



The Providence Heights Wind Power Project in Bureau County, Ill., features 36 turbines and a capacity to generate 72 MW of electricity.

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## PROJECT PROFILE: Illinois' Providence Heights

Iberdrola Renewables' first wind power project in Illinois is up and running with 36 wind turbines at the Providence Heights Wind Power Project in Bureau County. The site came on line in summer 2008 and has a capacity to generate 72 megawatts (MW) of electricity, or enough to power approximately 22,680 average Illinois homes, and is also contributing jobs and tax revenue to the local community.

Under the supervision of Plant Manager Curtis Radke and his team, the Providence Heights turbines were commissioned in fall 2008 on nearly 5,000 acres of corn and soybean fields owned by 22 landowners. This past December, the site underwent its final cleanup and restoration, which included a number of innovative revitalization techniques on the main staging areas that were used for construction.



For example, on the property of twin brothers Kevin and Kim Plotner, Iberdrola Renewables carefully deep-ripped the five-acre staging area, laid down a treatment of phosphate and potash, and seeded the soil with oats. The Plotners will plant a new crop of corn in spring 2009. Kevin and Kim are hoping this section of land will soon be just as productive as the surrounding 600 acres they own, which produced well in excess of 200 bushels of corn per acre in 2007 and 2008.

The four-acre staging yard on landowner Butch Knobloch's property received a treatment of screened compost, gypsum, limestone, potash, and phosphate, and then was planted with a mixture of alfalfa and oats. The land will be left fallow in 2009 to allow for natural decompaction. Butch, who decided to retire thanks to the wind energy payments he'll be receiving from the project, and his nephews will replant corn according to the regular rotation in spring 2010.

"We are proud of the high quality of construction at Providence Heights, and the care that was taken to minimize disruptions on the landowners' farming activities," says Dan Litchfield, project developer. "Thanks to a lot of advanced planning, we only needed, on average, 0.71 acres of land for each turbine, including access roads. That means we were efficient and careful with the landowners' property."

The Providence Heights Project was also a model for safety initiatives. Litchfield reports that there were no lost-time accidents during the 12 months it took to complete the project. 🌱



## USA Now No. 1 in World's Wind Production

As a clean, renewable energy source, wind power is gaining strength around the world, and landowners in the United States are helping to lead the charge in reducing the dependence on oil and natural gas. According to the American Wind Energy Association (AWEA), global output of wind energy reached 120 gigawatts (GW) in 2008. For the first time, the United States generated 25 GW, more wind power than any other country, and edged out Germany, (23 GW), and Spain, (15 GW), for the top spot.

As the world's leading provider of wind power, Iberdrola Renewables is on the forefront of today's wind power generation. Among the 8.4 GW of new capacity that was installed in the U.S. in 2008, Iberdrola accounted for 1.3 GW of that production, or nearly 16 percent of all new wind output in the country. Thanks to landowners like you, we are helping to bring wind power into the mainstream. 🌱

## What to Expect in Year One as a Wind Turbine Landowner

For many wind project landowners, receiving the first lease payment after a project has achieved commercial operations is an exciting time. They're eager to see just how well early income predictions compare with actual earnings, and if initial claims of having the windiest place around are true. However, in most cases, the first full year of commercial operations is an early test period that requires patience and adjustments. Here are a few activities that normally take place in the first year that could impact the amount of electricity generated during the first 12 months of operation:

- Projects on the East Coast and in the Midwest are usually constructed in the summer and fall to avoid inclement weather. This compressed schedule often creates a long list of tasks that still need completion. Individual turbines are usually shut down and removed from operation to complete these tasks.
- Modern wind turbines are full of electrical and mechanical devices and equipment that needs to be synchronized. During the initial break-in period for a newly commissioned turbine, these parts are serviced by experienced technicians working together with new, locally-hired technicians to ensure proper operation.
- The turbine's software system presets parameters to account for elevation, terrain, weather conditions, turbine spacing, and other factors specific to each wind farm. Optimization of the system parameters requires making observational adjustments over time.
- A wind farm's interaction with the interconnecting utility electric grid usually requires some fine tuning. Understanding the profile of the local electric grid and its impacts to a new wind farm usually requires observing these changes through an entire heating and cooling season.



New wind turbines usually require software updates during the first year of operation to account for elevation, terrain and weather conditions.

- As an environmentally conscientious company, Iberdrola Renewables is committed to promoting the development of clean energy production while minimizing potential adverse environmental effects. Iberdrola Renewables maintains this commitment during facility operations through the implementation of a voluntary avian and bat protection plan. In some locations, limited curtailment of operations usually occurs during documented migration seasons as part of post construction mortality monitoring.

While these activities are quite normal, landowners with production-based payments who work with Iberdrola Renewables will usually see increased wind energy payments following the first year, and are assured that their property will remain an income-generating asset for many years to come. ☒

## Educating the Next Generation about Wind Energy



Future generations will rely more on wind power than ever before. That's why Iberdrola Renewables makes great outreach efforts to students who live near our wind projects, so they can learn how clean, renewable wind energy is generated. In early 2009, Dan Litchfield, developer for the Providence Heights Project, (see page 1), sponsored a wind turbine kit demonstration with advanced science students at Bradford Junior High in Bradford, Ill. The 13 eighth-graders who participated live within five miles of Providence Heights, and Dan reports that they all enjoyed the educational project and learned more about how wind power is harnessed and used to power local homes. ☒



## Iberdrola Renewables Undertakes Groundbreaking Wildlife Research Studies

Protecting the environment and wildlife is a priority at all Iberdrola Renewables projects. Most recently, the company concluded groundbreaking wildlife protection measures at two new wind farms in Texas and Pennsylvania.

In an extensive three-year study, Iberdrola Renewables partnered with third-party wildlife biologists to conduct avian studies at the new Peñascal Wind Power Project in South Texas. The research results indicated that the project would have minimal impact on wildlife, making this site a prime location for wind development and wildlife protection.

The studies at Peñascal, beginning in August 2004, included observation during various weather conditions, including storm events, and featured the deployment of radar and infrared monitoring to track bird migration.

The Peñascal Wind Power Project is situated on nearly 191,000 acres of land from the John G. Kenedy Charitable Trust. Despite the size of the project, no spot was overlooked. Wildlife biologists spent more than 4,000 hours in the field to study the conditions.

### LEADING THE WAY IN BAT RESEARCH

Last year, Iberdrola Renewables partnered with an independent conservation group, Bat Conservation International (BCI), to study potential wind energy impacts on bats at its southwestern Pennsylvania wind power project.

From late July to early October 2008, Iberdrola Renewables, working with BCI researchers, conducted a controlled experiment in which selected wind turbines at the Casselman Wind Power Project were stopped during certain wind conditions. This represents the first U.S.-based effort to study the effect of shutting down turbines—“curtailing”—on reducing bat deaths.



The Merlin Avian Radar System is used to track bird migratory patterns at the Peñascal Wind Power Project in South Texas.



Iberdrola Renewables undertook groundbreaking bat protection research studies at its newest wind power project in Pennsylvania.

Shutting down turbines at certain wind speeds and during periods when bats appear most vulnerable is a potential new and effective way to reduce the impact on bats during their late-summer migration season. Although it was crucial for this study, curtailing turbine operations is not likely to be the complete solution to reducing the impact on bats in all circumstances, just one part of it, company officials said.

“As responsible stewards of natural resources, we recognize there is an impact on bats that requires scientific study. We’re committed to spearheading this effort, which represents a new area of investigation for the wind industry,” said Andy Linehan, wind permitting director for Iberdrola Renewables. “The new information generated by the Casselman project will be useful in improving many techniques for reducing wildlife risk at those wind power sites where there are significant impacts to bats.” The results of the study will be reviewed by scientific experts and then made public.

The Casselman Wind Power Project, located in Somerset County, also marks an important environmental first for the state of Pennsylvania by putting a former coal mine to productive use. Eight of the project’s turbines are located atop infill from a surface mine. In total, the 23 turbines at this wind power project will generate 34.5 megawatts (MW) of clean, renewable energy and contribute jobs and tax revenue to the local community. Typically a 34.5 MW wind project can generate power for more than 10,000 homes, according to the American Wind Energy Association’s calculation. 🌱

## Landowner's Tribute to Heroic Twin Buttes Construction Workers



*At the Colorado wind project dedication, Marion Sturges of Clay Creek Ranch recounted the heroic efforts of the Twin Buttes construction workers who helped rescue her livestock and aided local ranchers during the devastating winter storms that hit during construction of the 50-turbine site.*

"I lived and worked through the blizzard that raged though southeastern Colorado during construction of Twin Buttes. If you were lucky enough to have not been directly affected by the storm, and the subsequent storms that seemed to follow every Friday for weeks, I'm sure you have seen the images of livestock struggling to survive. Highways closed. Motorists stranded. Buildings collapsing under tremendous snow-loads.

"For the ranchers lucky enough to live in the vicinity of the Twin Buttes wind project, help arrived with the same swiftness and determination that the storm had shown. It arrived being driven by the same Caterpillar equipment used to erect this massive wind farm you see here today.

"With one phone call, the subcontractors for Iberdrola Renewables, including Michals Electric, D.H. Blattner and Rosendin, gave us permission to use their equipment to rescue the cattle stranded by the immense snowdrifts. The rescue mission across a barren ocean of snow had begun.

"Anticipating our needs, the subcontractors sent in their operators to run the equipment, keeping the roads clear from drifting snow while also opening up new paths to stranded cattle. Their mechanics worked on our equipment, which began to fail under the sudden demands of running 24/7.

"Many of these guys worked well into the night—night after night. Some in open cabs while the temperatures dropped to well below 30 with the wind chill. None of them ever complained. Willing to grab a shovel, they would join in to help dig out a stuck vehicle from a snow bank or to break ice in a tank, allowing the livestock access to water.

"Side by side—project supervisors, ranchers, mechanics, wives, heavy equipment operators and young kids worked toward a common goal. To save the cattle, which for many of us is not only a monetary investment, but an emotional one as well." 🌱

### WE WANT YOUR FEEDBACK!

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