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## News » Education



Spirit Lake Elementary third-graders play in view of the wind turbines the school district owns.

By Lloyd B. Cunningham, Argus Leader

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# Schools' wind turbines power learning

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By Jeff Martin, USA TODAY

SPIRIT LAKE, Iowa — Towering more than 12 stories above a school playground, a pair of wind turbines transform the gusts blowing over the lakes and ridges surrounding this northern Iowa town into power that provides about half of the school district's electrical needs.

Students here can "look right out the back door" to see the giant turbines capture the wind and learn how they can produce power, Spirit Lake schools Superintendent Doug Latham says.

More than 80 schools across the USA have installed some type of wind turbine, says Ian Baring-Gould, senior engineer in a wind technology center at the National Renewable Energy Laboratory in Golden, Colo.

Now, a program called Wind for Schools is aiming to bring smaller turbines to six states: Colorado, Idaho, Kansas, Montana, Nebraska and South Dakota. The program, sponsored by the U.S. Department of Energy's Wind Powering America program at the National Renewable Energy Laboratory, is the first program to use smaller turbines with a mission of educating students and the community about wind power, Baring-Gould says.

In Faith, S.D., home to one of the schools hoping to build a small wind turbine in the next couple of years, a fierce wind blows across the plains most days.

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Angela King, who teaches science in grades 7 to 12 in Faith, believes a turbine will give students learning about wind energy the chance to "see it happening, rather than just reading it in a book."

Much of the first year of the three-year program has been spent identifying schools hoping to participate; South Dakota, for instance, announced its eight school districts over the summer, says Steve Kolbeck, a state public utilities commissioner.

About five schools in Kansas have the turbines, and schools in Montana, Idaho and South Dakota are now preparing sites and will have them installed during this school year, Baring-Gould says.

Now, the goal is to add wind turbines at about five schools per year in each state, for a total of about 30 per year overall, Baring-Gould says.

The turbines will be on towers up to 70 feet tall, and it's projected that they will produce around 3,000 to 4,000 kilowatt hours per year, which is generally enough to provide only a fraction of a school's electric needs, Baring-Gould says.

The price of a wind turbine will be about \$6,000 in out-of-pocket costs, according to a Department of Energy project summary.



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- (c) type of loan that pays interest

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State grants may provide some of that cost, the summary states, and many project participants donate their time.

Curriculum guides for grade levels kindergarten through 12 are part of the program.

"The curriculum piece that goes with it is just as important as the hardware," says Tom Potter, the Colorado facilitator for Wind for Schools.

The curriculum will help train workers for the booming wind industry — an important aim of the overall program, Baring-Gould says.

"It's a big growth industry, and it's going to get even bigger," says Mick Womersley, an associate professor at Unity College in Unity, Maine.

Wind energy provided less than 1% of the USA's electricity at the end of 2006 but is expected to provide 20% of the nation's electricity by 2030 if the industry's annual growth of 25%-30% continues, according to Colorado Wind for Schools, which coordinates the program there.

Workers knowledgeable about the turbines will be needed, including people who know how to find suitable locations for them, a key skill, Womersley says. Womersley helped students build a turbine at Unity using a rebuilt car part — an alternator — purchased from an auto parts store. It was damaged last spring by gales, so Womersley is having his students shop around for a good turbine this semester. He didn't tell them which one to buy. "We'll get as much teaching out of it as we can," he says.

*Martin reports for the Argus Leader in Sioux Falls, S.D.*

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T. in K.C wrote: 16h 10m ago

NewsHoundGuy wrote: 17h 48m ago  
Not enough consistent wind anywhere in the US, including the Chicago area.

It is about solar power folks! Even where I live in the oft-gloomy Northeast there is enough days of light (combined with electrical storage backup ♦ otherwise known as batteries) to make it the most feasible way to go right now.

Even on cloudy days the power producing UV rays penetrate through and can generate electricity.

-----  
Different areas of the country may require different sources of energy. Where I live in Kansas there is nothing to stop the wind from sweeping across the flat plain, thus making turbines ideal...

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katocat wrote: 20h 33m ago

I would still like to see all "big box stores" required to put solar panels on their nice flat roofs. That would drive down the price of electricity as well as provide needed supplemental electricity and it would work on lowering our energy dependence on the oil companies wherever they are located.

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**qwerty7** wrote: 20h 40m ago

**Bob E.** wrote: 3h 38m ago

Wiley Coyote II~~~~ 12 - 24 volt system would not be practical! A 300 watt appliance wouldbe pulling from 12+ to 24 + amperes!

-----  
Agreed, and considering the gauge of (copper) wire needed for that, electric rates would no doubt greatly increase. The smarter choice would be to go to a 220v system.

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**STOPobama** wrote: 21h 53m ago

**h\_nicole\_young** wrote: 9h 38m ago

This is really good stuff. I hope USAToday keeps giving us any and all stories about alternative energy sources and people developing them and utilizing them in real life. Get off the grid, people, if you can. It's more important than any vote you'll ever cast or any stock you'll ever buy, that's for sure.

=====

hippie

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**NewsHoundGuy** wrote: 22h 26m ago

Not enough consistent wind anywhere in the US, including the Chicago area.

It is about solar power folks! Even where I live in the oft-gloomy Northeast there is enough days of light (combined with electrical storage backup ♦ otherwise known as batteries) to make it the most feasible way to go right now.

Even on cloudy days the power producing UV rays penetrate through and can generate electricity.

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**TruBrewMan** wrote: 22h 44m ago

Not enough wind where I live and in most places. Simply not enough. It would take 50 years to pay off the cost of the turbine let alone the maintenance. And then you have electrical interference and the noise.

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**Bob E.** wrote: 1d ago

My last posting I meant ~~~ MAGNAMOUS ~~~ Fat fingers on spellcheck.

Wiley Coyote II~~~~ 12 - 24 volt system would not be practical! A 300 watt appliance wouldbe pulling from 12+ to 24 + amperes!

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**Bob E.** wrote: 1d 1h ago

It's about time!! Although each of these efforts are not monogamous in themselves they are still the first steps in a long journey. They should have a meter installed in each school , in a very obvious place so the students can see exactly what is being produced and the savings!

Let them go home and tell their parents just how much money these windmills are saving the school system. This would help bring reality home!

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**Wiley Coyote II** wrote: 1d 4h ago

yes, it is. I also think the country needs to gravitate away from 120 volt systems, towards a 12-24 volt system. With technology being what it is today with light emitting diodes and brighter traditional filaments, our volume of electrical energy needed, could be reduced allowing more of it to be available. Use and RV (recreational vehicle) as an example.

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**UncleBuck** wrote: 1d 4h ago



the plain states are apparently a great place to site wind turbines. Boone Pickens says so. this project is a great lesson for America. You don't need a wind farm of 20 or more turbines to make a difference. Even 1 to 5 turbines make a difference if they're sited where the wind blows. In a time when other industries are consolidating, energy is decentralizing! What happens when 1 turbine fails?? ans: not a lot. Maybe there's a bigger lesson here??

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