

April

2011



Farm Credit of Southern Colorado

Colorado State University Student Board

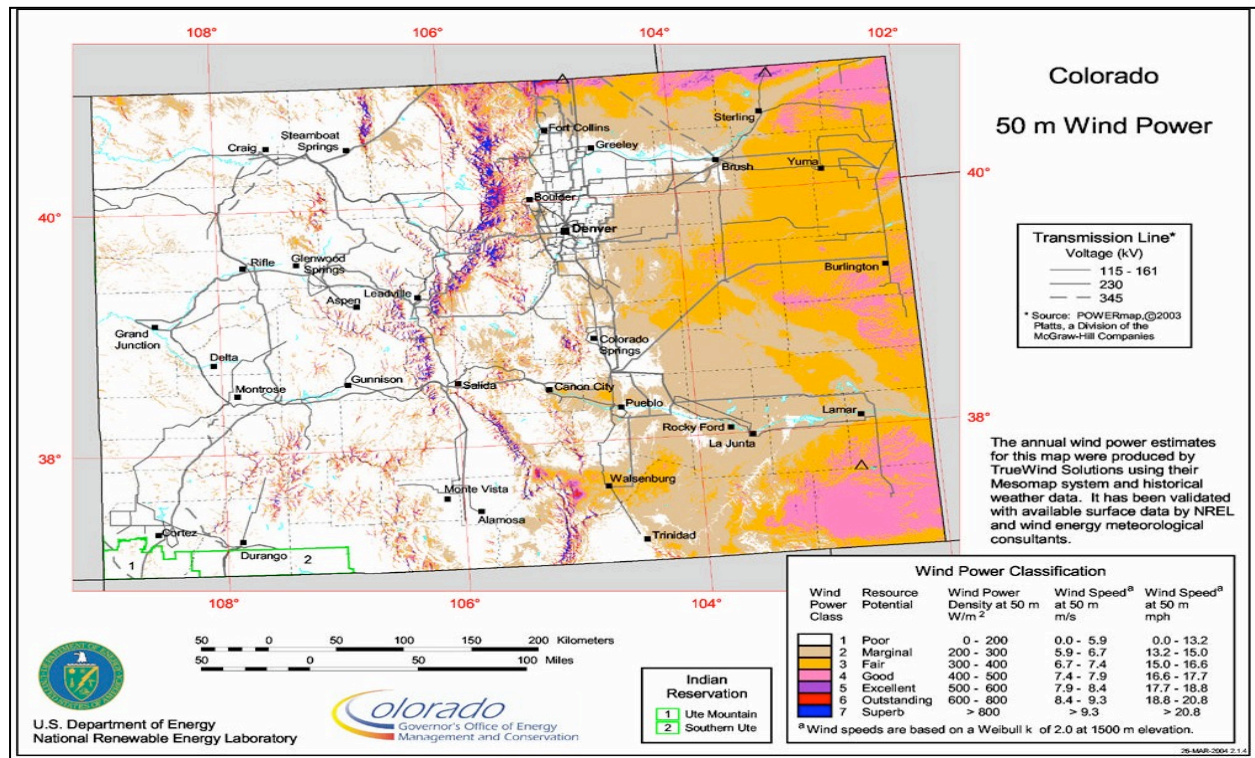
Department of Agricultural and Resource Economics, Fort Collins, CO 80523-1172

WIND ENERGY FACTSHEET

Why is Colorado a good place for wind energy?

According to the National Renewable Energy Laboratory (NREL), the state of Colorado alone has enough wind energy to supply nine percent of the electricity consumption for the lower 48

states. Colorado is one of the best places for wind energy. As illustrated on the map below there are various areas within the state where the wind power ranges from Good to Superb.



Leasing Land for Wind Power Development

Note: The numbers used for the leasing section are provided by National Wind Watch and North Dakota State University Extension Service. It was a challenge to find specific numbers since it depends on individual situations, therefore we used large ranges of numbers.

- There are three ways to become involved in wind power:
 1. Lease land for wind power development firms
 2. Become a partner
 3. Own and operate wind turbines
- Leases and agreements are between the landowner and energy developers regarding details of binding contracts and are negotiated for each specific project.
- One should seek legal advice before signing a contract.
- The lease can be broken down into two parts:
 - 1) Contract to lease the **wind development rights**
 - The lease should contain detailed structures of payment as well as a specified time period, usually five years.
 - Leases are long term usually for 20-25 years
 - 2) Contract to construct and **operate the wind turbine** and related development
 - Some leases can restrict the usage of the land while the developer is determining the feasibility of wind energy on the allotted property.
 - Provisions of roadways and transmission lines, substations
- Compensation
 - There are several different ways for compensation to the landowner:
 1. Fixed payments-*\$4,000 to \$8,000 per megawatt of turbine capacity*
 2. Royalty or percentage of revenue-*3 to 6 percent of gross revenue*
 3. Combination of fixed and royalty
 4. Equity partnership
 - Compensation can depend on:
 - Number of turbines
 - Turbine size
 - Price of electricity
 - Wind resources
- Example of a wind power lease: <http://docs.wind-watch.org/Enxco-Wind-Farm-Lease.pdf>
- Resources:
 - <http://www.wind-watch.org/documents>
 - <http://www.powernaturally.org/programs/wind/toolkit/FarmerGuideWindEnergy.pdf>

How do I know wind energy is good for me?

Winds on your site must achieve at least a class 2 rating, which means that the annual wind speeds need to average 9.8 to 11.5 mph at 50 meters above ground level to be suitable for wind energy generation. The most precise information can be obtained by placing an anemometer, a device that measures wind speed, on your site for at least one year.

Pros and Cons of Owning/Operating your Own Turbine

Pros:

Revenue

On-site production can help offset electricity costs and provide a reliable source of renewable energy for on-farm operations.

Wind is renewable and sustainable

No matter how much wind is used to produce electricity, it does not reduce the amount of wind available after the energy is produced.

Wind energy is good for the environment

Wind energy is clean energy that produces no emissions, which means it doesn't contribute to acid rain and snow, global climate change, smog, regional haze, mercury contamination, water withdrawal, and particulate-related health effects.

Cons:

Cost

A system that would offset an average home's electricity use (10,000 kWh/year) will cost approximately \$50,000.

Noise

Wind turbines generate a lot of noise from the turning of the blades. This needs to be taken into consideration if you are living in quite rural area where the inhabitants might not tolerate a certain level of noise.

Wildlife

Wind turbines can be life threatening for birds and bats trying to fly in between them. Wind currents most beneficial for producing wind energy is also happen to be the ones that birds use to migrate.

Small Wind Systems Tax Credit

Description: Under present law, a federal-level investment tax credit (ITC) is available to help consumers purchase small wind turbines for home, farm, or business use. Owners of small wind systems with 100 kilowatts (kW) of capacity or less can receive a tax credit for 30% of the total installed cost of the system.

Current Status: The ITC, written into law through the Emergency Economic Stabilization Act of 2008, is available for equipment installed from October 3, 2008 through December 31, 2016. The value of the credit is now uncapped, through the American Recovery and Reinvestment Act of 2009.

Government Credits and Incentives

The federal government offers generous incentives for renewable energy production. The database of state incentives for renewable renewable energy (DSIRE) provides a list of incentives available in each state in the United States.

Some local utility companies may also have rebate programs for consumers. A list of selected state and Federal grants and rebate programs is contained at the end of the fact-sheet.

New Energy Economic Development Grant Program

The new energy economic development grant is a state wide effort to help promote and support renewable energy throughout Colorado. The grant is available through the Governor's Energy Office (GEO). The grant is offered on first come first serve basis through 2012 until funds are exhausted. You can find more information at the following web site:
<http://www.rechargecolorado.com>.

Commercial Renewable Energy Rebate Program

The rebate program is available statewide and managed by the Governor's Energy's office. The rebate pays up to \$1.00/watt for the first 15 kW. The per-watt payment may be less if local incentives are available. The Colorado Governor's Energy Office (GEO) provides rebates to Colorado businesses and organizations that pay commercial utility rates and who purchase and install qualifying photovoltaic (PV), solar water heating, and wind energy systems. You can find more information at the following web site: <http://www.rechargecolorado.com>.

Sales Tax Exemption for Renewable Energy Systems

You may be eligible for a sales tax exemption with a wind turbine on your property. As of

April of 2007, the Colorado legislation (SB 145) allows counties to offer sales tax exemption to residents who installed renewable energy on their property. Check with your local municipal or county office for more information.

Life span of the system

The lifespan of a wind turbine depends on the manufacturer of the system. The manufacturer

of the system should be able to give you accurate information about the life span of the system. A good system that is well maintained will last about 20 years. The American Wind Energy Association has a list of manufacturers in the United States

Resources

Governor's Energy Office: provides information about wind energy and most renewable energies in Colorado.

Site: <http://rechargecolorado.com>

American Wind Energy Association is a national association that provides information for wind energy developers, consumers, wind turbine manufacturer, consultants, insurers, researchers, financier's policy updates.

Site: <http://www.awea.org>

National Renewable Energy Lab (NREL) is a national laboratory for renewable energy. They provide extensive information about renewable energy. Site: <http://www.nrel.gov>

Windustry: Provides information about the economic potentials for wind energy. They provide educational material to help determine the benefits of a wind turbine in a particular location. Site: <http://www.windustry.org>

The United State Department of Energy: Promotes scientific and technological innovations in energy. Site: <http://www.energy.gov>