



*Blowin' in the Wind: Why America's Energy Future is in  
Renewable Energy*

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*“Blowin’ in the Wind: Why America’s Energy Future is in Renewable Energy*

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## *Introduction*

Critics of renewable energy love to talk about cost. Often the critics say that it is too costly and government subsidies are way too expensive. But while they may know a little about the cost of it, they know nothing about the value of it. I believe that once you discover the true cost of wind energy you will think that the critics are either uninformed or blowing their own hot air.

First, it needs to be stated that renewable energy, although very valuable, is not cheap. In 2007, wind power cost about \$1 million per megawatt. In 2008, that number jumped to \$2 million per megawatt. This number (cost) represents the cost for development, construction, equipment and transmission interconnection. Basically, the total cost to take from it concept to completion and energy generation.

So if a company planned to install 100 GE 1.5 megawatt turbines, the cost would be \$300 million. Today that number has gone down due to the reduction in demand for electricity in the United States and the limited amount of financing.

Due to the importance of renewable energy and the cost to develop new renewable energy facilities, the government offers tax credits to encourage renewable energy development. It comes in the form of

income tax credits. The federal tax credits are issued at a value of 2 cents per kilowatt hour of electricity produced. This is a substantial amount of money when you consider that the wholesale price of electric energy is less than 5 cents per kilowatt hour. That potentially would mean that the tax credits would be an additional 30 to 50% of revenue (income) for generating electricity from renewable sources.

Here is how the tax credits work:

Prior to the recession many companies were seeing large profits. Many of those companies were financial institutions, the same financial institutions that provide financing for large scale energy projects like power plants and energy production facilities. It became big business for financial institutions to provide financing for the projects while also arranging to purchase the tax credits for the life of the project. Financial institutions like Wells Fargo, Wachovia, Morgan Stanley and GE would pre-purchase the life of the tax credits for a discounted rate. That credit would then be credited to the financing note as equity.

The renewable energy tax credits are used to offset income (profits). They are only generated by actually producing the energy. Once the renewable energy turbine or solar panel goes on line the tax credits are given for each kwh of energy produced and sold into the market for a period of ten years. In the

past, it was common for the financial institutions (buyer) to purchase the tax credits for .88 cents to .92 cents on the dollar, a discount of 8 to 12 %. The buyers would then either consume the credits themselves or syndicate them at a minimal profit to other companies with profits to offset.

In April of 2008, I met with a financial institution that in the previous 18 months had purchased more than \$700 million in renewable energy tax credits and consumed them all themselves. That same national financial institution was out of business just 5 months later. That's how fast the financial institutions crumbled along with their huge profits, tax credit hunger and most important...financing.

I'll give you an example of how it worked. Let's take the same scenario of 100 General Electric 1.5 megawatt wind turbine project. The initial cost of \$300 million would be financed by a large national financial institution. As a condition the financier would pre purchase the 10 years of tax credits for 80 to 90 million. That would then be used as equity (cash money down on the financing note). The amount financed would then be around \$210 million. The financier would then either use the tax credits to offset their own profits or syndicate them at a profit to another company or multiple companies with profitable balance sheets.

Tax credits are not new and they have been around for years. For years financial institutions have purchased tax credits on historic buildings, oil and gas properties and all types of low income housing and economic development projects. The great thing about a tax credit is something has to be done, completed or produced to get it. It's also very difficult to cheat the system and close to impossible to get something for free. And it has no cash value unless you have a profit to offset it to. It is simply a line item on a tax return all while making our country more self sufficient and, in my opinion, wiser.

In today's economy, no one is fighting over the tax credits like they were a year ago. In January at a wind power conference in California we learned that there were over 20 wind farm projects financed in America in 2008. Less than 5 of those projects pre-sold the tax credits prior to the project being brought on line. This is a major shift since 2007.

### *Wind's Economic Impact*

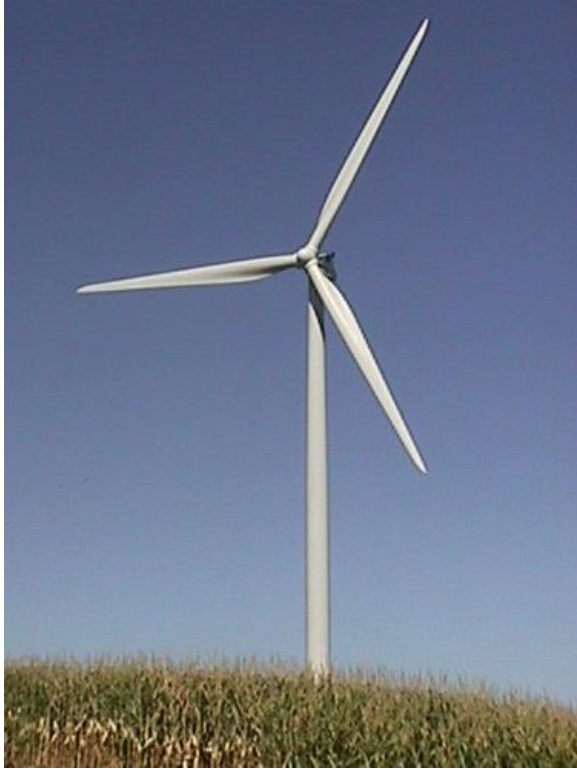
Very few of wind farms are constructed on land owned by the energy companies. Wind development companies lease the land from ranchers and owners similar to the way land is leased for oil and gas exploration. Many of the locations across Texas with great wind resources have sparse populations with small towns and depressed economies. When oil and cotton were kings many of these small towns prospered. Today many are on the brink of blowing away like dust in the wind.

But wind is revitalizing small towns and communities all across Texas. With the wind in blows new jobs, new land owner income from leases, increased tax valuations on property and equipment and new property tax income for public schools. Landowners lease their properties to wind developers like the oil tycoons did in the 40s; but this time there are no dry holes. Landowners get an upfront fee for each site (location) that a turbine will go up on their properties, ranging from \$1200 to \$2000 each.

The landowner will also get a royalty percentage of the energy production. This could range from 2.5% to 6% depending on the company and how good the wind is in your area.

Here is an example from the Callahan Divide Wind Farm located southwest of Abilene. FPL installed over 200 GE 1.5

meg wind turbines that produce about \$20,000 per month per turbine in electricity. Again, we calculate the wholesale electricity at 4.9 cents per kwh. Most of us in Texas are paying retail around .10 cents to .14 cents per kwh. Let's say the landowner's lease was at 2.5% then his monthly royalty payment would be around \$500 per month per turbine. You can see this isn't a lot of money; but it's consistent and there aren't any dry holes. You will never hit a gusher and make a million a month but there is a very good chance the wind is going to blow and blow forever. Also the technology is improving every day and the wind is easily discovered. And if you were a rancher with a few thousand acres trying to scratch out a living with 50 head of cattle, you can see how 30 or 40 turbines on land that is worth just a few hundred dollars per acre could change people's lives and the local economies where they spend their money.



Thanks to wind power, local tax values increase and so does the tax revenue for schools. Across West Texas schools like Clyde and Trent are building new schools and stadiums and rebuilding their once powerful football programs. But don't take my word for it. Check out what Clyde just built with its money: <http://www.reporternews.com/news/2009/aug/15/clyde-builds-on-its-success-in-new-digs/>

No doubt about it: wind power is changing the world.

### ***Myths About Wind Power***

There are many myths about wind power. None of which hold up.

One of the myths about wind power is that it is too expensive to develop compared to other energy sources. That may be true when comparing to the cost of a coal plant built 25 years. Let's compare apples to apples or should we say light bulbs to light bulbs. The reality is, it's one of the most affordable sources of energy around.

Consider the folks out in Sweetwater, Texas who are hoping to build a new clean coal plant:

<http://www.gosanangelo.com/news/2009/apr/21/tenaska-coal-plant-will-need-more-than-carbon/>

Talk about costly! It is estimated that the plant will cost \$3.5 billion just to build.

As the article notes:

"The plant will use low-sulfur coal from Wyoming to generate 600 megawatts electricity, losing perhaps 200 megawatts in the process of capturing carbon dioxide. I'm not a mathematician but that's close to \$6 million per megawatt. And let's don't forget you still have to purchase the trainloads of coal to fuel the plant.

"Tenaska then plans to sell 85 percent to 90 percent of carbon emissions captured from the plant for use in oil production in West Texas – location of the world's largest market for carbon."

In other words, this coal plant isn't paying for itself. The idea is to use cap-and-trade sales to cover the deficit. Talk about expensive!

In contrast, wind power does pay for itself. The turbines are relatively affordable to build. And then the electric company begins paying fees to the owner of the land. Everybody wins. So don't believe the myth that wind power is too expensive.

Another one of the myths about renewable energy is that there is nothing that can be done to store the energy when it's not needed.

For example, what happens if the wind is blowing the turbines or the sun is shining during a time when energy demand is at a low level? Or what if the wind is not blowing or the sun is not shining? These are all good questions but the reality is we need more renewable energy and we need to continue to diversify our renewable energy sources. Energy demand and prices are always lowest at night. When the sun is out and the temperature is hot, solar is at its best. And whether and when the wind blows has nothing to do with time of day...it can blow right on through the night...even during a hot sunny day.

This criticism makes the perfect the enemy of the good. Just because renewable energy can't be used all the time doesn't it mean it can't be use a lot

of the time. Besides, there are new concepts being developed that will allow us to store and transmit renewable energy.

Not long ago I met with executives at TXU who talked about a concept to build two bodies of water. On windy days with cool mild temperatures, energy demand is very light often much lower than supply. Use the electricity produced from turbines to pump water through a pipeline from the lower lake to the lake at a higher elevation. The two bodies of water that are separated by a hydro electric dam could be used to produce energy on days with higher demand. The water in the high elevation lake would be filled and ready for action. On days with high energy demand (and high energy prices), the upper lake would open the hydro electric floodgates producing power and the water would be transferred into the lower body of water, thus being ready for the next high wind-low demand day to pump.

Another idea that is being discussed is using the electricity to power large compressors that would compress air in old vacated oil and gas wells. The pressure would again be stored until days with peak demand and the valves would be opened thus releasing air to turn additional turbines to create more electricity.

So there are ways that are being developed that can take advantage of

wind, water and solar even when there is not peak demand.

Another key myth is that wind turbines are ugly, ruin the view and make too much noise. Here is an article about a rancher in Wyoming who wants to lease his land for wind turbines. The only problem is his neighbors don't like the idea much:

[http://www.google.com/hostednews/ap/article/ALeqM5hPppDb6c\\_44-I-7TjoNgGhoSD3TwD9A8RKMGI](http://www.google.com/hostednews/ap/article/ALeqM5hPppDb6c_44-I-7TjoNgGhoSD3TwD9A8RKMGI)

If you were to go back in time, you might have heard some of these same arguments when the oil boom was hitting: The derricks are ugly...they ruin the view...they make noise! But before long, people realized that derricks created economic opportunity. At that point, they didn't look so bad anymore.



Soon, the derricks became part of the landscape.

And by the way, we've had windmills on farms for years and years and they've also become iconic parts of the rural landscape. The wind turbine is the same basic concept. And as for the noise, it's a low level hum that is quite soothing.

Another wind myth is that wind power is just a fad and can't really produce energy.

The reality is, this past year the United States surpassed Germany to become the world leader in wind power:

[http://www.bradenton.com/living/living\\_green/story/1657982.html](http://www.bradenton.com/living/living_green/story/1657982.html)

Wind is here, wind is working and wind is growing. According to this article:

"- Wind projects accounted for 42 percent of all new electric generating capacity in the United States last year.

"- Growth is distributed across much of the country. Texas leads the nation with 7,118 megawatts of new wind capacity installed, followed by Iowa (2,791 megawatts) and California (2,517 megawatts). For a long time, California led the United States in installed wind capacity."

So America is leading the world and Texas leading America when it comes to



wind power. And the growth of wind energy is not a fad...it's a fact.

### *The Greatest Myths*

Now it's time for a more detailed discussion of the greatest myths about wind energy, including a couple of the ones we've previously touched on.

First, we are often told that wind turbines are too noisy. Not so according to Appalachian State University:

"Today's large wind turbines make less noise (about 45 decibels-dB) than the background noise you hear in your own home (50 dB)! According to the American Wind Energy Association (AWEA), today an operating wind farm at a distance of about 750 to 1,000 feet is no noisier than a kitchen refrigerator or a moderately quiet room."

Second, we sometimes hear that lots of turbines are needed just to generate minimal energy. Again, not so:

"Improved technology has enabled far fewer turbines to produce more electricity. The standard output of a turbine grew from .5 mW in 1995 to 1.5 mW in 2003."

Another classic myth that you often hear about wind turbines is that they kill birds. Well, maybe a few birds. But comparatively speaking, not many.

The North Carolina Wind Energy Site at Appalachian State University has thoroughly refuted this claim:

<http://www.wind.appstate.edu/windpower/myths.php>

The website notes that:

"Although birds do infrequently collide with turbines, wind energy poses less of a threat to birds than many other commonplace structures. In fact, the National Audubon Society has stated that it supports the development and use of wind power. Based on numerous studies that have taken place in Vermont, Colorado, Wyoming, Minnesota, and California, collision with turbines result in 1-2 bird deaths or less per turbine per year. For comparison, each year at least 60 million birds die in collisions with vehicles; at least 98 million in collisions with buildings and windows; and at least 4 million in collisions with communication towers. Important consideration should be given to placement of wind turbines to ensure that turbines are not located along migratory bird flight paths or the flight paths of threatened or rare species."

So yes, I guess wind turbines do kill birds. But not nearly as many as buildings, windows and cars. And no one seems to be opposed to those.

And last but not least, we always hear that wind turbines are not very pretty. Not true at all:

“In North Carolina, a study to determine public attitudes towards wind energy was recently conducted. The study found that 77.1% of participants who had seen firsthand a utility scale turbine said that they liked its appearance. Studies from numerous US states and other countries report that a majority of people think wind turbines are graceful, elegant structures. Many people find turbines to be interesting features in the landscape, enhancing the vista overall. In the UK, the British Wind Energy Association notes that wind farms are popular tourist attractions, with thousands of people each year flocking to visit attractions.”

So the myths against wind power are just that: myths. The reality is wind is a reliable, affordable and effective way to create supplemental energy power in the United States. So what are we waiting for?

### *Conclusion*

Renewable energy is here to stay. If for no other reason than our national security, we need to find domestic sources of energy. And the answer is blowin' in the wind!