Pedalling lightly on this earth

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Many New Zealand councils are taking a serious look at complementing their vehicle fleets with electric bicycles. Successful trials have shown they will undoubtedly be much more prevalent in the future – and for some employees they have already become the preferred steed for quick inner city trips.
Jace Hobbs, of the Electric Bike Hub in Nelson, outlines some best practice tips for these new green and silent elements of your fleet...

Local Authority fleet operators have shown that electric bicycles are practical and economical in the mix of staff transportation. Typically, councils can remove a car for each of the first few E-bikes that are introduced. These bikes reduce the cost of personal transport by 90% compared to an automobile, and in many cases reduce transit time for short trips. Most trips are door to door, saving staff time parking and walking. In addition, the electric bike is a zero-emission vehicle, fulfilling council requirements for sustainability and it is clear that staff accept and enjoy the pedal-assisted ride.

To harness the economy of electric bicycles in fleet use, several design factors are important:

- It's important to access the bike easily. The key can be in a lock box and the bike should be near the exit to the building.
- The bike should be easy to get on and off – meaning usually a step-through frame allowing people in any manner of dress to ride it.
- The seat should adjust through a great range to accommodate all riders.
- The bike should be able to carry a significant load – many e-bikes are simply standard bikes with electric-assist added. The wheels need to be strong and include double wall rims, 13 gauge spokes, sealed bearings, puncture-resistant tyres and reinforced racks rated for 25kg or more.
- A large capacity battery is important. With around 20 amp hours capacity, the bike can be ridden all day without delays for recharging.
- Low servicing requirements are important for local authorities, especially the gear-changing mechanism. Unlike derailleur-equipped bikes, internally geared hubs ensure ease of use, gear-changing while stopped on hills, and ultra-low maintenance.
- Electric front drive hubs have become standard for fleet operation because it allows the use of a rear internally geared hub for pedalling. Note that NZ Post and major cargo e-bike manufacturers have settled on this front hub electric assist format.
- The charging cycle should be easy and self-regulating. While the charger will cut the charge off automatically, a further timer can avoid resting charger electrical costs.
- Bells should be used to alleviate pedestrian fears of silent fast bikes. Brass bells will far outlast steel bells.
- Regenerative braking has been proven to be unsuitable for fleet operators as it does not allow coasting and is high cost. LG

http://ccmta.ca/english/pdf/power_assisted_cycles.pdf
http://www.gopedelec.eu
http://www.nzaee.org.nz
http://energy.hawaii.gov

What Makes an Electric Bike a **Quality Purchase**

Jace Hobbs goes through a purchasing checklist for the manager who may be considering adding electric bikes to fleet.

There are quite a few choices in the world of electric bikes and the uniformed may think that any lithium battery is as good as any other lithium battery, or a 'hub motor is a hub motor'. This is most definitely not the case; not with the battery; not with the controller and not with the hub motor – or any other significant element of the bike, for that matter.

This article will give you a good beginning in assessing what the quality points are for the various brands, and help sorting out the right electric bike for you – or your staff.

The Hub Motor

For a start, let's just say 'the motor', as there are several brands of bolt-on motors out there. The fact is that the hub motor design has won the technology and reliability contest for the best propulsion of electric bikes and scooters. The reasons is simplicity weight and reliability. The one moving part is the wheel itself, with some designs using planetary gears. Your search for an electric bike conversion motor should start with a motor that is not strapped onto the frame, not running through the normal chain and not running the wheel anywhere but in the hub itself. Ezee motors are top of the line internal hub units that are warranted for two years. They have the best in industry quality.

The Controller

This little unit governs the electricity pulsing the magnets of the electric bike motor. It can be made with quality parts...or with whatever is on sale this week for a low-cost manufacturer. The difference is vitally important. A little-known aspect of quality controllers is having reserve capacity in the electronics so that the electric bike can run longer and hotter up hills or under heavier loads. Extra capacity leads to reliability and the ability of the manufacturer to stand behind the product with a warranty. Ezee makes a great controller that they warrantee for two years, another first in the industry. Think about the peace of mind of buying a quality controller with warrantee on your electric bike purchase.

The Battery

While the technical aspects of the lithium battery are beyond the scope of this short this article, it should be said that not all are made equally. It follows that it will pay to look for the electric bike company that puts a warranty on the battery, The warranty should guarantee that the power delivery will not fall beneath 80% for the first year or something that will translate to a real world performance of getting you down the road. This is where the cheaper bikes catch the unsuspecting customer. The electric bike specs will list the battery as SLA (lead acid!) or simply lithium, which does not tell you about the maker of the cells or their specific quality. To avoid facing the extra cost of battery replacement soon after purchase, get a quality unit form one of the companies that stands behind their batteries. Of course, getting a larger amp hour battery gives you more range of travel, but only if the battery

is working and only if it was made in a way that will charge to its fullest capacity for hundreds of charges. The charger is another crucial component and again, go with a company that has a warranty on this components – and will honor it.

The other components

Finally there is rest of the bike and specifically the wheels. The reliability of your electric bike purchase hinges on things like strong wheels, good bearings and quality components. Beware of bikes that just list components simply by brand name, as they are telling you little about the specific quality of the particular units. Obviously the bigger manufacturers of bike components will have a range of items, of different specs and robustness, for different market needs.

The best bet, then, for someone who does not want to investigate each aspect of the components of the electric bike is to buy from one of the industry leaders. The leaders got there by making a product that was judged quality by industry insiders and experience in the field running the bikes.

The initial and apparent high price for an quality electric bike is soon forgotten as the service shines through year after year. In short, buy quality. LG