

## Feds eye surge in wind power

By NOELLE STRAUB  
Star-Tribune Washington bureau

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Mammoth wind turbines dot the landscape in the Bridger Butte area in eastern Uinta County. The Bridger Butte turbines comprise one of Wyoming's newest wind farms. The federal government envisions many more in the state. Photo by Jeff Gearino, Star-Tribune.

WASHINGTON -- Wind could provide 20 percent of U.S. electricity by 2030, reducing greenhouse gas emissions and only slightly raising costs to consumers but requiring a vast new transmission system, a new Energy Department report shows.

"We now have a report that gives us a first step, a baseline, on how to work together with greater urgency to deliver on all the things the next generation is waiting for from renewable energy," said Energy Department Assistant Secretary Andy Karsner.

Several Energy Department offices and labs collaborated with industry groups to produce the report, which they released Monday.

American wind farms are expected to produce more than 1 percent of the U.S. electricity supply this year. To reach the 20 percent goal, wind power capacity would have to grow from today's 11.6 gigawatt level to 300 gigawatts. That would require about 100,000 turbines by 2030.

That amount, "while ambitious, could be feasible if the significant challenges identified in this report are overcome," the report said.

Under the assumptions used in the report, the 20 percent goal would require an incremental investment of \$43 billion. That would be about 50 cents per month per household by 2030, it said.

The models call for more than 10 gigawatts of wind power in Wyoming by 2030 and 5 to 10 gigawatts in Montana.

Wyoming ranks seventh in the nation for wind electrical generation potential but is 15th in production, according to 2007 figures released earlier this year by the American Wind Energy Association. A number of wind farm construction projects are under way or in planning in the state.

The projected level of wind energy production could reduce greenhouse gas emissions by 825 million metric tons in 2030, the Energy Department report said. It could also reduce water consumption in the electric sector by 8 percent through 2030, or 4 trillion gallons, "significantly reducing water consumption in the arid states of the interior West," it said.

That would require improved turbine technology, significant changes in transmission systems and large expanded markets to purchase and use it, the report said.

A new "transmission superhighway system" would be required to connect the production sources in the middle of the country to population centers and the coasts. "Meeting this challenge could be economically and technically feasible," the report said.

Numerous parties across a wide geographic area would need to collaborate on a common plan for such a system. The Federal Energy Regulatory Commission's regional planning process is a good first step, but success will depend on

collaborative follow-through at the regional level, the report said.

The Western Governors' Association later this month will announce an initiative supported by the Energy Department to look regionally at the West for identification of renewable energy zones, the transmission needed to reach them and how it will be paid for, said FERC Commissioner Suedeen Kelly.

The 226-page report went into specifics on improved rotor, blade and gearbox technology; the availability of raw materials and labor; and the integration of variable wind power into electric systems, among other topics.

Siting wind projects also can raise objections from local communities over visual impacts and potential harm to birds and bats, it noted. Additional research and collaborative efforts can address those concerns, it said.

Karsner said that since he joined the department, most criticisms of wind power he has heard "have been what I would characterize as either frivolous or uninformed arguments that fly in face of reality about the capacity for this technology to scale."

Critics say wind power is marginal, but growth statistics indicate the opposite, he said. They also argue it's unreliable, but he said no resource is more measured and monitored to gain commercial financing. "It is in fact one of our least volatile resources," he said.

Officials from FERC, BP's alternative energy division, American Electric Power and the American Wind Energy Association all spoke in favor of the plan.

The national demand for natural gas would decline 11 percent if the wind goal is achieved, and a half-million jobs would be created, said Randall Swisher, executive director of the American Wind Energy Association.

Transmission is the biggest constraint on wind power, Swisher said, but added he's confident that enough can be put in place.

The wind goal also would reduce electricity utilities' consumption of coal by 18 percent, the report said.

The Department of Energy, Black & Veatch engineering and consulting firm and American Wind Energy Association participated in the assessment. The report reflects input from more than 50 key stakeholders, including industry, environmental and government groups.