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# Encouraging E-bike use: the need for regulatory reform in Australia

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# Outline

- **Study Objectives**
- **E-bikes: A Primer**
- **Results from an initial E-Bike Field Study**
- **E-Bike Regulation**
- **Research Directions and Conclusions**

# Study Objectives

- **investigate the current situation relating to power assisted bicycles in Australia and comparable overseas countries,**
- **explore the issues of relevance to the framing of regulations covering these vehicles, and**
- **identify any actions needed to enable these vehicles to make a larger contribution to the urban transport task**

# E-bikes: A Primer

- **‘E-Bike’ is a general term for electric bicycles which provide power assistance to the rider**
  - May be either ‘power assisted’ or ‘powered’
- **E-bikes have the potential to**
  - provide mobility and health benefits for older or disabled Australians, and
  - substitute for car trips



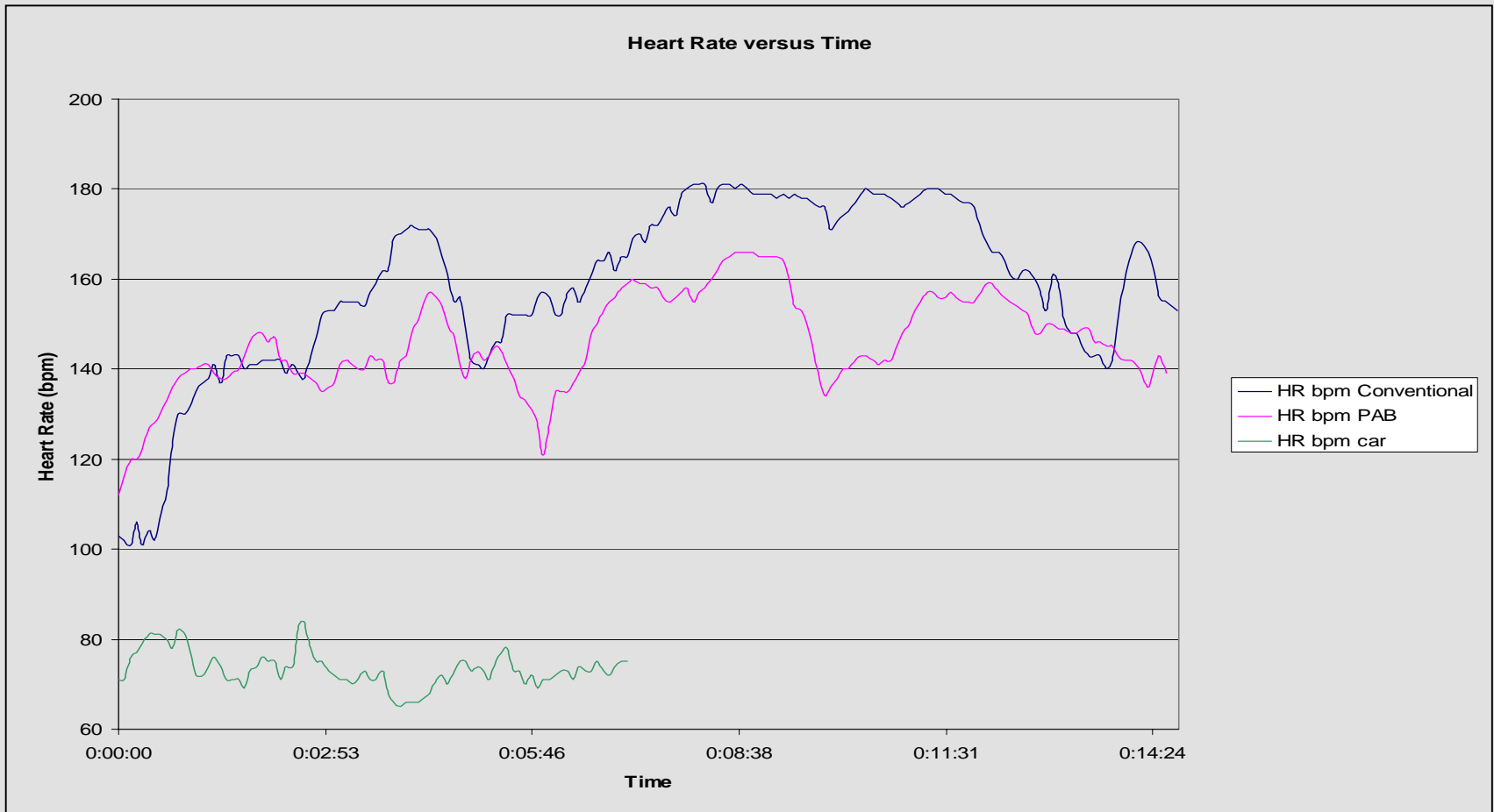
# E-bike markets

- **Retirees (55 plus) – recreation/mobility/transport**
- **Disabled – recreation/mobility/transport**
- **Ineligible or who have lost their license for road violations – transport**
- **Commuters - transport**
- **Recreational market specifically tourism - alternative to walking within parks and around local tourist venues**
- **Hirers - as optional hire for those renting motor homes or boats, used by the hirer to travel short distance, whilst on holiday**
- **Youths (14-20) - as recreational vehicles and transport (mainly scooters).**

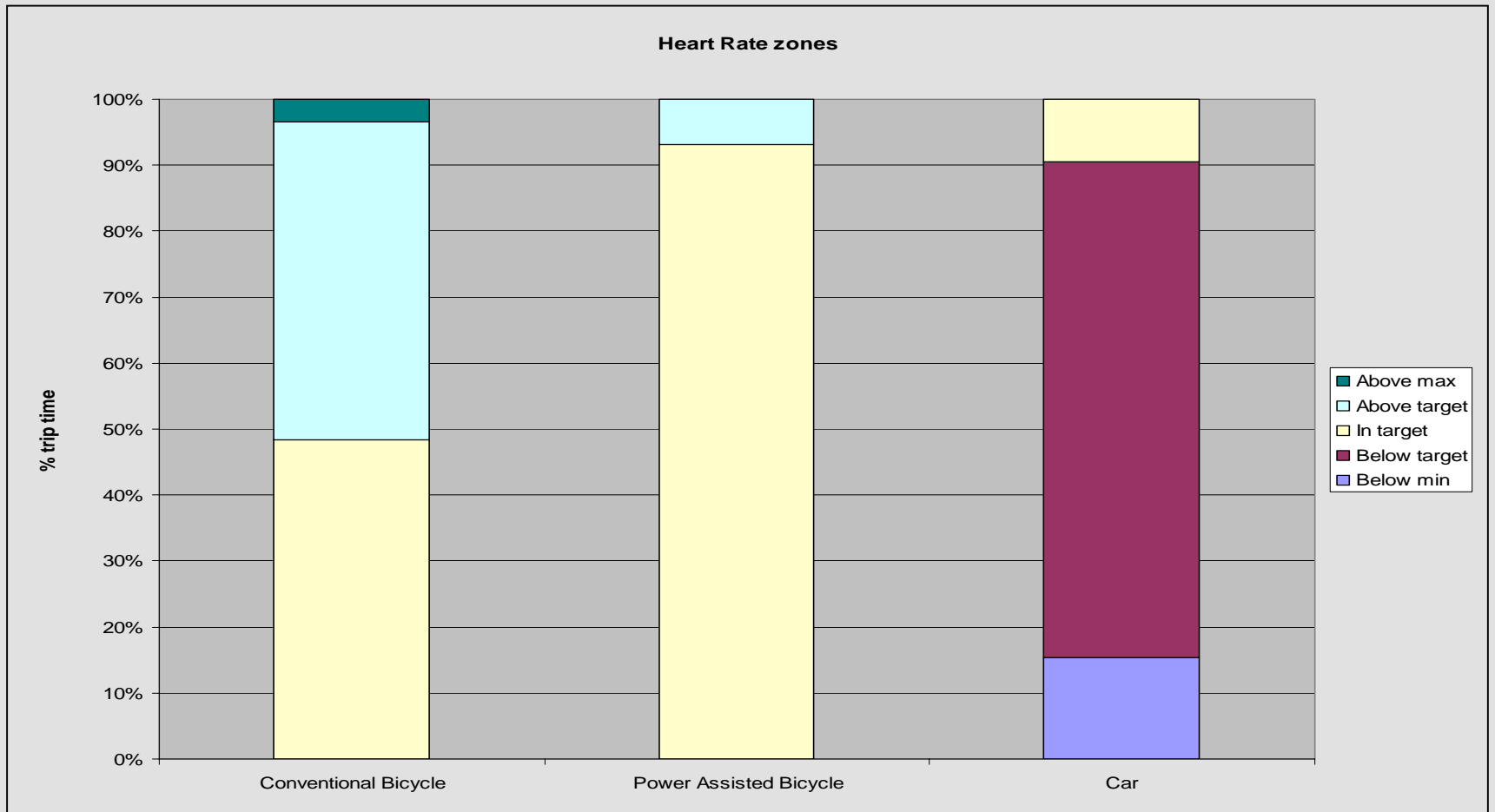
# An Initial E-Bike Field Study

- **An initial field study was used to explore health issues related to Power Assisted E-bike use**
- **Rider was equipped with GPS (to provide location and speed data) and heart rate data loggers**
  - Completed the same trip on a conventional bike, E-bike and car

# Heart rate by bicycle versus car



# Time in heart rate zones for car versus bike





# E-Bike Regulation

- In Australia, the Australian Vehicle Standards (1999) regulate the supply of vehicles into the Australian market
  - **those standards do not apply to “a vehicle propelled by a motor with a maximum power output of not over 200 watts”.**
- In Victoria, vehicles with a motor of less than 200W are classified as a bicycle
  - **subject to bicycle regulations: does not need to be registered nor the rider licensed and no distinction is drawn between a PB and a PAB**
- **Different regulations apply in different states**
- **In Europe, Canada and the USA more generous power limits apply**
  - Evidence that restricts the supply into the Australian market

# E-Bike Regulation - issues

- **200 W limit**
  - largely historic, not necessarily reflecting user needs
  - Difficult to enforce
- **Regulations based on defining technologies (e.g. power assisted bicycles, scooters) have difficulty accommodating technological innovation**

# Regulatory challenges



# Regulatory challenges



# Regulatory challenges



# Research Direction 1: Developing a research base for regulatory reform

- **Develop a performance based standard as a basis for regulation of powered personal mobility devices in different application contexts:**
  - On road
  - Off road (shared use paths)
  - Footpaths
  - Private Property
- **Current research is exploring the performance envelope for human powered bicycles**
  - Initial focus is on speed

# Research Direction 2: Autonomous E-Bike

- **Weight is a problem for many electric vehicles**
  - Much less of an issue for E-bikes
- **Development of a ‘green’ E-bike based on solar energy could have environmental advantages over charging batteries from brown coal generated electricity**

# Conclusions

- **E-bikes have a potential role to play in development of a sustainable transport system**
- **Regulations governing powered personal mobility devices need to be reviewed**
  - research is needed to frame a performance-based standards approach
- **Autonomous solar powered E-bikes could offer environmental advantages**