



RENEWABLE ENERGY IN THE WEST AND GREAT PLAINS

The West and Great Plains are uniquely suited for renewable energy development, especially through the use of wind, solar and geothermal resources.

Wind energy

- North Dakota is ranked as the number one state in the country for wind energy potential.

- North Dakota alone is capable of supplying approximately 30 percent of US electricity consumption.

- South Dakota, Montana, Wyoming, Colorado and Idaho all rank in the top 15 for wind potential.

- Although Oregon is ranked 23rd in wind energy potential, it still has over 1 million acres of windy land.

- The Stateline Wind Project on the border between Oregon and Washington is the world's largest wind farm.

- Good wind areas exist throughout the region. For example, by utilizing its wind resources Colorado could generate about 14 times as much electricity as it currently consumes.



This house in Highlands Ranch, Colorado takes advantage of wind energy to reduce home energy costs.

Warren Getz photo

Solar energy

- The West has tremendous potential for converting the sun's light into electricity (a technology known as "photovoltaics"). For example, Idaho could generate about three times as much electricity from the sun as it currently consumes.

- Even rainy Portland, Oregon has solar potential: in an average year, a solar system installed on a Portland roof top will produce about 61 percent of the electricity as similar solar panels located in Phoenix, Arizona.

- Solar water heaters can provide hot water for homes and businesses.

Geothermal energy

- Geothermal energy is heat created by the Earth.

- The earth absorbs 47% of the sun's energy – more than 500 times the energy that humans use every year.

- In the US, geothermal energy is found almost entirely in the West.

- According to the U.S. Environmental Protection Agency, geothermal heating and cooling systems are 48% more efficient than the best gas furnaces and over 75% more efficient than oil furnaces.



- In addition, homeowners save 20-70% in energy costs and air pollution, in the form of carbon emissions, is substantially reduced.

- Geothermal heat pumps that exchange heat between the earth to a home or a business, are growing in popularity.

- However, land-use conflicts at a number of sites may make this technology somewhat controversial.



The Oregon Institute of Technology has been using a geothermal district heating system since 1964. Today, the system heats 11 buildings.

Biomass energy

- Biomass energy is produced from plants and organic wastes. It can be burned and used directly for heating, or to produce steam to generate electricity.

- Biomass can also be converted into liquids or gases to produce electricity or transportation fuels.

- Biomass development is likely to be limited to less arid locales.

- Pockets with high biomass potential are scattered throughout the region, especially in northeastern Colorado, southern Idaho, and the Dakotas.



Biodiesel can be made from any fat or oil. Current U.S. biodiesel production is primarily from oil from soybeans such as these or from recycled restaurant cooking oil. Cleaner burning and renewable biodiesel is most often blended at 20% with petroleum diesel.

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