

Selecting the right turbine for your application is simple when you know how much energy you are consuming. The main message is to be efficient with your use of energy and in particular: use the most efficient appliances; and turn them off when not in use. This is cheaper than getting a bigger turbine & batteries & Inverters to power old appliances and bad habits. Your MinVayu trained & certified Village Partner can help you with this.

How big a System do you need?

You first must calculate how much power could be generated in your area, for the turbine you can afford. This depends on the local average wind speed. Your Village Partner will know this number, or you can look up the closest location on the [NASA website](#)

Average wind speed (m/s)

3

3.5

4

5

6

Small (1.8m)

Medium (3m)



This will tell you how many appliances you can power. We list the commonest appliances, that work well with wind power. Do NOT use irons, water heaters, ovens and large appliances since they will make your system large and expensive. If you have excessively large loads then it makes sense to occasionally use a small petrol generator for those loads. For example if you have a workshop with heavy equipment such as a welder and drills then use a separate generator for those applications

Talk to MinVayu if you want to run a water pump as the system will need to be specially designed for it.

How much will 1kWh power ...

1 efficient light 7W 140 hours

1 incandescent 40W light = 25 hours

1 efficient fan 50W 20 hours

1 old fan 100W 10 hours

1 small (bar) fridge 65liters _____

1 full size fridge ____ liters _____

1 laptop computer 60W – 16 hours

1 desktop 200W – 5 hours

1 phone charger 10W 100 hours

Then you need to decide how many days of power to store in battery. You need at least one day's storage just to save from the windy part of the day to the quiet part. But wind is rarely consistent from day to day, more batteries will allow you to keep powering your house during longer lulls in the wind. It is a false economy to use car batteries, they are designed to deliver a lot of power for a short period of time to start a car, not to deliver small amounts of energy continuously. Use solar batteries, even though they cost a little more. Batteries are a bit temperamental and it is best to buy them all at the same time if you can afford it. Again, your Village Partner can help you consider the options.

The wind turbine will come with a charge controller, which protects the turbine and battery bank

so that they work well together.

Unless all of your appliances are DC, 12V or 24V then you'll need an inverter. This is an electronic device that converts DC to household AC. It will need to be powerful enough for all the appliances you want to run simultaneously. UPS inverters designed to be charged from the grid, have low efficiency and drain batteries even when not in use so should not be purchased. Your Village Partner can help you choose a reliable, efficient one that is the right size.