



**How to Get Yourself a  
Hugh Piggott Wind Turbine  
By V3 Power**



## What is a Hugh Piggott turbine?

It is a design for small wind turbines that uses basic materials and simple construction techniques to create a robust and highly efficient machine. The design was created, as the name suggests, by Hugh Piggott out of his need for electricity for his off-grid community in NW Scotland. It has been developed and refined over the years both by the experiences of Hugh and those all around the world using the design.

## Is a wind turbine right for me?

We love wind turbines! In a good wind site a turbine can be one of the cheapest forms of renewable energy. By producing power at night and when it is overcast they also compliment an existing solar system very well and can be the most cost effective way of expanding your energy supply by avoiding the need to buy more batteries. We would love to say that everyone should have a wind turbine and in many ways they should, but as a method of power provision they only make sense in certain circumstances. The three major factors are wind, maintenance and planning:

### Wind

Small wind turbines need a good wind site. This means being somewhere where there is a good average wind speed and no obstacles (trees, buildings etc.) near the wind turbine that will block the wind. A turbine on a good site can be a very smart investment, a turbine on a bad site is an expensive, albeit beautiful, toy.

### Maintenance

Wind turbines break. That is not to say that they are unreliable if looked after correctly but by their nature they are placed in hostile environments and subjected to severe weather. One of the things of the Hugh Piggott turbine is that its ease of manufacture goes hand in hand with its need for regular maintenance. Owning one of these turbines necessitates a maintenance plan both in terms of who will carry it out and having the funds to do so. We are able to assist with maintenance if required but most of the tasks can be undertaken by a relatively handy person.

### Planning

It is important to know whether planning permission is needed in your area and how easy it might be to obtain it. A critical factor here is how tall your tower needs to be to get above any local obstacles.

## Do they work?

Yes! Aside from powering the community where they were developed they are now used all over the world in rural electrification projects and for off-grid communities. Field tests have shown that they can outperform many commercial brands and have the added advantage that any part that does break is able to be simply replaced. There is an increasing community of academics testing the design and the data produced thus far is very exciting!

## How do I get one?

If you would like a Hugh Piggott turbine there are various ways of going about getting one.

### 1. Build it yourself

The machine is designed to be built using basic manufacturing techniques so given competency in metalwork, woodwork and electronics you can simply buy the manual and build it! The manual can be bought straight from the designer here: <http://scoraigwind.co.uk/all-of-the-books-by-hugh-how-to-get-them/>

Alternatively, if you do not feel confident undertaking a build project but would like to do so in the future you can come on one of our courses - <http://v3power.co.uk/public-courses/>

### 2. Part Build

If you are confident in building most of the turbine but unsure about a particular aspect of it and do not have the time to attend a course we can manufacture a particular element for you.

### 3. Get a turbine that is built on a course (that you attend!)

The turbines that we build on our courses need homes! If you come on a course and want the turbine you have the option of paying the cost of materials and then taking the turbine home with you! As there are normally 10-12 participants per course we will have to do this will be arranged in advance on a first come first served basis. Further details will be on our website. Bear in mind that we only build the generator so you will need a tower and electrical system to install it.

### 4. Host a course

Another option is to put on a course that builds the specific turbine that you want. So if you think there is a particular demand for a wind turbine build course in your area and are able to assist in the logistics of putting it on please get in touch.

### 5. Buy It

We would be more than happy to build a wind turbine for you - building turbines is great fun! However, because we are not set up as a mass manufacturing organisation we have to build everything by hand and to order and thus costs are relatively high.

### 6. Get it for free

Occasionally we run courses where the turbine has no home which makes us sad. We would like to keep a database of people who would like to adopt these orphaned turbines so that we have homes for all the turbines we build. This is by no means a guaranteed way to get a turbine but if you are interested please give us the following information and we will keep you in mind:

- Who you are
- Where you are and what your proposed site looks like
- Who will maintain the turbine
- Are you on or off grid
- Do you have any other renewables installed
- Do you have a tower
- Do you have an electrical system for the turbine
- What size and voltage is your battery bank (if you have one)



# How Much Does it all Cost?

## The Generator

The generator is the part of the turbine that sits on top of the tower, it is the thing that spins and makes electricity! This is what we typically build on a course, it is comprised of hand carved wooden blades and a permanent magnet alternator that is cast in resin. Everything including the mounting that holds it all together is made by hand. The Hugh Piggott turbine comes in various different sizes ranging from a 1.2m diameter machine to 4.2m. Below is a chart with a sample of two machines to give an idea of expected output and cost:

Diameter	Rated Power	Monthly Production @6m/s average	Cost of Materials	Price of V3 Custom Built Turbine
1.8m	350W	74kWh	£320	£1520
3.6m	1kW	296kWh	£745	£2345

## Towers

Towers are a significant part of the cost of a wind turbine. The height and design of the tower will vary according to the site and size of turbine. Below is a guide to give you an idea of how much it would cost to build one yourself or have us build one for you:

Turbine	Height	Materials	V3 Price
1.8m	8m	£440	£1040
3.6m	8m	£600	£1200

## Electrical System

Aside from the generator and tower the electrical system is the other significant cost of a wind turbine. Batteries are a major part of this cost for off-grid applications but as they are not needed for grid-tie systems and may already be in place they are not included here. Below is a approximate cost for an electrical system including (excluding batteries/grid-tie inverter):

Electrical system materials - £500  
Electrical system V3 custom built - £1100

## Courses

If you hope to build a turbine in the future, find out more or simply want to learn some exciting practical skills then you could come on one of our courses where we will build a turbine from scratch with a group of participants. Attending a course typically costs between £150 - £300. Please check our website for details.

### Note

All these prices are for guidance and depend on various factors.

## Contact

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