

Where your electricity comes from

We purchase the power we distribute to you from local generation and transmission co-op Prairie Power, Inc. (PPI). We'd like to share with you PPI's current power supply portfolio and their commitment to future power generation supply.

PPI is owned by and supplies power to its 10 distribution co-op members. This supply comes from several diverse generation resources. Approximately 60% is from the Prairie State Energy Campus, 2% from gas and oil-fired peaking combustion turbines, 10% from renewables such as wind and solar, and 28% from the open market. Let's dive a bit deeper into each resource.



Photo by PPI of Alsey Generation Station

Located in Washington County, Ill. the 1,600 MW Prairie State Energy Campus provides coal-fired power to nine electric co-op and municipal utility participants located in five states. This plant is among the top 10 cleanest coal-fueled power plants in the U.S. with state-of-the-art environmental controls which result in a net emissions rate of less than half the average when compared to similar plants across the U.S. At present, this is the most reliable and affordable power supply for the PPI members.

The Alsey Generation Station consists of six natural gas-fired generators in Scott

County, Ill. and the Pearl Generation Station is home to a 21 MW oil-fired combustion turbine in Pike County, Ill. These generation resources are utilized primarily during peak load conditions, however their use has become more predominant with the recent closure of several area power plants. Alsey's operating hours have more than doubled the last few years. Having these stations available is valuable to the reliability and stability of power supply, especially during times when demand is high in many parts of the region.

In 2011, PPI entered into a power purchase agreement with Pioneer Trail Wind Farm LLC in east central Illinois for 20 MW of wind energy and renewable energy credits (RECs). PPI resells some of the RECs included with the purchase, and therefore does not claim the renewable attributes as a part of their supply portfolio. Selling the RECs helps reduce overall costs for PPI and bolsters supply for buyers required to meet renewable energy portfolio standards.

In 2015 PPI constructed two solar farms, each providing 500 kW of electric capacity. Located in nearby distribution cooperative territories, the farms could produce enough electricity to supply 1,500 families each day.

These electric generation resources have served the membership well and will continue to provide a reliable supply of electricity for years to come. As the composition of the electricity markets advance, PPI is strategically thinking ahead.

Micah Bushnell, Prairie Power's VP of Portfolio & Markets, says, "The PPI Board of Directors has chosen a path to a carbon-free future by 2050 and has done so without a Federal or State legislative mandate nor explicit outside regulatory oversight. The self-governing nature of electric co-ops enables PPI to act decisively and pursue a deliberate approach to managing carbon emissions. By setting a target of 0% carbon emissions by 2050, the PPI Board has enabled us to evolve in a way that best meets our members' needs. We are committed to providing responsible, affordable and reliable generation and transmission service as we make this transition."

As discussed, for more than 10 years PPI has been partnering with renewable energy developers and included resources such as wind and solar in its portfolio. They recently added a third solar farm to their supply mix.

Last year PPI contracted to purchase 24 MW of additional solar power for

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Photo by ALEC of Shelby Solar Farm



Glacier Sands Wind Farm



Three wind farms are currently located in our service territory and two more are in development. This month we spotlight the Glacier Sands Wind Farm, comprised of 43 wind turbines located northwest from Mason City toward San Jose, completed in the final quarter of 2021.

Glacier Sands, acquired from Swift Current Energy, is one of 23 projects in the U.S. and Canada owned by Cordelio Power, and was the first project built within the United States. Cordelio Power is wholly owned by the Canada Pension Plan Investment Board. The project name was chosen to reflect the uniqueness of the local area, which is comprised of sandy soil deposits left behind as glaciers moved and melted over Illinois.

Cordelio Power COO Paul Rapp cited four elements that made Mason County a good fit: 1) strong wind resources, 2) ability to connect to the bulk electric transmission grid, 3) minor natural resource mitigations needed, and 4) community support.

“Mason County has been very good to work with,” says Rapp. “We are coming into a local community’s backyard, and we begin by building a relationship to understand what the community and landowners want, as well as sharing the merits our project will bring to the area in both the short term and long term.” He says value for the community includes improved roads, benefits to community services required to support the workers during construction and support the project during operations, and long-term tax revenues and

community benefit contributions over the life of the project.

A wind farm project can take four to seven years for development and 12-18 months for construction. The development phase includes design, obtaining land and lease agreements, performing environmental and interconnection studies, preparing the roads and land in the area, and other details required before construction can begin.

Menard Electric’s engineering team and operations crews were involved during this phase in two primary ways. One was supplying temporary power to the laydown and construction yard trailers. The second was to enable crossings and construction; both the turbine blades and the equipment/cranes used to build the structures are large. Bringing those into the sites required relocation of electric facilities and the temporary burying of some spans of overhead line. This occurred at intersections to enable wide turns by large trailers and along roadways to facilitate access to individual sites.

Cordelio Power Land/Communications Manager Stephanie Bond spoke with landowners individually to ensure the project could optimize the site of each turbine without obstructing farming operations. “We discussed each element of the project and the construction process,” she says. Unfamiliar with the unique aspects of Mason County agriculture, she notes, “With this project in particular, we had to make several accommodations for center pivot irrigation systems and the area’s unique crops, like popcorn.” Turbine construction began

in 2020 as harvest was wrapping up and the project became commercial in late November 2021.

Managing Glacier Sands is EDF Renewables BOP Manager Ethan Minich of Peoria. “There are many different models of wind turbines, and we have Vestas V-150 turbines,” says Minich, who notes that six Vestas technicians, local to the area, are permanently employed on site to perform maintenance and troubleshooting. “Each turbine is serviced twice a year and the biggest, and dirtiest part of that, not surprisingly, is the greasing and cleaning of the equipment,” he says.

Glacier Sand’s turbines begin generating power when wind speeds reach about 7 mph. Optimum generation begins at about 25 mph and the blades will begin to feather and shut down if speeds reach more than 50 mph. The power is generated at 550-700 volts. A dry type transformer is located in the nacelle/hub of each turbine and steps the generated power up to 34,500 volts. Six to seven turbines are connected via underground high-voltage conductors in a circuit which feeds power to a collector substation. All circuits are consolidated at the collector substation, where power is again stepped up to 138,000 volts as it travels to the regional transmission grid.

Minich says the turbines require continuous power for operating the SCADA system, small motors that orient the hub to best utilize the wind resources, and necessary heaters/coolers/fans that keep the hydraulic equipment running smoothly. When a turbine is



not generating enough power to provide for such auxiliary needs, it will draw backup power from the regional grid. We call this Station Power and providing this service is where our relationship with the farm continues. Menard Electric facilitates approximately 84 percent of the station power used at the Glacier Sands Wind Farm in accordance with a tariff provision provided by our wholesale power supplier, Prairie Power, Inc.; Ameren IL provides the balance of station power.

Glacier Sands has 43 turbines with a capacity of 4.3 megawatts each, making a total production capacity of 184.9 megawatts. Microsoft Corporation has entered into a power purchase agreement for 100% of the energy generated by the farm for 15 years. Corporations such as Microsoft and others are purchasing more and more renewable energy and renewable attributes to provide for a more carbon-neutral platform, which is important to the environmental goals and standards

set by their stakeholders. National and state renewable portfolio standards also drives the growth for wind power in the U.S.

This spring, Mason County approved Cordelio Power's special use permit for a new wind farm project consisting of 38 turbines that will be sited south of Route 10 from the west side of Mason City to south of Easton. The project will fittingly be named Moraine Sands in deference to its location near Glacier Sands; the term "moraine" is defined as a mass of sediment carried down and deposited by a glacier. Plans include preparing the area this year, constructing the turbines across the winter following harvest, and connecting to the regional transmission grid to bring the project online in 2023.

Menard Electric will again be involved in providing temporary power, relocating facilities to accommodate construction, and facilitating station power. We look forward to our continued relationship with this unique member.

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20 years from the Big River Solar Farm, being developed in White County, Ill. The farm recently began generating test power and is expected to reach commercial operations later this year. PPI's purchase does not include the renewable attributes until after year 15 of the agreement, therefore no claim will be made within their supply portfolio.

The Big River Solar Farm was made possible due to the purchase power agreements with PPI, Southern Illinois Power Cooperative and the Illinois Municipal Electric Agency. "Illinois not-for-profit electric utilities are doing our part to get these solar farms built," says Bushnell.

As technologies continue to advance, renewable energy resources will continue to grow as a percentage of the overall energy supply. "Our combustion turbines are extremely flexible in their operating parameters, and are often called on to serve the end consumers' dynamic energy needs as renewable generation comes and goes intermittently. There are times when the sun doesn't shine, and the wind doesn't blow. Generation resources such as those at Alsey and Pearl are essential in meeting the electricity needs of consumers when renewable generation isn't available. Until large-scale electricity storage becomes viable, the grid must rely on resources, like PPI has at Alsey and Pearl, to ensure the uninterrupted service that we all expect," says Bushnell.

Menard Electric is pleased that PPI continues to work to diversify its electric generation mix as it supplies reliable electric generation resources now, with an eye towards the future needs of its members.



Learn More:

Cordelio Power: www.cordeliopower.com.
 EDF Renewables: www.edf-re.com.
 Vestas: <https://us.vestas.com/en-us>.

Vestas Turbine Fun Facts

- Height:* 105 meters (344.5 feet)
- Blade length:* 74 meters (nearly 243 feet)
- Gear box size:* Similar to a 4-door sedan
- Unique aspects:* Features an open-air cooler atop each turbine hub for hydraulic equipment. Entry door higher because of switch gear's location in the base of each structure.

Board highlights

For full minutes visit menard.com or contact the office.

March 22, 2022

- All Directors, General Manager Alisha Anker & Attorney Charles Smith present.
- Decision to utilize Harvest app for tracking Directors' time.
- Anker reviewed monthly & YTD financial operating report & balance sheet. Operating margins YTD as of 2/28 were \$1,511,559 compared to \$782,671 last year.
- Reviewed Member Svs Report w/226 cutoff tickets generated; \$813.29 in write-offs.
- Reviewed Operations Report w/50 incidents, longest outage 290 min. due to winter wind storm affecting 25 members.
- Discussed comparison of/rise in equipment/material costs; some nearly 50% increase.
- Review of annual Pole Top/Bucket Truck Rescue Training & notification of 1 reportable incident & 1 near miss.
- Discussed new House & Senate Legislatures' map.
- Reviewed FEMA Disaster Request & Public Assistance Summary.
- Entered into executive session; reconvened; approved actions taken.
- Next mtg 4/26/22.
- Strategic Planning Seminar 3/31/22.

Petitions Available for Election of Directors

**RETURN BY JUNE 20, 2022
ELECTION IS AUGUST 4, 2022**

Three Director Districts are up for election at each Annual Meeting of Members.

At this year's meeting on August 4, 2022, members at large will vote for representation in Districts 1, 4 and 6. Interested in becoming a Director? Visit our website at www.menard.com/board-directors to see a map of districts and learn more; then call 800-872-1203 or email info@menard.com to discuss the process of election. Petitions must be returned to our office by 4:30 p.m. on June 20, 2022.

Kilo Watt Korner



This month, we make an appreciatory nod to those who've been engrossed in spring cleaning by thinking outside the traditional vacuum. For those who detest the task of sweeping floors, we share the true hack of cutting your cleaning time and costs – use a robot!

Becoming quite popular in the past several years, the benefits of a robot vacuum go well beyond ease and efficiency. These small compact battery-powered devices are much quieter and family-friendly than the traditional upright vacuum. Set the timer and walk away, return to a clean floor and a fresher life.

Our test device was a Samsung POWERbot model VR2AM7070 with Wi-Fi compatibility, ideal for carpets and hard surfaces, with an extra strong power suction setting for unruly pet hair. As with most robot vacs, the docking station for this model plugs into a battery charger for convenience. We left our model plugged in continuously for the test month, however the PowerSave mode did help lower energy usage as an added benefit.

Power usage from the device ranged from a high of 74 watts/hr to as little as 0.6 watts/hr.

The high end obviously reflects the battery's 80W capacity during charging; thereafter, once fully charged, the station draws just 6.9 watts/hr to maintain ready-mode which includes Wi-Fi connectivity and illuminating the LED display. As mentioned, the PowerSave mode helped by disengaging the LED display after charging, thereby reducing energy use to just 0.6 watts/hr.

Battery recharge time from empty takes about two hours, and we ran the unit in AutoClean mode every fifth day. AutoClean mode uses the model's visionary smarts and programming to focus on programmed locations in the home according to schedule. Each vacuum run lasts approximately 30-90 minutes depending on the programmed suction setting. During vacuuming, the dock pulls just 1.6 watts/hr before the unit returns.

For the entire month, this model cleaned like a jiffy and drew a total of 1,950 watt-hours, costing us just 24 cents. By comparison, we do still have a legacy upright Bissell PowerForce Helix in the closet. For a similar clean time of five hours, the upright required over 7,000 watts of power. Worse yet, we were attached to the handle and the dog greatly detests the noise.

Korner Recommendation: Go with the robot, and a lot less elbow grease.

KwK