Wind FAQs

Skystream

How does Skystream work?

Skystream is a wind generator installed on top of a tower that converts the kinetic energy in the wind into electricity to be used in a home's electrical system.

In a typical residential application, a home is served simultaneously by the Skystream and a local utility. If the wind speeds are below "cut-in speed" (8 mph) there will be no output from the generator and all of the needed power is purchased from the utility. As wind speeds increase, the Skystream's output increases and the amount of power purchased from the utility is proportionately decreased. When the Skystream produces more power than the house needs, the meter spins backwards creating a "credit" that can be used later. All of this is done automatically without any interaction by the homeowner. Batteries are not required with Skystream.

Will Skystream save me money?

Depending on the wind speed average and the amount of energy consumed every month, Skystream typically lowers a household electricity bill by 30% to 80%. It is not uncommon for Skystream owners with total-electric homes to have monthly utility bills of only $8 to $15 for nine months of the year (2005 data). The amount of money a Skystream saves you in the long run will depend upon its installed cost, the amount of electricity you use, the average wind speed at your site, and other factors. Costs vary with local conditions and tower height. Most US installations range from $12,000 - $18,000. US Federal incentives and other state incentives can decrease this cost significantly. Learn about US Federal incentives and state incentives at www.dsireusa.org/.

Will it help the environment if I install a Skystream at my home?

Because Skystream is a renewable energy source, produces no pollution, and uses wind power, you will be offsetting pollution that would have been generated by your utility company. Over its life, the Skystream can offset more than 6000 pounds of global warming pollutants (carbon dioxide and other gases that are associated with global warming) every year.

Does Skystream create any sound or interfere with TV reception?

Skystream is extremely quiet and makes a small amount of operating sound similar to the level of a small office. It generally cannot be heard over typical background noise such as the sound of the wind. Skystream does not interfere with TV reception.

Is Skystream dangerous to birds?

While no formal studies have been done, anecdotal evidence indicates that birds occasionally collide with small wind generators as they do with any other type of structure. However, such events are very rare.

Should my neighbors be concerned about safety if I get a Skystream?

No. Skystream's design was done in collaboration with the U.S. Department of Energy and the National Renewable Energy Laboratories. As part of this project, extensive computer modeling and field testing was done to ensure a safe design. All of Skystream's testing was done to internationally accepted standards for small wind safety and reliability. Your neighbors who may have some concerns about safety may appreciate the following information:

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 Skystream, but no setbacks or minimum property sizes are required for trees.

Safety of utility repair personnel during a power outage: In accordance to IEEE and UL, Skystream 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.

Ice shed from rotor blades: Ice buildup makes Skystream blades less aerodynamic, so that they turn more slowly. Typically, ice will drop to the base of the generator tower and is not dangerous.

Children and towers: In terms of educating children about not climbing structures, a small wind generator should be treated no differently than other climbable structures such as water towers or amateur radio antennas.

Will my utility allow me to hook up a Skystream?

Yes. USA Federal regulations (specifically, the Public Utility Regulatory Policies Act of 1978, or PURPA) require utilities to connect with and purchase power from small wind energy systems. Please visit the download section of www.skystreamenergy.com for helpful consumer guides.

Will my local government allow me to install a Skystream?

A Skystream is a structure that normally requires a building permit. Zoning regulations often limit the height, placement, and other characteristics of "appurtenant" structures, so a conditional (special) use permit or variance may be necessary.

Will I have to change any of the wiring in my house?

No. A Skystream can easily be installed at any existing home without the need to change any wiring or appliances. In most cases, the utility will install a second utility meter to measure how much surplus electricity it is receiving from the generator owner.

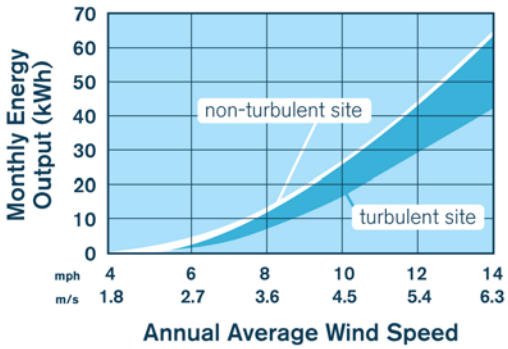
What about towers?

Towers as short as 33 feet are available with Skystream. However in some circumstances, a taller tower may be necessary to raise the generator above turbulence created by obstacles on the ground and/or trees. Wind speed increases with height above ground, and increasing speed increases the amount of energy your generator will produce. Relatively small investments in increased tower height can yield high rates of return in energy production. A rule of thumb for proper and efficient operation of a Skystream suggests that the generator should be 20 feet (6 meters) above the top of anything within 300 feet (about 100 meters). Please visit the download section of www.skystreamenergy.com for siting information.

400 Watt Wind Generator

How much power can I expect to get from this wind generator?

The 400 Watt Wind Generator will have an average monthly output of 38 KWh given an average 12 mph wind speed. As your wind speeds increase so does the energy output.



What is the start up wind speed of this wind generator?

The start up wind speed is 8 mph, (3.58 m/s).

At what wind speed does it produce the maximum power?

Maximum power output is 400Watts at a 28mph (12.5 m/s) wind speed.

How big are the blades?

The rotor diameter of this wind generator is 46 inches (1.17 m).

Do I need batteries?

Yes, the 400 Watt Wind Generator produces power but will not store the power. Running an open circuit may cause damage to the wind generator.

Are my batteries regulated when being charged by the 400 Watt Wind Generator?

The internal circuitry monitors the voltage at the output of the turbine. When the maximum charging voltage is reached the Autobrake is engaged. This cuts off the turbine output, and the blades are braked to a slow rotation. The Autobrake remains engaged until the voltage drops to a level slightly below that of a fully charged battery. At this point the Autobrake releases and the turbine resumes charging.

Can I mount this wind generator to my home?

It is not recommended to mount a wind generator on a home because of the structural demands for a safe installation of a wind generator.

What is the maximum wind speed the 400 Watt Wind Generator will survive, and do I need to take it down in a storm?

The wind generator will withstand a 110 mph wind. If you expect higher winds, shut down the turbine and either lash down the blades or remove the hub and blade set. The wind generator should never be approached in strong wind conditions. The wind generator is designed to run without attention in storm conditions. A Stop Switch may be purchased for to remotely shut town the wind generator.

How long will this wind turbine last?

According to engineering calculations, the bearings should have a 10 year life in an average 12 mph wind speed site. Bearing life will vary from one application to another.

How do I know the wind generator is charging my batteries?
For a precise indication of the charge current you will need to install an amp meter in your system. The meter or meter shunt should be installed in line on the positive wire. The meter should be located on the wiring between the stop switch, if used, and fuse or breaker.

What kind batteries should I use with my wind generator?
Only batteries intended for power system applications should be used. This means "deep cycle" type batteries, and not the Marine deep-cycle type as these are not intended for the same application. Typically deep cycle batteries will be rated in amp hours and have some indication of the number of charge-discharge cycles that are available.

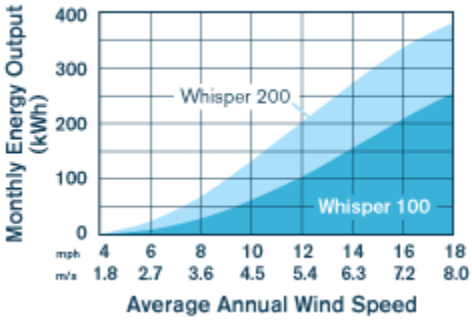
Why shouldn't I use automotive batteries in my DC system?
Automotive batteries are meant to discharge a large amount of current in a very brief time. The lead plates are thinner and often porous to allow rapid discharge. They will also wear faster and are not intended to be discharged far below their normal voltage. True deep cycle batteries are intended for more moderate loading and deeper discharge and are made with thicker, longer lasting plates. The casing and construction of batteries intended for renewable energy systems is typically much tougher and of higher quality than automotive batteries.

Is this wind generator protected from lightning?
No, the wind generator is not protected as is, but lightning protection is always a good idea. The Delta Lightning Arrestor (model LA 301-DC) is widely used in outdoor power and antenna applications. While this is still no guarantee that Mother Nature won't find a way, these arrestors are not very expensive and may save some very expensive equipment.

400 Watt Wind Generator (Marine)

What is the difference between the land and marine versions of the 400Watt Wind Generator?
The 400 Watt Wind Generator marine model has acid etched castings double coated with marine grade powder coat for superior protection from the environment.

Whisper 100/200
How much power can I expect to get from this wind generator?
The Whisper 100 Wind Generator will have an average monthly output of 100 KWh given an average 12 mph (5.4 m/s) wind speed.
The Whisper 200 Wind Generator will have an average monthly output of 158 KWh given an average 12 mph (5.4 m/s) wind speed.
As your wind speeds increase so does the energy output.



What is the start up wind speed of this wind generator?
The start up wind speed of the Whisper 100 is 7.5 mph, (3.4 m/s).
The start up wind speed of the Whisper 200 is 7 mph, (3.1 m/s).

At what wind speed does it produce the maximum power?
Maximum power output of the Whisper 100 is 900 Watts at a 28mph (12.5 m/s) wind speed.
Maximum power output of the Whisper 200 is 1000 Watts at a 28mph (12.5 m/s) wind speed.

How big are the blades?
The rotor diameter of the Whisper 100 wind generator is 7 feet (2.1 m).
The rotor diameter of the Whisper 200 wind generator is 9 feet (2.7 m).

Do I need batteries?
Yes, the Whisper 100/200 Wind Generators produces power but will not store the power. Running an open circuit may cause damage to the wind generator.

Are my batteries regulated when being charged by these wind generators?
An included voltage regulator is used to monitor the voltage of the turbine. The Whisper Controller protects both the battery and the wind generator. An optional LCD Display allows you to receive real time data.

Can I mount these wind generators to my home?
It is not recommended to mount a wind generator on a home because of the structural demands for a safe installation of a wind generator.

What is the maximum wind speed the Whisper 100/200 Wind Generator will survive, and do I need to take it down in a storm?
The wind generator will withstand a 120 mph wind. If you expect higher winds, shut down the turbine and lower if it is safe to do so. The wind generator should never be approached in strong wind conditions. The wind generator is designed to run without attention in storm conditions.

How long will this wind turbine last?
These turbines are warranted for five years but are expected to last much, much longer.

How do I know the wind generator is charging my batteries?
An optional LCD Display will show real time data such as battery charge status, charging voltage, battery charge current and turbine power. Other data that can be monitored with the LCD Display is accumulated kilowatt-hours.

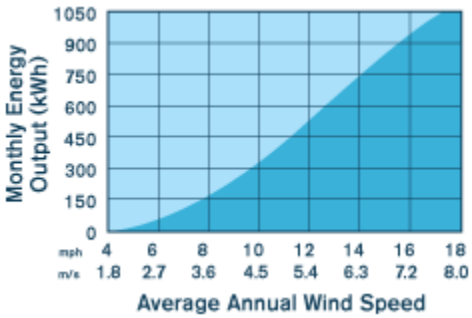
What kind batteries should I use with my wind generator?
Only batteries intended for power system applications should be used. This means “deep cycle” type batteries, and not the Marine deep-cycle type as these are not intended for the same application. Typically deep cycle batteries will be rated in amp hours and have some indication of the number of charge-discharge cycles that are available.

Why shouldn’t I use automotive batteries in my DC system?
Automotive batteries are meant to discharge a large amount of current in a very brief time. The lead plates are thinner and often porous to allow rapid discharge. They will also wear faster and are not intended to be discharged far below their normal voltage. True deep cycle batteries are intended for more moderate loading and deeper discharge and are made with thicker, longer lasting plates. The casing and construction of batteries intended for renewable energy systems is typically much tougher and of higher quality than automotive batteries.

Is this wind generator protected from lightning?
No, the wind generator is not protected as is, but lightning protection is important to do. There is an earth ground connection on the included controller.

Whisper 500

How much power can I expect to get from this wind generator?
The Whisper 500 Wind Generator will have an average monthly output of 538 KWh given an average 12 mph (5.4 m/s) wind speed. As your wind speeds increase so does the energy output.



What is the start up wind speed of this wind generator?
The start up wind speed of the Whisper 500 is 7.5 mph, (3.4 m/s).

At what wind speed does it produce the maximum power?
Maximum power output of the Whisper 500 is 3000 Watts at a 24mph (10.7 m/s) wind speed.

How big are the blades?
The rotor diameter of the Whisper 500 wind generator is 15 ft (4.5m).

Do I need batteries?
Yes, the Whisper 500 Wind Generator produces power but will not store the power. Running an open circuit may cause damage to the wind generator.

Are my batteries regulated when being charged by these wind generators?
An included voltage regulator is used to monitor the voltage of the turbine. The Whisper Controller protects both the battery and the wind generator. An LCD Display is included with the Whisper 500 for data monitoring.

Can I mount a wind generator to my home?
It is not recommended to mount a wind generator on a home because of the structural demands for a safe installation of a wind generator.

What is the maximum wind speed the Whisper 500 Wind Generator will survive, and do I need to take it down in a storm?
The wind generator will withstand a 120 mph wind. If you expect higher winds, shut down the turbine and lower if it is safe to do so. The wind generator should never be approached in strong wind conditions. The wind generator is designed to run without attention in storm conditions.

How long will this wind turbine last?
These turbines are warranted for five years but are expected to last much, much longer.

How do I know the wind generator is charging my batteries?
The LCD Display will show real time data such as battery charge status, charging voltage, battery charge current and turbine power. Other data that can be monitored with the LCD Display is accumulated kilowatt-hours.

What kind batteries should I use with my wind generator?
Only batteries intended for power system applications should be used. This means “deep cycle” type batteries and not the Marine deep-cycle type as these are not intended for the same application. Typically deep cycle batteries will be rated in amp hours and have some indication of the number of charge-discharge cycles that are available.

Why shouldn’t I use automotive batteries in my DC system?
Automotive batteries are meant to discharge a large amount of current in a very brief time. The lead plates are thinner and often porous to allow rapid discharge. They will also wear faster and are not intended to be discharged far below their normal voltage. True deep cycle batteries are intended for more moderate loading and deeper discharge and are made with thicker, longer lasting plates. The casing and construction of batteries intended for renewable energy systems is typically much tougher and of higher quality than automotive batteries.

Is this wind generator protected from lightning?
No, the wind generator is not protected as is, but lightning protection is important to do. There is an earth ground connection on the included controller.

Wind Generator 30 Ft Tower Kit - 44455

Does the wind turbine come with a mounting kit?
No, they are sold separately.

How do I mount the 30 Ft Tower Kit?
Please consult the installation video in the support section of the website. The tower is easy to install. The tower comes with a lot of accessories and it is best to familiarize yourself with all the pieces before you begin.

To begin it is good to search out the proper site on your property where the wind turbine can be placed. Measure out the proper circle of construction that is 20 feet in radius or 40 feet in diameter.

The tower base is placed into the center of the circle by nailing big nails or stakes through its four designated holes. There are four types of anchors that can be used and depending on the soil you have, you can find within the instruction manual, which of the anchors is right for you. The anchor used here is the Duckbill Anchor. What is done with this type of anchor is that the loop of the cable is looped around the actual anchor and hammered into the ground with a pole. The pole is hammered into the ground until the cable sticks out of the ground five to six inches. Now, simply take the pole and pull on the cable until you see that it is safely and tightly within the ground.

The poles that are going to be making up the actual tower can now be removed from the box and placed onto the ground. These poles are what is going make out the gin and the actual tower.

The upper wire set is now placed around the pole and is slid down the pole until appropriate height is reached. Fasten cables accordingly. Slide the wiring through these poles and slowly make sure that it goes throughout the entire length of the pole. This is immediately followed by simply fitting the poles together. The Gin Pole is bolted to the tower base. It has to be made sure that the bolt is tight but not damaging.

Now, you clan slowly unroll the Guy wires that are going to be used for the support of the generator's tower and attach them to the anchors which have already been prepared. The cables are then attached with the cable thimbles and cable clamps.

The Gin Pole can now be raised with all of its accessories.

Now it is time to prepare the actual generator. Fasten the generator cables to the cables within the pole and for safety precautions place the electric tape around the connection. Place the generator's Yaw shaft onto the tower and fasten it. Install the propellers onto the wind generator and fasten.

Using similar method as for the gin pole, raise the wind generator and make necessary finishing.

You are now ready to receive a clean renewable source of energy.

Can I add more than one turbine to my tower?
No, this tower is specifically designed for 1 turbines only.