



Nelson Mountain Bike Club Motorised Bicycle Report - July 2016

For mountain bike trail managers, landowners and advocates the central issue around "e-bikes" is they blur the line between bicycles and motorcycles.

Because they look like bicycles, are sold in bicycle shops, and often marketed by cycling brands some people see them as a technological evolution of bicycles (i.e. like full suspension or disc brakes) rather than a different type of vehicle.

Motorised Bicycle Overview

History

In the late 1800s motors were added to bicycles, creating motorised bicycles - which in turn evolved into what we know today as motorcycles.

Up until very recently the only motorised bicycles available used internal combustion engines, which due to their noise, weight, size and exhaust were generally recognised and treated as motorcycles.

Recently silent, compact electric motors have created a new type of motorised bicycle that at a glance looks like a 'normal' bicycle.

Motor Power Outputs

Motorised bicycles have a huge range of power outputs. Low powered e-bike motors start at around 250watts, up to motorised mountain bikes like the Stealth B-52 delivering 5,200watts.

For perspective:

- 200 watts is around the threshold output of an average rider (1 hour).
- **250 watts is the power output of most e-bikes currently sold in NZ bike shops.**
- 300 watts is around the power output of a Tour de France rider over a stage (4-6 hours).
- 300 watts is the maximum for "power-assisted bicycles" according to the NZTA, above that it is considered a "moped" and needs a registration plate:
<https://www.nzta.govt.nz/vehicles/vehicle-types/low-powered-vehicles/>
- 400 watts is around the threshold output of a Tour de France rider (1 hour).

- 700 watts is around the maximum sprint power of an average rider (5 second burst).
- 750 watts is around the maximum an Olympic level cyclist can output for a couple of minutes:
<https://www.youtube.com/watch?v=S4O5voOCqAQ>
- **1000 watts is the power of a Bafang retrofit mid-drive power system:**
<http://dillengerelectricbikes.com.au/electric-bike-kits/bbs-hd1000-bafang-mid-drive-by-bafang.html>
- 1300 watts is around the maximum sprint power of a Tour de France rider (5 second burst).
- 2000 watts is the maximum for a “moped” according to NZTA, above that it is considered a motorcycle:
<https://www.nzta.govt.nz/vehicles/vehicle-types/motorcycles-and-mopeds/information-for-moped-riders/>
- **5200 watts is the power output of the Stealth B-52:**
<http://www.stealthelectricbikes.com/stealth-b-52-bomber/>

Pedal Assist vs Throttle

Some users see “pedal assist” bicycles as different from motorised bicycles with hand throttles. In reality pedal assist is just a different sort of throttle which is pedal activated rather than twist/button activated.

Risks of Motorised Bicycles

The following risks have been identified for motorised bicycles:

Increased Trail Wear/ Damage

The increased power and speed of motorised bicycles means more braking force applied into corners and more torque on climbing surfaces. Both inevitably increase trail wear/ damage, even if only marginally, and as a such increased e-bike use will require more trail maintenance/ more durable trail construction.

Comparing an average rider on a motorised bicycle to a fast/highly skilled rider on a non-motorised bike is incorrect as fast/skilled riders generally achieve their speed through maintaining momentum and more efficient cornering technique (i.e. Aaron Gwin’s winning chainless World Cup run) rather than powerful acceleration on straights, then heavy deceleration in braking zones as would be typical of a less skilled rider on a motorised bike.

User Conflict

The increased speed of motorised bikes also brings the risk of increased user conflict with other trail users. Some users may not be aware that the rider is on a motorised bicycle and confuse it with a normal mountain bike. Some users, may be aware of motorised bicycles and resent sharing trails with powered vehicles. There is currently no defined trail etiquette for motorised bike users.

Trail Access/Advocacy

This is the biggest risk of allowing motorised bicycles on trails. For the past 20 years the Nelson Mountain Bike Club has advocated land/trail access for human powered mountain bikes. Motorised bicycles are a significant departure from the traditional bicycle and there is a risk that land managers/ user groups/ lobby groups use the perceived inclusion of motorised bicycles, as a subset of mountain bikes, to support an argument for the removal or blocking of trail access.

Current Motorised Bicycle Policies

New Zealand Transport Agency

<https://www.nzta.govt.nz/vehicles/vehicle-types/low-powered-vehicles/>

- Up to 300 watts is a “power assisted bicycle” and treated like a bicycle.
- 301 watts to 2,000 watts is a “moped” and requires a number plate and motorcycle helmet.
- Over 2000 watts is a “motorcycle”

Department of Conservation

Electric bikes on public conservation land (Guideline) - October 2015

- Assess access for electronic bikes on a trail by trail basis.
- Enable lower powered electric bikes (≤ 300 watts) on **lower graded [trails]** and cycle ways so that families and those less physically able can enjoy our places.
- Treat higher powered electric bikes (>300 watts) as motorbikes as these are an inappropriate fit with other off-road visitors.

Action Forestry Management/Hancock Forest Management

- Up to 300 watts is classed as a bicycle and is okay on mountain bike trails.
- Over 300 watts will need a motorcycle permit and is not allowed on mountain bike trails.

International Mountain Bike Association

- All motorised bicycles are not mountain bikes and should be treated differently.
- **Motorized/Nonmotorized Recreation Policy Statement**
 - IMBA is first and foremost an advocate for mountain bikers and the sport of mountain biking. We seek to find solutions that work for a large range of trail users, but our allegiance is to mountain biking. IMBA’s secondary focus is building and maintaining sustainable single-track trails. Single-track is the preferred trail of most mountain bikers thus we support actions that improve access and trail conditions and oppose those actions that would degrade the trails and the experience of riding them.
 - IMBA believes all recreational uses of public lands should be managed on an individual use and trail-by-trail basis through the diligent application of benefits based management, preferred use and environmental impact assessment. These land management principles work together to give people the outdoor experiences they seek in a way that mitigates the effects associated with their use so that future generations can enjoy similar experiences.

Nelson Mountain Bike Club Policy on Motorised Bicycles

1. All motorised bicycles are not mountain bikes and should be treated differently.
2. We condone the use of motorised bicycles up to 300 watts on NMTBC trails, if the land manager has given permission.
3. Motorised bicycles over 300 watts are treated as motorbikes and banned on mountain bike trails on HFM/AFM forestry mountain and DoC land. Nelson City Council has been consulted and has indicated that it too follows this definition in relation to access to mountain bike trails on its land.

4. NMTBC will not actively advocate trail access for motorised bicycles.
5. NMTBC encourages its members to self police 300+ watt motorised bicycles, as we do motor bikes, as their use could jeopardise access for all members/ mountain bikes to some areas/ trails.

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