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RENEWABLE ENERGY, LLC
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Illinois Small Wind Consumer Guide

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Welcome to Monarch Renewable Energy and the exciting pursuit of wind power!

Monarch Renewable Energy is an Illinois-based company that specializes in turnkey solutions for homeowners and businesses seeking to reduce costly dependence on the big Utility companies and take greater control of their own energy production and conservation.

The professionals at Monarch Renewable Energy are here to partner with you in choosing the right alternative energy technology by harnessing your own wind power and aggressively conserving every possible unit of purchased energy you use.

Monarch Renewable Energy is an authorized dealer and installer for multiple grid-connected wind turbine systems including the 2.4 kW Skystream 3.7 and the 10kW BWC Excel-S, and Monarch specializes in guiding our customers through every aspect of the wind energy investment, from proper site selection to purchase to installation.

Whether you are seeking to assert your energy independence, take advantage of today's financial incentives or shrink your 'carbon footprint', you can count on Monarch Renewable Energy to lead the way.

The purpose of this guide is to provide basic information about small wind electric systems to help decide if wind energy will work for you. Please do not hesitate to contact your Monarch representative for any additional information you may need.

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Can I use wind energy to power my home?

This question is being asked across the country as more people look for affordable, reliable and environmentally positive energy options. Small wind electric systems can make a significant contribution to our nation's energy needs and many of today's consumers are eager to adopt their own source of wind energy their homes and small businesses. A small wind electric system will work for you if:

- There is enough wind where you live
- Tall towers are allowed in your neighborhood or rural area
- You have enough space, usually 1 acre of land or greater
- You can determine how much electricity you need or want to produce
- The long term investment in a wind turbine works for you economically.

Why Choose Wind?

Wind energy systems are among the most cost effective home-based renewable energy options. Depending on your wind resource, a small wind energy system can substantially lower or eliminate your electric bill while it helps you avoid the full impact of future utility rate increases and take pride in adopting your own nonpolluting alternative to traditional fossil fuels.

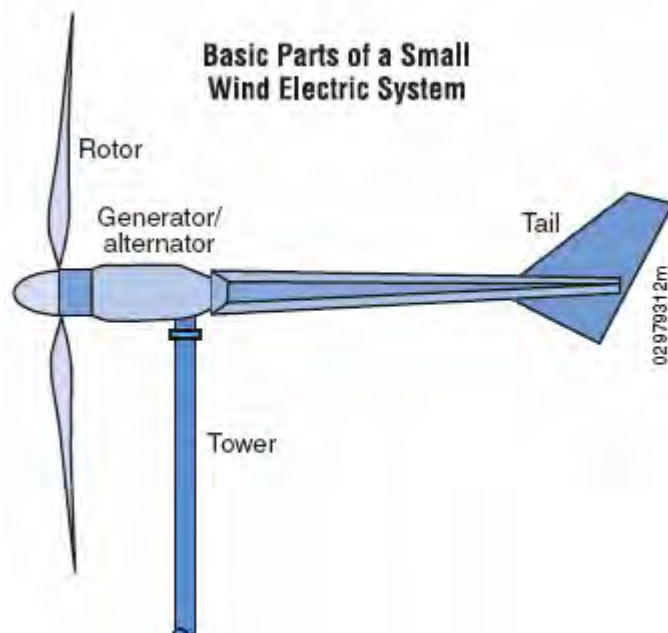


Diagram 1

Wind is created by the unequal heating of the Earth's surface by the sun. Wind turbines convert the kinetic energy in wind into mechanical power that runs a generator to produce clean electricity. Wind turbine blades are aerodynamically designed to capture the maximum energy from the wind. The wind turns the blades, which spin a shaft connected to a generator that

makes clean, emissions-free electricity that can be directed to the home's utility grid for immediate use. Excess electricity produced will even turn the consumer's electric meter backwards generating a credit with your utility company to be used at a later time.

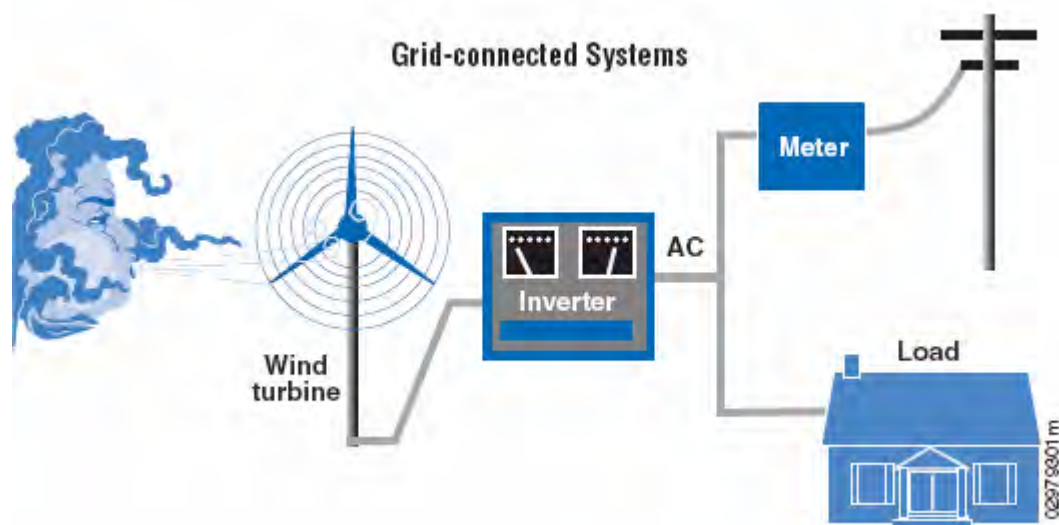


Diagram 2, Grid Connected Systems: Today tens of thousands of homes, farms, small businesses, schools, and other institutions throughout the U.S. are using small wind turbines to lower or eliminate their electricity bills. Connecting these systems to the electric grid allows a turbine owner to use electricity from the local utility when the wind does not blow, but also allows any surplus electricity to be sent back into the grid for another use. Unlike large scale 'wind farm' turbines, small wind systems are used to produce power primarily on-site for a single residence, farm or other facility.

Turbine Capabilities and Selection

Turbines used in residential, rural or small business settings can range in size from 400 watts to 100 kW, depending on the amount of electricity the consumer prefers to generate and the selected amount of investment.. Consumers should establish an energy budget to help define the desired turbine size, and because energy efficiency is usually less expensive than energy production, it is also important to make sure the home or facility is as energy efficient as possible, which can ultimately reduce the size of the wind turbine you need. Monarch can also install s GreenSwitch® Energy Management system to aid your conservation of valuable kilowatts lost to phantom power drain. During the turbine selection process, Monarch will provide you with an estimate of the turbine's potential annual energy output as a function of annual average wind speed and desired tower height along with information on the minimum energy producing wind speeds and maximum wind speed at which the turbine is designed to operate safely. Most turbines have automatic overspeed-governing systems to keep rotors from spinning out of control in very high winds.

Tower Height

Because wind speeds increase with height, wind turbines are mounted towers ranging from 30 feet to over 140 feet high. In general, the higher the tower, the more power the wind system can produce. The tower also raises the turbine above the air turbulence that can exist near obstructions such as hills, buildings, and trees. A general rule of thumb is to install a wind turbine on a tower that will position the bottom of the rotor blades at least 20-30 feet above any obstacle that is within 250-300 feet of the tower. Because wind power increases exponentially as a function of tower height, relatively small investments in increased tower height can yield very high rates of return in power production.

Is Wind Energy Practical for Me?

A small wind energy system can provide you with a practical and economical source of electricity if:

- your property has a good wind resource
- your home or business is located on at least one acre of land in an open or rural area
- your local zoning codes and covenants allow wind turbines
- your average electricity bills are \$100 per month or more
- you have a good tolerance for long-term investments

Top 10 Reasons to Invest in a Wind Turbine System:

1. Take Control of Your Energy Needs
2. Reduce Your Electric Bill
3. Support Green Energy in a Tangible Way
4. Help Fight Global Warming
5. Experience Relief from Increasing Utility Rates
6. Increase Property Values
7. Invest in a Residential Appliance that Pays You Back
8. Take Advantage of Federal Incentives
9. Capture Your Own Free, Clean, Endless Electricity Source
10. Reduce Peak Power Demands

Neighbors and Community Expectations

After installation, life with a turbine in the neighborhood is largely uneventful. Visual assimilation of the new turbine is similar to neighbors becoming accustomed to a new building addition, landscaping project, or the removal of a prominent tree.

The best way to assess the impact is to visit an actual installation. Monarch would be happy to arrange an opportunity for you to visit our demonstration site in Campton Hills, Illinois for a chance to see and hear the quiet operation of a fully functioning wind turbine. As early proponents of small wind power in the state of Illinois, Monarch encourages homeowners to exercise good judgment and courtesy toward their neighbors and community and communicate openly about their plans to install a wind turbine. Doing so often includes informing neighbors, in writing, of a proposed installation and educating them about potential impacts -both real and perceived - of a small wind turbine. The following information can help you address the most commonly asked neighbor-related questions, and contains a sample letter you can use to inform your neighbors about your selected wind turbine and installation plans.



Homeowners, ranchers, and small businesses can use wind-generated electricity to reduce their utility bills. This grid-connected system installed for a home in Norman, Oklahoma, reduces the homeowner's utility bill by \$100 per month.

Getting Connected: Consumer Tip Sheet for the Installation of Utility-Connected Wind Power

This tip sheet is an at-a-glance resource for Monarch Renewable Energy, LLC's (Monarch's) customers to understand how you and Monarch will work together on the permitting, communication and interconnection aspects of your wind turbine installation.

Applying for Permits

- Monarch will assist with all submittals and responses to all steps of the permitting process
- Customer will be responsible for applicable permitting/zoning/inspection fees
- Monarch representatives will gather and submit required information such as land parcel size, desired tower height, setbacks from your property line, sound data and building code/electrical code compliance data, electrical drawings and more.

Working with your Utility

- With a Grid-Tie Wind System, your home will remain connected to the utility grid and will draw power from your utility company as needed.
- Monarch will assist you with preparation of the required Interconnection Request Application Form from your local utility company.
- Monarch will assist you with preparation of the required Net Metering Application Form from your local utility company. The Local utility company will provide a bi-directional meter (if not currently in place), allowing your meter to “spin backwards” in the event your turbine generates more power than is being consumed, resulting in a credit to your utility company account.

Communicating with your Neighbors

- You should plan to communicate with your neighbors as a courtesy that can prevent misperceptions and perhaps lead them to explore the value of wind for their own property.
- The smoothest, cleanest wind is available at the highest ground away from trees and other obstructions that create turbulence, so your turbine may be visible to neighbors from a distance.
- Notification may be required for property owners within a specified distance; please check your neighborhood association and/or zoning guidelines, if any, or work with your Monarch representative to identify local rules.

Sample Letter to Neighbors: *A short letter like the one below will address most concerns and preempt questions about the technology.*

(insert date)

Dear Neighbor,

You may be interested to learn that I plan to install a small wind energy system on my property at [address]. This modern, non-polluting system will generate electricity for my own use, reducing my dependence on the local utility.

Any excess generation will be supplied to the utility system. I plan to install a [generator make and model] that will be mounted on a [height] feet wind generator tower, set back [#] feet from the street and [#] feet from my [north/east/south/west] property line. This generator uses a [two/three] bladed propeller [#] feet in diameter. It does not turn until the wind speed reaches at least [#] mph.

On calm, quiet days the generator will not likely be audible. When the rotor is turning, the sound of the wind passing over the blades will register about [#] decibels (dBA) at a distance of [#] feet, which will barely be audible from neighboring residences over other sounds caused by the wind. This model of wind turbine has been widely installed in the U.S. and overseas, and has a proven track record of producing quiet, clean energy.

If you have any questions about the proposed installation, please feel free to contact me.

(sign and add your preferred contact information)

Take Advantage of Available Incentives:

- Remember to keep your receipts and record your total cost of purchase on this year's income tax form, for a full 30% federal tax credit.
- Illinois Consumers: take advantage of the additional 30-50% state rebate program for wind energy systems. Residents and private businesses can qualify for a 30% cash rebate in addition to the federal tax credit program, and public/non-profit businesses can qualify for up to a 50% rebate in addition to other applicable programs. **Important deadline: April 30, 2010** – first come, first served.
- Consult your accountant for other possible advantages such as tax deductions for sales tax paid or accelerated depreciation if the turbine is a business asset.
- Speak with your Monarch representative about any other federal, state or local programs that may apply. Monarch can also assist with the preparation of grant and rebate applications and refer you to potential financing options as we become aware of them.
- Stay informed of all applicable state and federal incentives on line with DSIRE, the Database for State Incentives for Renewable Energy, www.dsireusa.org

System Payback: Payback can be achieved more quickly under a combination of tax credits, rebates and grant(s) in addition to your energy bill savings, and payback time will vary widely based on these factors, your usage and your wind resource. Any wind turbine system is definitely a long term investment decision, but it does carry a return on investment which can be pinpointed more closely by a Monarch representative based on your site specific variables. It helps to remember that this is more of a 'payment transfer' because you will be paying the money anyway - to the utility company. Financially, buying a home wind system is vastly superior to just purchasing all your electricity from the power company. It's like the difference between renting a home and buying a home, and at the end of the "payment transfer period" you can experience true savings and free electricity.

Environmental Payback Example: If you enjoy thinking about the additional payback in terms of positive environmental impact, your investment in a small wind system delivers results in that way too. For example, over its expected minimum 30 year operating life, a 10kW rated wind system in Illinois can save approximately 430,000 pounds of carbon dioxide, 3,000 pounds of sulfur dioxide, and 1,000 pounds of nitrogen dioxide that would have been produced by the utility's fossil fuel power plants. This is the equivalent of planting 2 acres of trees or taking 1.25 vehicles off the road.

[Source: Bergey Windpower Company]

Frequently Asked Questions

Sound: Modern wind turbines can be surprisingly quiet. The small amount of operating sound typically blends in with common outside sounds like those from cars, airplanes, barking dogs and wind blowing through the trees. According to the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) the sound pressure level generated by a small wind generator is in the range of 40-65 decibels which is quieter than background noise in a home or office.

Visual Impact: Wind turbines are installed on lattice or monopole towers similar those commonly-accepted in communities across the country and that don't look much different than a common light pole or radio tower. The generators are installed on towers ranging from 30 -140+ feet tall and have blades up to 25' in diameter. The turbines' simple designs are intended to minimize visual area and preserve the horizon.

Structural Safety and Climbing Hazard: As with any structure, wind generator towers must meet local building and safety requirements. Towers are installed according to manufacturer and local zoning specifications that ensure structural safety. Monopole towers pose no greater climbing risk than other similar poles and towers or even trees and have a smooth surface, like a light pole, that is nearly impossible to climb. Local safety regulations may require additional measures, for example you may have to enclose lattice style towers with locked security fencing.

Interference: Small wind turbines have no effect on TV or communications signals, as their blades are made from fiberglass or similar manufactured materials that signals can pass through. Wind turbine components do not electromagnetically interfere with telecommunications or radio waves.

Property Values: There are as many as 20,000 small wind generators installed every year and to date, there has been no documented evidence that small wind generators – or even commercial wind farms – have ever lowered neighborhood property values. In fact, a 2003 study that examined property values near ten wind farms found that property values rose faster in those areas as compared to other homes within the region. According to the American Wind Energy Association (AWEA), survey results have found that 50 percent of homeowners surveyed “would be willing to pay more for a home equipped with solar and wind technology.” The same study found that 60 percent of homeowners surveyed “would be more interested in a home that has a renewable energy system already installed versus a home that does not.” Also, informal surveys of property values have shown that the asking price for most property near residential wind generators was greater than the property's assessed value.

Birds: As residential small wind generators gain popularity around the world, it is becoming clear that they do not pose a significant hazard to bird or bat populations. Extensive research has been done with larger wind generators and has shown that bird strikes do occur but are relatively rare. Furthermore, although no formal studies have been conducted with residential (small wind) generators, bird strikes from these turbines are even rarer. This is due in part to the small turbines' comparatively shorter tower heights and relatively small blades. Also, residential wind generators are typically installed over a more dispersed area, further reducing the chance of bird collision. Large wind farms are sometimes associated with risks for birds. But in fact wind farms only account for a tiny percentage (less than 1 in 10,000) of bird fatalities caused by man-made structures. For comparison, familiar structures including buildings, vehicles, power lines, plate glass windows and radio/tv towers affect far more birds than even the largest wind turbines.

Icing: Like trees, street lamps, or other structures, turbines in cold climates can become covered in ice, which falls to the ground as it melts. But just as an airplane's wings must be de-iced in order for it to fly, a turbine's blades must be free of ice in order to rotate at any significant speed. The weight and aerodynamic interference of ice buildup slows the blades' rotation to a near stand-still, causing the melting ice to fall straight downward rather than being thrown from the blade.

Lightning Strikes: Wind turbines do not attract lightning, so they pose no additional lightning strike threat to neighboring properties. Lightning is essentially the release of pent-up static electricity that moves from a turbulent atmosphere to the ground. Small wind turbines are grounded, meaning that any static electricity on the tower or generator is dispersed into the ground, preventing a build-up that could invite lightning strikes. Even though small wind turbine towers are made of metal, by virtue of their grounding they are less susceptible to lightning strikes than trees are, because trees cannot shed built-up static electricity. However, lightning strikes are still possible, so some small wind turbines have incorporated back-up technologies including surge protectors and lightning arrestors similar to those that protect home computer equipment. In the unlikely event of a lightning strike, turbine damage should be covered under your home insurance;; contact your insurance agent to be sure.

Tower Stability: Thousands of small wind generators are installed in the U.S. every year and their safety track record is excellent. Trees are much more likely to fall than a properly installed wind turbine tower. As an additional precaution, local ordinances and proper site selection protocol require turbines to be placed a minimum distance away from property lines and nearby structures; this distance is typically equal to 110% of the total height of the turbine at its highest point. There is no similar setback guideline for tall trees.

Insurance: A small wind system should simply be added to the owner's existing home, farm or business insurance policy as an 'appurtenant' (uninhabited) structure and should not require a separate policy or additional premium. Precautions such as setback requirements for turbines are intended to protect adjacent property beyond the turbine owner's property line. Consult your insurance agent for additional information about your existing insurance policy and coverage needs.

Taxation: Contact your accountant for any applicable property tax assessment implications under today's economic conditions. The addition of the turbine should have little to no impact on property taxes for residential consumers, for businesses may be based on tower value only, and potentially offset by allowable depreciation and other possible tax advantages.

FAA Regulations: The Federal Aviation Administration (FAA) has oversight of any object that could have an impact on the navigable airspace or communications/navigation technology of aviation or defense operations. In most areas, the FAA does not require notification of proposed construction or special lighting for objects that are less than 200 feet above ground level. FAA regulations may be a factor for towers less than 200 feet tall under certain rare circumstances, for example when the property is closer than 20,000 feet to a public-use airport with a runway more than 3,200 feet long. Please discuss any unique airspace concerns with your Monarch representative and applicable governing authorities.

Shadow Flicker: Under very specific circumstances, low sunlight passing through the moving rotor of a turbine can cast visible shadows on the ground or on nearby structures. This issue pertains mostly to large, utility-scale turbines because of their slower moving blades, but can also depend on the time of day, time of year and specific turbine positioning. Smaller turbines have far less visible shadows because of the speed of rotation and smaller blade size, and normal setback distances should mitigate this potential nuisance. Work with your Monarch representatives to ensure that shadows will not be an issue in your home and will not adversely impact your neighbors.

Power Outage: In accordance to IEEE and UL codes, all grid-connected wind turbines will automatically shut down in the event of a power outage, and will not energize a dead power line. This is necessary to protect the utility line repair person, and is a required feature per utility company interconnection guidelines.

Excess Power Repurchase: Monetary compensation for excess power produced is currently not available to Illinois residential or small business wind power consumers. It is important to properly size your wind turbine to suit your typical energy consumption needs. Consult your utility company's guidelines for complete net metering and interconnection procedures including how often energy credits can be cleared from your account balance.

Additional Product Information: All of Monarch's wind turbine products are fully engineered, manufactured systems that have been inspected for structural quality by the manufacturer and evaluated by Monarch upon receipt. They meet the highest industry standards such as: CE Certification and UL Listing, and have been designed and certified to comply with all applicable industry safety and quality standards. Local ordinances and procedures may require additional data or documentation such as soil studies, architectural drawings and other similar information. Monarch is a fully-equipped general contracting firm with the resources and expertise to follow through on these additional steps on behalf of our customers.

Additional Information: Dollar Savings

Wind power became more affordable in February 2009 when the U.S. government removed its cap on the **30% federal renewable energy tax credit**. In November 2009, the state of Illinois implemented a wind energy rebate program for private wind systems that meet certain criteria, presenting an **additional 30%** incentive through the Illinois Department of Commerce and Economic Opportunity (DCEO).

Your Monarch Renewable Energy representative can work with you to help ensure these programs' site selection, product selection and application process guidelines are met. The professionals at Monarch can help you complete and file the necessary grant/rebate application documents, and program authorities will notify you of the approval status before you commit to making a purchase.

This brand new combination of incentives and services can work together to make your investment in renewable, clean wind energy remarkably cost-effective and worry free. Whether you are considering a turbine for residential use, business use or both, there has never been a better time to take advantage of the environmental and financial benefits of purchasing your own small wind system.

Additional Information: On-line Resources

AWEA, the American Wind Energy Association www.awea.org

DSIRE, Database of State Incentives for Renewables and Efficiency www.dsireusa.org

U.S. Department of Energy, small wind web page www.windpoweringamerica.gov/small_wind.asp

Link to Federal Tax Credit Summary (Businesses)

http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US02F&re=1&ee=0

Link to Federal Tax Credit Summary (Residential)

http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US37F&re=1&ee=0

DSIRE Link to Illinois DCEO Renewable Energy Rebate Program:

http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=IL05F&re=1&ee=1

Full DCEO program link:

<http://www.commerce.state.il.us/NR/rdonlyres/F3D9AD37-D9F2-4542-88E4-CAAEDFEFAA8F/0/FY10RERPRRebateGuidelinesFINAL.pdf>

Additional wind maps, : www.windpoweringamerica.gov

