

Wind power throws a curve at the BPA

Posted by [jbrugger](#) July 21, 2009 20:58PM



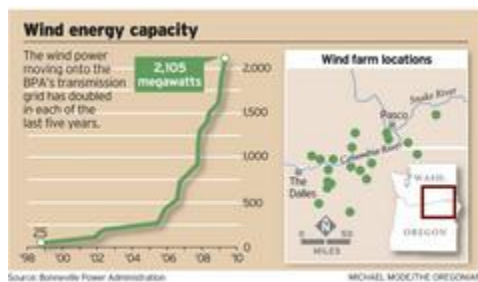
Thomas Boyd/The

Oregonian Wind-powered generators dominate the landscape along the eastern Oregon reaches of the Columbia River. Managing their intermittent power output has become a major issue for the Bonneville Power Administration.

Utility wonks have been quipping for years that the future of energy in the Northwest is windy and gassy.

When it comes to wind power, the future has already arrived, a reality that has come rushing home in the past two years and created major friction among the Bonneville Power Administration, wind power producers and the agency's utility customers.

The BPA, which markets the energy produced at 31 hydroelectric dams and a nuclear plant in the Columbia River Basin, has seen the amount of wind power flowing onto its grid nearly double in each of the past four years.



That surge not only taxes the existing transmission system, most of which is operated by the BPA, but relying on such an intermittent resource has also posed reliability issues for the hydro system.

Incorporating wind power also raises regional equity and environmental issues as the agency tries to balance mandates from states for more renewable energy against its obligations to its utility customers and a responsibility to protect migrating salmon.

The [BPA's release Tuesday of a 541-page order](#) for setting future rates to public and private utilities brought new attention to the challenge it faces in absorbing an explosion of new wind power. Front and center in that order was a controversial decision dealing with how much it will charge wind producers to absorb and smooth out the intermittent stream of power they send onto the grid.

"Wind was the hardest issue in this rate case because it was completely new," said Steve Wright, the BPA's chief executive. "There was more thought on that issue than anything else."

The rate increase imposed on wind producers came in at about 90 percent. And while that sounds large, it is a fraction of the 300 percent increase that the agency announced earlier this year -- a figure that created a firestorm of criticism.

"This is a cool breeze on what could have been a very hot day," said Rachel Shimshak, director of the [Renewable Northwest Project](#).

The BPA says the lower rate increase resulted from efforts by the wind power industry to improve its forecasting and operational practices, allowing the federal hydro system to operate with lower emergency reserves.

But the agency's tack also reflects the change in political winds that blew in with the Obama administration. The administration, through the Department of Energy, is making renewables a centerpiece of its energy and climate change policies. A minor issue five years ago, integrating more wind power is now the Gordian knot that the BPA has been tasked with unraveling.

"This is the biggest issue for BPA with the Obama administration," said Bob Jenks, executive director of the [Citizens' Utility Board](#). And for BPA chief executive Wright, he said, the rate case focus on wind "is the signal to his bosses in Washington that he gets it."

Renewables advocates and members of Oregon's congressional delegation hope that the rate decision and an accompanying wind integration plan reflects a wholesale change in the way the BPA approaches the industry. They concede that wind poses major challenges. But they insist that few of the problems are new, and say the BPA has been dragging its feet and blaming the wind producers while focusing on providing the lowest possible power prices to publicly owned utilities, its traditional constituents.

Oregon Sen. Ron Wyden said late last week that no matter where the rate increase came in, he was dissatisfied with the agency's approach and looking for change.

"At a time when everyone from the president of the U.S. to the folks in the tiniest timber dependent communities are looking at promoting green energy, our region cannot tolerate having the lead player adopting policies that are decidedly unfriendly," said Wyden, a Democrat.

Power surge

The BPA is the 800-pound gorilla of the Northwest's electricity world. The hydropower it sells makes up 40 percent of the energy consumed in the Northwest, and it owns three quarters of the transmission wires that send electricity pulsing between power plants and customers as far away as California.

When it comes to wind, the BPA has a more central role. The region's wind turbine farms are geographically concentrated at the east end of the Columbia River Gorge, right in the heart of the BPA's control area.

While the BPA has a concentration of transmission lines in that corridor to serve dams, the lines are already overtaxed. And when the wind blows, all of the wind farms start sending power to the grid at the same time.

The federal hydro system is a great tool to integrate with wind because reservoirs are the only large-scale way to store energy and can quickly ramp up and down to balance intermittent supply and demand.

Yet the system has its limits, and when wind speeds jump or fall well beyond the levels forecast by wind farm operators, it can require the agency to operate with inadequate reserves or spill water in a way that is harmful to fish.

Elliott Mainzer, the BPA's head of strategic planning, says the agency has been working on the issue for years. Two years ago, working with wind producers and utilities, it came up with a 16-point plan to integrate 6,000 megawatts of wind generation by 2020. By next year, the region will be halfway to that total already.

The BPA initially focused on its transmission system and is moving forward on four priority projects, in some measure to accommodate wind.

In October 2008, it put its first wind integration rate in place, charging wind producers for the cost of absorbing and backing up their output. More recently, it proposed quadrupling that cost, before dropping down to the 90 percent increase in Tuesday's rate order.

While the BPA has taken flak for focusing on increasing rates rather than improved operations, it has more recently shifted its focus, putting a definite timetable on a series of initiatives that could fundamentally change the way it operates the grid.

By October, the agency intends to establish a system to knock wind farms off its transmission grid when they are operating so far outside their scheduled output that it threatens to exhaust the agency's hydro reserves.

It intends to install 16 stations to measure wind speed and direction around the region to provide data to wind operators at five-minute intervals. And by mid-2010, it will establish an in-house forecasting desk alongside its existing hydro forecasting desk.

By Dec. 1, the BPA will begin offering a pilot program to allow customers to change their power transmission schedules and sell power resulting from quick changes in wind output.

The agency also proposes to allow wind producers to purchase reserves from suppliers other than the BPA and will eventually seek to transfer some of its wind integration responsibilities to other utilities.

"It's a significant rate increase," said Don Furman, a senior vice-president at [Iberdrola Renewables](#), which owns nearly 40 percent of the wind generation in Oregon and Washington. "On the other hand we feel good about this because BPA is really engaged in the implementation plan."

Ted Sickinger; tedsickinger@news.oregonian.com

For more updates and previous stories about wind power, visit oregonlive.com/business

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Comments

flyers73 says...

If the wind blows.....

Posted on 07/21/09 at 9:16PM

lsjogren says...

Intermittency is probably the biggest technical obstacle to wind and solar becoming linchpins of our energy system.

Because as the article points out hydro has some energy storage capability, intermittency is actually LESS of a problem here than it will be in other parts of the country, but it will be a big challenge even here.

At some point they will have start looking at energy storage systems to accompany wind generators.

Either wind generating companies will have to develop storage systems or they will have to settle for getting paid on the cheap because frankly power that you only deliver "when the wind feels like blowing" is worth far less than power that you can rely on.

Probably the most efficient storage would be a giant battery, but those don't exist at least so far. Those could be hugely expensive but at least there is one advantage they would have over batteries for electric vehicles- it wouldn't matter how much a giant stationary battery weighs, while weight is a crucial thing when it comes to a battery for an electric vehicle.

Posted on 07/21/09 at 9:35PM

beaverbj says...

Once again the public pays for political posturing.

Many well-intentioned people are being led astray by alarmists, activists, and feel-gooders. Who pays for their alarms, self-interests, and good feelings? You do. The residents of the Great Northwest.

You pay for wind generators that generate little electricity so they can say "Look what we are doing for the environment." Just remember - few, if any, of those promoting these boon-doggles live the areas suffering the impact. Some don't even live in BPA's footprint and will as a result, not have to pay for their ambitions.

BPA's fleet of wind generators operated at roughly 14% capacity factor last year. That means the 6000 MWe generation capacity they are being forced to install will produce only 840 MWe on average. That is like paying someone for eight hours of work when they actually worked only one hour. Does that make sense? Oh...and of course, you don't get to choose which hour that is, btw.

Installation has doubled in the past several years not because operating these wind farms makes lots of money... it's the tax credits that make the business model come close to break even. Take away the tax credits...which means we tax payers pay more of our money to make up for large companies doing one time building projects (how does that sustain any economy?)... and these projects would fall on their blades.

Continued operation of wind turbines means you will continue to pay for the poor decisions through increased electric rates.

We are headed down the road to total government intrusion in every area of our lives. This is just another example of lost freedoms and choice.

Posted on 07/21/09 at 10:03PM

ProfRando says...

This is a really interesting and well researched article on an important, controversial, and interesting topic. It makes me think more carefully about the benefits and costs of green-power. Thanks for publishing it.

Posted on 07/21/09 at 10:08PM

hilaryclinto says...

I thought the storage issue was an easy solution in that excess intermittent power is used to pump water uphill to some storage reservoir, to be released to run through penstocks to produce power when needed. Of course there is a loss. But not running at all is an even greater loss.

The issue of distribution is the critical one. They built from the wrong end, and all done by legislative design. Tax credits and earnings relief, the usual suspects, finance the projects, and if the give aways are great enough, you get the kind of response the Columbia river gorge now has with that seemingly endless white picket fence of alien machinery. Only there is insufficient transmission linkage and capacity to use it all, again, efficiently. Legislated and mandated power production is only a part of the picture. So who will get the tax credits, the grants, the whatever, to build more transmission lines to more places? And the vast majority of wind and solar in the US is nowhere near existing transmission lines.

I have a feeling the rush to install wind power was a part of replacing the "four dams on the Snake River" that the ecofreques will pout about until they are removed. The power lines from those dams might be a target for wind power. And of course, if things do not go well, the dam removal advocates will just give us the old Emily Littella "Never mind" line and go on to the next doom's day scenario.

But when you have government motors, building cars, and government land managers obliterating roads, you know that Dr. Doolittle's Push me-Pull me is real.

I once sat in a meeting at a small sawmill. They were talking about gaining efficiency. They wanted to install machinery that would cut more lumber from the same log and do it faster. i said that sounds good. Let's design it, and build a better lumber handling green chain, with more capacity. That would gain some immediate efficiency. And when the new equipment was installed, we could handle the increased production. So we went to where the new, lengthened green chain would end, and built a timber deck ramp, and built the green chain towards the end of the existing one, and one saturday, made it into one. We had built the transmission lines, and now we could put in new wind turbines, new sawing machinery. BPA planning and budgeting from the same Congress and legislatures, the oversight and financiers of BPA, needs to be on the same page at all times. This deal of unbridled wind machine installations with inadequate distribution infrastructure, markets, planning, all accomplished with tax forgiveness, relief, and legislative mandates, does have to find a home for the megawatts produced and a way to get them there.

Posted on 07/21/09 at 10:14PM

kjironman1 says...

Beaverbj: Save your post and read it again in ten years then see if you don't see things differently. I for one know that this is the way to produce clean green power and the process is

getting better as we speak. Every day we are making progress to get by the hurdles in front of us. Remember everyone knew the automobile would never last either.

The issues with potential and kinetic energy have always been the growing pains of every new system but give us some credit we will prevail.

We have however glaring problems with our archaic power grid and we better do something quick because it will not handle the needs of this country much longer. No matter how much energy is produced. I will not try to give any percentages because they are not truly known but we loose an incredible amount of energy through our worn out systems of our grid.

With some good ol American know how and hard work we can and will work through this mess.

Posted on 07/21/09 at 11:00PM

radsub says...

Good old American hard work didn't require government subsidies...

Posted on 07/21/09 at 11:19PM

danchadwick says...

funny that these wind farms are not actually displacing any fossil fuels like advocates proclaim.

it is just holding back full production from hydroelectricity which is green as well. I can see in ten to twenty years we will be removing these turbines from all of our hilltops.

Posted on 07/21/09 at 11:30PM

skygreen says...

If wind power increases, then why wouldn't coal/gas generated power plants go off line during the production period? Why not ship extra wind power south to California instead of knocking them off the grid. That is insane. The interstate system should be increased to carry higher loads to areas with the HIGHEST rates. Those areas would welcome wind power and would be willing to be a premium to replace inefficient power production. To put up wind towers literally all over the place. (Drive up around Maryhill and Sherman County) and not use the power is not acceptable. You don't have to have PUD pick up the transmission cost. Have different rate levels for power requirements. PUDs get first priority, then local utilities, then out of area customers who can use "excess" power. There is a Natural Gas Power plant in Goldendale less than 10 miles away from a huge windfarm. Why use up the natural gas when the wind power is available?

Posted on 07/22/09 at 5:19AM

fishngal says...

Without being a great techie person or scientist of any kind, it seems to me from what I read and hear, the challenge now and the future is to learn to make new ideas and inventions work? I hear a lot of why it won't work, but damn it, tells us how it could or will work.

We don,t have forever to get our act together and go a new direction for future generations that are inheriting this damaged earth .

How about working constructively instead of selfishly to improve the concept of electrical generation for the region, the USA and the World?
WHAT A CONCEPT?

Let's sit down and find common ground and start again. OK?
Soon?

Posted on 07/22/09 at 6:19AM

beaverbj says...

kjironman

I appreciate your awareness of the need for a strong infrastucture to support the transmission and distribution of our most vital commodity that has no shelf life.

Certainly we can depend upon human ingenuity to make step changes in both blade efficiencies and transmission technology. But no matter how much you improve the electro-mechanical end, we still have no control over the wind, neither its speed nor reliability.

However, I only need to look to the past to predict the future. Eo-n is a large German utility heavily invested in wind generation. Their vision is 48,000 MWe of installed wind capacity. Read their "annual report" on wind.

http://www.nerc.com/docs/pc/ivgtf/EON_Netz_Windreport2005_eng.pdf

Pages 7 and 8 discuss how they enjoy about 13% capacity factor...much the same as BPA. Note in particular page 9 in which they discuss that after reaching that point of 48,000 MWe, they may be able to retire 2000 MWe of reliable fossil fueled generation.

If you, Ironman, or others read this report and still believe wind generation is the way to go, I only ask that you put your money up to support this and leave the rest of us to spend our money where we choose.

Posted on 07/22/09 at 6:55AM

tyhoyt says...

Isn't the large capacity storage system already there? The Columbia? Build a pipe and pump system that pumps water back up stream when the wind is blowing. Then make electricity as needed with the hydro dams. Seems simple enough.

Posted on 07/22/09 at 7:09AM

jbfishman says...

At the risk of being logical here and offending some anti-everything types, remember the little plant on the water by St Helens that made steam? It neither killed fish, polluted the air/water and ran efficiently as a huge number of nuke plants are doing around the world. At our Oregon OSU, new nuke technology has been discovered that makes it even more efficient and the safety levels we enjoyed at Trojan are now even more refined. Why not revisit the skeletons of WPPS on the hills above the Columbia or elsewhere if better suited and restore nuke power to the grid. It is reliable and GREEN, folks. The waste is very small, entombment caskets are tested to be near impervious to even an 80 mile per hour semi-truck smashing into it.

Our Navy runs many nuke reactors with 19 & 20 year olds operating them. 3 pounds of material runs a 1,000+' aircraft carrier, with 6,000 souls onboard, supplying propulsion and electricity for a moving (25+ kts) city. When do the kool-aid drinkers get real? Meanwhile China adds a coal-fired electrical plant every 2-3 months and refused to fall for the GW scam so we can burn ethanol to save the world.

Posted on 07/22/09 at 7:33AM

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