



November 30, 2008

Wind could renew manufacturing

Demand for turbines outstrips supply

By AARON NATHANS
The News Journal

Even as more than 1,000 workers get ready to walk out of Chrysler LLC's Newark car plant for the final time next month, state economic development officials and some business leaders think manufacturing still has a future in Delaware.

With a growing number of states along the Eastern Seaboard turning to wind power for a portion of their electricity needs, the demand for the parts that make up wind turbines -- the tower, gearbox and blades -- is rising much faster than supply.

That is doubly true for the huge turbine structures needed for offshore wind farms such as the one Bluewater Wind plans to build off Rehoboth Beach, or farms developers want to erect in ocean waters off New Jersey, Rhode Island and Massachusetts.

The parts for offshore wind turbines right now would need to be imported from Europe, because there are no U.S. production facilities making the equipment. The leading manufacturers are Vestas in Denmark and Siemens in Germany.

Delaware officials say that creates a market opportunity -- for a U.S. firm to enter to challenge the foreign manufacturers, or even for a local plant operated by a foreign firm.

"You've got to think there's an opportunity here," said Philip Cherry, a state Department of Natural Resources and Environmental Control policy manager. "We'd be fools not to grasp at this, and let the Europeans get all this economic activity."

Some onshore work would be generated by Delaware's own plans.

When Bluewater wind won its contract with Delmarva Power enabling the upstart to build a wind farm off the coast of Rehoboth Beach, it promised it would put a regional assembly hub in Delaware where the parts of a wind turbine would be put together.

But Jim Lanard, a Bluewater Wind spokesman, said that is just the tip of an iceberg of business that is likely to develop in the coming decade.

As of the end of next year, the number of East Coast wind farms under development should be 11, he said, with \$15 billion worth of assets to be installed as part of those projects.

He urges governments to take the lead in trying to attract foreign turbine manufacturers to set up shop in the United States. "It goes right into keeping the U.S. energy dollars in the U.S.," Lanard said.

Brian Yerger, a renewable-energy analyst in Wilmington, said the impact of a manufacturing facility for offshore wind turbine components would be considerable.

"You're talking hundreds of jobs for a long time, a lot of ancillary businesses," he said.

With the level of interest in offshore wind in America, "I think we can expect to see" manufacturers coming into the United States, said Laurie Jodziewicz, American Wind Energy Association manager of siting policy.

Delaware officials need only look to Pennsylvania to find substance to support their hopes for wind power.

U.S. Steel ended most of its operations at its huge complex in Fairless Hills, Pa., north of Philadelphia, in 2001. But Gamesa, a Spanish company, recently took over a portion of the plant with a \$34 million project that led to 600 jobs making turbines for onshore wind farms.

It didn't come cheap.

The state and the Bucks County Economic Development Corp. provided Gamesa with almost \$20 million in grants and loans for its factory in Fairless Hills and another in western Pennsylvania. The Fairless Hills facility also is exempt from state and local property taxes until 2019.

Manufacturing of turbines and parts for onshore wind farms is gradually shifting to domestic factories, mainly for ease of transportation and to avoid an unpredictable exchange rate for the euro, Jodziewicz said. About half the components in a domestic onshore wind farm are now made in the U.S., up from 30 percent in 2005, according to the association.

Still, demand far outstrips supply, and there is a two-year backlog for onshore wind turbines.

Gov.-elect Jack Markell said the idea of attracting wind power manufacturers fits into his economic development plans. "It would be a big opportunity in the sense that Delaware would be on the ground floor, so I look forward to pursuing it," he said.

Judy McKinney-Cherry, Delaware economic development director, said the state doesn't have the kind of economic incentive money that Pennsylvania invested in the Fairless Works project, but "there is such pent-up demand" for wind turbines that it may not matter as much.

She went on a recruiting visit to Brussels in April to try to lure wind turbine manufacturers to the Chrysler site in Newark and the Invista plant in Seaford, but so far such efforts have not borne fruit.

Attracting an onshore turbine developer to Delaware would have a more immediate economic impact, and make the market more appealing to offshore developers when the technology is more mature, she said.

"If we were to bank everything around the Bluewater opportunity, we would be selling ourselves short, because the opportunity is broader, much broader," she said.

McKinney-Cherry is Philip Cherry's wife.

Willett Kempton, an associate professor at the University of Delaware, said current state businesses also have an opportunity.

Perhaps the easiest turbine piece to make is the tower -- the pole that is driven into the ocean

floor. Claymont Steel or Philadelphia Gear could be ideal places to manufacture those pilings, he said.

Kelly Brossart, spokeswoman for Evraz Inc. NA, Claymont Steel's parent company, said the company has been hurting in recent weeks as "customers aren't ordering as much." It laid off 13 percent of its work force in Portland, Ore., on Nov. 18, she said, and the Claymont plant has taken downtime in recent weeks also.

The company would be capable of producing the towers, and would "absolutely" welcome the business, she said.

Kempton said great opportunity lies in forging the blades. Once the design is worked out, they're relatively straightforward to build and at twice the size of an onshore blade, they're hard to move over land, including bridges and turns in roads, he said. Localizing assembly facilities on the East Coast is "either essential or highly desirable," Kempton said.

The nacelle, which includes the rotor shaft, gearbox and generator, is the most economically challenging part to construct, Kempton said. To justify opening a factory, a manufacturer would need six years' worth of work, he said.

Servicing the gearboxes — the heart of what makes a wind turbine go — is another place where local businesses could capitalize.

Philadelphia Gear officials say they're unlikely to pursue the complex business of manufacturing gearboxes for offshore wind turbines, but they already fix onshore models. They said they'd be happy to do so for offshore models, so long as they don't have to venture onto the high seas to fetch them.

Inside Philadelphia Gear's facility at the Twin Spans Business Park near New Castle, the gear tooth grinding chamber resurfaces the gears so they can work in sync.

"When these things go down, they need this stuff back up yesterday," said Mike DiGiacomo, Philadelphia Gear's local operations manager. "We can do that."

Bluewater's Lanard said fostering a domestic industry would pay off in ways beyond jobs and local tax creation.

Materials made in the United States are likely to result in lower costs for developers, and eventually for ratepayers.

"We need a shot in the arm here," Lanard said. "With all the lost manufacturing operations we have, this is a way of creating an industry."



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[Home](#) : [Operations](#) : Wind Turbine Supply Chain Spinning Up

Wind Turbine Supply Chain Spinning Up

Recent supply chain development events are going strong despite overall economic downturn.

Monday, December 15, 2008

By Brad P. Kenney

Although many sectors of the economy are stalling, by all accounts the turbines of the wind energy manufacturing sector are still spinning away, at least if a recent American Wind Energy Association (AWEA) and Great Lakes Wind Network event are any indication.

Held at the Intercontinental Hotel conference center in Cleveland, Ohio on 8-9 December, 2008, the event was billed as a Wind Power Supply Chain Workshop and featured information for those looking to learn how to gain entry into the turbine manufacturing by new investment or retooling, as well as information for turbine suppliers on how to ramp up their company's current efforts. According to event organizers from AWEA and WIRE-Net, the event followed previous efforts in and around the Midwest in selling out capacity, with 800 attendees and another 250 on the waiting list.

"If you didn't know we were in a recession, you wouldn't be able to tell looking at the conference," says Ed Weston, Director of WIRE-Net's Great Lakes Wind Network. "The turnout was remarkable."

In line with this amount of interest, the AWEA paints a rosy market outlook for the sector based on the following figures:

- **8,000:** the number of components in a modern wind turbine, ranging from steel towers and high-tech composites for blades, to gearboxes, bearings, electrical wiring, power electronics, and more;
- **\$1.3-1.5 billion:** anticipated investments in Ohio prior to 2012 in wind turbine installations resulting from Ohio's new Renewable Electricity Standard (RES) passed in April of this year with the strong support of Governor Strickland and Speaker Husted;
- **\$15 billion:** nationwide wind energy installation investment in 2008 (preliminary AWEA estimate based on 7,500 megawatts (MW) of generating capacity expected to be completed in 2008);
- **9,000:** the number of jobs being created from recent wind turbine component manufacturing facility openings and announcements (first through third quarters of 2008);
- **60,000:** the number of jobs in wind power today;
- **50%:** the share of domestically manufactured wind turbine components today-up from 30% in 2005;

Weston gave two presentations at the conference himself -- the first on the anatomy of a turbine, and the second on "six tips for retooling" to take advantage of the booming wind turbine manufacturing market. Other speakers and panelists included AWEA membership director Britt Theismann and several AWEA colleagues as well as Ian Cluderay, VP of supply chain at Clipper Windpower, Tom Maves from the Ohio Department of Development, Rob Banerjee, VP of WebCore Technologies,

among others.

Although large area manufacturers with significant industry presence were well represented, Weston says a number of the spots were taken up by smaller manufacturers looking to get in on the ground floor. Attendees at these supply chain events have run the gamut of wind systems components and installation equipment suppliers, from power electronics and control systems producers to manufacturers of hydraulics, machine shops and even hoist manufacturers, fire suppression equipment suppliers and meteorological equipment makers.

It's a huge and growing market, said Weston. "Most manufacturers are entrepreneurs at heart, looking for new products for their factories," he said. "The wind turbine industry is growing too big to be ignored."

In a sign of that growing market's clout, Ohio's Democratic Governor Ted Strickland made an appearance at the Intercontinental for a speech and a press conference. Strickland, who signed a renewable portfolio standard (RPS) earlier this year, spoke of where wind power fits at the intersection of state and private utility initiatives.

"I have talked with the major CEOs of the utilities that serve Ohio, and they've expressed interest in diversifying their electrical production capacities and... are already pursuing those efforts," said Strickland.

"I think if we had not passed a renewable standard, that I wouldn't be having the conversations that I'm having, or that our Department of Development is having, with different companies," said Strickland. "It's giving them confidence that there will be a market should they build and invest."

Over the course of the last year of the presidential campaign, Strickland also spoke with the president-elect and said "I think (Obama) will be a very strong supporter of green energies, and certainly wind energy will be a form of that, as well as solar."

And although Strickland also admits that the recession of the last year is "impacting every aspect of our nation's and our state's economy," he hadn't seen a downturn in wind energy projects as a result. "I'm aware of certain initiatives not related to wind energy that have been put on hold because of financing," Strickland said. "It's my sense that the interest in continuing to pursue these opportunities in Ohio has not diminished as far as this particular industry is concerned. I've talked with component part manufacturers that are doing work here in Ohio. I've got the sense that this is one industry that has a bright future, and is full-steam ahead."

For more information, visit: <http://www.awea.org/events/supplychain2/agenda.html>

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PPG Industries sees growth in making of wind turbines

Green Business

Pittsburgh Business Times - by [Beth Murtagh](#)

PPG Industries Inc. has a new slogan: “empowering wind.”

The Downtown-based company supplies the mushrooming industry of wind turbine-powered energy with fiberglass wind turbine blades, as well as coatings for these blades and the towers they go into.

A relatively new dedicated business to the multinational paint, coatings and glass manufacturer serves as a one-stop shop for makers of wind turbines.

While PPG has previously had wind turbine customers, the four-year-old wind energy business creates cross-selling opportunities specifically for customers such as **GE Energy**, Siemens and Spain’s Gamesa, which assemble blades and towers.

Richards declined to disclose current revenue, but the opportunity for growth is undeniable. The **U.S. Department of Energy** forecasts that wind energy could make up 20 percent of the nation’s electricity in the next two decades, up from 1 percent today.

PPG is not a new competitor in the space, however. For the past 20 years, PPG has supplied fiberglass for blades in European windmills.

The company leverages its material expertise, said Cheryl Richards, global marketing manager for PPG’s wind energy group.

“We engineer down to the nano level,” she said. “You have to understand, we can’t build these giant things without critical pieces.”

PPG recognizes energy scarcity as a megatrend, Richards said, and that wind energy’s implementation, capacity and product offerings are in its infancy.

“Units are becoming larger and requiring more from technology,” she said. “Every year, the sizes of these things get bigger and put more pressure on materials. Larger units require more engineering to our materials.”

PPG makes fiberglass blades roughly 140 feet long. There are up to 200 blades on each farm, Richards said.

Manufacturing takes place at the company's facilities in North Carolina and South Carolina.

Looking forward, Richards said there are similar growth opportunities for PPG's fiberglass and coatings in the solar energy arena.

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WWJ Newsradio 950

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Wind Energy Board Has Big Job, Little Time

Lansing's MIRS News Service reports that the newly-created 11-member Wind Energy Resource Zone Board held its first meeting last week with members wrestling with how to carry out their responsibilities in the short six-month time frame mandated by the Legislature without any funding or staff.

The state's new energy law, Public Act 295, required the Michigan Public Service Commission to create a board to study how economically viable wind energy production is in various parts of the state and how much land is available in those areas where wind energy would work.

A preliminary report is due June 2, with a final report required about four months later after impacted local units of government and electric companies have had an opportunity to review the first draft and submit comments.

MPSC Chief Administrative Officer Gary Kitts told board members the statute creating the board "doesn't say a lot" but said it must "exercise independently of the commission and the report must be the Board's own work product."

That set off a whole discussion over the need to bring in a consultant to attend the meetings and in the end write the report. A motion was approved to request the MPSC to draft an RFP for consultant services. Members said other money may be needed to cover various operating expenses.

Kitts said the Board could avail itself of MPSC staff, Web site and meeting facilities to assist in its work.

A major problem for the Board will be to make recommendations based on data available.

Tom Stanton, manager of the MPSC Renewable Energy Section, told the members they will "have to make the decisions you have to make without having all the data needed to make those decisions."

Stanton gave the Board an update on the Michigan Wind Energy Transmission Study and the ongoing work of the Michigan Planning Consortium Generation Integration Workgroup that is studying all types of generation -- work that has been underway for nearly two years.

Trevor Lauer, DTE vice president, representing the electric utility industry on the Board, suggested they could get a leg up early on by having Michigan State University's Land Policy Institute give a presentation on the available land in Michigan for location of wind energy producers.

"The amount of land excluded for those sites is shocking," Lauer said, adding that if they can get that information quickly it will reduce the amount of time involved looking into geographical areas.

In getting organized, the Board elected David Walters, Zeeland Board of Public Works general manager, representing the electric utility industry, chair; Mary Templeton, former senior vice president, North American OEM Group, vice-chair; and Julie Baldwin, MPSC engineer, representing the Commission, secretary.

The next meeting will be held 9 a.m. Jan. 5 at the MPSC's Lansing offices.

More at www.mirsnews.com.

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Print Current Page



NEWS > LOCAL NEWS

DTE has big plans for Thumb

Print Page

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Kate Hessling

BAD AXE — Just how many turbines could Huron County see in the future? When will construction begin? And who will benefit from the project?

These were some of the questions posed during DTE Energy's Grantor Appreciation dinner Wednesday night at the Franklin Inn in Bad Axe.

Matt Wagner, DTE Energy manager of wind site development, said DTE Energy has easements signed with more than 200 grantors who represent nearly 50,000 acres in Huron County.

"We have to do a lot to accomplish 10 percent by 2015," said Trevor F. Lauer, DTE Retail Marketing vice president, in reference to the state's Renewable Energy Portfolio Standard (RPS) which requires 10 percent of power sold in the state has to be generated from renewable sources by 2015. " ... Once the process starts, it's going to start in a very major way across this county."

"(So) does 50,000 acres mean 50,000 turbines?" Huron County Commissioner Chairman Robert Haldane asked.

No, DTE Energy officials replied, explaining that because there is no specific plan approved, the company representatives can't give a specific number. They could, however, note that DTE Energy is exploring the possibility of a number somewhere in the hundreds.

"I know it sounds elusive, but we're talking a large number of turbines," Wagner said, adding that the turbines will make up a large park — not "50 megawatts here and 50 megawatts there."

Lauer said developments at the state and federal level are making wind energy prospects plentiful.

"I don't doubt there's any question that Huron County is going to be the epicenter of renewable energy development," he said.

"We have a lot of momentum ... to move forward," Lauer later added.

But that's not to say DTE Energy's project will be constructed any earlier than the originally anticipated 2011 because there currently is a regulatory period that has come on the heels of the signing into law of a comprehensive energy package Lansing lawmakers approved earlier this year, Lauer said.

However, he said things should be moving rather quickly around the state after July.

There still are transmission issues, DTE Energy representatives told landowners, that will take some time as work has to be done to upgrade the transmission lines to be able to handle all the power from future wind development projects. As a result, the company representatives told grantors in attendance at Monday's evening that the park more than likely will not be constructed until 2011.

"We need patience," said Irene M. Dimitry, DTE Energy Renewable Energy director, who noted most landowners probably had hoped things would happen sooner than 2011. " ... But the reality is that wind farms are very large and complex projects and they take a long time (to start up)."

Other factors DTE Energy officials said affect the amount of time it takes to erect a wind farm include long waits for turbines; ongoing studies; the requirement to create a 20-year plan with the state (to prove the project is cost effective and prudent); and other regulatory issues.

Lauer said while it may take time, DTE Energy is more than committed to creating a project in Huron County. In fact, he said, this planned project is the single biggest capital project the company is undertaking, planning to spend \$3 to \$4 billion over the next five to six years.

He encouraged the grantors to recommend to others that they sign easements with DTE Energy and get on board with the project.

"We will be the single biggest buyer and the single biggest developer of renewable energy in the state," Lauer said.

The key word in that quote is "state" as company officials said Wednesday evening that not all of DTE Energy's renewable energy will be developed via wind turbines erected in Huron County.

Wagner said even if DTE Energy has to get about 1,100 to 1,200 of megawatts of power from renewable energy resource, and even if the company were to reach that goal using only wind power — which absolutely won't happen — that would mean between 500 and 600 turbines (because the average turbine produces 2 megawatts of power).

So talks of DTE Energy erecting thousands of turbines in the Thumb are not accurate, the company officials said.

Dimitry said the number of 2,000 turbines being erected in the local area has been tossed in various news reports, but those reports were referencing studies that disclosed the potential the area has (i.e. how many turbines could be built in the area).

"Developers don't just look at what's possible — (they) look at what is feasible, required and likely," she said.

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Posted on Sun, Dec. 14, 2008

Lawmakers seek bigger, greener power grid

By LES BLUMENTHAL
McClatchy Newspapers

Seventy-five years ago, during the height of the Great Depression, one of the largest public works projects of the New Deal began to take shape on the banks of the Columbia River in eastern Washington.

Seven thousand workers employed by the Works Progress Administration built Grand Coulee Dam - a mile wide and twice as tall as Niagara Falls - along with Bonneville Dam and a transmission grid that electrified the Northwest. Their efforts inspired folksinger Woody Guthrie. The electricity from the dams still powers the region.

Now, as the current economic downturn deepens, there is talk of another major public works project for the Northwest - one that would deliver green wind power to the Interstate 5 corridor, which connects Seattle and Portland, and, by some estimates, help create 50,000 jobs.

With Congress set to consider a new stimulus plan early next year, the region's lawmakers want to provide funding for the Depression-era Bonneville Power Administration to expand its transmission system.

The plan could be a perfect fit with the incoming administration's support for green energy and green jobs. It also could emerge as a model for turning the nation's antiquated 200,000-mile transmission system into a clean energy superhighway.

"It's the sleeper issue," said Rep. Jay Inslee, D-Wash., who's emerged as one of the leaders on green energy issues and climate change in the House of Representatives. "We need a grid for this century, not the last."

The Northwest is a microcosm for a problem bedeviling utilities nationwide as they develop renewable energy resources, mostly in remote areas, but face bottlenecks in delivering the power to population centers.

The Bonneville Power Administration, one of a handful of not-for-profit federal utilities, markets about one-third of the electricity consumed in the region. It sells the power produced from 31 federally owned dams on the Columbia River and its tributaries. It also owns and operates 15,000 miles of high-voltage transmission lines.

Washington and Oregon have adopted laws requiring utilities to start developing alternative sources of power. The renewable energy of choice in the region is wind.

Giant wind farms with state-of-the-art windmills have sprung up in the Columbia River Gorge and elsewhere east of the Cascade Mountains in Washington and Oregon. So far, wind is generating about 2,000 megawatts of electricity in the region, enough to supply two cities the size of Seattle. Another 4,700 megawatts are expected to come on line in the next five or so years.

The problem is the BPA doesn't have enough capacity on its existing transmission lines to carry the wind power from the eastside to the Puget Sound area and Oregon's Willamette Valley.

"Eighty-five percent of our load is in the I-5 corridor, and there is no wind in that corridor," said Brian Silverstein, BPA's vice president for planning.

BPA wants to build about 600 miles of new transmission lines at a cost of about \$1.5 billion. Several of the seven projects it has in mind are ready to go, with others still requiring environmental reviews.

Nationally, the Energy Department predicts that 20 percent of the U.S. could be powered by wind energy by 2030, but it would cost about \$60 billion in new transmission lines and facilities to reach that target.

The problem is not just getting wind power to market, but also solar and other alternative energy resources. The nation's existing transmission system is woefully inadequate. In 2005, the American Society of Civil Engineers gave the grid a "D" rating and a consulting firm, the Brattle Group of Cambridge, Mass., has estimated it would cost nearly \$900 billion to modernize the transmission and distribution system.

"In the Northwest and across the country, we need more transmission infrastructure to move electricity from remote areas into populations centers like Seattle, and more coordinated regional grid operations," said Rob Gramlich, policy director at the American Wind Energy Association.

All of this comes at a time when a credit crunch has made it harder and harder for utilities to borrow money.

Inslee and other Northwest lawmakers and public utilities are hoping the stimulus plan that Congress wants to have on President-elect Barack Obama's desk the day of his inauguration could help solve the problem.

"It's one of those magic times when crisis is an opportunity," Inslee said.

Because it is a federal utility, BPA has what amounts to a line of credit with the U.S. Treasury, known officially as borrowing authority. The plan is to double the amount BPA can borrow to more than \$7 billion to pay for the transmission upgrades, improvements at the dams and other projects.

The money carries an interest rate comparable to market interest rates. BPA has made 25 annual payments to the Treasury of nearly \$1 billion each. The money comes from Northwest ratepayers.

Washington state's two Democratic senators, Patty Murray and Maria Cantwell, have spoken to the Senate leadership about including increased borrowing authority for BPA in the stimulus bill.

BPA and other utilities also have discussed the need for increased transmission lines or improving existing ones running to California and fast-growing Southwest states. California utilities already have been in the Northwest prospecting for wind power and other renewable energies. A group of private utilities has unveiled a California-to-British Columbia transmission project.

Steve Johnson, executive director of the Washington state Public Utility District Association, said including expansion of the BPA transmission system in the stimulus bill is a no-brainer.

"It's a modern version of what was done during the Great Depression," Johnson said.

ON THE WEB

The Bonneville Power Administration: <http://www.bpa.gov/corporate/>

The American Wind Energy Association: <http://www.awea.org>

The Energy Department's renewable energy site: <http://www1.eere.energy.gov/windandhydro>

The National Renewable Energy Laboratory: <http://www.nrel.gov/>

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<http://pittsburgh.bizjournals.com/pittsburgh/stories/2008/12/15/focus13.html>

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Rethinking the Grid: Means of transmitting energy is barrier to future expansion

Pittsburgh Business Times - by [Anya Litvak](#)

Wind farm developers and utility companies know the meaning of NIMBY, the oft-cited not-in-my-backyard syndrome that limits where one can put a turbine and where the other can lay power lines to carry that energy.

There's another acronym that Allegheny Energy became acquainted with when it embarked on a decadelong quest to lay 500 miles of transmission lines across the Northeast U.S., and that's BANANAs, or "build absolutely nothing anywhere near anything," joked spokesman Doug Colafella.

The utility, which recently received the go-ahead to start construction of the \$1.3 billion Trans-Allegheny Intertstate Line (TrAIL) project, ran up against civil war reenactors guarding historic fighting grounds, farmers and landowners who didn't want the electric towers to block their land, and conservation critics who argue that rearranging the way the grid works can save it from expanding.

Convincing people at times meant appealing to a sense of urgency underscored by the American Wind Energy Association, which states plainly: "Transmission is the biggest long-term barrier to significant wind energy expansion."

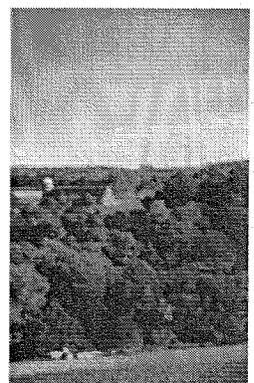
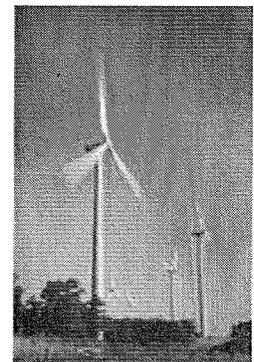
In July, Terry Boston, president and CEO of the regional grid management organization PJM Interconnection, appeared before the Senate to carry the point home.

"If one is for renewable generation to power America's economy, which I am, we need more transmission," he said.

Boston, who presides over the largest electric distribution network in North America — it serves 51 million customers in 13 states, including Pennsylvania — told Congress its admirable calls for more wind and solar power, for clean coal and nuclear, cannot rest on an antiquated grid.

"The development of renewable energy resources will require a significant

MEDIA



expansion of the grid, as well as a significant increase in needed operating reserves given the intermittent nature of wind and other resources.”

PJM has 90,000 megawatts of new generation waiting for approval to feed into the grid, with nearly half that power coming from wind.

Wind generation is Pennsylvania’s best shot at harvesting renewable sources of electricity, Boston said.



But the power of the spinning blades has already run into congestion problems in New York state, where the massive Maple Ridge Wind farm has had to suspend operations on several occasions so as not to pay fines for overstuffing the grid with power.

The 200-turbine farm was co-developed by Iberdrola Renewables, which runs two projects in Pennsylvania and has installed more than 2,000 megawatts nationwide. One megawatt powers about 300 American homes each year.

Eric Thumma, the company’s director for institutional relations, agreed with Boston’s call for better and bigger infrastructure development.

“There’s such demand for these projects,” he said.

There are, of course, a number of other ways to ease congestion, none of them as large scale as building new transmission systems and none, supporters would argue, as substantive.

BPL Global, a smart-grid technology company based in Sewickley, designs software that helps manage demand, especially during peak hours.

“If you could level that load, you don’t need more wires, but you do need to have more investment,” said Thorne King, senior vice president of marketing with BPL Global.

Clear Choice Energy operates in the “demand response” sphere as well — it finds ways for clients to decrease their consumption during high-demand times and, in turn, get paid by PJM for energy not used.

Carolyn Pengidore, the firm’s CEO, estimates clients typically save up to 15 percent of their bills.

Recent energy conservation legislation requires Pennsylvania to lower its peak consumption by 4.5 percent in five years.

Photos: Iberdrola Renewables

Wind power The advantages and disadvantages, according to the U.S. Department of Energy

ADVANTAGES

A clean fuel source and produces no emissions

A domestic source of energy produced in the U.S.

Relies on a renewable source that can’t be used up

One of the lowest-priced renewable energy sources available today

Turbines can be built on farms or ranches, thus benefiting the economy in rural areas

DISADVANTAGES

Must compete with conventional generation sources on a cost basis

Wind doesn't always blow when electricity is needed

Good sites are often in remote locations, far from cities where the electricity is needed

Development may compete with other land uses

Concerns exist over noise, aesthetics, bird safety

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