Inquiry into e-mobility safety and use in Queensland

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Submission into the Parliamentary Inquiry into E-Mobility Safety and Use in Queensland

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Summary

The recent increase in the use of e-mobility is both worrying and gratifying, with the increase in personal accident injuries and property fires of serious concern.

The present definitions of a "bicycle" and an "Electrically Power Assisted Cycle" are straight forward and practical, and the Queensland adoption of both is to be commended. I believe there is no pressing need to change these definitions as they currently encourage a wide variety of active transport options related to cycling, and broadly align with internationally recognised standards

Tricycles and similar are an important addition to cycling, giving people who cannot or do not wish to ride upright cycles a variety of options to partake in active transport and exercise. The introduction in Queensland of a similar requirement to the recent NSW standard would severely disadvantage those people who need, or choose, to ride electrically assisted trikes and similar.

E-mobility Personal Mobility Devices are also defined, but rely on the (unsupervised) operator to manage the speed and load. The resulting speed and power gives them characteristics more akin to electric motorcycles. Limited enforcement has encouraged operation outside of the legally intended scope

Battery standards are not presently defined resulting in an unacceptable risk of failure and fire in cheaper batteries not featuring robust battery management and mechanical safety. A requirement for lithium rechargeable batteries to meet a specified standard would be advantageous.

E-Bikes.

The e-bike standards as specified in the Vehicle Standard – Australian Design Rule definitions [(note 2)] is practical and simple, specifying speed and power limits, the system is activated by pedalling, and limiting throttle only activation to 6kmh or less. This allows installation of an e-assist system onto any pedal powered device that meets the "bicycle" definition [(note 1)], and makes cycling in its various forms available to all people. Reversion to any other published standard such as the previous EN15194 standard risks eliminating this option for many people.

- The present e-bike speed and power limits are suitable for electric assist for majority users, and are a sound match for the average rider. Increasing the speed limit may encourage riders to travel at speeds beyond their experience level. Many cyclists ride at speeds much higher than the 25kmh e-assist limit, however it should be acknowledged that in gaining the fitness to maintain these speeds they have also learnt sufficient bike handling and roadcraft skills to match.
- The European EN15194:2017+A1:2023 standard is focussed on trekking and urban cycles and is extremely comprehensive and prescriptive, and results in narrowly defining what a bicycle is for the purpose of that standard. It automatically rules out upright tricycles, recumbent bikes and tricycles, quadricycles, and potentially cargo bikes.
- Pedal cycles with more than 2 wheels, or with design features not covered by the referenced standards cannot be certified as compliant to such standards, and requiring this standard

effectively prevents tricycle and other wheeled pedal powered vehicles from being sold if equipped with an otherwise National Vehicle Standards compliant electric assist system

- Tricycles both upright and recumbent are favoured choices for people who do not ride an upright two wheel bike, whether for comfort reasons, balance, or disability; and denying them this choice by enforcing such a narrow standard would seriously impact their quality of life.
- New South Wales has recently introduced laws [(note 3)] requiring e-bikes sold in NSW to meet EN15194, AS15194, or UL2849. This has made it illegal for a business to sell e-assisted tricycles in NSW even though such cycles are legal for use in NSW. This severely limits the purchase options for those people needing to or wishing to cycle on something other than an upright bicycle.

Personal Mobility Devices

PMD's are defined the legislation, however having unrestricted power and speed has made high speed scooter operation in public space very common.

- Limited Police resources has resulted in very low enforcement outside of the Brisbane CBD
- Consideration should be given to mandating a tamper proof speed limit for PMD's
- Consideration should be given to some sort of third party insurance scheme similar to that required for registered vehicles, perhaps a nation wide fee paid at import of devices and used to establish an insurance pool.

Batteries.

There at present appears to be little control on the quality of imported lithium ion batteries. The issues of battery failure and resulting fires are now well known, together with the extreme difficulty of extinguishing such fires.

It is important to recognise where the danger originates, the battery is the energy dense and combustible part of the e-mobility system, and relies on the correct charger to be used. Acknowledging this, there are multiple internationally accredited standards for the construction, testing, and management of the battery and charger to choose from. I support the introduction of battery specific standards.

- Multiple standards are available for batteries, they all have stringent requirements for the construction and testing of battery packs, individual cells, and the management systems.
- New South Wales has introduced mandatory standards for the sale of e-mobility standards within NSW.

Disclosure: I have a small business importing and selling recumbent tricycles, and further modify these trikes to make them suitable for riders with various disabilities. Forcing a standard applicable only to upright bicycles would adversely effect riders who rely on their trikes for their day to day transport and physical well being.

This submission is made as a personal submission only.

Note 1 Bicycle definition.

Transport Operations (Road Use Management) Act 1995 - Queensland Legislation - Queensland Government

bicycle—

(a)means a vehicle with 2 or more wheels that is built to be propelled by human power through a belt, chain or gears, whether or not it has 1 or more auxiliary motors; and

(b)includes the following—

(i)a pedicab;

(ii)a penny-farthing;

(iii)a tricycle;

(iv)a power-assisted bicycle; but

(c)does not include the following—

(i)a motorised mobility device;

(ii)a wheelchair;

(iii)a wheeled recreational device;

(iv)a wheeled toy;

(v)any vehicle with 1 or more auxiliary motors, other than a power-assisted bicycle.

Note 2 Electrically Power Assisted Cycle

Federal Register of Legislation - Vehicle Standard (Australian Design Rule – Definitions and Vehicle Categories) 2005

ELECTRICALLY POWER-ASSISTED CYCLE (EPAC) - means an electrically-powered pedal cycle with a maximum continuous rated power of 250W, of which the output is:

A. progressively reduced as the cycle's travel speed increases above 6 km/h; and
B. cut off, where:
    i. the cycle reaches a speed of 25 km/h; or
    ii. the cyclist is not pedalling and the travel speed exceeds 6km/h.

Note 3 NSW – New Standards for e-bikes, batteries, and e-devices.

New safety standards for lithium-ion batteries in e-mobility devices

The products must comply with any one of the Standards listed for the product category below.

e-bikes

For e-bikes with a maximum continuous rated output not exceeding 500 watts:

- AS 15194:2016- Cycles - Electrically power assisted cycles - EPAC Bicycles (also known as pedelecs), or
- EN 15194:2017+A1:2023 - Cycles - Electrically power assisted cycles - EPAC Bicycles, or
- UL 2849 - Electrical systems for eBikes

For e-bikes with a maximum continuous rated output exceeding 500 watts:

- UL 2849 - Electrical systems for eBikes

(Further standards apply for batteries and other micromobility devices.)