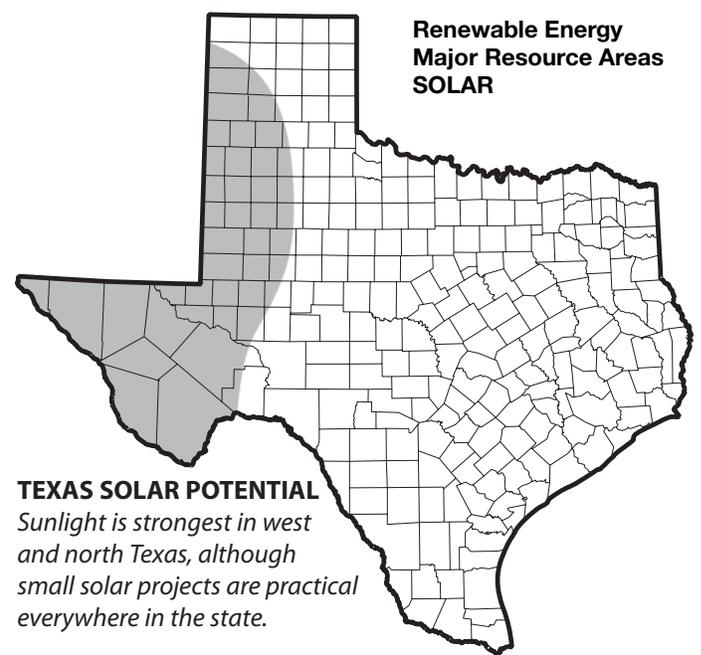
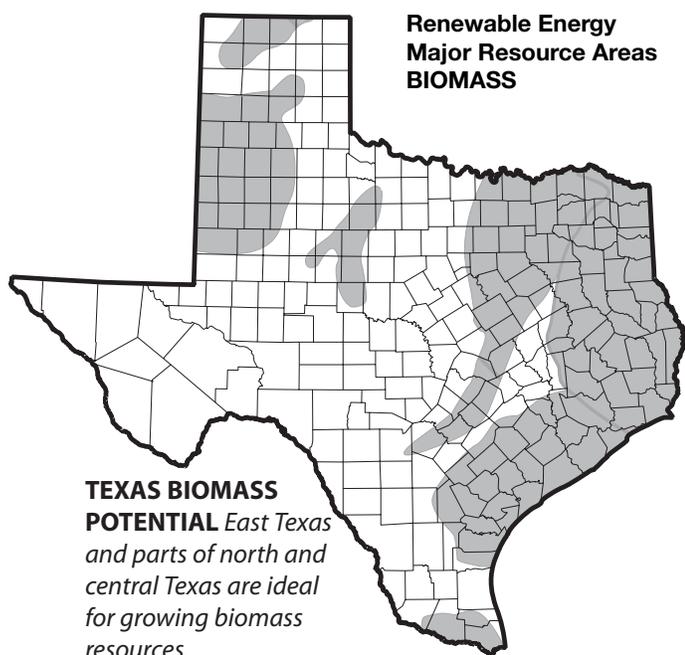
All of these forms of energy are made directly from the sun (solar), indirectly from the sun (wind, hydropower and biomass) or from other movements of our natural world (geothermal and tidal/wave energy). The most common types of renewable energy in Texas are solar, wind, and biomass.

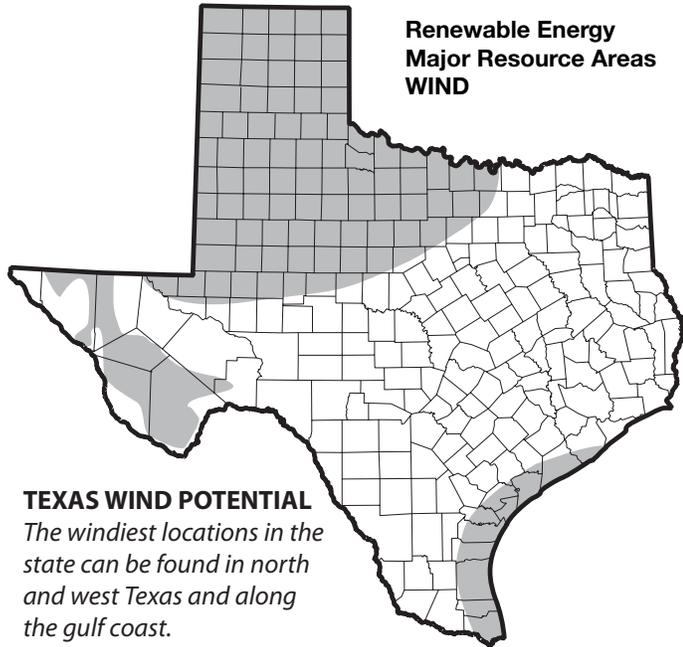
## RENEWABLES HAVE “TEXAS SIZE” POTENTIAL

Texas has large amounts of fossil fuel resources such as oil, gas, coal and uranium. But the State has even more renewable resources that make those fossil fuel resources look small. The wind, solar and biomass potential in Texas is equal to 4,330 quadrillion British Thermal Units (BTUs) per year, or about 400 times the amount of energy our State uses per year. Wind energy alone could provide eight times as much power as all of the State’s electric power plants combined. And our potential for solar energy is even greater than wind! In order to meet our energy needs in Texas, we only need to use a small fraction of the renewable energy resources that are available.

## WHERE ARE THE RESOURCES LOCATED?

No matter where you are in Texas, renewable energy resources are, more than likely, all around you. Some forms of renewable





energy such as solar heating, photovoltaics, solar water heaters and geothermal (in the form of heat pumps) can be used just about everywhere in Texas. Other technologies, such as biomass energy plants and water pumping windmills, can be used in many communities across the State.

However, for large power projects that use wind and solar energy, the best locations in the State should be found. For wind and solar, the best areas are in south Texas, west Texas and the Panhandle. The best biomass resources are in east Texas and the Panhandle. When you add it all up, Texas can benefit from clean, renewable energy sources in every community in the State.

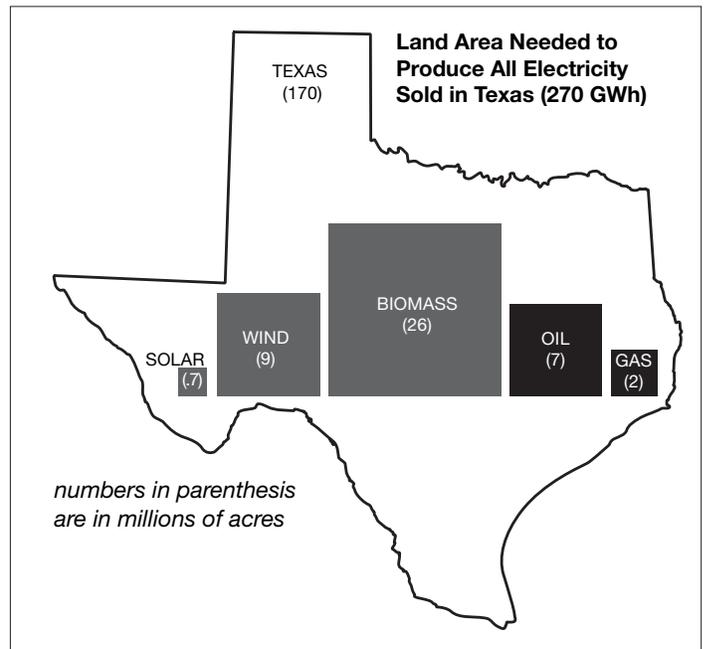
**RENEWABLE ENERGY USES**

Renewable energy resources can fulfill our energy needs that we often get from fossil fuels. These needs include generating electricity, providing heat, powering mechanical equipment and powering vehicles.

Renewable energy comes from nature in many forms, each of which is best suited for certain uses. Biomass in particular has many uses. The solar energy stored in biomass can make liquid fuels for cars (like ethanol), fuels in the form of gas (like methane) that can be burned in place of natural gas, or solid fuels like wood chips that can be burned like coal.

**LAND USE**

Some people think that renewable energy uses too much land to be practical. This is not true. Renewable energy uses as much land as that used by fossil fuels such as oil and gas. Harnessing renewable energy can be done along side other traditional land uses. For instance, cattle can graze around windmills, and solar equipment can be placed on the roofs of factories, shopping centers and individual houses, over parking lots and along roadways.



**LAND AREA NEEDED FOR VARIOUS TEXAS ENERGY SOURCES** Each square shows the land area needed by different energy resources to produce enough electricity for the entire state of Texas. Oil wells and wind turbines produce about the same amount of energy per unit of land area.

## ORGANIZATIONS

### American Wind Energy Association

122 C Street, NW, Suite 300  
Washington, DC 20001  
(202) 383-2500  
[www.awea.org](http://www.awea.org)

### Landfill Methane Outreach Program

501 3rd St., N.W.  
Washington, DC 20001  
(888) STAR-YES  
[www.epa.gov/lmop/](http://www.epa.gov/lmop/)

### International Ground Source Heat Pump Association

490 Cordell South  
Oklahoma State University  
Stillwater, OK 74078-8018  
(800) 626-4747  
[www.igshpa.okstate.edu/](http://www.igshpa.okstate.edu/)

### Texas Solar Energy Society

P.O. Box 1447  
Austin, TX 78767-1447  
(800) 465-5049  
e-mail: [info@txses.org](mailto:info@txses.org)  
[www.txses.org](http://www.txses.org)

### Texas Renewable Energy Industries Association

P.O. Box 16469  
Austin, TX 78761  
(512) 345-5446  
[www.treia.org](http://www.treia.org)

## 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](http://www.InfinitePower.org) or call us at 1-800-531-5441 ext 31796.

Ask about our free Teacher Resource Guides and CD available to teachers and home schoolers.

### ON THE WORLD WIDE WEB:

**National Renewable Energy Laboratories.** Lots of good general information and a great source of renewable energy pictures and graphics.

[www.nrel.gov](http://www.nrel.gov)

**Renewable Resource Data Center.** Provides information on several types of renewable energy resources in the United States, in the form of publications, data, and maps.

<http://rredc.nrel.gov/>

**Alternative Energy Institute.** Good in-depth wind data and maps.

[www.windenergy.org](http://www.windenergy.org)

### Texas Solar Radiation Database

[www.me.utexas.edu/~solarlab/tsrdb.html](http://www.me.utexas.edu/~solarlab/tsrdb.html)

**Renewable Energy Roundup and Sustainability Fair.** An annual event in Texas that provides renewable energy booths, seminars and workshops.

[www.RenewableEnergyRoundup.com](http://www.RenewableEnergyRoundup.com)

### PUBLICATIONS:

**Texas Renewable Energy Resource Assessment, VERA, 1995**

[http://www.seco.cpa.state.tx.us/re\\_links.htm](http://www.seco.cpa.state.tx.us/re_links.htm)

**Texas Energy: Past, Present, Future.** Virtus Energy Research Associates, 1998. A state of the state of renewable resources in Texas.

### POSTER:

**Our Energy Sources are Outstanding in the Field.** (Available from State Energy Conservation Office at 800-531-5441 ext 31796 or on the web at [www.infinitepower.org](http://www.infinitepower.org))



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# InfinitePower.org

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[www.InfinitePower.org](http://www.InfinitePower.org)

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