

# Wind and Renewable Energy in Colorado

*Briefing Book*



January 2004  
Colorado Coalition for New Energy Technologies

[\[Click here to proceed to table of contents\]](#)

[Page intentionally blank]

## **Contents:**

(click on link to go directly to that page)

[5 What is renewable energy?](#)

[7 Does Renewable Energy Cost More than Conventional Energy Supplies?](#)

[8 Consumer Benefits of Wind and Renewable Energy](#)

[9 Xcel Energy Testimony on Wind Energy's Cost Savings for Consumers](#)

[10 Local Economic Benefits of Xcel Energy's New Windfarm in Prowers County](#)

[11 Site Services Required for a Typical 100MW Windfarm](#)

[12 Job Impact of Renewable Energy Projects](#)

[13 Colorado's Renewable Energy Resources](#)

[14 Wind Energy Projects in Colorado](#)

[15 Water Savings Potential of Renewable Energy](#)

[16 How Does Renewable Energy for Electric Power Generation Help Reduce our Reliance on Imported Oil?](#)

[17 Is Renewable Energy Reliable? Is Back-up Generation Required?](#)

- [18 Does Renewable Energy Rely on Federal Subsidies?](#)
- [19 Do Wind Turbines Kill Birds?](#)
- [20 Do Colorado Utilities Support Renewable Energy?](#)
- [21 The Texas Success Story](#)
- [22 Colorado Public Opinion Survey on Renewable Energy](#)
- [24 Nebraska's "Deliberative Poll" of Public Power Customers](#)
- [26 Colorado Policy Options: A Renewable Energy Standard](#)
- [28 Renewable Energy Standard: Myths and Reality](#)
- [30 Colorado's National Renewable Energy Laboratory](#)
- [32 Colorado's Leaders Talk About Renewable Energy](#)
- [35 Members of the Colorado Coalition for New Energy Technologies](#)

## What is Renewable Energy?

The United States currently relies heavily on coal, oil, and natural gas for its energy. Fossil fuels are nonrenewable, that is, they draw on finite resources that will eventually deplete, becoming too expensive or too environmentally damaging to retrieve. In contrast, renewable energy resources—such as wind and solar energy—are constantly replenished and will never run out.

Most renewable energy comes either directly or indirectly from the sun. Sunlight, or solar energy, can be used directly for heating and lighting homes and other buildings, for generating electricity, and for hot water heating, solar cooling, and a variety of commercial and industrial uses.

The sun's heat also drives the winds, whose energy is captured with wind turbines. Then, the winds and the sun's heat cause water to evaporate. When this water vapor turns into rain or snow and flows downhill into rivers or streams, its energy can be captured using hydroelectric power.

Along with the rain and snow, sunlight causes plants to grow. The organic matter that makes up those plants is known as biomass. Biomass can be used to produce electricity, transportation fuels, or chemicals. The use of biomass for any of these purposes is called biomass energy.

Hydrogen also can be found in many organic compounds, as well as water. It's the most abundant element on the Earth. But it doesn't occur naturally as a gas. It's always combined with other elements, such as with oxygen to make water. Once separated from another element, hydrogen can be burned as a fuel or converted into electricity.

Not all renewable energy resources come from the sun. Geothermal energy taps the Earth's internal heat for a variety of uses, including electric power production, and the heating and cooling of buildings. And the energy of the ocean's tides comes from the gravitational pull of the moon and the sun upon the Earth.

From the National Renewable Energy Laboratory:  
[http://www.nrel.gov/clean\\_energy/whatis\\_re.html](http://www.nrel.gov/clean_energy/whatis_re.html)

### **Useful websites for more information on renewable energy technologies:**

American Wind Energy Association: [www.awea.org](http://www.awea.org)  
Coloradans for Renewable Energy: [www.coenergy.info](http://www.coenergy.info)  
Geothermal Energy Association: [www.geo-energy.org](http://www.geo-energy.org)  
Governor's Office of Energy Mgmt. and Conservation: [www.state.co.us/oemc](http://www.state.co.us/oemc)  
National Biomass Coordination Office: [www.bioproducts-bioenergy.gov](http://www.bioproducts-bioenergy.gov)  
National Hydropower Association: [www.hydro.org](http://www.hydro.org)  
National Wind Coordinating Committee: [www.nationalwind.org](http://www.nationalwind.org)  
Public Renewables Partnership (public power): [www.repartners.org](http://www.repartners.org)  
Renewable Energy Atlas of the West: [www.energyatlas.org](http://www.energyatlas.org)  
Solar Energy Industries Association: [www.seia.org](http://www.seia.org)  
U.S. DOE Wind Powering America: [www.windpoweringamerica.gov](http://www.windpoweringamerica.gov)

## **Does Renewable Energy Cost More than Conventional Energy Supplies?**

In a 2001 ruling, the Colorado Public Utilities Commission determined that wind energy would likely lower the cost of electricity for Colorado's ratepayers. In that ruling, the commission ordered Xcel Energy to enter into negotiations to build a 162-megawatt windfarm near Lamar.

A copy of the Commission's decision is available at:  
[www.dora.state.co.us/puc/decisions/2001/C01-0295\\_99A-549E\\_PHASEII.pdf](http://www.dora.state.co.us/puc/decisions/2001/C01-0295_99A-549E_PHASEII.pdf)

***When natural gas is over \$3.50 per MMBtu, wind is the least-cost option for new power generation with the federal production tax credit. Without the production tax credit, wind is still the least-cost option when gas is at or above about \$5.00 per MMBtu.***

- ***The average cost for natural gas (at Henry Hub) in December 2003 was over \$6.50 per MMBtu.***

---

### **Who Pays for Transmission Interconnection?**

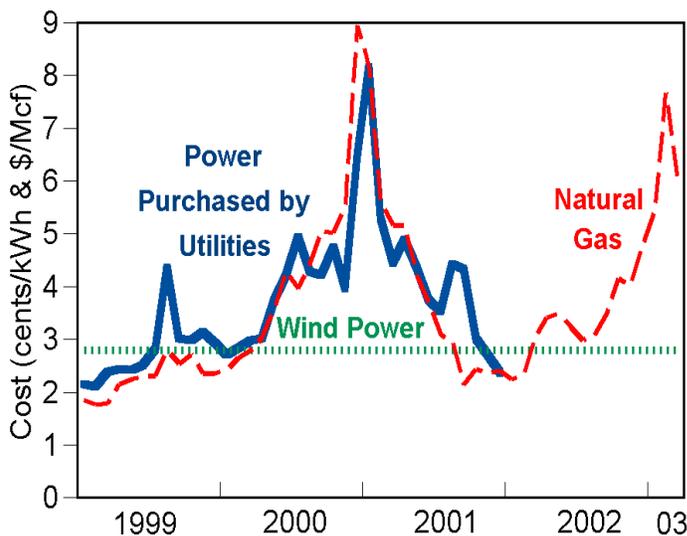
All the facilities to transmit the wind power from the wind generation site to the utility's point of interconnection constructed are typically paid for by the project developer. The utilities are typically not expected to spend ratepayer dollars to connect wind plants to the utility's facility.

# Consumer Benefits of Wind and Renewable Energy

## Renewable Energy Offers Absolutely Stable Prices and Affordable Rates

The absolute price stability offered by wind energy protects individual consumers, large industrial users and all ratepayers who desire affordable electricity at fixed prices.

Xcel Energy's new Colorado Green windfarm in Prowers County near Lamar is producing electricity at a stable 3.2 cents per kilowatt-hour.



The cost of wind energy is stable and predictable over many years

Sources: PUCT Data, Virtus Energy, NYMEX, Good Co. Associates

# Xcel Energy Testimony on Wind Energy's Cost Savings for Consumers

The new windfarm that Xcel Energy is building near Lamar will save consumers \$4.6 million in their power bills.

—From Xcel Energy testimony by Ronald Darnell to FERC, 16 June 2003

Exhibit PSC-1  
Page 18 of 36

1 Company has produced another PROSYM scenario in which the Lamar facility is  
2 assumed to be operational for all of 2003. In terms of total cost, the annualized  
3 Lamar Wind scenario produced a "Total FCA Eligible Cost" (PSC-11, Page 4,  
4 Line 49) of \$575,857,555, which is \$4.6 million less than "Total FCA Eligible  
5 Cost" determined in the base-run scenario amount to \$580,480,163, (PSC-11,  
6 Page 2, Line 49). By this comparison, the Company is not suggesting that the  
7 FCA base be predicated on an annualization of the WESA; rather, the comparison  
8 is meant to show that the Lamar wind facility, at a cost of \$.03261 per kWh, will  
9 displace higher cost generation over the course of a year inuring to the benefit of  
10 customers; therefore the Company seeks permission to include the WESA in the  
11 FCA.

12 **Q. MR. DARNELL, YOU STATED THAT, IF THE COMMISSION WILL**  
13 **NOT ALLOW FCA RECOVERY OF THE WESA, THE COMPANY**  
14 **WOULD SEEK, IN THE ALTERNATIVE, PERMISSION TO**  
15 **ANNUALIZE THE COST OF THE WESA FOR PERIOD II. PLEASE**  
16 **ELABORATE.**

17 **A.** In order to comply with the CPUC order to seek recovery of the wholesale  
18 allocable WESA costs from wholesale customers by June 30, 2003 and, in the  
19 event that the Commission does not approve FCA recovery of the WESA, the  
20 Company asks this Commission, in the alternative, for permission to develop its  
21 base energy rates predicated on a PROSYM scenario that includes a full year of  
22 WESA costs. Whether the costs attributable to WESA are collected through the

## **Local Economic Benefits of Xcel Energy's New Windfarm in Prowers County**

- **\$764,000 per year in new county revenues**
- **\$917,000 per year for Re-2 School District General Fund**
- **\$203,000 to the Re-2 Bond Fund**
- **\$189,000 to Prowers Medical Center**

---

***The Colorado Green windfarm in Prowers County will pump \$22.9 million [in increased property taxes alone] into the local economy over 30 years***

From article by Virgil Cochran in Lamar Daily News, 29 October 2003:  
"Wind farm construction an economic boon for county"

**Colorado Green, Xcel Energy's new windfarm near Lamar, provided over 300 installation jobs in Lamar and the Prowers County area. It has created 15-20 full-time local operation and maintenance jobs, which will indirectly create yet more jobs. This project will increase Prowers County's tax base by 29%.**

## **Site Services Required for a Typical 100MW Windfarm**

### **Person-hours**

▪ Turbine & Tower Installation Services	121,080
▪ Concrete Construction Services	72,000
▪ Equipment Transportation Services	42,650
▪ Project Management Services	36,775
▪ Engineering & Surveying Services	25,300
▪ Vendor Field Services	20,535
▪ Road Building Services	18,940
▪ Underground Cable Installation Svc.	17,250
▪ General Labor Services	15,000
▪ Local Material Delivery Services	12,500
▪ Electrical Installation Services	8,770
▪ Concrete Services	6,800
▪ Equipment Repair & Fueling Services	6,000
▪ Inspection & Testing Services	5,000
▪ Food Preparation & Delivery Services	3,500
▪ Housing & Lodging Services	3,000
▪ Real Estate & Legal Services	2,800
▪ Communication System Services	1,120

**Total Person-hours 419,020**

**The total site services required for construction of a typical 100MW windfarm is about 419,020 person-hours — equivalent to approximately 53,377 days of work at the site.**

## **Job Impact of Renewable Energy Projects**

The State of Nevada recently implemented a 15% renewable energy standard. In comments filed with the Nevada Public Service Commission in 2002, the Nevada AFL-CIO said that this renewable energy standard would create a potential 27,229 full-time equivalents over 10 years.



**Construction of Colorado Green wind project in Prowers County—  
Prowers County's largest-ever capital project**



# Wind Energy Projects in Colorado

## Operational

Colorado Green (Prowers County):	162MW
Peetz (Logan County)	30 MW
Ponnequin (Weld County):	32 MW

## Planned

Arkansas River Power Authority	3 MW
City of Lamar	3 MW
Springfield	1.8 MW



Xcel Energy's Peetz Table Windfarm, Logan County

## Water Savings Potential of Renewable Energy

Most renewable energy technologies require little or no water to generate power. During a time of drought, windfarms can produce reliable income for local economies even if the surrounding cropland is parched dry. And when crops are growing or livestock are grazing, 90 to 97 percent of the land surrounding a wind turbine remains available for its original uses.

### Water Consumption of Three Electricity Generation Technologies:

<b>Coal:</b>	490 gallons per megawatt-hour
<b>Natural Gas Combined Cycle:</b>	250 gallons per megawatt-hour
<b>Wind:</b>	1 gallon per megawatt-hour



Colorado Swine Partners in Lamar—a public private partnership that is harnessing cutting-edge technology to demonstrate the feasibility and cost effectiveness of capturing methane gas from an anaerobic digester (AD) to produce electricity. Such projects also address groundwater contamination and odor problems that hog farms have faced.

## How Does Renewable Energy for Electric Power Generation Help Reduce our Reliance on Imported Oil?

There is a strong link between greater reliance on domestically produced, inexhaustible renewable energy supplies and national energy security.

In its February 24, 2003 cover story, BusinessWeek focused on America's dependence on imported oil. As reporter John Carey noted, new developments in renewable energy and energy efficiency technologies are exciting, but "what do they have to do with oil?"

The answer, wrote BusinessWeek's Carey, "lies in the idea of fungible energy:"

*"Eliminate the need for a power plant running on natural gas, and that fuel becomes available for everything from home heating to a source of hydrogen for fuel-cell vehicles."*



Construction of Colorado Green, Prowers County

## **Is Renewable Energy Reliable? Is Back-up Generation Required?**

Some renewable energy technologies, such as wind, are naturally variable, but not unreliable. For example, with new technology now in use, software programs can predict when the wind will blow and how much wind energy will be generated with up to 90% accuracy.

Wind plants are not dispatchable in the conventional sense. However, electricity demand is also not controlled by utility operators. The utility system is designed to accommodate fluctuating loads, and additional incremental variability imposed by adding amounts of wind up to at least 10-15% percent of system generating capacity is small and has not been costly.

In PUC testimony in 2001, Xcel Energy claimed the costs for backing up wind were prohibitive. However, the Colorado PUC found no basis for these claims. Xcel's own studies of wind backup costs also found only small costs for handling wind variability.

The biggest "reserve" in the integrated utility system is called first contingency or n-1 reserve. The grid is designed to withstand the loss of the single largest element (big generator or transmission line tripping off). Until a single wind plant approaches the level of the first contingency loss, incremental operating costs are likely to increase only slowly as wind penetration increases

Other renewable technologies, such as biomass (e.g. crop residues, animal waste), geothermal and hydro, offer firm "dispatchable" energy around the clock.

## **Does Renewable Energy Rely on Federal Subsidies?**

Like fossil and nuclear energy, some renewable energy technologies have federal tax credits, the most noteworthy of which is the wind production tax credit of 1.8 cents per kilowatt-hour, which enjoys bipartisan support and awaits reauthorization in the federal energy bill.

Examples of federal fossil-fuel subsidies are numerous and total over \$5 billion per year. These subsidies include:

- Immediate Expensing of Exploration and Development Costs
- Percentage Depletion Allowance for Oil and Gas
- Requiring Full Coal Firm Support for the Black Lung Fund
- Intangible Drilling Costs
- Passive Loss for Oil and Gas
- Non-Conventional Fuel Production Credit
- Tax Breaks for Enhanced Oil Recovery
- Multilateral Development Bank Loans for Fossil Fuel
- Export Import Bank Guarantees for Fossil Fuel
- Capital Gains Treatment of Royalties on Coal
- Income Tax Exemption for Publicly Owned Utilities
- Rural Utilities Service Loans
- Tax Exemption for Publicly Owned Utility Bonds

A full list of these subsidies, along with descriptions and their cost to taxpayers, is available on the website of Taxpayers for Common Sense at <http://www.taxpayer.net/TCS/fuelsubfact.htm>.

## **Do Wind Turbines Kill Birds?**

Bird kills have caused serious concern at only one location in the U.S. – Altamont Pass in California. This is one of the first areas in the country to see significant wind development. Over the past decade, the wind community has learned a great deal about siting wind plants in ways that avoid locations that might pose problems for birds. Modern wind installations are simply not raising avian concerns.

Compared to bird deaths resulting from other manmade structures, highway traffic and housecats, bird kills by wind plants are numerically insignificant and are not expected to impact bird populations. Of course, deaths of endangered species are of greater concern, but again the only location with a suggestion of this problem is Altamont. And even in that case, experts disagree on the severity of the problem.

## Do Colorado Utilities Support Renewable Energy?

Some of Colorado's utilities, including Xcel Energy and Holy Cross Energy, are national leaders in "green pricing" programs in which consumers pay an additional charge (typically 2.5 cents per kilowatt-hour) to receive power generated from windfarms.

However, some observers point out that with wind's cost-competitiveness, such green-pricing programs perpetuate the misconception that wind is more costly than conventional sources of energy for power generation.

The Fort Collins city council adopted a policy in 2003 calling for a 15% increase in renewable energy by 2017 and for a 10% increase in overall energy efficiency by 2012.



10 kV Altair Energy photovoltaic array at National Renewable Energy Laboratory in Golden

## The Texas Success Story

One of the nation's most effective state renewable energy measures was signed into law by then-Governor George W. Bush of Texas in 1999. The Texas standard specifies that 2,000 megawatts of new renewable capacity will be built in that state by 2009. Already, the state is over halfway toward reaching that goal, and more than \$1 billion of new wind development is building the tax base in rural west Texas and supporting manufacturing jobs statewide.



“As the Senate debates the future of energy in the United States, it would do well to look to President Bush’s home state of Texas – not for lessons from the Enron scandal or for proof of Big Oil’s influence over Bush policies, but for the nation’s most surprising clean-energy success story.

Texas is the nation’s biggest consumer of coal, oil, gas, and electricity. As a result, it is also the nation’s biggest polluter.

But the “oil and gas state,” of all places, has taken what is probably the nation’s boldest – and most successful – action to promote clean energy from the wind and the sun. The president’s critics and friends alike may be surprised to learn that it was Governor Bush himself who signed it into law in 1999.”

—By John C. Ryan of the New America Foundation as quoted in  
Christian Science Monitor, March 20, 2002

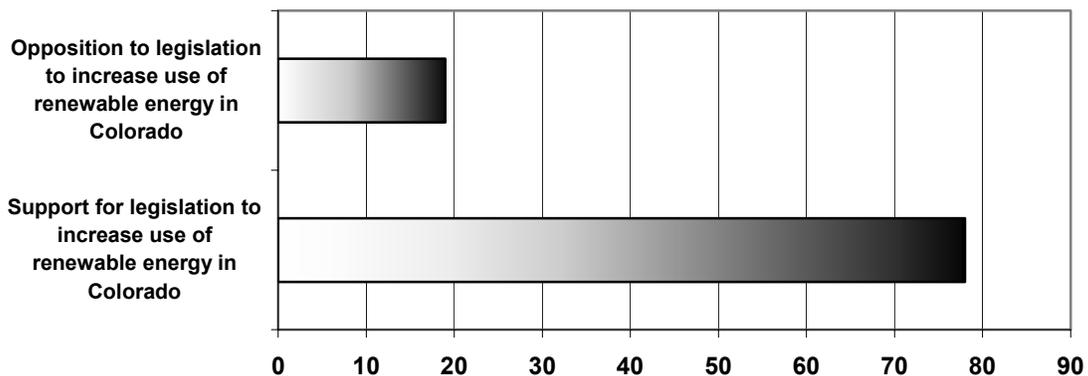
# Colorado Public Opinion Survey on Renewable Energy

The Wells Fargo Public Opinion Research Program conducted a poll of 602 telephone interviews with registered voters in Colorado between January 16 and February 5, 2003.

The survey questions covered the following topics:

- Preferred fuel sources for electricity generation
- Level of support for the Colorado state legislature requiring utility companies to generate more electricity from renewable sources
- Willingness to pay for utilities to develop renewable energy
- Values that should guide decisions on electricity generation and a comparison of different fuel sources relative to these values
- Attitudes toward utilities and how electric power is generated
- Perceptions of environmental problems

**Public Support for Renewable Energy Legislation**



In the survey, Coloradoans reject several of the arguments that have been used against the use of renewable energy sources.

- 75% disagree with the statement “It is too soon for utilities to invest in renewable energy because the technology is not proven.”
- 79% disagree with the statement “It is not worth developing renewable energy because it can’t provide enough power.”
- 68% reject the notion that “wind farms are ugly.”

Poll summary and results available at <http://www.cudenver.edu/wirthchair/renewableenergy.pdf>.

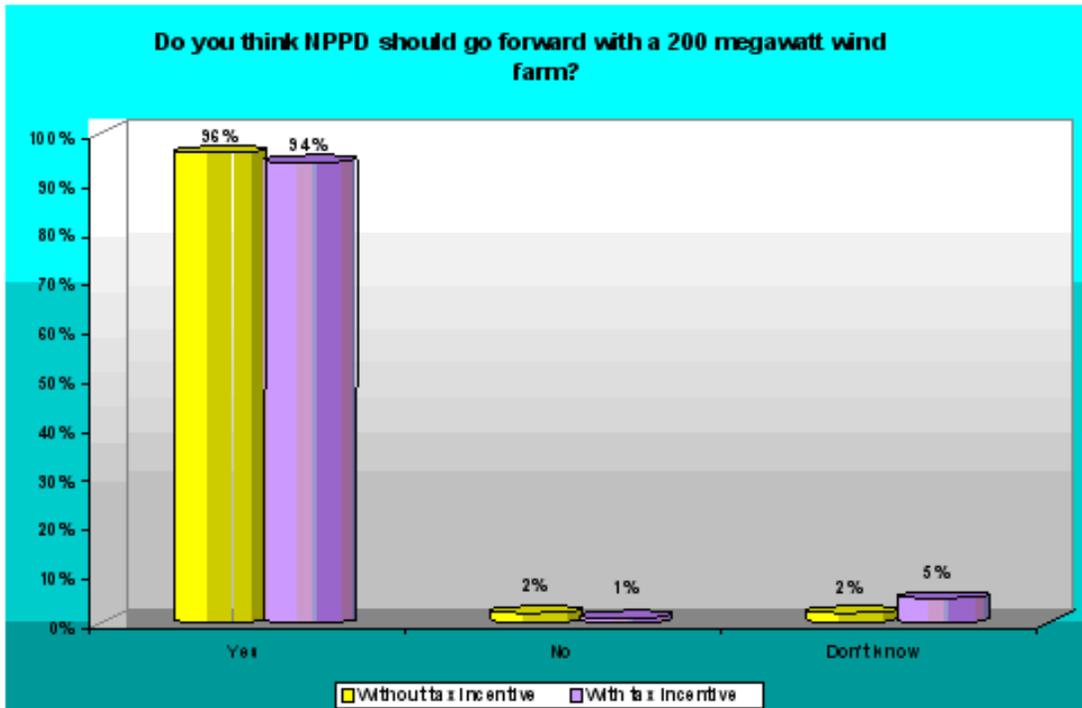


Construction of Colorado Green, Prowers County

# Nebraska's "Deliberative Poll" of Public Power Customers

FOR IMMEDIATE RELEASE, September 12, 2003  
**NPPD's Deliberative Polling Process Successful, Informative**

Columbus - Ask and you shall receive. That's just what NPPD [Nebraska Public Power District] did in its first-ever deliberative polling effort conducted this summer. **The results received indicate a high level of support and interest in alternative energy sources such as wind and methane, as well as strong approval for the polling process.**



Overwhelming percentages of Nebraska public power consumers expressed support for new windfarm construction, even in the absence of federal tax credits.

**“I think we learned as much from the process as our customers did about energy alternatives,” said Frank Thompson, NPPD Renewable Energy Development Manager. “The results indicate overwhelming support for wind power and a great deal of interest in other renewable opportunities, such as methane.”**

[...]

**Specifically, the polling results show that 96 percent think 200 megawatts (MW) of wind power should be added to NPPD’s diverse generation fuel mix and 37 percent think NPPD should add more than 200.**

Customers voiced strong support for the methane (animal manure) projects described during the day. Eighty one percent think NPPD should pursue adding five MW of power from methane gas to its generation mix. Using Nebraska-based resources was important to the participants, and 94 percent said all customers, not just those bill-paying customers that want power produced from renewable resources, should pay for the costs of renewable energy costs.

NPPD’s use of the deliberative polling process is significant because it is the first new deliberative polling data on energy alternatives in five years, is the first application by a public power entity (customer-owned versus investor-owned), is the first Deliberative Poll in the Midwest and reflects a rural sample of data (78 percent of the telephone survey participants reported they lived in an area of less than 50,000 people).

From [http://www.nppd.com/news/press/polling\\_results.asp](http://www.nppd.com/news/press/polling_results.asp) [with emphasis added]

# **Colorado Policy Options: A Renewable Energy Standard**

*Ensuring Continued Rural Economic Development and a  
Growing Industry*

## **City and County Resolutions Supporting Renewable Energy in Colorado**

The following cities and counties have passed resolutions in support of a renewable energy standard in Colorado:

### **Cities and Counties:**

- The 13-county Southern District of Colorado  
Counties Incorporated:
  - Alamosa, Baca, Bent, Conejos, Costilla,  
Crowley, Huerfano, Las Animas, Mineral, Otero,  
Prowers, Rio Grande, and Saguache counties
- Baca County
- City of Boulder
- Costilla County
- Crowley County
- Elbert County
- Fremont County
- Kiowa County
- Kit Carson County
- Larimer County
- Ouray County
- Pitkin County
- Prowers County
- Pueblo County
- San Miguel County
- Town of South Fork

## **Economic Development Interests:**

- Action 22: supporting incentives and programs to increase the amount of renewable energy purchased in Colorado
- Costilla Chamber of Commerce
- Colorado League of RC&D Councils
- Costilla County Economic Development Council
- Huerfano County Economic Development
- Independent Bankers of Colorado
- Southern Colorado Economic Development District (SCEDD)
- Southern Colorado Enterprise Development, Inc.



Construction of Colorado Green, Prowers County

## Renewable Energy Standards: Myths and Reality

**Myth:** “A renewable energy standard will cost ratepayers money”

**Reality:** The use of renewable energy sources could save ratepayers millions if gas or oil prices increase as they have done in recent years. In a Least Cost Resource Analysis, the Colorado PUC ruled in 2001 that the acquisition of the 162MW Lamar windfarm facility would likely lower the cost of electricity for Colorado’s ratepayers.

**Myth:** “The standard is a mandate, but we want to promote markets”

**Reality:** A renewable energy standard guarantees development of a new competitive market for renewables. For example, the cost of wind power in Texas fell 25-50% after the enactment of that state’s standard.

A standard creates a highly competitive market among wind and other renewable energy developers in an already heavily regulated market.

A standard captures public benefits (clean air, visibility, water conservation, climate stability) not accounted for in current markets.

A standard creates local jobs and increase taxes and royalties paid to the state; the economic benefits will stay here — they won’t be exported to other states or countries.

**Myth:** “Wind energy is not predictable, does not integrate into the current electric system well, and drives up infrastructure costs.”

**Reality:** Advances in turbine technology have enabled wind generation to be integrated into current systems without disrupting the system.

Wind energy developers pay for a majority of costs of getting the power onto the system.

New technology makes wind energy much more reliable and predictable. New software programs predict when the wind will blow and how much wind energy will be generated with up to 90% accuracy.



Xcel Energy's Ponnequin Windfarm, Weld County

# Colorado's National Renewable Energy Laboratory

## Economic Benefits

- Total salaries paid to National Renewable Energy Laboratory (NREL) employees in 2000 were \$51 million. Since 98% of employees live in Colorado, most of that money is pumped back into the Colorado economy.
- In FY 2000, NREL awarded \$14.2 million in subcontracts to Colorado companies. \$4.2 million was for research work; the remainder for construction, business services and supplies.
- Colorado Universities were awarded \$1.5 million in research subcontracts by NREL.
- In FY 2000, about \$48 million in procurements, subcontracts and research agreements were awarded to small businesses, with \$9.5 going to Colorado companies and small businesses.
- NREL awarded the following Colorado companies and universities research subcontracts:
  - ABO-Copeland Architecture
  - American Solar Energy Society
  - Architectural Energy Corp.
  - Behrent Engineering Co.
  - Civitas Inc.
  - Colorado Energy Group Inc.
  - Colorado School of Mines
  - Colorado State University
  - Conflux Inc.
  - Community Power Corp.
  - Daystar Technologies Inc.
  - Econergy International Corp.
  - Emergent Information Technologies

- Ensar Group Inc.
- Hauser Chemical Systems
- Hazen Research Inc.
- Industrial Laboratories Co.
- Industrial Solar Technology Corp.
- ITN Energy Systems Inc.
- JE Sinor Consultants Inc.
- JA Phillips & Associates
- Materials Research Group
- MCAD Design Inc.
- MCDS Inc.
- Merrick & Co.
- Millennium Energy
- Mountain Valley Energy Inc.
- MV Systems
- Pinnacle Biotechnologies International
- RAM Mechanical
- Stratus Consulting Systems Solutions Inc.
- Technology Advisors & Investments Corp.
- Topro Systems Integration
- University of Colorado
- Vanderplaats Research & Development

### **Economic Development Support**

- Of the 30 spin-off companies formed from NREL-developed technologies, 15 are located in Colorado.
- NREL has had cooperative research and development agreements (CRADAs) with 10 Colorado companies. Total funding for these CRADAs amounts to \$13.5 million. Three are small businesses.

From NREL ([www.nrel.gov](http://www.nrel.gov)) data

## **Colorado's Leaders Talk About Renewable Energy**

*[quotes from 2002 and 2003 unless otherwise noted]*

“Southeastern Colorado has some of the best wind potential in the state. We are presented with an opportunity that will promote rural economic development and supply energy to the rest of the state.”

—Senator Ken Kester (R-Las Animas)

“Our agricultural lands are losing value each year. We need to use every means available to help the farmers and ranchers earn money to keep from losing their shirts. The demand for renewable energy keeps growing and we keep watching other states take the steps to help their rural communities survive and thrive.”

—John Galusha, Southern Colorado Economic Development District

“Our agricultural lands are losing value each year. It is our job to creatively look at solutions. Wind energy is a viable and necessary step to help our rural communities survive and thrive.”

—Bruce Redus, Executive Director, Fremont Economic Development Corporation

“In the last ten years the price of wind has dropped from over twenty cents a kilowatt-hour to between three and five cents - making it cost competitive with new natural gas. Colorado can be a leader in renewable energy and create an important engine for economic development in rural Colorado.”

—Colorado House Speaker Lola Spradley (R-Beulah).

“Net income to agricultural producers continues to decline each year. The creation of wind energy sources on their property allows farmers and ranchers to diversify their income streams. By diversifying their sources of income, producers are better able to weather difficult conditions, both economic and environmental. The development of wind energy provides additional jobs and other forms of economic stimulus to rural communities that are otherwise struggling.”  
—John Stencel, President of the Rocky Mountain Farmers Union

“Eastern Colorado is a perfect area for the possible development of various wind farms. We in Crowley County look forward to the prospect of a wind farm in our region. Its creation would only enhance our local economy and generate and added income to some struggling farmers or ranchers.”  
—Dwight Gardner, Crowley County Commissioner.

“In rural areas that are basically agriculture we have to look for opportunities such as this. With agriculture in such dire straits wind energy is a very good resource to raise our tax base. It doesn’t harm a thing environmentally, and permits land to stay in production. It is basically getting double a return to the land owner.”  
—Prowers County Commissioner Leroy Mauch

“Baca County has passed a resolution supporting a state renewable energy standard to provide economic benefits for rural Colorado.”  
—Baca County Commissioner Troy Crane

“Wind energy is cost competitive and is a key positive step in our economic future of Colorado,” “Not only will it provide us

with a clean unlimited electricity source but it will support our state's farms.

—Representative Michael Merrifield (D-Manitou Springs)

“I'm 100% for wind energy. I think it is a good thing for the rural people in Colorado. If we are going to continue to use electricity we might as well use wind.”

—Tom Ferhinger, whose farm is one of several that hosts wind turbines on the Peetz Table Windfarm in Peetz, Colorado. This Xcel Energy windfarm began generating electricity in September 2001.

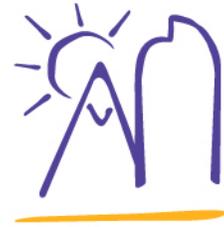
“Colorado has real potential to become a Silicon Valley for renewable technologies. The global market has begun to skyrocket, and this could mean high-tech jobs and economic growth if we can nurture our homegrown renewable energy industries.”

—John Coors, President, Golden Genesis, from Executive Summary of Colorado Governor's Renewable Energy Task Force Recommendations, November 1997

# Members of the Colorado Coalition for New Energy Technologies

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

**21 Wheels** (Boulder)  
**Aerofire, Inc.** (Lafayette)  
**Advanced Energy Systems** (Denver)  
**Agro Management Group** (Colorado Springs)  
**All American Energy** (Denver)  
**Altair Energy** (Golden)  
**Aspen Skiing Company** (Aspen)  
**Bergey WindPower** (Norman, Okla.)  
**Boulder Biodiesel** (Boulder)  
**Boulder Community Hospital** (Boulder)  
**BP America** (Denver)  
**BP Solar Corporation** (Frederick, Md.)  
**Burnham-Beck & Sun** (Fort Collins)  
**Calpine** (Denver)  
**Center for Applied Research** (Denver)  
**Center for Resource Management** (Denver)  
**CH2M Hill** (Greenwood Village)  
**Clearwater Strategic Community Investing** (Boulder)  
**Community Energy** (Boulder)  
**Community Office for Resource Efficiency** (Aspen)  
**Community Power Corporation** (Littleton)  
**Delta-Montrose Electric Association** (Montrose)  
**Disgen** (Evergreen)  
**Dorsey & Whitney LLP** (Denver)  
**Dutko Group** (Denver)  
**Econergy International Corp.** (Boulder)  
**EMC Engineers, Inc.** (Lakewood)  
**Energy Systems Engineering** (Basalt)  
**ENSAR Group, Inc.** (Boulder)  
**enXco**  
**E Star Colorado** (Denver)  
**ERTH Inc.** (Longmont)  
**Financial Energy Management, Inc.** (Englewood)  
**Forest City Stapleton, Inc.** (Denver)  
**FPL Energy** (Juno Beach, Florida)  
**FuelCellStore.com** (Boulder)  
**GE Wind Energy** (Tehachapi, Calif.)  
**GeoSource Distributors, Inc.** (Parkville, Mo.)  
**Geotech Environmental Equipment, Inc.** (Denver)  
**Global Solar Energy, Inc.** (Littleton)  
**Hamlin Electric Services** (Ft. Morgan)  
**Holcim (U.S.) Inc.** (Florence)  
**Hydrogen Technologies Company** (Ft. Collins)  
**HydrogenWorks** (Denver)  
**Idalex Technologies, Inc.** (Arvada)  
**ImaginIt, LLC** (Golden)  
**Independent Bankers of Colorado** (Denver)  
**Institute of Ecconomics** (Ridgway)



**COLORADO  
COALITION  
FOR NEW  
ENERGY  
TECHNOLOGIES**

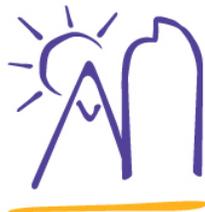
**Julander Energy Company** (Denver)  
**Juxtamark, Inc.** (Louisville)  
**Kinko's** (locations around Colorado)  
**Kiowa County Growers** (Eads)  
**Lightly Treading, Inc.** (Denver)  
**M2M Matrix** (Englewood)  
**Mason Engineering, Inc.** (Elizabeth)  
**Maynard/David Partnership, Inc.** (Arvada)  
**McNeil Technologies** (Golden)  
**McStain Enterprises** (Boulder)  
**Microgy Cogeneration Systems, Inc.** (Golden)  
**Millennium Energy** (Golden)  
**Murray, Franke, Greenhouse, List & Lippitt, LLP** (Denver)  
**Natsource** (New York, N.Y.)  
**Neumeon Dynamics Co.** (Colorado Springs)  
**New Belgium Brewing Company** (Fort Collins)  
**NextWave Energy, Inc.** (Denver)  
**Ockham Energy Services** (Lakewood)  
**Pendergast Sarni Group** (Denver)  
**Poma of America, Inc.** (Grand Junction)  
**Power Energy Fuels, Inc.** (Lakewood)  
**PPM Energy** (Portland, Ore.)  
**Prowers County Development, Inc.** (Lamar)  
**PureVision Technology, Inc.** (Fort Lupton)  
**Rentech, Inc.** (Denver)  
**RES-North America** (Palm Beach Gardens, Fla.)  
**Ridge Company** (Fort Collins)  
**RMH Group, Inc.** (Lakewood)  
**Science and Safety Resources Inc.** (Bailey)  
**SeaWest Windpower** (San Diego, Calif.)  
**Shell WindEnergy, Inc.** (San Diego, Calif.)  
**Sher and Associates** (Evergreen)  
**Solar Energy International** (Carbondale)  
**Solar Solutions** (Silver Cliff)  
**Southwest Energy Efficiency Project** (Boulder)  
**Sterling Bio-Technologies Corp.** (Sterling)  
**Toyota Motor Sales, U.S.A., Inc.** (Englewood)  
**Transportation Techniques, LLC** (Denver)  
**UQM Technologies** (Golden)  
**URS Corporation** (Denver)  
**Vail Resorts** (Vail)  
**Valley Heating & Air Conditioning** (Brighton)  
**Versar, Inc.** (Northglenn)  
**Vestas-American Wind Technology**  
**Carol K. Werner, LLC** (Merino)  
**Western Colorado Power Co.** (Telluride)  
**Western Resource Advocates** (Boulder)  
**WestStart** (Denver)  
**Xanterra Parks & Resorts** (Aurora)  
**Zilkha Renewable Energy** (Houston, Tex.)

This briefing book was compiled by

## Colorado Coalition for New Energy Technologies

]

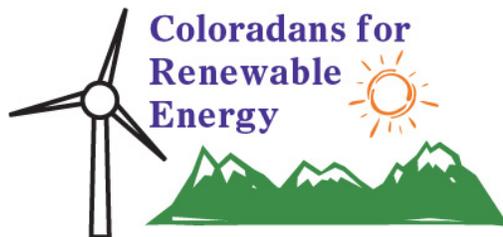
*The Colorado Coalition for New Energy Technologies brings together businesses and non-profit groups to encourage environmentally responsible economic growth through the efficient use of Colorado's abundant and clean sources of energy.*



**COLORADO  
COALITION  
FOR NEW  
ENERGY  
TECHNOLOGIES**

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

---



[www.coenergy.info](http://www.coenergy.info)