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## As the wind blows

*Power company tries to grapple with wind supply*

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Bonneville Power Administration must be able to anticipate how much electricity is being produced by wind turbines so it can efficiently meet demand.  
EO file photo

of the West. But when the wind stops, those farms' output can plummet to zero in a matter of hours.

Those fluctuations can be difficult to keep up with, Mainzer said. BPA often has to dial back hydroelectric dam production - its biggest power source - when the wind is blowing, then crank it up to fill the energy gap when it stops. Too much energy on the grid could trip generators or "melt" the system's transmission lines, Mainzer said.

The BPA hopes to use better forecasting as one way to ease that strain. The federal entity plans to place wind measurement sites at 16 of its own facilities by this fall, according to a BPA work plan completed last month. Planners hope that leads to in-house wind forecasting by next May.

Consider the state's energy supply a giant juggling act.

When demand spikes, the Bonneville Power Administration must send energy over its power grid to where it's needed, combining numerous sources into one system. When it dips, things scale back.

"Energy is the kind of thing that has to be balanced," said Elliot Mainzer, BPA's vice president for strategic planning. "Demand has to equal supply at any given time."

Tipping that balance recently is an explosion of wind energy development in Oregon and Washington - a trend that shows no signs of slowing down, and one BPA officials are preparing for with infrastructure upgrades. So far, the impact has been minimal to Northwest ratepayers, Mainzer said, as wind developers have committed to foot much of the bill.

The region's wind landscape now presents this problem: Just about all of those wind farms are located in or near the Columbia River Gorge.

"The downside of putting all those wind projects in the same place, is that when a big gust of wind comes flying down the Columbia Gorge, it hits all of those wind turbines at the same time," Mainzer said.

When that happens, hundreds of spinning turbines can pump as much as 2,000 megawatts of power into BPA's massive grid covering much of the West. But when the wind stops, those farms' output can plummet to zero in a matter of hours.

"It just really helps us by reducing the operating costs on our system," Mainzer said. "It extends the wind integration capability of the dams, because they don't have to move quite as much if they know what's coming."

Mainzer said he'd also like to see more wind projects spread over other places to provide more of a balance.

For the Columbia Gorge wind projects, the peak production time is usually spring, said Elon Hasson, a project manager with Horizon Wind Energy. The Houston-based company recently launched two wind farms near Arlington.

Then there's the issue of growth. Wind energy now accounts for up to 2,105 megawatts of BPA's power grid - that's 20 percent of its maximum demand, if the wind is blowing - which could double in the next couple years, said BPA spokesman Michael Milstein. The number could approach 6,000 megawatts by 2013 or 2014, he added.

"It's pretty daunting," Milstein said.

But four new transmission lines will help support that growth, including one project stretching from Umatilla to John Day. Another is planned for the Interstate 5 corridor above Portland.

Mainzer said area ratepayers haven't felt much effect so far from the extra work. When BPA officials asked wind developers to help subsidize the infrastructure expansion, Milstein said, it prompted a "huge response" and plenty of interest.

Much of the recent boom in wind development comes from increased demand for renewable energy, particularly in California, Milstein said, where a lot of Oregon-produced wind energy is sent now.

The state has committed to having 20 percent of its energy come from wind by 2020, he said.

"That's really driving it," Milstein said.