

The Electric Bike - could this be your travel solution?

The popularity of electric bikes is on the rise. They can be used on the road, in cycle lanes and generally on cycle paths. They don't require road tax, insurance, license plates or MoT. For some they can offer an alternative to the car or motorbike as they cost less than running a vehicle yet they have advantages to riding a conventional bike over longer distances. 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, it is made easier to pedal over difficult terrain (e.g. hills). '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.



Other leaflets in the series:

Leaflet 1: basic bike maintenance

Leaflet 2: clothing and accessories

Leaflet 3: security matters

Leaflet 4: with children

Leaflet 6: the right bike for you

Acknowledgements

This leaflet has been adapted from a series compiled by Sustrans and Bristol City Council. It has been amended with the help of Swindon Bicycle Users Group and a variety of volunteers in Swindon; many thanks to you all. Photos by Jon Ratcliffe/Keith Smith.

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Electric Bikes



Leaflet 5



What are the benefits of an electric bike?

- **Great for elderly people or those with injuries:** Less pressure is placed on joints as the motor assists with pedalling, meaning that people who struggle to ride a conventional bike will find it easier to pedal.
- **Tackle hills with ease:** Electric bikes offer extra assistance to overcome hills without so much effort.
- **Running costs:** Costs are maintenance, upkeep and electricity and battery depreciation / replacement. However using an electric bike is a massive cost saving when compared to running a car.
- **Personal Fitness:** Research has found that electric bike users ride their bike twice as much as conventional bike owners. The motor provides up to half the effort, but more regular use means more exercise overall.
- **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 they reach the end of their life.
- **Faster Travel:** An electric bike can maintain a higher average speed than a bicycle but take advantage of the same network of cycle facilities.

What should you consider when buying an electric bike?

1. What you need to use the bike for.

There are a number of bike types available; utility, fold up, off road or sports models. A bike shop that specialises in electric bikes will be able to guide and advise you.

2. Weight versus performance versus price.

Generally speaking, the lighter the better, but 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 lighter 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).

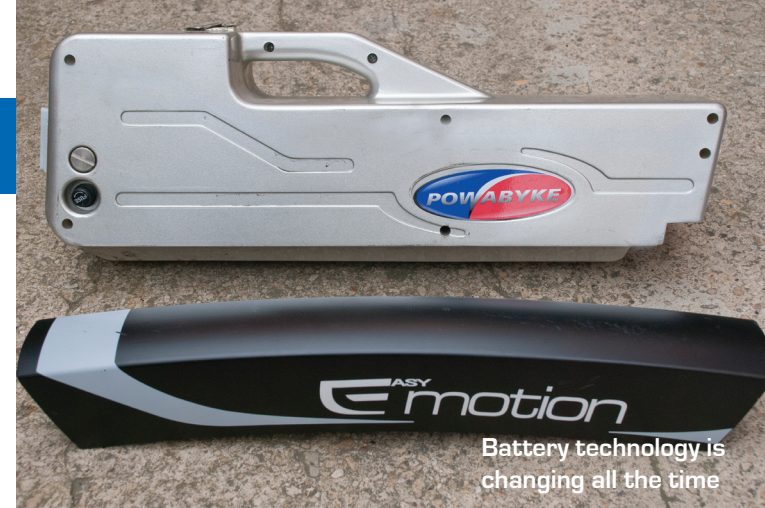
3. Battery range.

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!

4. 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 watts per hour is good.



Battery technology is changing all the time

5. 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. 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 www.swindonbug.co.uk/contacts to find a range of local retailers to assist in providing advice on the right electric bike for you. Up to 50% of the costs of bike purchase could be saved by participating in a Cycle to Work scheme – ask your employer if they run the scheme.