

WHAT RENEWABLE ENERGY MEANS TO TEXAS

Jobs Statewide

Growing Tax Base in Rural Areas

Clean Energy for Texas' Future

**Enhanced Energy Security
and Diversity**

Photo courtesy of Cielo Wind Power



*Texas Stands to Benefit More than Any Other State
from Consistent Renewable Energy Policies.*

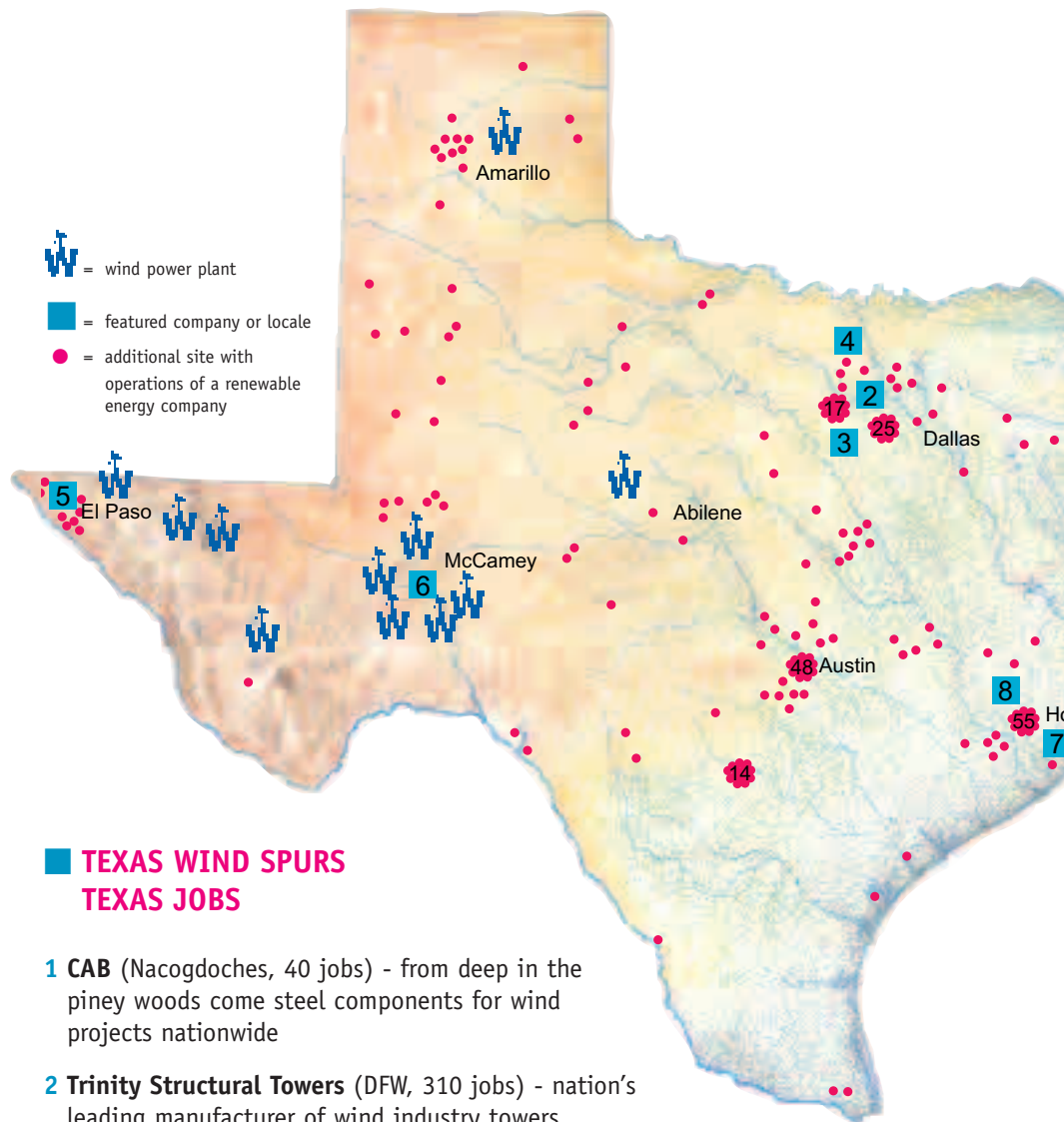
Success from Texas' Renewable Portfolio Standard

Cutting-edge policy delivers clean, low-cost energy while providing economic benefits and jobs statewide.

Wind-Related Jobs and Tax Base on the Rise. More than \$1 billion of new wind development is building the tax base in rural west Texas and supporting manufacturing jobs statewide. And since the fuel is free, capital-intensive wind power plants create more jobs and pay more property taxes per unit of electricity produced than coal or natural gas.

Why is this Happening?

Texas' Renewable Portfolio Standard, signed into law by Gov. George Bush in 1999, specifies that 2,000 Megawatts of new renewable capacity will be built in Texas by 2009. The Texas Public Utility Commission, then led by current FERC Chairman Pat Wood, crafted detailed rules for the program with a market-based system of tradable renewable energy credits. This clear-cut policy encouraged construction of some of the world's largest wind power projects that now deliver clean energy at prices lower than ever before achieved. The current cost competitiveness of wind power has Texas five years ahead of its renewables construction schedule, almost half way to meeting its 2,000 Megawatt goal.



TEXAS WIND SPURS TEXAS JOBS

- 1 CAB** (Nacogdoches, 40 jobs) - from deep in the piney woods come steel components for wind projects nationwide
- 2 Trinity Structural Towers** (DFW, 310 jobs) - nation's leading manufacturer of wind industry towers.
- 3 Lone Star Transportation** (Ft Worth, 325 drivers nation-wide) - the #1 freight hauler of wind power plant components.
- 4 Molded Fiber Glass** (Gainesville, 200 jobs) - produces blades and other composite components for wind machines.
- 5 Bergen Southwest Steel** (El Paso, 120 jobs) - major wind tower fabricator since 1987.
- 6 McCamey** - \$800 million worth of wind turbines surrounding the "wind capitol of Texas" help support the region's schools & rural government services.
- 7 Port of Houston** - In 2001 handled nearly \$1 billion worth of equipment on its way to wind projects throughout the U.S.
- 8 Zilkha Renewables** (Houston - 15 jobs) - successful oil & gas entrepreneurs, Houston's Zilkha family now develops wind projects world-wide.

WORLD WIND RANKINGS

2001 Installations, in Megawatts

Germany	2,640
Spain	933
TEXAS	913
Rest of U.S.	775
Italy	308

What Texas' New Wind Projects Have Meant to Our Economy

Texas is emerging as a surprising world leader in wind power. Fewer than six years after the state's first commercial utility-scale wind power plant was installed north of Van Horn, wind power is bringing about a general economic boom for rural Texas, delivering royalty income to landowners, substantial tax revenue for schools and creating quality long-term jobs.

Texas Wind Industry Vital Statistics

Estimates for 2002

- Installed Capacity = 1,103 Megawatts
- Number of Texas Counties with Wind Projects = 10
- Taxable Value of Wind Power Plants = \$777 million
- Property tax payments to local school districts = \$11.6 million in 2002
- Landowner Royalty Income = \$2.5 million in 2002
- Wind-related jobs (direct) = 2,500

Wind-Related Jobs - Construction of a Texas wind farm requires intensive effort of up to 300 workers during a period spanning six to twelve months. Combined with Texas-based manufacturing and services, the Texas wind industry employed more than 2,500 workers during 2001. After construction, wind plants retain employees to manage and operate the site for the life of the wind farm.

Landowner Income - Wind power plants typically lease land and pay the landowners a share of their revenue. Annual royalty payments are usually about 2.5% of gross income, or roughly \$2,000 per wind turbine. During the next 25 years, the current crop of Texas wind farms is projected to make royalty payments in excess of \$60 million to rural Texas landowners.

Local Taxes - Capital-intensive wind power plants pay substantial property taxes, predominantly in rural areas. Even in the early years, the Texas wind industry is providing millions annually to support public education in communities across the state, as this sample of estimated payments to local school districts in various counties reflects:

- Pecos County (Iraan-Sheffield ISD, Buena Vista ISD) = \$4,809,000
- Upton County (McCamey ISD) = \$2,750,000
- Taylor County (Trent ISD) = \$1,131,000
- Carson County (White Deer ISD) - \$856,000

SOURCE: based on tax office data for 2001-2002

The current crop of wind projects already in Texas are projected to pay more than \$225 million over their lifetime to support various county services, hospitals, fire departments, water districts, and community colleges as well as local school districts.



King Mountain located near McCamey, Texas:
The world's largest wind power project.

Largest Wind Power Projects in the U.S.

Rank	Name	Location	Size (MW)
1	King Mountain	McCamey, TEXAS	278.2
2	StateLine	Washington/Oregon	262.0
3	U.S. Windpower	California	161.0
4	Desert Sky	McCamey, TEXAS	160.5
5	Green Ridge Power	California	159.9
6	Woodward Mountain	McCamey, TEXAS	159.7
7	Trent Mesa	Sweetwater, TEXAS	150.0

Sources: Virtus Energy, AWEA

What a 10% Goal for Renewables Can Do for Texas

Texas' renewable energy potential is enormous — more than 10 times greater than all electricity sold in Texas. With such an abundance of natural resources, Texas can be a global leader in the renewable energy field much as it has dominated the 20th century's experience with fossil fuels.

Economic Benefits from Wind Power

	Current 2002	Texas RPS 2009	Target 10% 2020
Installed Megawatts	1,103	2,000	13,400
Wind in Electric Supply	1.0%	1.7%	10.0%
Direct Wind-related Jobs	2,500	3,200	8,500
Additional Indirect Jobs	2,900	3,700	9,800
Payroll Value of Direct Jobs	\$75 million	\$96 million	\$255 million
Landowner Royalties (annual)	\$2.5 million	\$4.6 million	\$30.8 million
Local Taxes (annual)	\$13.3 million	\$26.4 million	\$216 million
Value of Wind Energy (annual)	\$101 million	\$199 million	\$1.4 BILLION

KEY ASSUMPTIONS:

- (1) Data for 2002 based on actual data (EIA, tax office data, FPL Energy) or best estimates by Virtus Energy.
- (2) Wind-related jobs in 2020 assume robust, diversified in-state manufacturing; based on job intensity for Denmark; indirect jobs based on Texas Comptroller estimates.
- (3) Landowner royalties assume 2.5% royalty, 35% capacity factor and 3 cent/kWh contact price.
- (4) Local taxes assume total rate of 2.51%; no abatements; declining balance method; inflation equal 2%.

Renewables can create more economic opportunities if Texas decision-makers continue to support its growth. With a few straightforward policy initiatives, wind power could be directly responsible for more than 8,000 jobs, provide more than \$200 million annually in local taxes, and compensate \$30 million each year to landowners in windy regions. When the multiplier effect of the indirect activity stimulated by wind-generated wealth is considered, these benefits can be expected to increase substantially.

An Achievable Goal - A target of 10% renewable energy is achievable in Texas with the right policies:

- Adding transmission infrastructure to move wind-generated power to cities;
- Adopting a federal renewable portfolio standard to stimulate development in the most cost-effective regions of the country; and
- Extending the production tax credit long-term.

In light of the tremendous benefits derived from clean, homegrown energy supplies, it would be unfortunate if Texas — home to some of the lowest cost wind power in the world — was not prepared to seize this opportunity.

The success of the Texas wind industry in 2001, nearly 913 MW in a single year, makes the 2009 Texas RPS goal appear small in comparison. If Texas were to simply match the level of activity demonstrated in 2001 it would result in more than 18,000 MW of wind capacity in 2020 — considerably in excess of the 13,400 MW needed to achieve 10% of electric production in 2020. Moreover, additional renewable energy resources such as solar and biogas are expected to make valuable contributions in the decades ahead.

A Renewable Source for Funding Schools

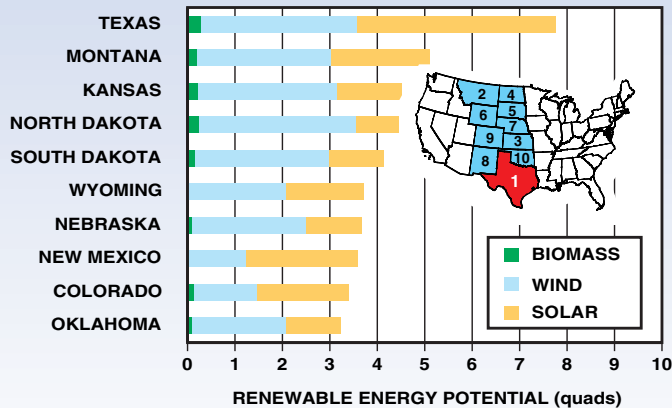
As Texas contemplates creative solutions to boost school funding, enabling additional wind development should be high on the list of options. The potential of wind to quickly become a significant source of school funding in rural areas is powerfully demonstrated by Pecos County. In just one year, nearly \$300 million in wind assets added 14% to the county's total tax base. This sizable boost is particularly impressive since Pecos County already has considerable taxable assets consistent with its top-10 ranking among Texas oil producing counties.

Clearly, 10% renewables by 2020 is an achievable goal that will benefit Texas.

Consistent Policy Can Deliver Even Greater Benefits

With vast development potential and a skilled manufacturing base, Texas is poised to emerge as a global leader in Renewables.

Texas is #1 in Renewable Potential



Proven Policies

Production Tax Credit (PTC)

This federal incentive rewards production of energy rather than construction of equipment. Nominally set at 1.5 cents per kilowatt-hour, the PTC allows environmentally benign wind energy to be cost competitive with dirtier options.

Renewable Portfolio Standard (RPS)

RPS assures that retailers of electricity acquire modest amounts of renewable energy. Creation of a minimum, long-term market has proven an effective catalyst for rapid development of renewable energy resources.

- The Cost of RPS is Low**

The federal production tax credit coupled with RPS-driven economies-of-scale result in wind power being a viable, cost-competitive electric option.

- RPS makes Renewable Markets Work Better**

The advent of RPS and tradable renewable energy credits, make the lowest cost renewable resources available to all, enabling voluntary programs to provide better value to customers.

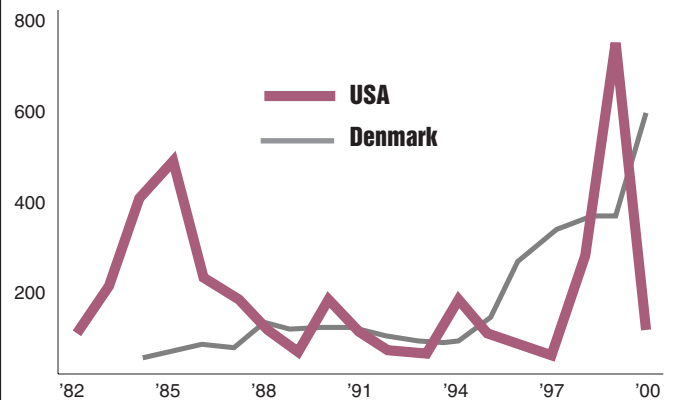
- RPS Stimulates Utility Action**

Experience with the Texas RPS shows that utilities with RPS requirements liked what they saw in renewables and bought twice the mandated amount (an extra 300 megawatts). Those private utilities not subject to an RPS requirement remained wary of renewables buying only one megawatt collectively.

Consistent Renewables Policy A Tale of Two Nations

Denmark, with a size and population roughly equal to greater-Houston, has championed consistent policies that have fostered more than 16,000 permanent wind related jobs. Consistency has its rewards. In 2001, companies from **Denmark supplied 60% of the wind turbines installed in Texas, worth more than \$300 million.** In contrast, cyclical support for renewable energy in the **United States** stifles the domestic wind manufacturing sector discouraging new investment. In 2001, uncertainty regarding continuation of the federal production tax credit triggered a **U.S. layoff cycle that furloughed more than 500 Texas workers.**

WIND CAPACITY ADDED BY YEAR, IN MEGAWATTS



TEXAS WIND EMPLOYEE LAYOFFS, 2001

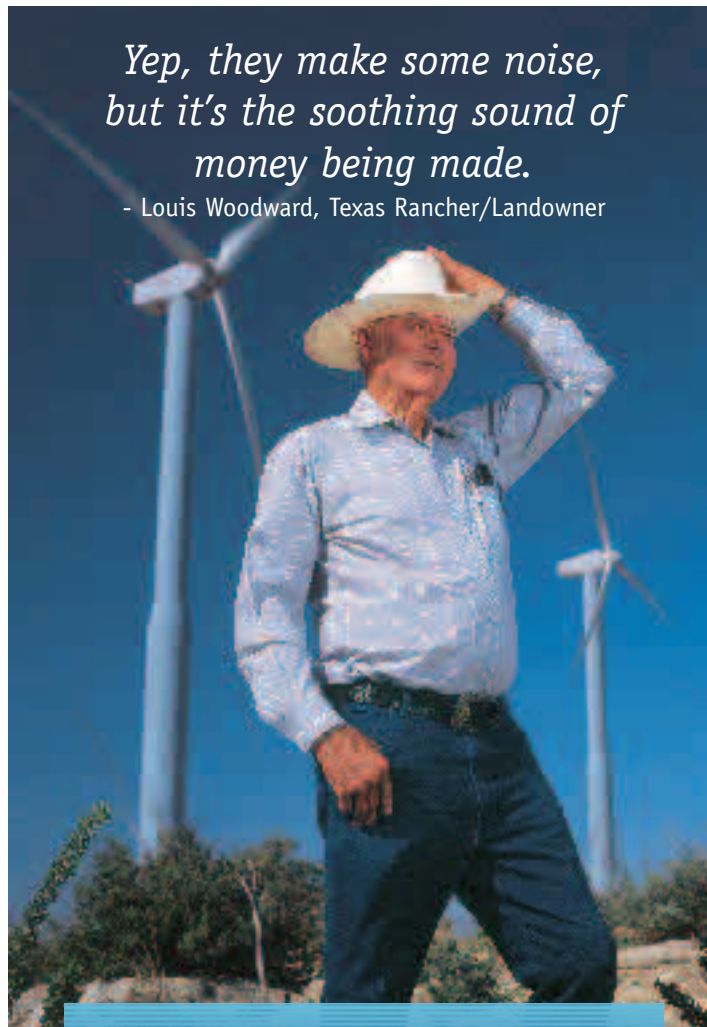
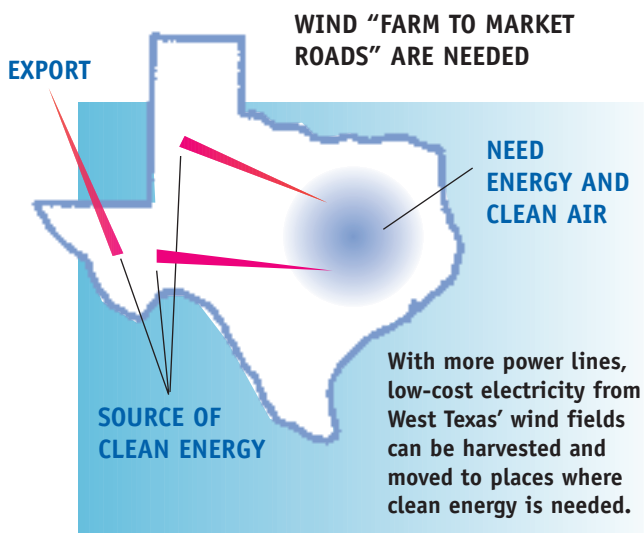
Company	Location	Layoffs
Trinity Structural Towers	Ft. Worth	310*
Molded Fiber Glass	Gainesville	130
Bergen Southwest Steel	El Paso	90
CAB, Inc.	Nacogdoches	10

* Includes sub-contractor layoffs

Policy Recommendations

Consistent, effective support needed.

- Long-term (5+Year) production-based tax incentives for renewables
- Renewable Portfolio Standard with tradable renewable energy credits
- Improved electric transmission infrastructure



What Texans say about Wind Power

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Wind power provides Texans clean, affordable energy, which is good for consumers, and good for the environment.

- Rick Perry, Governor of Texas

Wind has been a roller coaster. It's good at times, but without a steady policy, we can't afford to upgrade our plant.

- Mike Jordan, Bergen Southwest Steel

Renewable energy is an important part of our portfolio... we will continue to provide it, in increasing quantities, for our customers.

-Charles Jenkins, TXU Energy Vice President

Wind energy has provided jobs so that our young people could come back home to live and raise their families.

- Sherry Phillips, McCamey Mayor

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Photo by Jim Lincoln Provided Courtesy of Landscapes Magazine