

★ **Battery charging:** bear in mind that batteries are not recharged during pedalling, although obviously the range will be affected by the level of assistance you give it. Some offer fast charging capability, which may be useful if you need to re-charge quickly between successive uses. Most batteries can be plugged into a normal mains socket. Expected battery life (number of charges will depend on the pattern of use) and replacement price.

Batteries will eventually need to be replaced and this can be a significant cost. This is something to ask before buying the bike – expect replacements to be up to £300.

What will it cost?

On average, electric bikes can vary from £500-2000 depending on the type of bike and the accessories that come with it. Go to <http://www.atob.org.uk/> to find a range of retailers to assist in providing advice on the right electric bike for you. Bear in mind that it is a commercial enterprise. Its subscribers include bike manufacturers and distributors, some of whom advertise in the magazine.

Up to 50% of the costs of bike purchase could be saved by participating in a Cycle to Work scheme. Most members of North Bristol SusCom run the scheme. The scheme has a limit of £1,000. See your local rep for more details.

Where to find out more?

'A to B' magazine is a useful source of information including news and reviews of different types of bike (amongst other forms of car free transport).

<http://www.atob.org.uk/>

The Association of Cycle Traders (**ACT**) is an independent non-profit making organisation representing the interests of over 2000 cycle shops.

The Cycling Experts is the **ACT's** consumer-facing promotional website, designed to raise the profile of all specialist cycle retailers.

<http://www.thecyclingexperts.co.uk/>

Why Cycle was formed in 2000 to provide straightforward advice to the potential bike buyer. It consists of a group of individuals who own bike shops as well as others who work for companies which import or manufacture bikes. It provides a large range of advice on all aspects of buying and owning.

<http://whycle.co.uk/>

Bikeforall.net is a joint initiative of the Bicycle Association and the Association of Cycle Traders via the Bike Hub levy scheme.

<http://www.bikeforall.net/>

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Atmosphere Electric Bikes

Ben Searle

The electric bike

Your questions answered
Dec 2010



The Electric Bike - could this be your travel solution?

The popularity of electric bikes is on the rise. They can be used in cycle lanes and generally on segregated routes. They don't require road tax, insurance, license plates or MoT. For some they can offer an alternative to the car or motorbike that costs less than running a car yet is easier than riding a conventional bike.



Electric bikes are generally suitable for return journeys of up to 20 miles on a single charge, depending on the model and how much you contribute by pedalling on the hills.

How do they work?

Electric bikes use rechargeable batteries and electric motors to provide assistance in maintaining the pedalling speed set by the user.

There are two types of bike; '**power on demand**' and '**power assisted**'. 'Power on demand' bikes work when the power is activated and controlled by a throttle or gear. No pedalling is required, although most are designed to work with pedalling which will preserve the battery charge and maximise the distance that assistance is provided. Alternatively, the user would be able to maximise assistance over difficult terrain (e.g. hills). In contrast, 'power assisted' bikes are designed to alleviate the effort of pedalling rather than replace it entirely, effectively lightening the effort. The extent to which the bike assists in the pedalling can be controlled by the

rider. Although there are different types of motors, most bikes have brushless Direct Current motors. See below for key factors to consider.

What are the benefits of an electric bike?

- ★ **Tackle hills with ease:** Speeds of up to 15 mph without effort and assistance to overcome hills;
- ★ **Running costs:** Costs are maintenance, upkeep and electricity and battery depreciation / replacement. However the electric bike is a massive cost saver when compared to a car;
- ★ **Personal Fitness:** TRL research found that electric bike users use their bike twice as much as conventional bike users. The motor provides up to half the effort, but more regular use means more exercise for the rider;
- ★ **Clean & Green:** The amount of energy used is very small when compared to a moped, motorcycle or car. Besides fuel, the only consumables are the batteries, and these can normally be recycled when life-expired;
- ★ **Faster Travel:** An electric bike can maintain a higher average speed than a bicycle but take advantage of the same network of cycle facilities. When hills and headwinds are eliminated, electric bikes are often the most consistent mode of travel.

What should you consider when buying an electric bike?

There are a number of bike types available; utility, fold up, off road or sports models. A key consideration will be weight versus performance for the type of cycling you wish to do. Generally speaking, the lighter the better. There will also be a trade off with cost.

Battery technology has changed significantly since electric bikes first started appearing on the market. Weight, range and life expectancy are key determinants of cost. Most bikes now use Lithium batteries. These are much more lightweight than lead acid, for example, although there are still a few bikes with lead acid batteries on the market (these tend to be much cheaper, but heavier). In most cases batteries can be easily removed and recharged from a conventional domestic socket.

Key factors to consider when buying are:

- ★ **Maximum assisted speed:** 15mph is the legal maximum.
- ★ **Battery range:** There are many factors that will influence the actual range you will get (e.g. weight, terrain, level of assistance you give it). Consider the distance you wish to cycle on a regular basis (e.g. for the commute) and double it for the range you will need. Preserve the range by pedalling!
- ★ **Peak battery power:** expressed in watts (look for something with more than 300).
- ★ **Power consumption:** A key measure for comparison is watt/ hours per mile. Less than 10 is good.

