Australian Electric Vehicle Association
Canberra Branch – *Policy Committee*

Discussion Paper – prepared May 2019

(Very Light) Electric Personal Transportation Devices

'Last Mile' Transport Options

Introduction

The ACT allows the use of electrically-assisted bicycles with various limitations. In 2015 it amended existing legislation to allow the use of 'Segway'-type single person, self-balancing two wheeled electric commuter vehicles. Exemptions to legislation cover the use of mobility scooters by people with recognised disabilities. Other types of very light, one person, electric commuter vehicles (Personal Transportation Devices – PTD) remain prohibited for use on ACT roads, footpaths, cycle ways and bike paths, with extreme financial penalties for illegal use.

Objective

To amend legislation to allow a broader range of very light, low speed, single person electric PTDs to be used in the ACT, particularly to enable commuters to travel the 'Last Mile' between public transport (or distant car parks) and their destination. PTDs not powered by electricity are not addressed here.

Background

The ACT is rapidly moving toward its '100% Renewable energy by 2020' objective. It has recognised that private transport is now becoming the major contributor to the Territory's carbon footprint. Strategies were implemented to reduce transport emissions, including initiation of a light rail network, revamped bus network, electrifying the majority of the government vehicle fleet, and establishing recharging infrastructure for both hydrogen and electric vehicles. An overall objective is to reduce the number of commuter vehicles using roadways and requiring major parking areas during the work day, and to promote cycling as a commuter medium.

A wide range of very light, rechargeable electric, two and three wheeled vehicles has recently become available, and there is increased interest in their use for shorter distance commuting and general recreation. A small number of rental operations have been permitted, under tight regulation, to trial use of some types of these vehicles in some Australian cities, and overseas. Some resulted in licenses being issued to operate, while others were less successful.

Typically, these vehicles have two or three wheels, are speed limited to under 25 km/h and must have brakes. They may be operated on cycle paths, or in some cases, footpaths, and/or lower speed roadways. Riders must wear helmets, and the vehicles must have certain minimal safety equipment such as warning bells, and perhaps front and rear lighting. Commercial e-scooters and e-bikes tend to be booked and paid for via smart phone, and may be docked, or dock-less.

Privately-owned PTDs may cost from several hundred dollars, to thousands. Many come with adequate security built in – using a combination of smartphone-based access and physical security (chains or cables, locks etc.). Some are foldable, to enable them to be carried on public transport, or into the home or work place, for security.

Safety Considerations

A number of trials have resulted in mixed outcomes. In Auckland and Adelaide for example, trials by LIME Scooters (using two-wheeled e-scooters) have either been suspended or cancelled, due to safety concerns for both the pedestrian public, and scooter riders. In other cities, trials have led to licensed operations, and generally favourable reactions from both riders and non-riders.

To be useful for 'Last Mile' travel, PTDs must have sufficient speed to enable travel faster than walking, offer reasonable safety to riders and not create danger to non-riders , as well as being affordable. Ideally, they are sufficiently portable that they can be folded and carried on board public transport, or securely parked while not in use.

Ability to recharge from a standard 10A socket while parked is considered beneficial, but not necessary, as many have sufficient range for a two-way commute, or removable batteries which may be recharged when convenient.

Although theoretically, many models can travel faster than 25km/h, this speed limit appears to be generally acceptable in many locations around the world. Greater speeds are problematic for various reasons – hazards to non-riders (pedestrians, bike riders, other vehicles); and also to riders themselves, who may be very seriously injured in the event of an unplanned incident. (This was cited as the reason for Auckland to terminate its Lime Scooter trial.)

Routine travel on higher speed roads may represent a hazard to both riders and other vehicular traffic, although risks may be minimised by "sensible riding", awareness by drivers of the limitations and capabilities of very light vehicles, and the use of bike lanes. The ability to at least cross roadways is essential, and may offer a partial solution to e-scooter riders accessing bike paths or cycle lanes. Bike lane access and use must be managed so as to not hold up regular bicycle riders, nor to create obstacles for them, or other traffic.

Travel on cycle paths similarly would require co-operation from cyclists, and sensible operation by e-scooter riders. Footpath travel may be allowed under certain circumstances – particularly in relation to pedestrians, people pushing baby carriages and shopping trolleys etc.. An information campaign would need to accompany any introduction.

Physical Considerations

In all cases, e-scooters must have a bell to alert others of their approach, functioning brakes, and be speed limited.

Ideally, PTDs should also have some form of forward-facing 'day light' head- or position-light; and a rear light. Lights may be flashing, or static, as with contemporary bicycle lighting.

It may be considered necessary to limit PTD weight (e.g. less than 15kg to access public transport, if folded), or for an absolute limit (of say 30kg – typical maximum for an e-bike) to be imposed, reducing the potential for high kinetic energy to cause unacceptable accident/incident damage. It is noted that motorised mobility scooters may weigh up to 100kg (but are speed-limited, so kinetic energy is minimised), and that Segway-types may be 60kg.

Many injuries appear to have been caused by the small front wheels of e-scooters causing the vehicle to be upset, and the rider thrown off. This may be avoided or reduced by strongly recommending a minimum front wheel size, of say 25 cm. Of course, e-skateboards may have to be exempted from this limitation.

Dependable, effective brakes are obviously essential, as is a stable platform on which to stand, or rest. Brakes may be mechanical, or hydraulic, and some e-scooters additionally have a recuperation function, which absorbs kinetic energy to partially recharge the battery, while slowing or decelerating.

It is understood that no serious incidents have been reported in the ACT due to accidents with the small number of Segways in use for either commuting or recreational use, although these have considerably greater mass than a typical PTD. Similarly, increasing electrically-assisted bicycles use has not seen more incidents of injury or damage.

Recommendations

It is recommended that "the Segway exemption" be expanded to enable use of light weight, low speed, two and three wheeled PTDs. Such vehicles should meet at least the following criteria:

- Weigh less than 30kg, or 15kg if foldable (with the intention of carrying them aboard public transport).
- Be less than 750mm wide.
- Have a functioning, proven-effective brake system at all times.
- Ideally, have a front wheel diameter of at least 25 cm; or where the only two wheels are perpendicular to the normal direction of travel, both exceed 25 cm.
- Have a front facing white light, and rear facing red light, which may be static, or flashing, but which must operate at all times that the vehicle is in motion.
- Be limited to a mandated and verifiable top speed (of say 25 km/h on roads, or 10-15 km/h on pathways).
- Offer a stable platform on which a helmeted rider can stand, rest or lean, whilst remaining able to dismount or guide the vehicle around obstacles or other path users.
- Be able to be used on ACT cycle paths, bike lanes, and in limited circumstances on footpaths and lower-speed roads (e.g. less than 60 km/h, or limited to less than 40 km/h roads).

The AEVA Canberra Branch Policy Committee remains keen to work with the ACT government to achieve these outcomes.

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