Inquiry into e-mobility safety and use in Queensland

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14 August 2025

State Development, Infrastructure and Works Committee
Parliament House
Cnr George and Alice Streets Brisbane Qld 4000
SDIWC@parliament.qld.gov.au

Attention: Inquiry into e-mobility safety and use in Queensland

Dear State Development, Infrastructure and Works Committee,

Thank you for the opportunity to provide input into this inquiry. E-mobility has an important role in creating a more accessible, affordable, and sustainable transport system, with e-bikes being the most competitive alternative to car ownership. E-mobility provide an opportunity to provide travel choice (particularly in a cost-of-living crisis) and reduce congestion on our roads. Below is a summary of key opportunities and recommendations that we would like to put forward to the inquiry committee.

About us

Zwart Transport Planning is a sustainable transport planning company based in Brisbane with over 30 years experience in the specialist field of active transport planning and design. We are passionate about planning for people and creating places for everyone to use and enjoy.

Our team were recently involved in a review of the Tasmanian e-bike regulations, submitting a green paper and undertaking community consultation and stakeholder roundtables to seek views on the current regulations to propose changes to the regulations. The green paper, which includes significant detail on our findings is attached to this submission. Key recommendations associated with both e-bikes and e-scooters have been summarised below with many recommendations stemming from the research undertaken as part of the e-bike regulations review.

Benefits of e-mobility

- Affordability: Offers a low-cost alternative to car ownership, particularly valuable for low-income households replacing a second vehicle.
- Transport choice: Increases flexibility for short trips and first/last-mile connections.
- Accessibility: Supports independent travel for people with limited mobility or fitness.
- Health: Encourages active transport by reducing barriers to cycling.
- Climate action: Supports emissions reduction and net-zero transport goals.

What we know about e-bikes - e-scooters share many of the same benefits.

Equitable access

E-bikes are attractive to and **increasingly used by women, older adults, young people** and other groups who have not felt comfortable on traditional bikes.

Commuting options

E-bikes can **fill gaps in the transport network**, making a combination of riding, walking and using public transport a convenient, appealing and efficient choice for most trips.

Physical activity

E-bikes boost physical activity by making **cycling more accessible** to a wider range of fitness levels. More people using e-bikes can engage in **regular exercise with less strain**, promoting overall well-being.

Rider's safety

In Australia, **most e-bike riders feel safer than on a traditional bike** because they have better control over acceleration when riding on the road with cars[1].

Time effective

E-bikes are **competitive with cars on travel time**, especially for trips up to 10 km.

If riding at an average speed of 20 kph (with a maximum speed of 25 kph), it would take just over 30 minutes to complete a 10 km trip, which is approximately the distance between Taroona Beach and Hobart CBD. Riding an e-bike also saves time by eliminating the need to find parking.

Cost effective

New analysis shows the **Australian household could save up to $1500 every month** by swapping the car for a bicycle [2].
These savings come from the cost of car insurance, personal loan repayments and the price of fuel.

Good for the environment

E-bikes also emit far less than electric cars.
Grams of carbon emitted per person per km travelled:[3]

Average Victorian car:	Tesla model S charged on Victorian grid:	E-bike charged on Victorian grid:
244 g	209 g	.6 g

Legislative recommendations

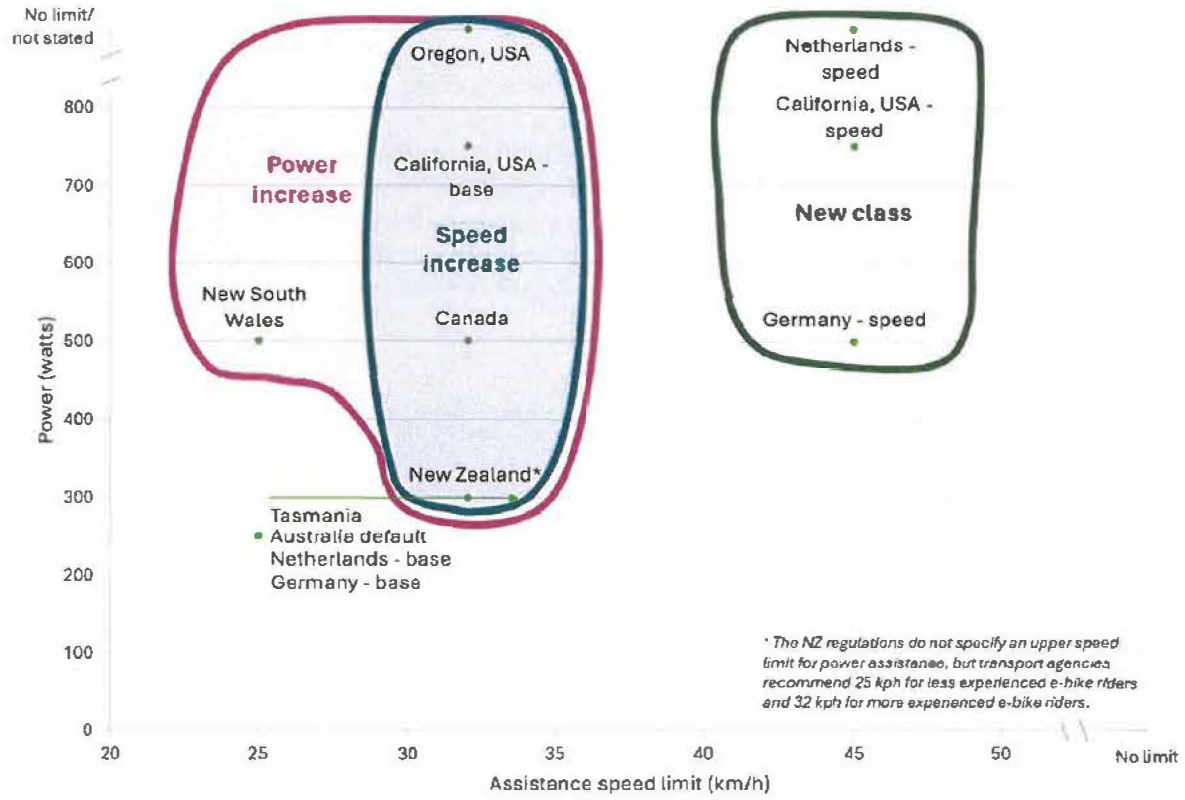
Balance of regulation

- Overly restrictive rules risk widespread non-compliance (e.g., device modifications).
- Laws should be evidence-based, enforceable, and proportional to risk.

International regulations summary

Figure 1 summarises the key speed and power limits across Australia, and internationally to provide context to the speed and power discussion.

Figure 1: International regulations summary



Power limits

- Power alone does not make a device unsafe.
- More powerful motors improve accessibility (e.g., riders with limited strength, carrying loads, towing kids) and reduce the effort needed to use active transport in hilly or hot environments.
- Recommend removing or significantly relaxing e-bike power limits.

Speed caps

- The current 12 km/h cap for e-scooters on footpaths and shared paths is impractical in low-conflict environments. Shared paths are often implemented over separated riding infrastructure due to budgetary restrictions, therefore having significant flow-on effects to e-scooter users which is not present for e-bikes.
- For e-bikes, the 25 km/h assist cut-out can be a barrier to riding in a group, as non-assisted bikes regularly cruise at higher speeds on flat roads. Additionally it can cause a feeling of unease when riding in the road environment with cars passing at much higher speeds. Increasing the speed limit to match a conventional bike may reduce the desire to modify the e-bike.

- Recommend a harmonised assistance limit of 32 km/h for e-bikes power assistance.
- It is acknowledged that reduced speeds (such as through speed limits) should be implemented in areas of high pedestrian volumes where conflict is significantly increased. This includes areas such as CBD footpaths and other similar locations.

Age limits

- The current e-scooter age restriction of 16+ years old restricts its use in the critical formation years when youth are building independence but have limited transport options.
- Queensland's existing child employment legislation states:
  - Age 11+ for delivery work.
  - Age 13+ for most jobs.
  - Under 16s subject to regulated hours and parental consent.
- Recommend age restriction for e-scooters is reduced to 13 years to enable young people to access independent, affordable, and safe travel to work. Consideration could be made to implement a reduced speed limit appropriate for inexperienced riders, however should be carefully considered to balance the ability to enforce such restrictions. Education programs for safe riding could also be required for these age groups.

Infrastructure recommendations

Infrastructure is the most critical missing piece in micromobility uptake. Current laws require riders to use separated facilities to be able to travel at the maximum speed (for e-scooters), yet these facilities are not provided frequently or consistently. This legal/infrastructure mismatch creates confusion and risk, and limits the effectiveness of e-mobility as a real transport option.

The uptake of e-mobility improves the business case for separated riding infrastructure, with the cost of these facilities being further justified with increased ridership. Additionally, the use of e-mobility as an alternative to cars ensures that trips are removed from the road network, reducing congestion and delays and reducing the need for costly road upgrades.

Recommendations:

- Prioritise separated infrastructure wherever practicable to reduce the conflict between walkers and riders, and riders and vehicles.
- Increase state-led grant funding for local councils to implement separated infrastructure.
- Promote lower-cost separated infrastructure solutions for TMR and council to implement and enable these solutions to be used through supported guidelines and approvals.
- Provide wider shared paths where separation is not possible—path width must reflect growing demand and the range of users.
- Reduce vehicle speeds and create shared streets where dedicated infrastructure is not possible to enable a safer road environment for all riders.
- Ensure continuous networks for riding rather than disconnected fragments.
- Introduce minimum overtaking distances for all road/path users.

Education recommendations

Education is essential to support safe behaviour and long-term mode shift.

- Emphasise the need to slow down, ring your bell and pass walkers wide. This could consider a minimum 1 m passing distance for e-scooter and e-bike riders overtaking pedestrians, similar to the 1.0m to 1.5 m requirement for cars overtaking bicycles. Provide clear education on the best way to overtake walkers to reduce the feeling of unease for walkers.
- Launch public-facing education programs such as "ScootScool" to teach:
  - road rules.
  - hazard perception.
  - etiquette in shared environments.
- Ensure rules are simple, consistent, and aligned for both e-scooters and e-bikes.
- Embed e-mobility and road safety education into the school curriculum to build lifelong habits.
- Provide training courses to educate transport planning and design practitioners on the delivery of high-quality riding infrastructure and best practice outcomes. This includes continuing the Designing for Pedestrians and Cyclist (RPD418), Walking Infrastructure Masterclass and Separated Infrastructure for Cycling and Micromobility Masterclass (RPD421)

Public transport integration

- Permit foldable e-scooters on public transport to enable first- and last-mile trips.
- Provide storage space on buses/trains to support this integration.

Enforcement recommendations

- Equip police with powers to enforce:
  - reckless riding: excessive speed, swerving, unsafe overtaking.
  - illegal sales and services: retailers selling or modifying non-compliant devices.
- Require servicing companies to refuse service to illegal e-scooters/e-bikes.

Shared scheme recommendations

Shared micromobility schemes play an important role in expanding access and supporting behaviour change. These schemes offer structured, regulated entry points into e-mobility and reduce many of the common barriers to adoption.

- Geofencing technology allows operators to enforce speed limits, no-ride zones, and parking rules – improving compliance and safety without relying solely on rider behaviour.
- Shared schemes increase transport choice, particularly for people who don't own a vehicle or live near frequent public transport.
- Provide a "try-before-you-buy" opportunity, helping individuals gain confidence and experience with e-mobility before committing to a personal purchase.
- Support a low-barrier, equitable entry point into active transport, especially in dense urban areas.
- Encourage consistency in licensing, safety standards, and operational rules across councils to support better user experience and compliance.
- Facilitate first- and last-mile journeys integration with public transport by ensuring availability near stations and transport hubs.

Federal Government role

The Queensland Government should actively lobby the Federal Government to:

- Ban the import of non-compliant and unsafe e-mobility devices.
- Establish stronger battery safety standards to reduce fire risks and prevent unsafe recharging.
- Improve consumer protections by limiting sale channels for e-mobility devices to accredited retailers only.
- Set consistent national standards for legal performance limits, battery safety, and device classification.

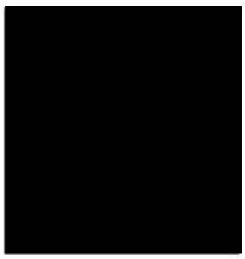
Incentives

It is clear that e-mobility has significant benefits. Incentives can accelerate uptake of legal and safe micromobility options. Suggested options include:

- Purchase subsidies or rebates for compliant e-bikes and e-scooters.
- Tax deductions or fringe benefit exemptions for employers providing e-bikes or e-scooters for commuting.
- Grants for schools, councils, and community organisations to run education programs and/or purchase shared fleet devices.
- Discounted helmets, safety lights, or servicing with purchase of legal devices.
- Pilot e-bike libraries or leasing schemes to allow people to try devices before committing to purchase.

Thank you for considering this submission. E-mobility presents a valuable opportunity to improve transport equity, sustainability, and public health outcomes, and we encourage continued reform that supports its safe and accessible use. For further detail, please see the Green Paper prepared for the Tasmanian E-Bike Regulation Review, which provides more in-depth analysis and evidence on many of the issues raised here and may be a valuable resource for this inquiry.

Yours sincerely



Jerryn Zwart
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Zwart Transport Planning

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Attachments: Attachment A – Tasmanian E-bike Regulations Review Green Paper

Appendix A

Appendix A: Tasmanian E-bike Regulations Review Green Paper

Green Paper

Tasmanian e-bike regulations review

September 2024

Department of State Growth

Tasmanian Government

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Have your say

In 2023, the Tasmanian Government committed to reviewing e-bike regulations to manage user needs, ensure public safety and to consider whether changes are needed.

This Green Paper poses questions about potential changes to e-bike regulations, based on a review of interstate and international best practices. The Department of State Growth wants your views on potential options to ensure they meet community needs and provide the best outcome for Tasmanians.

Once that stakeholder feedback is received, it will inform the development of a White Paper, a document that will present the Tasmanian Government's policy preference before introducing any regulatory changes.

Early consultation for the development of this Green Paper has occurred through:

- one roundtable that consulted a range of experts from across Australia on potential approaches, their opportunities and limitations
- three roundtables (Hobart, Launceston, Burnie) that consulted Tasmanian stakeholders from a range of backgrounds, including local government representatives, emergency services, research organisations, transport groups, local bike businesses, bike user groups, bus operators and other community groups relating to disability and health services, to discuss the pros and cons of potential e-bike regulation options.

Online survey

Consultation is now open to members of the community to submit feedback on the options presented in this Green Paper through an online survey, which will then inform a White Paper.

We want to hear from a broad range of community members.

Survey questions are scattered through this Green Paper to serve as prompts when reading. Questions look like the below.

Question 1: *What are the three most important factors that should be considered when making changes to e-bikes regulations?*

The closing date for the survey is 11am Monday, 11 November 2024.

To complete the online survey, visit www.engage.stategrowth.tas.gov.au/e-bike-regulations.

Questions or other comments

Please direct any queries about the content of this Green Paper or the consultation process to ebikeregulations@stategrowth.tas.gov.au or 1300 135 513.

Glossary

Active transport/travel: Ways of getting around that involve physical activity, like walking or riding.

Bike/bicycle#: A small vehicle with one or more wheels that is built to be propelled by human power through a belt, chain or gears, which can include unicycles and tricycles/trikes.

Bike lane#: A special lane on the road for bikes, which can either be separated or not separated from vehicle traffic.

Cargo bike: A bike with a cargo area for transporting loads. This area can be an open or enclosed box, a flat platform, or a wire basket, and is typically mounted over the wheels or between them.

E-bike: A bike with an electric-powered motor, which primarily relies on human pedalling power, with the electric motor providing supplementary assistance.

E-scooter: A scooter with an electric-powered motor that aids in movement.

Footpath#: A path to walk on, usually next to a road.

Green Paper: A way government can outline various policy options as a basis for discussion, prior to producing a White Paper.

Moped: A two wheeled motor vehicle, not being an e-bike, with an engine capacity not exceeding 50 cc and a maximum speed of 50 kph.

Policy: Agreed principles by which decision makers are guided, often in the form of plans or actions.

Regulation: Rules or laws made by the government about what people can and cannot do in certain situations.

Riding/cycling: Moving from one place to another on a bike.

Scooter#: A small human-powered vehicle with two wheels, a platform for the feet and handlebars for steering, pushed along with one foot while standing on it.

Separated bike infrastructure: A place or path for bikes separate from the vehicles.

Shared path: A path that people either walking or riding bikes or scooters can use, which is typically wider than a normal footpath.

Speed e-bike (S-Pedelec): A type of e-bike designed for higher speeds than standard e-bikes. They typically provide power assistance up to 45 kph with increase motor power and are often classified similar to a moped.

Torque: Rotational force that is applied to the pedals, makes the bike's wheels turn and helps you move forward.

Trike/Tricycle: A small vehicle with three wheels that is powered by human effort through pedalling.

Walking: Moving from one place to another on foot or using a mobility aid like a walking frame.

Watts: A measure of the motor's power and how much help it provides when you pedal. More watts mean the motor can help you pedal more easily and go faster.

Wheeling: Moving from one place to another using a wheelchair, a scooter or pushing a pram.

NOTE – Terms marked with # are legally defined in the *Road Rules 2019*. The purpose of the Australian Road Rules is to provide uniform regulations for all road users across Australia and to outline behaviours that support the safe and efficient use of roads.

How would these changes affect me?

To better understand the impacts of potential changes in e-bike regulations, we have evaluated these changes from the perspectives of different users. People across Tasmania have varying access and journey requirements.

To illustrate this, we have created four personas that represent some Tasmanian residents. Each persona highlights unique challenges and aspirations related to the transport system in Tasmania. In this Green Paper, these personas will appear as callouts, sharing their stories and interactions with the transport system.

Fatima, 43

Fatima visits Tasmania for business and enjoys hiring an e-bike to conveniently travel between meetings, because it's low effort and more convenient than driving.

John, 75

John has been a bike rider his whole life, but his strength is not what it used to be. He's thinking of buying an e-trike, but he's worried that he still might find it challenging to ride up the hills in his area, even with battery assistance.

Lee, 29

Lee used to walk to work in town, but their new job is over 9km from home, with steep hills along the way. To avoid buying a second car or increase household expenses, Lee and their partner are deciding to get an e-bike instead.

Susan, 67

Susan lives in a small town and enjoys her morning walks along a shared trail. She knows almost everyone using the trail, even those riding to work or training for the local triathlon.

Introduction

Project background

As Tasmania's population grows and more tourists are welcomed every year, it's important to have sustainable ways to move around. E-bikes have become very popular in recent years. In fact, in Australia between 2017 and 2022 sales surged from 9,000 to more than 100,000 each year, making e-bikes the most popular electric vehicle[1]. E-bikes are changing how people travel because they're convenient, have the potential to help the environment by reducing transport emissions, are affordable (especially when compared to the running costs of a car), and are a fun way to get around for work or recreation without the full physical exertion required from a conventional bike.

The Tasmanian Government has a range of plans in place to encourage people to use more sustainable transport options, especially for short trips. These plans include *Tasmania's Climate Change Action Plan 2023-2025*. The government also supports programs such as Back on your Bike, delivered by Bicycle Network. By promoting walking, riding and other active ways to move around, these plans aim to make travel safer and more enjoyable, as well as reducing its environmental impact. They can also help people feel more included, save money on transport, make communities happier and healthier, and make getting to places like shops, work and parks easier.

E-bikes can help in lots of ways. They can connect people in areas where there aren't many transport options, make it easier to get to and from public transport, allow people to ride even if they have health issues or trouble getting around on a regular bike, and give people another option instead of having a second car. E-bikes also make it possible for more people to ride in hilly areas.

Over recent years, the regulations governing e-bikes have changed. Changes have also been made interstate and overseas to respond to this emerging technology, including some regulation options that could be suitable for Tasmania.

The Tasmanian Government is seeking information to review e-bike regulation options in the state. The regulations aim to address user needs while maintaining public safety. They are not designed to limit the use of e-bikes but to support their safe and responsible integration into Tasmania's transport system, promoting sustainable and enjoyable mobility options for all.

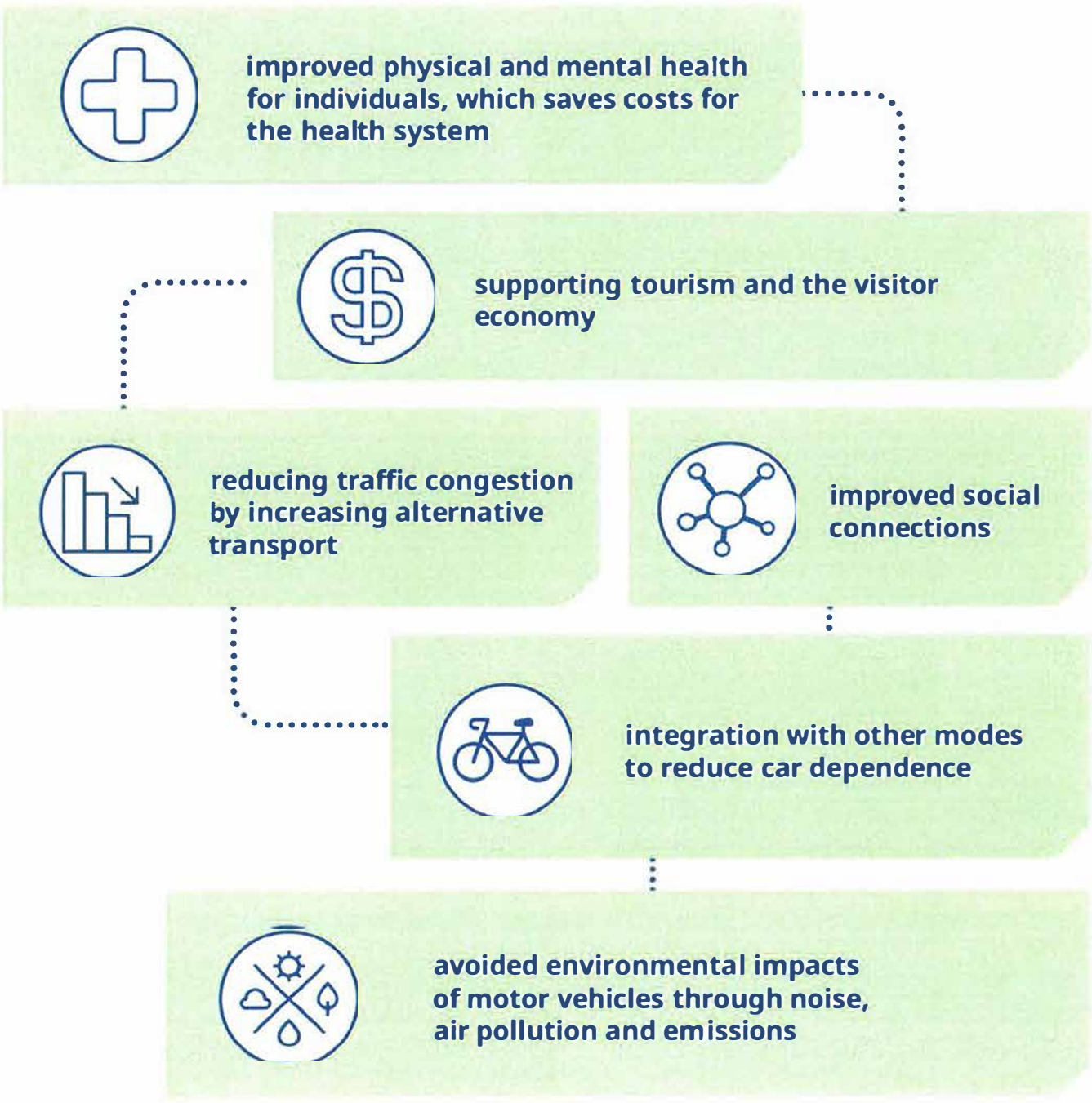
This project focuses on e-bikes only and does not investigate changes to the law for conventional bikes, scooters or e-scooters. Importantly, any new regulations would not affect existing e-bikes that are currently legal.

Did you know Tasmania was the first Australian state to subsidise e-bike purchases?

In November 2023 as part of the Climate Change Action Plan 2023-25, the Tasmanian government implemented an e-bike and e-scooter rebate scheme that provided up to 12 per cent of a device's cost back in rebates. By 12 March 2024, three-quarters of the funding allocation was spent and the total was exhausted by 20 March 2024. Uptake was particularly popular in Hobart, Launceston and the Central Coast.

Why more riding?

The Tasmanian Government has a range of initiatives to support more people riding as part of their everyday travel. Here are some of the many benefits of more riding for Tasmanians.



Why investigate e-bike reform in Tasmania?

What we know about e-bikes

Equitable access

E-bikes are attractive to and **increasingly used by women, older adults, young people** and other groups who have not felt comfortable on traditional bikes.

Commuting options

E-bikes can **fill gaps in the transport network**, making a combination of riding, walking and using public transport a convenient, appealing and efficient choice for most trips.

Physical activity

E-bikes boost physical activity by making **cycling more accessible** to a wider range of fitness levels. More people using e-bikes can engage in **regular exercise with less strain**, promoting overall well-being.

Rider's safety

In Australia, **most e-bike riders feel safer than on a traditional bike** because they have better control over acceleration when riding on the road with cars[Error! Bookmark not defined.]

Time effective

E-bikes are **competitive with cars on travel time**, especially for trips up to 10 km.

If riding at an average speed of 20 kph (with a maximum speed of 25 kph), it would take just over 30 minutes to complete a 10 km trip, which is approximately the distance between Taroona Beach and Hobart CBD. Riding an e-bike also saves time by eliminating the need to find parking.

Cost effective

New analysis shows the **Australian household could save up to $1500 every month** by swapping the car for a bike[2].
These savings come from the cost of car insurance, personal loan repayments and the price of fuel.

Good for the environment

E-bikes emit less emissions.

Grams of carbon emitted per person per km travelled:[3]

Supporting Tasmanian policy objectives

The promotion and improved access to e-bikes can support several Tasmanian Government's policy objectives.

- **Increased physical activity**
  Owners of e-bikes report doing more and longer trips per week, compared to using their conventional bikes[4]. The increase in trips increases their physical activity. Currently in Tasmania, around 70 per cent of adults and 80 per cent of adolescents do not get the recommended physical activity level, so improving access to e-bikes could make a difference[5].
- **Net zero emissions**
  Research indicates that people using e-bikes reduce the number of trips in their car and on public transport, with a larger reduction in these trips than conventional bike owners[6]. Cars produce the largest proportion of Tasmania's transport emissions, and Tasmania has committed to increasing the uptake of active transport/travel to reduce emissions by private vehicles as part of Tasmania's *Climate Change Action Plan 2023-25*. Replacing car trips with e-bike trips will reduce transport emissions, therefore working towards the net zero emissions objective.
- **Proactively improving access to services, education, open space, etc**
  According to a 6-month trial in Oslo, Norway, people who purchased an e-bike increased their bike use from 2.1 to 9.2 km per day on average[7]. Longer trip distances mean they can access more destinations and services by riding. In Tasmania, there are many parts of the community unable to get where and when they want to go, due to low income, poor health, lack of access to a vehicle or lack of regular public transport services. Younger people, older people and people who are living with a disability often fall into this category. E-bikes are more affordable than cars and can be ridden by younger and older people. There are also e-bikes designed for people with a disability, injury or balance issues.
- **Increasing commuting options, especially further distances than would normally be acceptable to the general public on a typical bike**
  E-bikes make riding longer distances and trips with hills easier, meaning e-bike trips can be longer and, therefore, offer a real substitute for car trips[8]. In 2023, the average commute to work in the greater Hobart area was 15 km[9], with longer distances experienced in regional, rural and urban fringe areas. E-bikes can provide a transport option for those without access to a car or public transport who want to travel longer distances than what might be possible on a conventional bike.
- **Towards zero fatal crashes**
  Improvements to regulations and enforcement around e-bikes can contribute to their safer use. Regulations can limit factors that may contribute to unsafe riding or be designed to ensure that if a crash occurs, the injury is minimised to the extent possible.
- **Safe and efficient movement of freight, especially in urban areas**
  While exploring cargo e-bikes for commercial movement of freight was not part of this investigation, an increase in power could make freight movement more readily available through e-bike models with greater ability to move larger or heavier loads than a conventional bike.

Role of regulations

The Tasmanian Government is committed to reviewing Tasmanian e-bike regulations to manage user needs, balance public safety and keep the rules up to date with advances and changes for e-bikes. Regulations are not designed to limit the use of e-bikes, but rather to support their safe, efficient and responsible integration into Tasmania's transport system, promoting sustainable and enjoyable mobility options for all. Regulations are crucial for managing the trade-off between mobility, accessibility, cost and safety for both e-bike users and non-users.

The following issues need to be considered when regulating e-bikes.

- **Safety of riders**
  Current regulations ensure that e-bikes are equipped with necessary safety features such as lights, bells, reflectors and brakes. If we were to consider increased speed or power for e-bikes, additional safety equipment may need to be included in future regulations. Regulations can also ensure users have sufficient skills to ride more powerful and/or faster devices.

- **Safety of others**
  Regulations help address safety concerns for people walking, riding, young people, older people, people with disabilities and other road users. By defining where and how e-bikes can be ridden in regulation, conflicts can be minimised, enhancing overall road safety.

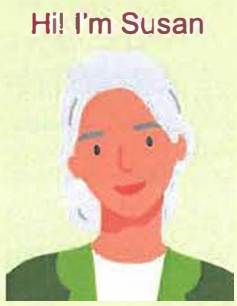
- **Speed management**
  Setting a speed where the power assistance cuts out for an e-bike can help riders maintain control and prevent crashes. Different classes of e-bikes may have varying speed capabilities, and regulations can ensure these speeds are within safe limits for different environments, such as rural and urban areas, or shared pathways.

- **Public perception**
  Establishing regulations helps shape public perception and acceptance of e-bikes as a legitimate mode of transport. Clear rules and responsible riding behaviour contribute to a positive image of e-bikes for the community and authorities.

What is important to consider for updated e-bike regulations?

Susan lives in a small town. One of her favourite things to do is walk in the morning along a shared trail. She likes this trail so much because she knows almost everyone, she sees during her walk. This makes her feel safe and socially active.

While Susan doesn't ride, her son and older grandchildren commute to work and school on e-bikes. Regulations should aim to provide safety and peace of mind for people walking, like Susan, so they can enjoy their walks without concern for fast-moving bikes that may pose a risk. Regulations should balance the needs of riders without compromising the experience of walkers.



Question 1: What are the three most important factors that should be considered if making changes to e-bike regulations?

Changes to e-bike regulations and Tasmania

On a conventional bike, the power provided by the rider to the pedals and the way they use the gears determines how quickly the bike can accelerate, how steep a hill can be climbed and the maximum speed.

Many riders are capable of pedalling hard for a short period of time but 'run out of puff' as their stamina declines, meaning they can't accelerate as fast, can't maintain the same speed and struggle to get up hills. This may be because of their fitness or a health condition that limits how much power they can provide.

E-bikes can be like a friendly tailwind – helping the rider with extra power when they can't provide it themselves.

Currently in Tasmania, two types of e-bikes are permitted. They are regulated based on the power of the motor and the speed at which electrical assistance stops. Both are bikes that are pedalled and assisted by an electric motor.

- Power-assisted pedal cycles: are limited to 200 watts and a weight of 50kg, and they are primarily propelled through pedalling with an auxiliary motor. The power from the motor may be controlled by a throttle.
- Electrically power-assisted bicycles: are limited to 250 watts where power assistance is progressively reduced as travel speed increases above 6 kph and the power-assistance cuts off when the speed of the e-bike exceeds 25 kph, or 6 kph where the cyclist is not pedalling.

Currently, e-bikes that fall within the definitions above are treated as bikes, allowing them to be ridden on bike lanes, the road and footpaths, except where sign posted. Under Tasmanian laws, they do not need to be registered and riders do not need to be licenced. E-bikes that do not meet these requirements can still be used on-road if the rider is licenced and the e-bike is registered, or they can be used on private property without licensing or registration.

What are watts for e-bikes?

Watts are a measure of power, the rate at which energy is transferred. In the context of e-bikes, watts refer to the amount of power the motor can deliver to assist the rider. A higher wattage motor generally means more power, which translates to faster acceleration, better climbing ability and a capacity to maintain that performance for longer. This can also mean more weight could be carried on an e-bike, such as shopping or a child in a fitted bike seat or cargo bike. Higher wattage motors consume more energy and that has implications for the battery's storage capacity.

Riders typically have control of the level of power assistance provided by the e-bike and have the option to turn the motor up, down or off. Selecting a higher level of power assistance will drain the battery faster and reduce the distance a user can ride with power assistance. E-bikes typically have a range of 50-60 kms on a single charge.

How about speed restrictions?

There are currently no speed limits for conventional bikes in off-road environments, except where specific signs are posted. In on-road environments, people riding bikes are expected to follow the same road rules as people driving motor vehicles. They need to obey the posted speed limits and default speed limit where speed signs are absent.

The current Tasmanian regulations restrict 250 watt e-bikes to a maximum powered assistance of 25 kph. This means that at 25 kph the powered assistance cuts out and riders can only go faster by pedalling under their own power. This limit in the powered assistance can be a barrier to achieving competitive travel times for e-bikes compared to cars and/or public transport, particularly when travelling longer distances.

What does this mean for Tasmania?

The power restriction and speed limit of the current Tasmanian regulations may reduce the appeal and potential of e-bike use by impacting travel time, and the effort and stamina required.

Tasmania's landscape features many hills, which can pose challenges for 200 or 250 watt e-bikes, especially for new riders who aren't familiar with efficient gear use or who have limited physical strength for pedalling.

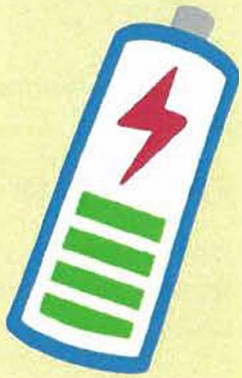
There are also many regional, urban fringe and rural areas with longer distances to access employment and services from people's homes. Commuting distances into Hobart have grown over recent decades, with common commutes occurring from Bridgewater, Lauderdale, Kingston and beyond. These commutes range from 17 to 26 km, but all have similar elevation variations of about 200 m. In some cases, like Kingston, the elevation consists of a single hill (i.e. Bonnet Hill) up to 147 m maximum elevation (see Figure 1). In others, like Bridgewater, the elevation includes many hills and various ups and downs up to a maximum elevation of 46 m (see Figure 1).

Consequently, Tasmania presents a different scenario for e-bike regulations compared to flatter, more densely populated areas of Australia, highlighting the importance of reviewing our current regulations.

Figure 1: Elevation profiles of trips to Hobart CBD

There are also many Tasmanians who are transport-disadvantaged due to economic circumstances, age, disability and/or by living in rural and regional areas, or the urban fringe. E-bikes, which are more affordable than cars (when compared to running costs), have the potential to improve transport choices for these residents. E-trikes provide power assistance and inherent stability for someone who might not have the balance to ride a two-wheeled bike. Infrastructure in all areas is required to support bike riding, including e-bike uptake, by providing safe roads, cycling infrastructure, and/or footpaths where e-bikes can be used safely and securely.

What about battery safety?



While there have been some fires associated with lithium batteries used in e-bikes, e-scooters and other devices such as lawn mowers, investigations indicate many of these fires are associated with low quality batteries and unsafe charging practices. The Australian, state and territory governments work together to establish standards that protect consumers nation-wide.

Battery safety is important and improvements to regulating quality is evolving. It is not a topic for this Green Paper to address as it does not fall within the scope of this regulation review.

Top tips for home fire safety by Tasmania Fire Service

- All electrical equipment should have an Australian Standard or a Regulatory Compliance Mark (often labelled 'RCM').
- Make sure power boards have overload protection and are not covered by floor rugs, clothing, pillows or doonas.
- It is important to maintain good airflow around electrical items and appliances, and to remove anything from around or on top of them.
- Do not charge electrical devices on beds or flammable surfaces.

Research

Types of e-bike restrictions

E-bike regulations vary between jurisdictions and countries, and are classified by their speed and power limits.

Speed limits for power assistance

Similar to power limits, there are common speed limits for e-bikes across Australia and overseas. For e-bikes, speed limits are implemented not as the maximum speed an e-bike can travel, but the speed at which power assistance cuts out.

- **25 kph**
  This is the most common speed limit for e-bike power assistance. It aligns with a relatively confident rider's ability on a conventional bike over long, flat distances. The speed is also considered within a low-risk range for serious injury or fatality if in a crash.
- **32 kph**
  This speed limit for power assistance would be considered a potential speed that regular, fit riders would be able to obtain on flat surfaces without motor assistance.
- **45 kph**
  This speed limit for power assistance allows for greater time savings over long distances. However, research has indicated this limit is generally not reached, with the majority of faster e-bike riders travelling below 35 kph[10]. Additionally, this speed limit allows a lower speed differential with cars, therefore can make riders feel safer in the road environment.

It is worth noting that people riding an e-bike can travel above the maximum speed assistance if the rider is physically able to do so.

What would be important to consider for updated regulations?

Hi! I'm Fatima

Fatima is in town for a week on a business trip. During her stay, she needs to travel short distances to attend meetings in town, so she hired a shared e-bike to get around. An e-bike with more speed assistance means that Fatima would be able to get between meetings more quickly, allowing more time with her clients.

Regulations should aim to provide an appealing option for people like Fatima to navigate the city safely and conveniently, without exerting themselves too much. This would also allow Fatima to enjoy the sights while she rides and save a considerable amount of money on transport, which she can then spend on local businesses.

Speed limits more generally

Introducing speed limits based on the environment in which the e-bike is travelling, such as on shared pathways, is another option some jurisdictions have implemented. This means speed limits are set when considering the other users in that environment. For example, to provide safer riding environments in locations with higher numbers of people walking.

This approach has been implemented in Queensland, where e-scooters must comply with speed limits of 12 kph on footpaths and shared paths but can travel up to 25 kph on specified road environments. Tasmania also limits e-scooters' speed to 15 kph on footpaths, to reduce conflict in high pedestrianised areas. The option of changing speed for e-bikes based on the riding environment could be considered a potential option within wider e-bike regulation reform. However, it is out of scope for consideration in this review in order to not affect existing e-bikes that are currently legal.

Power limits

In Australia and overseas, there are several power limit options for e-bikes.

- **250 watt motors**
  This is the most common wattage limit for e-bikes. They are relatively low-powered, which makes them more efficient in terms of battery consumption, but they **may struggle on steeper or longer hills,** or with heavier loads.
- **300 watt motors**
  This limit could suit riders who want a balance between power and efficiency. They provide enough power for most riders and situations without consuming too much energy.
- **500 watt motors**
  These motors are more powerful and **can handle steeper hills** and heavier loads but can consume more battery power.
- **750 watt and above motors**
  These are the most powerful e-bike motors available and provide greater hill climbing capacity, and the potential for higher speed and acceleration. However, they are also energy intensive.

What would be important to consider for updated regulations?

Hi! I'm John

John was very active when he was younger and used to ride everywhere, even in the rain. Unfortunately, his physical ability has diminished with age. He still tries to stay active and plays golf at least twice a week. In addition, one of his favourite activities is spending time with his son and grandchildren, who fortunately live only 5 km away. The only issue is that the route is hilly, making it difficult for John to ride or walk. This limits John and means he often has to depend on his son to pick him up.

Access to an e-trike with high power assistance could help people like John to ride, keeping them socially and physically active. High-powered e-bikes do not necessarily mean higher speeds.

Regulations across the world

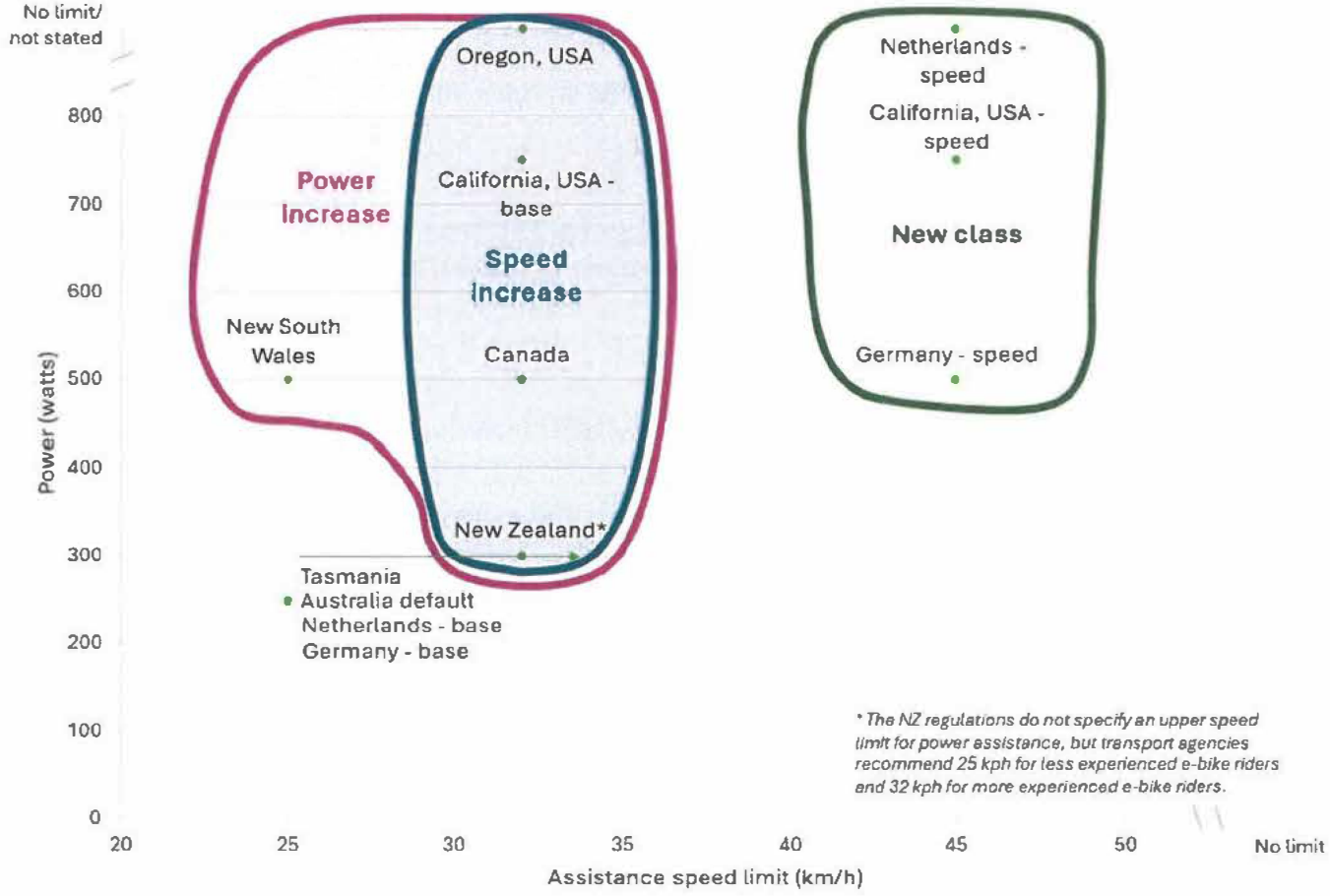
A review of other jurisdictions' e-bike regulations provides potential alternative options to consider for Tasmanian e-bike regulation, noting the base regulations (status quo) is 25 kph and 250 watts.

There are three clear categories of potential regulatory reform:

- **Speed increase**
  An increase in speed at which power assistance cuts out, up to a maximum speed of 32 kph
- **Power increase**
  An increase to power limit (up to no maximum limit on wattage)
- **New class**
  These are sometimes called speed e-bikes or 'S-Pedalecs' and feature:
  - 45 kph maximum speed and higher power (up to no limit), but the rider must still be pedalling to get power assistance (making it different to a moped or motorcycle)
  - may have accompanying restrictions, including licensing, age limit, registration, insurance, personal protective equipment, etc.

These regulation options are summarised in the graphic below.

Figure 2 Electronically power-assisted e-bike regulations across jurisdictions.



Within Australia, most states have adopted the default Australian regulations, including Tasmania.

However, Western Australia (WA), New South Wales (NSW) and the Australian Capital Territory (ACT) have differed slightly from the regulations in one or more aspects.

- NSW: power is allowed up to 500 watts, riders must be age 14 to hire an e-bike and riding is not allowed on footpaths over age 16.
- ACT: power assistance is capped at 27 kph for power-assisted pedal cycles.
- Victoria: riding is not allowed on footpaths from age 12.
- WA: riders must be age 16 to ride an e-bike.

A summary of regulations for e-bikes across international jurisdictions is provided in Table 1, with further details provided in Appendix A. These have been broken into three options for e-bike regulations:

- base regulations
- extension of regulations (speed increase and/or power increase)
- new regulatory class.

A tick in the table indicates that the jurisdiction has regulations relating to this aspect. A cross indicates that the jurisdiction does not regulate this aspect. Where applicable, further details have been provided such as age restrictions.

Table 1 shows that regulations could be implemented through several levers, previously discussed in this paper, including the e-bike size and weight, age restrictions, registration, licensing and insurance or restrictions on where people can ride.

Table 1 Regulations summary from overseas

Regulation	Base regulations			Extension of regulations			New regulatory class		
	Australia default (incl. TAS)	Netherlands base	Germany base	New Zealand	California (USA) base	Canada	Netherlands speed	Germany speed	California (USA) speed
Size restriction	✗	✓	✗	✗	✗	✓	✗	✗	✗
Weight restriction	✓	✓	✗	✗	✗	✓	✗	✗	✗
Age restriction	✗	✗	✗	✗	✗	16	16	16	16
Registration	✗	✗	✗	✗	✗	✗	License plate	License plate	✗
Licensing	✗	✗	✗	✗	✗	✗	Moped license	Moped license	✗
Insurance	✗	✗	✗	✗	✗	✗	Motor vehicle	Motor vehicle	✗
Can ride on footpaths	✓	✓	✗	✓	✓	✗	✗	✗	✗
Can ride on shared paths	✓	✓	✗	✓	✓	✗	✗	✗	✗
Can ride on bike paths	✓	✓	✓	✓	✓	✗	✗	✗	✗
Can ride on roads	✓	✓	✓	✓	✓	✓	✓	✓	Speed limit 60 kph

Lessons

Limited research exists on the correlation between e-bike regulations and uptake, safety, useability, and accessibility. However, that research and interviews with several key e-bike experts from the United States, New Zealand and Australia, analysis of existing regulations, and the Tasmanian regional roundtable discussions all shed some light on lessons.

Overall, safety is paramount in developing regulations to ensure no unreasonable risk is inflicted on people riding or walking. The research and interviews indicate that speed limits and the parameters around them are the key to safe regulations. In most cases, power is not correlated with safety but is linked to the effort riders require to travel long distances or uphill. A higher-powered e-bike could increase uptake in riding and allow e-bikes to be used by a broader range of users, including those with disabilities or older people.

Speed

Speed is the key topic for consideration in e-bike regulations, and speed, rather than power, is the critical factor from a road safety perspective. Identifying an appropriate speed limit for power assistance that allows for safe e-bike use is critical. In a mixed-pedestrian environment, such as a footpath, limiting speed for power assistance to be cut off reduces the risk to pedestrians and vulnerable users. In contrast, in on-road environments a higher speed could allow bike riders to reduce their speed differential with cars, making them feel safer.

Conflict between bike riders and people walking or cars is experienced all over the world and is mostly managed by separating users by speed (footpaths for people walking, separated bike infrastructure for people riding and road lanes for cars).

While vehicle weight and speed are important when a crash happens, higher vehicle speed has the greatest effect on the outcome. In motor vehicles, parts of the vehicle are designed to crumple or absorb crash energy, and airbags deploy to stop people from hitting hard surfaces. When dealing with bikes and e-bikes, crash severity can be reduced by:

- requiring helmets to be worn while riding
- limiting the speed, for example, on footpaths
- separating streams of traffic, such as providing bike lanes on roads and shared-use paths that separate people walking and riding from motor vehicles.

Power

Power is variable across jurisdictions and has a limited impact on the safety of e-bike users and others. Overall, power is considered a tool used to facilitate easier riding without the physical exertion of a standard bike and without having a great impact on useability, accessibility or safety.

In addition to the power of the e-bike motor, its hill-climbing performance will depend on the fitness of the rider, the gearing on the bike and the torque output of the motor (the amount of rotational force that the motor develops). Not all e-bike motors are designed with the same torque output, so two e-bikes with the same maximum power motor may perform differently when ridden up a hill.

A risk for increased power is that it may be easier to achieve higher speeds, if the e-bike is illegally modified.

Health and mobility benefits

Limited mobility can have a profound consequence on an individual's life, such as labour market exclusion, marginalisation, poor quality of life, physical and mental health problems, and obstacles to aging in place. This makes it crucial to establish inclusive mobility solutions for the diverse needs of individuals with different abilities. E-bikes retain the health and mobility benefits of conventional bikes. Still, their electric power offers additional advantages, such as longer trip distances, less physical exertion and sweating, and typically quicker travel times[11].

E-bikes increase the number of cycling trips per day and the distance travelled by bike[12], and reduce car and public transport trips more than conventional bikes[13].

Cost of living benefits

E-bikes are more competitive with a car, compared to a conventional bike, due to their ability to go further with less exertion. One study shows that the proportion of car journeys being replaced by bike journeys ranged from 16 per cent to 76 per cent[14].

E-bikes can be a cheaper alternative to the car for many households. By replacing car trips with e-bike trips, individuals can save on fuel, car parking fees and vehicle maintenance costs. Some households could even reduce their number of cars. Even though buying an e-bike costs money at first, there's potential to save over time because it's so much cheaper to ride than a car or public transport. New analysis shows Australian households could save up to $1500 every month by swapping the car for a bike[Error! Bookmark not defined.].

What if you could save enough money to treat yourself with that thing you want so much?

Since changing jobs, Lee is no longer able to walk to work as it is over 9 km from home. Lee and their partner have become concerned about how much they would spend on transport if they bought a second car. They have realised they could save up to $5,000 per year by using an e-bike for short-distance trips, such as going to work. And this does not include the price of buying the car. This is more than enough money to buy the fishing gear they want and to join their friends on a trip around Tassie!

They'll also be adding exercise to their busy daily routine and the route to work will be scenic too.

Speed e-bikes

In jurisdictions where speeds for power assistance up to 45 kph are permitted on e-bikes, these are generally treated as mopeds (motor vehicles) and require a moped license, vehicle registration and vehicle insurance. They are only permitted on roads or, in some cases, on separated bike infrastructure (not footpaths).

Speed e-bikes, which are limited to 45 kph power assistance, allow longer journeys that would typically occur by car to be replaced by bikes. A study of speed e-bikes in the Netherlands found that the speed e-bike was able to fully replace a car or public transport trip 82.9 per cent of the time[15]. It has also been observed to be a popular option for rural residents who cycle along higher-speed roads.

One study found that speed e-bike users feel uncomfortable travelling at high speeds in mixed traffic, with negative perceptions regarding traffic safety likely discouraging usage and adoption[16]. The study recommended setting speed limits on bike paths and allowing speed e-bikes to either travel at lower speeds on bike paths or at higher speeds on the road network. This supports an approach to limit speed based on infrastructure provision rather than bike potential.

Enforcement

Enforcement of e-bike regulations presents challenges.

In the United States of America (USA), speed e-bikes are hard to differentiate from base e-bikes, creating a difficult environment for police to enforce different speed limits and use. Power is particularly difficult to measure and enforce, as it is not clear from observing the e-bike what power it is expelling, and police do not have readily available tools to measure wattage output from electric motors. Speed enforcement is considered easier with existing radar speed-measuring devices.

In Queensland, the new regulations for e-scooters have removed all references to power. Instead they concentrate on operating speed and locations where different speeds are allowable. This framework is similar to that applied to motor vehicles, where speed is enforced by location rather than the power of the motor or maximum speed of the motor vehicle.

Overall, e-bikes in Australia incorporate an override feature from the manufacturer that enforces the regulations (for example, restricting power output from 6 kph to 25 kph, after which it cuts out). However, it is possible to disable these features. There are reports of many illegal e-bikes with these features disabled already. It is difficult for police to enforce these changes.

Aspects to consider when thinking about regulation changes

Transport regulations are generally structured to enable mobility while managing the safety risks (for users and non-users) associated with moving vehicles.

A number of aspects are reflected in existing e-bike regulations around the world, including the maximum speed for power assistance, power limits, age restrictions for riders, required protective equipment (for example, helmets) and the need for registration and licensing. Those aspects are discussed below.

Speed

Speed limits for power assistance cut off are a critically important consideration. On the one hand, the speed at which the e-bike can travel partly determines the travel time and the e-bike's competitiveness against other travel alternatives (walking, driving or taking public transport). On the other hand, speed (of both the e-bike and other vehicles) is a risk factor in terms of crashes and the severity of injuries for riders and other road users.

When riding an e-bike in Australia, the fastest legal speed at which riders maintain power assistance is 25 kph. It is important to recognise that while a rider won't get any assistance from the motor above 25 kph, that is not the maximum speed the e-bike can achieve. Like a conventional bike, for example, when the rider goes down a steep hill, existing e-bikes can go faster than 25 kph.

Unlike cars that have protective structures, e-bikes offer minimal protection in case of a crash. Riders could get seriously hurt if they fall off their bike at speed. There is also greater risk for non-users, such as people walking or those on conventional bikes who may be involved in an accident with an e-bike.

Current regulations focus on the speed at which power assistance cuts out rather than emphasising operating speed. This contrasts with motor vehicles, where there are maximum speed limits in every state, but it is legal to sell motor vehicles that can exceed those speed limits, in some cases by a factor of two to three.

Queensland has pioneered a new approach in its recent changes to e-scooter regulations, moving away from limiting the power or maximum speed under power assistance and instead focussing on maximum operating speeds in certain environments, reflecting how motor vehicle speeds are regulated.

Power

In Tasmania, e-bikes are currently allowed with two wattage limit options: 200 and 250 watts.

For many years, the limit in Australia was 200 watts, but in 2012 the regulations were harmonised with Europe to introduce the higher 250 watt limit. That meant a greater range of e-bikes became available for consumers in Australia.

New South Wales changed its regulations in February 2023 to permit a maximum motor power of 500 watts (up from 250 watts). This change allows riders to use e-bikes with more extended range, better hill climbing ability, higher load capacities and improved acceleration, enabling them to keep up with traffic more effectively and with lower exertion. However, the industry expressed concerns about the limited range of models available internationally that meet the new power limit, noting the 750 watt category was more popular/prevalent internationally.

Case study: Canada, North America

In North America, the popularity of e-bikes has seen unprecedented growth since the COVID pandemic, with e-bike customers saying they're ideal substitutes for cars, scooters and public transport. E-bikes in Canada allow up to 500 watt motors and assistance up to 32 kph. These higher-powered motors and increased speed limits allow users to travel greater distances faster and make going up hills easier.

An e-bike retailer in British Columbia, Canada, observed that e-bikes remove barriers for people riding bikes, creating many new bike journeys and riders. A large portion of sales are from people between 50 and 85 years old. He believes e-bikes are so popular because they make the activity more inclusive and broaden the bike rider demographics[17]

Where to ride

E-bikes that meet the current regulation requirements are treated as bikes under Tasmania's road rules. This means they can use the entire lane on roads with markings and ride side-by-side. They're also permitted on footpaths and can cross pedestrian crossings.

Some changes to e-bike regulations, such as increasing power and speed, might lead to a review of where e-bikes are allowed to ride. For example, speed e-bikes in Europe are restricted from footpaths, shared paths and bike paths, and are only allowed on the road. It is important to consider the safety of pedestrians and vulnerable users on footpaths and shared paths when identifying where e-bikes may ride. On the other hand, limiting e-bikes to roads could drastically reduce their uptake as many people may not feel comfortable close to traffic.

Case study: Switzerland, Europe

Switzerland is a pioneer for speed e-bikes (S-pedelecs). It considers itself the birthplace of e-bikes, having introduced the prototype in 1992. Switzerland's speed e-bikes allow riders to travel faster according to the signposted maximum speed. However, they are only allowed to use power assistance when traveling on separate bike facilities and on-road. Speed e-bikes require registration and compulsory insurance and can be operated from the age of 12 with a class M driver's license (for motorcycles). A study of regulations and experiences with speed e-bikes found that in 2022, 22,700-speed e-bikes were sold in Switzerland, which accounts for about 10 per cent of all e-bikes[18]. The greatest potential for commuter journeys in Switzerland was noted as 5-15 kilometres. Although Tasmania's topography and environment are not the same as Switzerland's, it also presents challenges such as hilly areas and cold weather. Therefore, a similar trend could potentially emerge in Tasmania with the introduction of speed e-bikes.

Age restrictions

The minimum age requirement for e-bike riding varies between states. For instance, Tasmania and New South Wales has no age restriction for personal e-bikes. Nonetheless, to rent a ride-share e-bike in New South Wales, you must be at least 14 years old and have permission from a guardian. In Western Australia, individuals under 16 years old are not permitted to ride e-bikes. For speed e-bikes in Europe and America, riders must be at least 16 years old, mostly due to the need to have a moped license, which is restricted in age.

Helmets

In all states and territories of Australia except for the Northern Territory, it is mandatory for all bike and e-bike riders to wear helmets. People can apply for an exemption permit from the Tasmanian Transport Commissioner if there are cultural, medical or religious reasons a person can't wear a helmet. Helmets must be worn properly, with straps securely fastened, not twisted or covering the ears, and worn under the chin. In Europe and America, helmets are often not required for standard bikes or base e-bikes, however they are required for speed e-bikes.

Licensing

In Europe, a licensing requirement has been implemented for riders of speed e-bikes due to their increased speed and their requirement to be ridden only on the road. In both the Netherlands and Germany, a moped license is required to ride a speed e-bike. Licensing ensures speed e-bike users understand road rules and are competent and capable of riding safely. No licensing requirements are implemented across the base e-bike range (up to 32 kph) in the jurisdictions investigated.

Registration and insurance

Similar to licensing, registration and insurance are required for speed e-bikes in the Netherlands and Germany. Registration ensures that vehicles are safe and facilitates mandatory third-party insurance, which protects others when an accident occurs. When speeds are increased, the risk of injury or fatality in a crash increases. Therefore, providing mandatory insurance for crashes involving speed e-bikes ensures injured persons are covered. Registration may also provide an opportunity to require a road-worthy certificate to ensure the bike is appropriate for use, without being dangerous to the rider. A change or regulatory exemption to Australian Design Rules may be required to allow speed e-bikes to meet the vehicle standards when used in Tasmania.

Options for Tasmania

Based on research, looking at other examples and talking to experts, options for e-bike regulations suitable for Tasmania have been proposed.

Any new regulations introduced as a result of this process will not propose any changes that make a currently legal e-bike illegal or restrict the use of currently legal e-bikes.

Three options have been developed for consideration. The Tasmanian Government could adopt none, some or all of these options, but wants to know what Tasmanians think.

1. **Allow maximum speed assistance to be increased**
   This would increase the current permitted speed assistance limit from 25 kph maximum to 32 kph maximum. In comparison, fit riders on conventional bikes can often travel between 25 and 32 kph.

2. **Allow maximum power assistance to be increased**
   Increasing the current 250 watt limit could make riding more accessible because less effort is needed, and it easier to ride up hills or with heavy loads.

3. **Add a new class of e-bike**
   'Speed e-bikes' offer speed assistance up to 45 kph and higher power limits. However, in Tasmania this may require additional licensing, registration and limitations on where they can be ridden.

These options have been considered in the Tasmanian context to identify the potential impact on policy objectives, opportunities and risks and are summarised in the following pages.

Out of scope for this review, but an option for potential consideration in the future is to regulate e-bike speed based on the environment rather than by the vehicle type. A similar method is used in Queensland for e-scooters which limits speed of these devices to 12 kph on footpaths, 25 kph on shared paths. This would allow enforcement to be achieved through speed radar guns and follows the approach used for managing motor vehicles where speeds are defined based on the characteristics of the road rather than the ability of the car. This method would address concerns that ensure riders travel slower in a riding environment with pedestrians and faster in an environment with cars.

Option 1: Allow maximum speed assistance to be increased

Option 1 would allow the current permitted speed assistance limit to be increased from 25 kph maximum to 32 kph maximum.

In discussions with stakeholders to date, the following pros, cons, risks, and risk mitigation measures for Option 1 have been identified. Additional information gathered from these discussions can be found in Appendix B.:

Pros

- **Commuting efficiency:** making cycling competitive with other transport modes with faster travel times.
- **Accessibility and enjoyment:** appeal to broader demographic, especially less experienced riders and varied fitness levels.
- **Safety and modifications:** safer use on road with reduced speed difference with vehicles. Reduced likelihood of unsafe/illegal modifications.

Cons

- **Infrastructure:** may result in increased need to improve pathway infrastructure.
- **Safety concerns:** increase crash severity to both rider and other users, with the potential to travel faster without corresponding experience/skill.
- **Regulatory challenges:** liability concerns in crash event and lack of harmonisation between states.

Risks

- May lead to riders using roads they wouldn't typically use as they feel increased confidence to keep up with cars.
- Higher speeds without appropriate skills or judgement.
- Increased risk on footpaths with faster e-bikes alongside people walking.

Measures to reduce risk

- Increased investment in separated cycle infrastructure.
- Bike rider education and community awareness programs.
- Potential age restrictions and limits on where riding is permitted.
- Policy and incentives such as insurance coverage for wheeled devices and rebates to encourage uptake.

Policy outcomes

Considering the above, increasing the current permitted speed assistance limit from 25 kph maximum to 32 kph maximum has been determined to have a positive outcome on five of the six policy objectives.

Policy outcomes	
Increase physical activity	✓
Help lower transport emissions	✓
Improve access to jobs and activities	✓
Increase commuting options	✓
Help reduce fatal crashes	✗
Improve safety and efficiency of freight movement	✓

What could Option 1 mean for Tasmanians?

Fatima, 43

Visits Tasmania for business

An e-bike offering power assistance up to an increased speed limit means that Fatima would be able to get between meetings quicker, allowing more time to spend with her clients and explore Tasmania.

John, 75

Uses an e-trike for increased stability

An e-trike with increased speed assistance would help John reach the golf course more quickly on days when he's running late, eliminating the need for a rideshare.

Lee, 29

Rides to work

An e-bike with higher speed assistance would allow Lee to reach their new workplace in the same amount of time it took to walk to their previous job. By choosing to ride an e-bike instead of driving a car, Lee could save a significant amount of money.

Susan, 67

Loves to walk

E-bikes that travel at higher speeds could make Susan feel less safe when sharing the path, which could decrease her overall experience and potentially discourage her from walking.

Question 2: Do you support a change to increase the legal speed of power assistance to 32 kph?

Question 3: Which factors should be considered if we implement Option 1?

Option 2: Allow maximum power assistance to be increased

Option 2 would allow the current permitted power assistance limit to be increased from 250 watt maximum to an as-yet-undetermined power.

In discussions with stakeholders to date, the following pros, cons, risks, and risk mitigation measures for Option 2 have been identified. Additional information gathered from these discussions can be found in Appendix B.

Pros

- **Market expansion:** making cycling competitive with other transport modes, with lower exertion for travel and being easier to travel up hills.
- **Accessibility:** appeal to a broader demographic by reducing the fitness or ability level required. This can allow different user types including those with medical conditions and low physical health.
- **User experience and enjoyment:** enhanced capabilities for carrying heavier loads, including children and groceries, and climbing steeper hills, suitable for Tasmania's topography.

Cons

- **Enforcement:** may be difficult to enforce as the power limit is not visible, noting this issue already exists with current e-bikes.
- **Safety concerns:** higher power may lead to increased speed if the e-bike is illegally modified, increasing crash severity for both riders and other users.
- **Product considerations:** lack of harmonisation between states could result in a reduced stock availability for e-bikes, with only local, adaptable brands providing a higher powered option.

Risks

- Higher power assistance may lead to riders using roads they wouldn't typically use today without the ability to reach a higher speed, therefore leading to unsafe conditions for riders.
- Higher powered e-bikes could result in larger manufacturers / brands not servicing Tasmania, only limiting the increased watts market to local manufacturers.

Measures to reduce risk

- Increased investment in separated cycle infrastructure.
- Bike rider education and community awareness programs.
- Potential age restrictions and limits on where riding is permitted.
- Better regulation and standards for imports.
- Policy and incentives such as insurance coverage for wheeled devices and rebates to encourage uptake.

Policy outcomes

Considering the above, increasing the current permitted power assistance limit from 250 watts has been determined to have a positive outcome on five of the six policy objectives.

Policy outcomes	
Increase physical activity	✓
Help lower transport emissions	✓
Improve access to jobs and activities	✓
Increase commuting options	✓
Help reduce fatal crashes	–
Improve safety and efficiency of freight movement	✓

What could Option 2 mean for Tasmanians?

Fatima, 43

Visits Tasmania for business

An e-bike with more power assistance would allow Fatima to travel between meetings with less effort, conserving her energy for a bushwalk after work. Additionally, it means she can join her friends on the bike ride to the mountains on the weekend, as she was concerned about the physical difficulty.

John, 75

Uses an e-trike for increased stability

An e-trike with higher power assistance would make it easier for John to reach the golf course, carrying his golf bag on the bike and allow him to conserve energy for his golf game. It could also extend John's riding years as it requires significantly less physical effort/ability.

Lee, 29

Rides to work

An e-bike with higher power would help Lee get to their new work with less effort, especially up hills, making the journey more enjoyable. Increased power would also enable them to pick up their child from kindergarten and carry groceries on the way back home.

Susan, 67

Loves to walk

E-bikes with higher power assistance should have limited impact on Susan if the speed limit of assistance remains the same (25 kph). It could have the potential to attract Susan to purchase an e-bike or e-trike with a lower barrier to entry.

Question 4: Do you support a change to increase the maximum power assistance from 250 watts?

Question 5: Which factors should be considered if we implement Option 2?

Option 3: Add a new class of e-bike

Option 3 would introduce a new class of e-bike, with speed assistance up to 45 kph and higher power limits.

In discussions with stakeholders to date, the following pros, cons, risks, and risk mitigation measures for Option 3 have been identified. Additional information gathered from these discussions can be found in Appendix B:

Pros

- **Efficiency and accessibility:** making cycling competitive with other transport modes by facilitating faster commutes, longer travel distances and loads with reduced exertion.
- **Market expansion:** opening the e-bike market to enable long-distance touring and greater options for freight and goods travel.
- **Safety:** reduced likelihood of illegal modifications, ability to implement additional risk mitigations such as registration and licensing and better ability to keep up with traffic.

Cons

- **Enforcement:** difficulty in distinguishing the new class may result in difficulty to enforce.
- **Market readiness:** potentially premature adoption without sufficient infrastructure. Wider inconsistency nationally with potential confusion for consumers.
- **Regulatory challenges:** cost associated with implementing and enforcing licensing and registration requirements, and may need regulatory exemptions for vehicle standards.

Risks

- Higher speeds in pedestrianised areas would increase the risk to vulnerable users.
- Potential restriction of speed e-bike to on-road only may place riders in unsafe environments, where a preference would be to travel slower on an adjacent footpath.

Measures to reduce risk

- Increased investment in separated cycle infrastructure.
- Bike rider education and community awareness programs.
- Speed e-bike registration, licensing and insurance.
- Age restriction to ensure cognitive ability at high speeds.
- Restrictions on location for riding.
- Incentives such as insurance coverage for wheeled devices and rebates to encourage uptake.

Policy outcomes

Considering the above pros and cons, introducing a new class of e-bike, with speed assistance up to 45 kph and higher power limits has been determined to have a positive outcome on five of the six policy objectives.

Policy outcomes	
Increase physical activity	✓
Help lower transport emissions	✓
Improve access to jobs and activities	✓
Increase commuting options	✓
Help reduce fatal crashes	✗
Improve safety and efficiency of freight movement	✓

What could Option 3 mean for Tasmanians?

Fatima, 43

Visits Tasmania for business

A speed e-bike would allow Fatima to travel between meetings faster and with less effort, conserving her energy, saving time and money to explore Tasmania in her free time. She would be able to more easily access some of the regional tourist destinations by speed e-bike.

John, 75

Uses an e-trike for increased stability

A speed e-trike would help John reach the golf course faster and with less effort. While he doesn't always ride at high speed, having the option is great for days when he's running late. Additionally, this would allow him to effortlessly carry his golf bag and groceries.

Lee, 29

Rides to work

A speed e-bike would get Lee to their new work quicker than walking to their old work with less effort. Increased power would also allow them to carry groceries and pick up their kid from kindergarten on their way home. The higher speed allowance would provide Lee with the confidence to use the road when commuting rather than the bumpy and indirect footpath connections.

Susan, 67

Loves to walk

Speed e-bikes could make Susan feel less safe when sharing the path, possibly decreasing her overall experience and discouraging her from walking. However, this new class of e-bikes could include limitations on where users can ride therefore removing the higher speed users from her footpath.

Question 6: Do you support the introduction of a new category for "speed e-bike" in Tasmania?

Question 7: Which factors should be considered if we implement Option 3?

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Tasmanian Government

Appendix A: E-bike regulation summary

Australian state-by-state comparison of e-bike regulations

It is noted that once an e-bike is considered a motor vehicle then the rider must be licensed and the vehicle registered.

State-by-state comparison	Australian default	Tasmania	Victoria	Queensland	Northern Territory	South Australia	Western Australia	Australian Capital Territory	New South Wales
Assistance speed limit	25 kph							27 kph - Electric-assist bikes 25 kph – Pedal-assist electric bikes (throttle and cruise control limited to 6 kph, power-assist (progressively reduces) until 25 kph)	25 kph
Power restriction (watts)	• 200 Watts – Power-Assisted Pedal Cycle • 250 Watts – Electrically power-assisted cycles								• 200 Watts – Power assisted pedal cycles (one or more motors attached with total of 200 watts combined) • 500 Watts – Electrically power-assisted cycles (power output progressively reduces after 6 kph, cuts off at 25 kph)
Size restriction	-	-	-	-	-	-	-	-	-

State-by-state comparison	Australian default	Tasmania	Victoria	Queensland	Northern Territory	South Australia	Western Australia	Australian Capital Territory	New South Wales
Weight restriction	For 200 Watts – Power-Assisted Pedal Cycle: Weighs less than 50 kg (including batteries)	-	-	-	-	For 200 Watts – Power-Assisted Pedal Cycle: Weighs less than 50 kg (including batteries)	-	-	Weighs less than 50 kg (including batteries)
Age restriction	-	-	-	-	-	-	16 years	-	No age restrictions to ride own e-bike but must be at least 14 years old to hire
Safety requirements	• approved helmet, except in Northern Territory where adults over 17 years old are not required to wear a helmet unless riding on the road • working brakes • bell /warning device • rear facing red reflector • white light at the front at night • red light at the rear at night								
Registration	Not required								
Licensing	Not required								
Insurance	Not required								
Where can they ride?	Each state has different options	Can ride on footpaths, shared paths, bike paths and roads	People over 13 years old cannot ride on footpaths, but are allowed on shared paths, bike paths and roads. Children under 13 years old and accompanying adults can ride on footpaths	Can ride on footpaths, shared paths, bike paths and roads					People over 16 years old cannot ride on footpaths, but are allowed on shared paths, bike paths and roads. Children under 16 years old and accompanying adults can ride on footpaths

International comparison of e-bike regulations

International regulations summary	Base regulations			Extension of regulations			New regulatory class		
	Australia default	Netherlands base	Germany base	New Zealand	California (USA) base	Ontario (Canada)	Netherlands speed	Germany speed	California (USA) speed
Assistance speed limit	25 kph			Recommends 25 kph for new riders or 32 kph for experienced riders	20 mph (32 kph)	32kph	• 45 kph on carriageways, • 40 kph on combined bike/moped paths outside built-up areas, • 30 kph on combined bike/moped tracks in built up areas	45 kph	28 mph (45 kph)
Power restriction (watts)	• 200 watts for power-assisted pedal cycle • 250 watts for electrically power-assisted cycle	• <250 W – Electrically power assisted cycle	• 250 watts	• 300 Watts - Class AB Power-assisted pedal cycle • 300-600 Watts – Other powered cycles	• 750 Watts	• 500 watts	• Not specified (no limit)	• 500 watts	• 750 watts
Size restriction	No size restrictions	• 3 x .75 x 2m (2 Wheels) • 3 x 1 x 2m (>2 Wheels)	No size restrictions			Minimum wheel width 35mm (min. diameter 350mm)	No size restrictions		
Weight restriction	<50kg (incl. batteries)	<75kg kerb weight <250kg total mass	No weight restrictions			• 120kg e-bikes (bike and battery)	No weight restrictions		

International regulations summary	Base regulations			Extension of regulations			New regulatory class		
	Australia default	**Netherlands base**	**Germany base**	**New Zealand**	**California (USA) base**	**Ontario (Canada)**	**Netherlands speed**	**Germany speed**	**California (USA) speed**
						• 40kg or less for pedalecs to be treated the same as 'e-bikes' (Toronto Municipal Code) (50kg in British Colombia)			
Age restriction	No minimum age					16 years	No minimum age	16 years	16 years
Safety requirements	• Approved helmet • Working brakes • Bell/warning device • Rear facing reflector • White light at front at night • Red light at rear at night	• Ride on the right • Working brakes • Bell/warning device • Yellow reflectors in pedals • Red rear reflector • White light at front • Red light at rear • Circular reflectors on wheels • Using turning signals	• Headlights • Two separate brakes • Side reflectors • Bell/ warning device	• Helmet • Working Brakes • Rear reflector and pedal reflectors • Front and rear lights visible up to 200m	• Helmet (for people under 18 years)	• Two braking systems that bring a 30 kph e-bike to a stop within 9m • Must wear helmet	• Same rules as mopeds	• Helmet compulsory	• Helmet compulsory

International regulations summary	Base regulations			Extension of regulations			New regulatory class		
	Australia default	Netherlands base	Germany base	New Zealand	California (USA) base	Ontario (Canada)	Netherlands speed	Germany speed	California (USA) speed
		• Maximum of two cycles side-by-side							
Registration	Not required						Registration with Registration Plate fitted to S-pedelecs	Insurance number plate	Not required
Licensing	Not required						Moped Licence is required for S-pedelecs to be used on public roads	Driving Licence category AM (classic scooter driving licence) – S-pedelecs	Not required
Insurance	Not required	Third-party liability insurance	Not required				Motor vehicle Liability Insurance Act	Motor vehicle insurance	Not specified
Can ride on the footpaths	Yes	No		No (unless for delivery purposes or the wheels are smaller than 355mm diameter)	Yes (however may be restricted in certain LGA's and signage)	No			
Can ride on shared path	Yes		No	Yes		E-bikes under 40kg are allowed, while over 40kg are not allowed	No		
Can ride on bike paths	Yes						No (Except on bike/moped paths	No	No (unless permissible by LGA's)
Can ride on roads	Yes								Yes (on roads with speed limits of under 60 kph)

Appendix B: Roundtable workshop summary

A summary of a review of potential e-bike regulation options from attendees at four roundtables is included here.

Roundtables were held to discuss the pros and cons of potential e-bike regulation options.

- One roundtable consulted a range of experts from across Australia.
- Three roundtables (in Hobart, Launceston, Burnie) consulted local stakeholders from a range of backgrounds, including local government representatives, emergency services, research organisations, transport groups, local cycle businesses, bike user groups, bus operators and other community groups relating to disability and health services.

During the roundtables, options discussed were:

- no change to regulations
- increased speed
- increased power
- new category.

The following pages summarise attendees views on the options, including mitigation opportunities.

	FOR	AGAINST	MITIGATIONS
no change	**Adequacy of existing infrastructure** Tasmania does not have a well-connected cycle network, specifically, there is a lack of separated bike paths, particularly in urban areas. Lack of funding available to create new, or improve existing, cycle infrastructure. Providing increased speed or power without appropriate infrastructure to facilitate riding will not lead to meeting desired policy objectives. **Road and rider safety** Existing arrangement viewed as safer for riders, especially beginners and young people, with lower speed resulting in lower impact/severity crashes. Much of the network is shared paths/footpaths where current speed is towards the upper limit of what would be appropriate in a pedestrianised environment. **Alignment with the market and regulations elsewhere** Current regulations align with products from leading manufacturers, noting Tasmania's relatively small market share. They also align with national regulations and most other states (excl. NSW), meaning no administrative work required under this option. Current regulations are familiar and well understood by those working in the cycling industry, particularly retailers. Tasmania's culture can be resistant to change. Provides sufficient assistance to match conventional riding. Current regulations match that of a conventional bike rider, where 20-25km/h is considered a reasonable speed for an active rider No negative perception from 'early adopters'. No negative perceptions that previous purchasers have 'missed out' and are negatively impacted.	**Safety in road environment** The current limit creates a significant speed differential with cars in on-road environments and fails to capture the balance between safety on footpaths vs. road. While it is always possible to travel at a lower speed, the existing cap limits the ability where it may be necessary for the safety of riders. **Local context** Tasmania's hilly geography may not be sufficiently catered for in current power limits. Tasmanian's riding e-bikes have raised concern that the status quo does not cater completely to their needs, particularly for users wanting to ride longer distances in regional areas. **Transportation opportunities** Limits potential mobility options and wider accessibility for a diverse demographics like the elderly or disabled. Tasmania has limited public transport options, particularly outside urban areas in Hobart and Launceston, thus a higher speed or power limit may increase the opportunity of e-bikes as an alternative transport mode. Specific concerns in Hobart include inadequate power for hilly terrain and slow traffic flow, and support for higher speeds to enhance commuting efficiency and perception of safety in on-road environments. Increased power could increase opportunities for freight movement via e-bike with the additional assistance facilitating easier movement of loads. **Legal and Insurance Issues** Legal and insurance challenges arise from discrepancies between legal and illegal bike use; expanding regulations to a broader range of e-bikes may legitimise insurance claims. Concerns over restrictive regulations leading to unsafe and illegal modifications. Enforcement of existing regulations is challenging, and adaption of these regulations may lead to more enforceable regulations. **Meeting policy objectives** Change is highly important, and Tasmania has the potential to become a leader/pioneer by embracing change. Current regulations are failing to meet government policy objectives with higher active transport uptake desired. Higher power or speed e-bikes could provide better commuting options, potentially reducing reliance on cars and facilitating longer journeys by active transport. **Industry and economic impact** Industry support exists for adjusting regulations to better accommodate e-bike capabilities, and economic benefits could arise from increased e-bike usage while alleviating traffic congestion. Tasmania and Australia may be falling behind the rest of the world in quality of new product options due to the current restrictions.	**N/A** – changes to existing regulations which would restrict ability of currently legal e-bikes is out of scope and not being considered.

	FOR	AGAINST	MITIGATIONS
increased speed	**Commuting efficiency** Faster travel times, covering longer distances, and enhancing overall journey efficiency while keeping pace with other cyclists and integrating well with traffic. Support for higher speeds (32-35 kph) from consumers. **Accessibility and enjoyment** Appeal to a broader demographic, including less experienced riders and varied fitness levels, and enhancing recreational benefits to make cycling more enjoyable. Improving comfort, especially for navigating hills and longer journeys, and making cycling competitive with other transportation modes in terms of speed and convenience. A higher speed limit still allows travel at lower speeds where desired, such as on footpaths and areas of high conflict. **Mode integration and uptake** Safer use on road with reduced speed differentials with vehicles. Efficient transport option in built-up areas to address traffic congestion. Enhancing social improvements and continuity of the ride experience (less stop/start) and encouraging the uptake of quality-built, safe e-bikes. **Modifications** Reduced likelihood of illegal and unsafe modifications that remove speed limit as regulations match the needs of users more closely.	**Infrastructure and safety concerns** Need for separated cycle paths and improved infrastructure to limit path user conflicts and friction between riders and pedestrians. Concerns over higher speeds on off-road paths damaging trails and impacting broader public perceptions of e-bikes and reducing enjoyment for those walking. Potential for increased speed differential between conventional bikes and e-bikes therefore increasing overtaking across all environments. Ability to travel faster than conventional bike without corresponding experience/skill level of rider. Increased severity in a crash to both the rider and adjacent vulnerable users. Standard bike accessories/safety components may not be suitable. Government's duty of care to address the needs of pedestrians and riders. **Regulatory and enforcement challenges** Lack of harmonisation between states and perception associated with breaking from national regulations. Liability and responsibility concerns in crash events, and difficulty enforcing regulations, especially regarding speed limits and road rules. Challenges in public understanding and enforcement capacity for e-scooters and e-bikes affecting safety perceptions.	**Infrastructure provision** Investment in separated cycle infrastructure and restrictions on where riding is permitted at certain speeds (e.g. separated paths, on road). Calls for improved end-of-trip facilities and buses/ferries with bike storage to support commuting and use of e-bikes for first and last mile journeys. **Education and awareness** Government initiatives for school zone safety (given uptake from parents of school students and e-bikes being used for school drop-off/pick-up) and incorporate bike-related content in licensing exams. Comprehensive education programs for all users (cyclists and non-cyclists) and free/sponsored lessons for new riders. Advocacy for cultural change in driver behaviour and public perception. Marketing and communications strategies to educate the public on regulatory changes. **Regulation and safety measures** Age restrictions, including considerations for skills, judgment, and risk profiles. Clearer speed displays on bikes and enhancing safety equipment standards (e.g. helmets, indicators). Potential restrictions on where riders can travel, including limiting use on footpaths and shared paths. Opportunities for digital certification of e-bikes to show quality and safety standards. **Policy and incentives** Insurance coverage under existing policies and exploring blanket insurance options for wheeled devices. Rebates and incentives to encourage uptake of bikes that are compliant with new regulations.

	FOR	AGAINST	MITIGATIONS
increased power	**Market expansion** Boost to the economy through increased sales of bikes, particularly with potential for tourism revenue. Wider variety of e-bike options available. Increased adoption by families with young children and expanded use in rural and commercial applications. Confidence in local bike stores for advice, training, and product suitability, enhancing local economies. **Performance and enhancement** Need for higher power limits (e.g. 750 watts) and throttle speeds for better acceleration and uphill performance. Improvements in bike capability for carrying loads and accommodating diverse rider needs. Potential benefits of larger batteries and unrestricted throttles for broader bike applications and reduced travel times. Technological advancements such as improved motor designs and software modifications to exceed legal limits. **Accessibility** Accessibility improvements for riders with different user types including those with medical conditions, low physical health or heavier riders. Enhanced capabilities for carrying heavier loads (e.g. child or groceries) and climbing steeper hills, suitable for Tasmania's topography. Practical considerations for bikes to accommodate various uses, body types, and future motor designs. Ability to vary power assistance to meet the needs of the user.	**Regulatory and enforcement concerns** Challenges with enforcing regulations on e-bike power limits and concerns about unsafe products entering Australia. Lack of harmonisation between states and perception associated with breaking from national regulations. **Safety challenges** Insurance considerations related to the use of higher power e-bikes and potential issues in case of accidents. Issues with retrofitting existing e-bikes and associated safety implications. Higher wattage may lead to increased speed where e-bikes are illegally modified to remove speed limit. **Product considerations** Feasibility of implementing 500W power limits, as observed in NSW. Increased risks associated with more powerful bikes requiring higher-quality components like brakes and gears. Thermal risks with larger batteries and public perception issues with motorbike-like features. Increased options may confuse consumers who are unclear on the benefits of higher power and not sure what power would meet their needs. **Market readiness** Reluctance for manufacturers to supply the relatively small Tasmanian market.	**Regulatory standards** Better regulation and standards for imports, for example requirements for battery standards, and compliance with Australian Design Rules. Compliance tags to ensure safety standards, with an emphasis on certified motors, batteries, and safety infrastructure to prevent tampering and ensure compliance. **Safety measures** Advocacy for separated infrastructure and lower car speeds in urban areas. Parent-enabled controls on power and defining categories with varying power allowances. Opportunities for digital certification of e-bikes to show quality and safety standards. **Market adaptation** Challenges and opportunities for retailers to adapt to new regulations, including bike specifications (e.g., brakes, frame strength) to handle increased power and speed requirements. Making kits more affordable and considering subsidies for low-income individuals to promote accessibility. **Public perception and education** Marketing and communications strategies to educate the public on regulatory changes and safety enhancements. Enforcing regulations and increasing enforcement capabilities to maintain safety and compliance. Addressing affordability concerns and ensuring affordability in compliance with safety and performance standards.

	FOR	AGAINST	MITIGATIONS
new category	**Market expansion** Opening new markets for riders including commuters, delivery riders, and those in agriculture. Enabling long-distance touring and tourism opportunities. More appropriate vehicle alternatives for freight and goods transport. **Regulatory considerations** Future-proofing legislation to accommodate new innovations and categories of e-bikes. Licensing provides legitimacy for this mode. A new category with licensing and registration requirements could have improved public perception and a step change between a regular bike/e-bike and vehicle. Encourages regulation of e-bikes which may currently be available on the market and purchased without the knowledge that they can't be used on the network. **Environment and health** Facilitates faster commutes, longer travel distances, and heavier loads. Enhances connectivity between towns and provides realistic commuting options for longer distances. A more viable replacement for cars. **Infrastructure and safety** Addresses concerns about hills and rural environments to encourage broader locational adoption (i.e. not just urban focus). Formalises categories and improves the appeal of e-bikes. **Safety and enforcement** Restrictions on where the e-bike can be used may improve safety to pedestrians. Minimum age restrictions can ensure riding is undertaken by those with appropriate cognitive ability to be able to ride on-road. Registration and licensing should enable easier enforcement of non-compliance and law breaking. Licensing will enable mandatory road user education to ensure users are aware and comply with road rules. Reduced likelihood of illegal and unsafe modifications that remove speed limit as regulations match the needs of users more closely. **Transportation opportunities** Broadens commuting options providing an opportunity for faster, longer and easier riding which could replace a second or third household car at reduced cost. Attractive to people who may not have previously considered an e-bike and for younger riders prior to getting their car/motorbike license.	**Safety and regulatory challenges** Perception of e-bikes being unsafe and concerns about more severe accidents. Challenges in enforcing rules and monitoring e-bike usage on shared paths. Safety issues related to speed differences with pedestrians and inadequate personal protection gear. Challenges and costs associated with implementing and enforcing licensing and registration requirements and potential implications on wider expectation that all e-bikes should be licensed and registered. Potential restriction of speed e-bike to road may place riders in unsafe environments where a preference would be to travel slower on an adjacent footpath. **Infrastructure and legal considerations** Inadequate current infrastructure, particularly lacking separated tracks and paths. Concerns about collision risks with pedestrians and impacts on overall road safety. State-level inconsistencies in promoting and regulating e-bike uptake, contributing to public confusion. **Public perceptions** Public perception challenges regarding the performance and safety of speed e-bikes compared to traditional bikes. Lack of acceptance and understanding of different regulations governing e-bike use. **Market and user readiness** Views that it's premature to push for widespread e-bike adoption without sufficient infrastructure and safety measures. Need for education and clarity on e-bike types, regulations, and safety measures. Perception that higher speeds (e.g. 45kph) may not be necessary or suitable at this stage with potential for low demands. Wider inconsistency nationally with an additional category and potential confusion on legality of different classes **Enforcement** Difficulty to distinguish the new class from a regular e-bike may result in inability to enforce differing restrictions on the network.	**Regulatory compliance** Registration, licensing, and insurance Regulations specifying where e-bikes can be ridden and at what speeds, emphasising on-road use. Age restrictions to ensure cognitive ability at high speeds. Consideration of the adoption of standards and compliance similar to EU speed pedelecs. Exploring permit systems to govern e-bike usage and formalising existing practices; extend to engineering requirements for e-bikes, including stronger brakes, chains, gears, and lights. **Infrastructure development** Infrastructure upgrades to support e-bike usage, including end of trip facilities like secure parking and showers. Infrastructure guidelines and standards to accommodate different types of e-bikes, including speed pedelecs. **Education and awareness** Rider education and accreditation on road rules before e-bike use; community education efforts to frame e-bike use within urban, rural, and commuter contexts. Advocacy for mandated road rules tests and increased bike education for all road users. **Enforcement** Methods of enforcing speed and power limits for e-bikes, particularly high-powered models. Police capabilities and the need for identifier or number plates for speed e-bikes.

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