

# REM

Renewable Energy Methods

## 5 Free Resources To Get You On Your Way To Building A Backyard Wind Turbine

Copyright: [www.renewableenergymethods.com/](http://www.renewableenergymethods.com/)

Published April 21<sup>st</sup>, 2019. All rights reserved.

## 1. Sizing Your Wind Turbine

Ok let's start with a sizing calculator so you can find out exactly how much energy your wind turbine will create each year. If you are a complete beginner, we suggest using the simple calculator below. All you must do is put in different turbine blade radii and wind speeds to calculate how much power your turbine will produce at that instant in time. Common realistic ranges for back yard wind turbines are:

Radius: 0.5m to 2 m

Wind speed: [https://en.wikipedia.org/wiki/Beaufort\\_scale](https://en.wikipedia.org/wiki/Beaufort_scale) shows all wind speeds in m/s

Then just multiply the power calculated by 24 hours by 365 days to calculate what it will produce in a year. We suggest multiplying this number by an efficiency factor of 0.3 as to account for days where there is no wind. Just simple multiply this number by what you pay for a kWh or electricity (usually between 0.10 and 0.30 USD) to see how much money your turbine will save you!

Simple Calculator:

<https://rechneronline.de/wind-power/>

If you're looking for a more in-depth calculator use one of the below links depending on your location. These calculators take a lot more variables into account and describe each one well so you can get a good feel for what you can take into account when designing your turbine.

Europe calculator:

<http://xn--drmstre-64ad.dk/wp-content/wind/miller/windpower%20web/en/tour/wres/pow/index.htm>

USA calculator:

<http://windpower.generatorguide.net/wind-speed-power.html>

## 2. Instructables.com Guides

There are loads of articles on Instructables.com showing you how to build a wind turbine step-by-step. Most of these guides show you how to build the turbine out of scrap you can find around your house. These are great guides and we've built one (shown below) using the guide in the link provided. While this is a good place to start it can be hard to construct a solid, durable and efficient turbine out of scrap.

Instructables wind turbine guides:

<https://www.instructables.com/howto/wind+turbine/>

Want to build a tribune like this one we made? Click here:

<https://www.instructables.com/id/How-I-built-an-electricity-producing-wind-turbine/>



### 3. Amazon essentials

Just a heads up before we start, as an Amazon Associate we earn from qualifying purchases. The links below help monetize our site.

The first essential is the Wind Turbines For Dummies Book. A great book to get you started. You can learn a load of great information from this book and as it's a For Dummies guide you know it'll keep it simple. You'll find out if backyard turbine is a viable project for your home and whether it'll meet your needs. You can find out how much money you can save in electricity costs and dive deeper into all the components that make up a wind turbine. Have a look in your local library (that's where we found out about the book first). But it's always great to have a copy at home or reference whenever you need it and it's pretty cheap on Amazon:

[https://www.amazon.com/gp/product/B002Q1823S/ref=as\\_li\\_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B002Q1823S&linkCode=as2&tag=renewableen0a-20&linkId=973f5401c4052088c8dba18e738d3243](https://www.amazon.com/gp/product/B002Q1823S/ref=as_li_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B002Q1823S&linkCode=as2&tag=renewableen0a-20&linkId=973f5401c4052088c8dba18e738d3243)

So, as we mentioned most of the Instructables.com guides show you how you build the turbine fully from scrap, but realistically unless you're a very skilled mechanic or have a degree in engineering you'll struggle to build the generator and charge controller required for the job. But fear not that's where Amazon and eBay come in handy. It's what we used to build the turbine you see above. You can find some cheap deal on eBay, but these prices can fluctuate so we're linking the Amazon ones instead which are more reliable.

There are loads of cheap small generators you can go for. We recommend looking at the Instructables guide linked above which tells you all you need to know about which generator to buy. But we can break it down to a good cheap one and a good expensive one. The more expensive one is perfect for a backyard wind turbine getting the RPM's and Volt ratings just right. The cheap one will do the one too but not as efficiently as the expensive one. Have a look around yourself first before you buy, but here are the ones we recommend.

Cheap one:

[https://www.amazon.com/gp/product/B01LZU2NH0/ref=as\\_li\\_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B01LZU2NH0&linkCode=as2&tag=renewableen0a-20&linkId=a427308713f5b7bd8142ecc2a631cc19](https://www.amazon.com/gp/product/B01LZU2NH0/ref=as_li_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B01LZU2NH0&linkCode=as2&tag=renewableen0a-20&linkId=a427308713f5b7bd8142ecc2a631cc19)

Expensive one:

[https://www.amazon.com/gp/product/B07MGTFZZN/ref=as\\_li\\_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B07MGTFZZN&linkCode=as2&tag=renewableen0a-20&linkId=8ee6349473b5cd83d6717184a7178f52](https://www.amazon.com/gp/product/B07MGTFZZN/ref=as_li_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B07MGTFZZN&linkCode=as2&tag=renewableen0a-20&linkId=8ee6349473b5cd83d6717184a7178f52)

Next up is the charge controller. Again, check out the Instructables guide for more information about what this is and how to actually build your own. But if you're lazy like us you can just buy one. Basically, a charge controller controls the flow of electricity into your storage batteries, so they don't get damaged by overcharging and can dump excess electricity into a ground or something useful like a heat pump or even simpler, a light. Anyway, here's a link to the one we used that works great for backyard wind turbines.

[https://www.amazon.com/gp/product/B07NVPVKFC/ref=as\\_li\\_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B07NVPVKFC&linkCode=as2&tag=renewableen0a-20&linkId=82596d1c6d2acaca3b92906e5de2618c](https://www.amazon.com/gp/product/B07NVPVKFC/ref=as_li_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B07NVPVKFC&linkCode=as2&tag=renewableen0a-20&linkId=82596d1c6d2acaca3b92906e5de2618c)

## 4. Building your hub

One of the most challenging aspects of building your wind turbine we found, was making a hub that works. The hub is the key to attaching your blades to your generator and it's the main component used to transfer the energy between the two, so you want it to work well. Finding aluminium disk to do the job can be hard and they can be expensive to buy. But if you already have one, then following the Instructables guide and drilling the appropriate holes will do just fine. If you don't have one, then again Amazon comes to the rescue. You can buy a decent (and cheap!) generator attachment shaft using the amazon link below. It goes without saying make sure you buy one with a diameter matching your generators shaft diameter or it won't work.

[https://www.amazon.com/gp/product/B07F7W3D9L/ref=as\\_li\\_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B07F7W3D9L&linkCode=as2&tag=renewableen0a-20&linkId=94f64007a02d644e89da7bcd6d087ffe](https://www.amazon.com/gp/product/B07F7W3D9L/ref=as_li_tl?ie=UTF8&camp=1789&creative=9325&creativeASIN=B07F7W3D9L&linkCode=as2&tag=renewableen0a-20&linkId=94f64007a02d644e89da7bcd6d087ffe)

So, when we used this to build our turbine it worked well...for a while it eventually gave in due to all the stress. All you need to do is go out and buy another one if this happens to you. We, however were not happy with this and decided to design our own. You can see this the design in our free to download eBook: 5 Steps to Building a Backyard Wind Turbine.

## 5. 5 Steps to Building a Backyard Wind Turbine eBook

Did some one mention free eBook? Well the fifth resource we have for you is the Renewable Energy Methods eBook, and we've made it free to download. In this eBook we outline how to create your very own backyard wind turbine in 5 easy steps. We break down the project into 5 easy to complete sub projects:

- Generator
- Blades
- Hub and Tower
- Controller
- Batteries

This report will help you get all 5 of the major systems up and running and then assemble them together into a working, free clean energy producing, money saving wind turbine. The eBook unlocks the details about wind turbines and how they work.

You can sign up for your free copy here:

<https://www.renewableenergymethods.com/>