Home solar wind power systems

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IE: 5 - 13 watt light bulbs X 5 hours per day = 65 watts. 18 CF refrigerator @ 5 amps x 120VAC = 600 watts x 6 hours per day = 3,600 watts. THIS IS IMPORTANT: When we say "list your loads ", we mean all your loads. From the cell phone chargers to a hair dryer. Need Help? If you download the Excel worksheet you will only have to indicate how much of each piece of equipment you have and how long your run it.

(A) The size and or number of solar panels is calculated from the total energy requirements + allowing for wire and inverter transmission loss (20% rule of thumb) less the lowest solar irradiance available in the area of the system which is usually the shortest daylight month of the year (December). In a hybrid system, you are not only considering the solar array but also the average available wind for your area. The combined input of both systems must equal your daily output during the shortest day of the year or you will certainly strainyour battery bank capacity.

Battery bank sizing is the part of the hybrid solar wind system that has a higher probability of causing you problems that other parts of your system. Use the battery sizing worksheet to help you through this critical stage. Factors such as your budget may tempt you to look to cheaper battery alternatives but a quality battery will pay off over the years. We recommend you choose a 2VDC or 6VDC battery and connect them in series so that the total DC volatage equals the system voltage. Do NOT put more than 3 banks of batteries on one charge controller.

The amount of current (amps) traveling through any electrical circuit depends on the size of the wire (AWG), the voltage of the array or battery bank, and the one way distance of the wire run. Lower AWG gauge wire has less resistance than larger gauge wire. The longer the distance of your wire run while using lower voltage the larger gauge wire you are going to need. That is the reason we highly recommend a 48VDC battery based system.

● Two basic necessities for a good hybrid site pick are average wind speed and low ground turbulence. The lower the turbulence or buffering, the less stress you will put on your windgenerator and the more energy it will produce.

● A good rule of thumb if your tower is downwind from a building it should be 20" - 30" above the height of the building as well as any barrier such as a stand of trees that are closer than a 500" radius.

● Surface Roughness: Rough ground is land covered with small bushes, trees or other obstructions. Smooth land is an area covered only by grass or dirt. The smoother the ground, the less the friction. The rougher the ground the greater the friction, thereby requiring the tower to be higher.

● Place your tower on the highest land point around your home as practical. There are circumstances

where the highest point available may not be the best place for your tower. Highest land nearby may be awkward to get to, may be too far away from where you need the power, or may expose your wind turbine to potentially damaging turbulent conditions.

● How high is your tower? Hands down, the biggest mistake a homeowner can make with a small wind turbine is putting the turbine on too short of a tower. Like solar in the full sun with no shade, any renewable energy source must have good access to the fuel that drives the electricity. There is nearly 100% more power available in 10 MPH winds than 8 MPH winds.

Never attach the tower to your house.If the tower were attached anywhere to a structure, the structure itself would begin to vibrate ever so slightly. This reverberation would vibrate the building with the possiblity over time of structural damage.

In today"s world, facing climate change and rising energy costs, renewable sources like wind and solar shine brighter than ever. These abundant, clean resources offer a path to energy independence, reduced reliance on fossil fuels, and a more sustainable future. But how can we, as individuals, tap into this potential? Enter the exciting world of DIY renewable energy kits, with Blue Pacific Solar leading the charge.

Wind and solar energy work beautifully together. Wind turbines harness the power of moving air, converting it into electricity. Solar panels, on the other hand, capture the sun"s radiant energy and transform it into electricity through the photovoltaic effect. This complementary nature ensures a more reliable and consistent energy supply, even when one resource is less available.

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