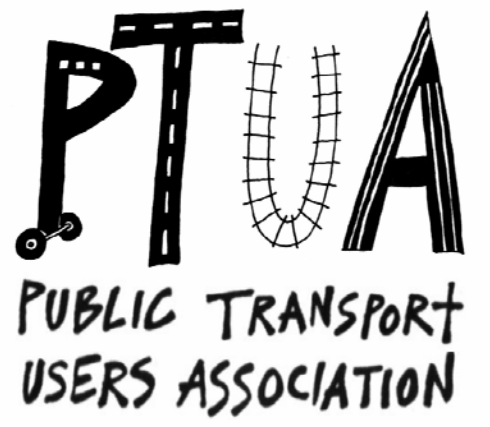
Response to Victorian Climate Change Green Paper

September 2009



Contents

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1 Victoria's Climate Change Framework

1.1 Priority 1: A clear science-based goal

A climate strategy is aimless without an over-riding objective, and the only defensible objective is the preservation of a safe climate. A safe climate objective would be the restoration of atmospheric greenhouse gas (GHG) concentrations to a level that avoids abrupt changes to climate systems and does so in time to prevent positive feedback loops from initiating unstoppable runaway warming.

By definition, a safe climate enables us to avoid impacts such as:

- melting of polar ice sheets such as those on Greenland and the Antarctic which would raise sea levels by around 70 metres;
- acidification of the oceans and consequent loss of coral reefs and crustaceans at the base of marine food chains;
- drying and eventual loss of rainforests that are rich in species and store enormous quantities of carbon such as the Amazon;
- melting of high latitude permafrost that is currently storing more carbon and methane than has been released to date through the burning of fossil fuels;
- loss of alpine ecosystems in Victoria and other parts of the world;
- massive loss of food production in the Murray Darling basin and heavily populated regions of the world including Asia; and
- large-scale social unrest and conflict resulting from the scarcity of food, fresh water and arable land.

Failure to prevent these impacts would come with massive costs in financial and human terms and dwarf the impact of the Global Financial Crisis (GFC). The commitment to preserving a safe climate should therefore be at least as prompt, decisive and well-resourced as the response to the GFC. Regrettably current attitudes could be compared to refusing an urgent life-saving operation due to the possibility of a scar following surgery.

The objective of a safe climate is also a binary question – does Victoria aim to achieve a safe climate or not? Since nature does not negotiate, it is simply not possible to "strike a balance" between the climate and vested interests in industry. The laws of physics and chemistry do not make political compromises.

Although perceptions have been fostered that a safe climate is one that does not exceed 2 degrees warming above pre-industrial levels, and that atmospheric GHG concentrations within 450 parts per million (ppm) can preserve a safe climate, these are no longer supported by the science.

Dr James Hansen of NASA and Columbia University has shown that GHG concentrations should be reduced from their current levels to at most, but likely less than, 350ppm "[i]f humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted", and that "[i]f the present

overshoot of this target CO2 is not brief, there is a possibility of seeding irreversible catastrophic effects" (Hansen *et al* 2008).

Rockström *et al* (2009) also identify 350ppm as a boundary that should not be transgressed if we wish to avoid "irreversible climate change, such as the loss of major ice sheets, accelerated sea-level rise and abrupt shifts in forest and agricultural systems".

A recent working group comprising the Royal Society, the Zoological Society of London and the International Programme on the State of the Ocean assessed the impacts of warming on the world's coral reefs and concluded that "[p]roposals to limit CO2 levels to 450ppm will not prevent the catastrophic loss of coral reefs from the combined effects of climate change and ocean acidification" and "[t]o ensure the long-term viability of coral reefs the atmospheric CO2 level must be reduced significantly below 350ppm"[1].

In recognition of the alarming pace of climate change that is already being witnessed, many scientists who have contributed to the series of IPCC assessment reports have urged developed countries to commit to emissions reductions of at least 40 per cent on 1990 levels by 2020, and clearly stated that reductions at the lower end of the 25-40 per cent range will not be sufficient "to avoid the worst impacts of climate change"[2].

The 350ppm upper limit has also been endorsed by Sir Nicholas Stern, Al Gore, the Australian Conservation Foundation (ACF) and, in a private capacity, the chairman of the Intergovernmental Panel on Climate Change (IPCC), Rajendra Pachauri[3].

The implications of recent climate science are profound. Strategies predicated on increasing concentrations of GHG into the latter part this century – even if annual emissions are slowed – are strategies to ensure catastrophic failure. The fundamental objective of Victoria's climate strategy should therefore be restoring atmospheric GHG concentrations to below 350ppm as fast as possible. All subsequent goals, priorities and measures, including emissions reduction targets, should be clearly aimed at supporting this objective.

1.2 Targets – how much, by whom?

We acknowledge Professor Ross Garnaut's view that there is little value in binding state-based targets in the presence of an effective national ETS. We also acknowledge that achieving the fundamental objective will actually require an effective *global* commitment to reducing emissions, with Australia's federal government playing an important role in negotiating such an agreement. We therefore welcome and endorse the Victorian Government's view that:

[1] http://www.carbonequity.info/PDFs/The-Coral-Reef-Crisis.pdf
[2] http://assets.wwf.org.uk/downloads/scientists__statement_16_sept.pdf
[3] http://news.yahoo.com/s/afp/20090825/sc_afp/climatewarmingunipccpachaurico2

> "...Australia should actively pursue a robust agreement to stabilise atmospheric concentrations of greenhouse gases at a level to avoid dangerous climate change".

In support of this, a key priority for Victoria's strategy should be consistent, strenuous and active advocacy for national and global targets that are consistent with the objective of a safe climate as outlined above. Such efforts should be directed at other jurisdictions and fora both within and outside Australia, including COAG, ministerial councils and bilateral meetings.

Even in the absence of national and international commitments to emission reductions of the magnitude outlined above, there may still be advantage to be gained from following the recommendation of the Premier's Climate Change Reference Group to adopt targets at a state level. With global recognition and commitment to effective action growing – albeit possibly not in time to ensure a successful outcome at Copenhagen in December 2009 – commercial opportunities will increasingly flow away from carbon-intensive suppliers and towards zero-carbon goods and services. First movers – supported at an early stage by regulatory frameworks that favour zero-carbon supply chains – are likely to enjoy a competitive advantage in this environment. On the other hand, those that "wait and see" or resist change may see their markets move on without them.

Recommendation 1: Adopt an explicit science-based objective of restoring atmospheric greenhouse gas concentrations to a level that will ensure a safe climate (i.e. below 350ppm) in time to prevent runaway climate change.

Recommendation 2: Consistent with Recommendation 1, explicitly prioritise consistent, strenuous and active advocacy for binding science-based targets at the national and international levels.

2 Complementing the CPRS

2.1 Transport

We acknowledge that abatement measures in sectors covered by an ETS will not reduce aggregate emissions, and may only serve to increase the cost of emissions reductions. We note however the existence of market failures in the transport sector that prevent the most cost-effective abatement measures from being pursued.

2.1.1 Externalities

The social costs of roadway provision and motor vehicle use in Australia are in the region of $100 billion per annum (PTUA 2009), and most of these costs are not recovered through taxes and charges on motorists (see Table 2.1). Economically inefficient travel behaviour results from this under-pricing, and attempting to cater for this economically inefficient road use leads to costly and inappropriate infrastructure spending that simply induces more traffic (PTUA 2008a, pp.22-25). This inefficient behaviour underlies forecasts of substantial growth in motor vehicle travel upon which the Victorian Transport Plan and other strategies are predicated. While these forecasts may become self-fulfilling prophecies if motorway expansion continues at current and/or planned rates, such traffic growth is not a forgone conclusion if sustainable, safe-climate transport policies are adopted instead.

Table 2.1: Magnitude of under-recovery of social costs of motor vehicle use

Social costs		***Revenue***	
Road facilities	$11.4 billion	Net fuel excise [e]	$9.9 billion
Land use cost	$24.5 billion	GST	$4 billion
Tax concessions [a]	$2 billion	Registration fees	$3.5 billion
Fuel subsidies	$0.6 billion	Insurance premiums	$10.4 billion
Air pollution [b]	$9.2 billion	Tolls [f]	$0.8 billion
Noise pollution [b]	$2.9 billion	Other revenue	$2.3 billion
Water pollution [b]	$1.8 billion	**Total revenue**	**$30.9 billion (2)**
Climate change [b]	$20 billion		
Congestion	$10 billion		
Severance [b]	$1.8 billion		
Health costs [c]	*Not included*		
Road trauma	$17 billion		
Total costs [d]	**$101.4 billion (1)**	**Unpriced costs**	**$70.5 billion (1-2)**

Notes:
a – does not include taxation revenue forgone as a result of motor vehicle deductions.
b – these are actually US$ amounts treated as A$ to keep cost estimates conservative.
c – a share of $58 billion would be appropriate to include under health costs.
d – does not include industry subsidies such as the $6.2 billion auto industry support package.
e – excise revenue is net of fuel tax credits and other rebates, but not state fuel subsidies.
f – toll revenue could be excluded since private sector expenditure is excluded from road facilities cost.

Although the transport sector is supposedly covered by the proposed ETS, in the early years of the scheme price signals will be deadened by planned fuel tax credits that will equal or exceed the effect of carbon pricing (ACF 2009). At the same time, the cost of energy for electrified public transport will be increased by the application of carbon pricing to the stationary energy sector. Combined, these two measures will actually increase the cost of abatement under the ETS by distorting price signals to the disadvantage of the more energy-efficient option.

In addition to the social costs of motor vehicle use identified above, modeshift to active transport and public transport offers a range of "co-benefits" or positive externalities that should be factored into transport planning to ensure economically efficient abatement (Litman 2008b; PTUA 2008a, pp.36-37). These benefits include:

- congestion management;
- reducing air pollution;
- greater physical activity;
- reduced exposure to road trauma; and
- enhanced mobility for people who are unable to drive.

When the co-benefits are modeshift are considered, abatement from a reduction in motor vehicle use is likely to provide abatement at lower economic cost than abatement delivered through the ETS alone, and is consequently a legitimate complementary measure for state and territory governments to pursue in parallel with a national ETS.

> "In general, a gallon of fuel conserved, or a ton of air pollution emissions avoided, due to reduced vehicle travel is worth an order of magnitude more than the same energy savings and emission reductions provided by increased vehicle fuel efficiency or shifts to alternative fuels. This occurs because mileage reductions also reduce traffic congestion, road and parking facility costs, consumer costs, accidents, water and noise pollution, and sprawl, and often improve mobility options for non-drivers and increase public fitness and health. Many mobility management programs are justified for their economic benefits, and so provide essentially *free* environmental benefits. In contrast, increase vehicle fuel efficiency tends to stimulate more total vehicle travel, which exacerbates transportation problems." (Litman 2008b, p.11)

Recommendation 3: Ensure land use and transport planning and appraisal incorporates the full range of social costs of road provision and use (including induced demand), as well as the unpriced social benefits of active transport and public transport.

Recommendation 4: Place an immediate moratorium on motorway planning, construction and expansion to be kept in place at least until comprehensive recovery of road use externalities is in place and fuel tax credits under the CPRS have ceased.

2.1.2 Imperfect information

Some consumers wish to adopt alternative fuels or engine technologies in the belief that these have significantly lower climate impacts. However, reality often does not live up to the hype.

For example, biofuel production has come under increasing criticism due to damaging impacts on vulnerable communities, water systems and biodiversity. In many cases, the climate impact of biofuels is actually worse than the conventional fuels they replace (PTUA 2008a, pp.18-21; T&E 2008). Similarly the life-cycle GHG emissions of hydrogen and electricity can be comparable to or worse than conventional fuels.

Given limited consumer awareness of the life-cycle impacts of alternative fuels, there is a role for government to ensure consumer decisions are based upon more complete information. Existing vehicle efficiency labelling has proven adequate for conventional fuels, however the emergence of new fuels and technologies will render existing labelling inadequate at best, and misleading at worst.

We support the view of the Australian Automobile Association (2009) that vehicle efficiency labelling should be updated to reflect emissions associated with recharging from the grid. Victorian consumers should be fully aware of the climate impacts of different vehicle energy sources given the average carbon intensity of grid electricity in Victoria and losses associated with transmission, conversion, storage, etc. We also believe that this should be extended to cover the carbon embedded in vehicle production, distribution and disposal since this can represent a significant component of motor vehicle life-cycle emissions.

Recommendation 5: Update vehicle efficiency labelling to incorporate life-cycle emissions of alternative fuels (given Victoria's energy mix) and vehicle production, distribution and disposal.

Recommendation 6: Ensure transport fuels meet consumer expectations by introducing a fuel quality standard modelled on California's Low Carbon Fuel Standard that incorporates the life-cycle carbon intensity of all fuels supplied, including land use impacts of alternative fuel production and the carbon intensity of electricity supplied via the grid in Victoria.

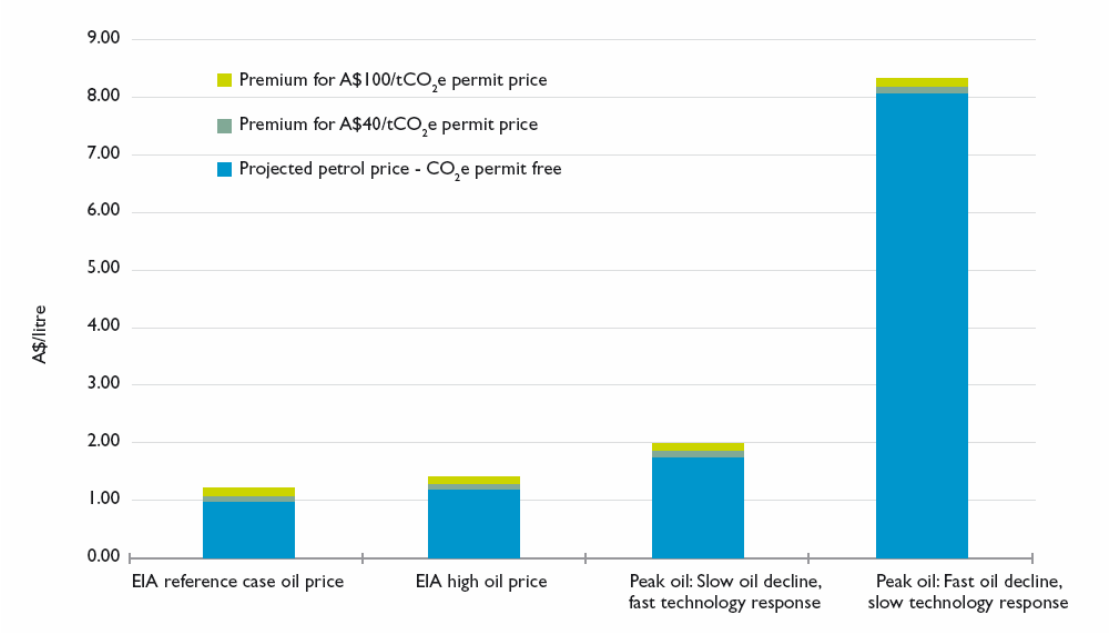
NB. Although posed in the Green Paper's section on *Complementing the CPRS*, the question around encouragement of mode shift is addressed under *Adjustment* below.

3 Adjustment – helping communities adjust to a post-carbon world

3.1 Passenger transport

Putting a price on carbon is expected to increase the cost of transport fuel, however the impact is not likely to be as significant as the impact on prices of declining global oil supplies (see Figure 3.1). Nevertheless, the prominence of transport in household emissions means that carbon pricing could add to transport costs unless households are offered opportunities to reduce transport energy use.

Figure 3.1: Potential future petrol prices under alternate international oil market conditions



Source: Future Fuels Forum 2008

Even without carbon pricing, a looming peak in global oil production makes it clear that Victorian communities will have to adjust to a world where liquid fuel is more expensive and more scarce (Connor 2009). Trying to reduce the cost of transport fuel through tax reductions, as the federal government is proposing as part of its CPRS, is both counter-productive and ineffective (Litman 2008a). Successfully cushioning households and businesses from the impact of higher transport costs, while still supporting the fundamental objective of a safe climate, will require the adoption of more efficient transport systems (Litman 2005; Litman 2008b).

While improved motor vehicle fuel efficiency will obviously have a role, it is unlikely that the motor vehicle fleet will be replaced quickly enough with vehicles that have life-cycle emissions that are low enough to ensure a safe climate, unless motor vehicle use is also reduced significantly. Consumer demand certainly appears unlikely to deliver the magnitude of efficiency improvements enthusiastically prophesied in the

Eddington Report since other vehicle attributes seem to be valued more highly (ABS 2006; Wald 2006; Porter 2008), and regulatory measures to force improvements in vehicle efficiency may simply force up the cost of emissions reductions - and the cost of cars (McManus & Jean 2008; PTUA 2008b, p.9) - without reducing aggregate emissions (since transport is a covered sector under the CPRS).

In contrast to improved *vehicle* efficiency which could lead to increased travel and "render the policies ineffective" (Future Fuels Forum 2008, p.23), an efficient transport *system* can simultaneously reduce emissions and reduce the impact of higher fuel costs on households by enabling greater access and social inclusion with less motor vehicle use. Such a system is based upon walkable and bike-friendly communities that are served by public transport that is fast, frequent, affordable, well-integrated, reliable and safe.

Public transport can help households adjust to higher energy costs resulting from either carbon pricing or peak oil. However, the poor quality of public transport networks could present a major barrier to adjustment (PTUA 2009, pp.1-12), as also noted by Garnaut (2008, p.510):

> "Firms and individuals will only be able to express their demand for mode shift if there are suitable services and infrastructure. Surveys suggest that the main reasons that people do not currently use public transport relate to the lack of suitable quality infrastructure and services. Governments have a role in delivering these infrastructure and services."

Public transport use has grown strongly in Melbourne since oil prices started spiking upwards around 2005, while traffic volumes on a range of roads have actually fallen (Dowling 2008). These trends are however mainly concentrated where public transport offers sufficiently good service levels to provide a realistic alternative to the car. In areas with poor public transport, mode shift to public transport has either been low or negative as poor service levels fail to compete with the expanding motorway network.

In order to make adjustment opportunities more available and minimise any negative equity impacts of rising energy prices, there is an urgent need to expand the coverage of frequent, well-integrated public transport services that provide a genuine alternative to private motor vehicles. It is also important to avoid locking in car-dependent transport and land use patterns that result from motorway expansion (Litman 2009), and instead ensure that transport spending supports modeshift to public transport and active transport.

While the State Government has argued that train services cannot be boosted without significant investment in rail infrastructure (such as the proposed Footscray to Caulfield via Domain rail tunnel), that debate is specifically related to inner-city peak hour rail capacity. Based on 2006 census figures, public transport and active transport already accounted for at least two out of three work trips to the CBD, Docklands and Southbank, and there is good reason to believe that the modal split for those destinations has shifted further away from cars since then. Apart from journeys to the inner city from corridors that are currently without rail access such as Manningham

and Rowville (PTUA 2007, pp.12-14), the largest potential opportunity for modeshift therefore appears to be non-CBD journeys, that do not require a multi-billion dollar tunnel under the CBD to be adequately catered.

There are significant gains to public transport mode-share to be won by addressing poor services outside the CBD, and outside traditional peak hours, by running more frequent trains across the day, including evenings and weekends, and a complementary network of frequent trams and buses across Melbourne's suburbs (as well as in regional centres). There are no rail capacity barriers to an expansion of off-peak or non-CBD oriented services.

There is also considerable debate surrounding the need for dramatically increased rail capacity in inner Melbourne. Despite the improved capacity provided by construction of the Melbourne Underground Rail Loop in the 1970s, the number of trains per hour traversing the CBD at peak times is not greatly changed from the number operating in 1960 (PTUA 2009b). Rather, it seems likely that much of the additional capacity was absorbed in a reduction in operational efficiencies following the dramatic decline in rail patronage in the 1970s, a situation that persisted until 2005 (PTUA 2008e). A number of efficiency initiatives are currently being pursued by the Department of Transport to release the additional capacity that exists, but these should be complemented by further measures along the lines of those recommended in consultants' reports to the East West Link Needs Assessment (SKM/Maunsell 2008).

Garnaut (2008, p.456) also noted the importance of service integration if public transport is to effectively serve the needs of passengers:

> "Where two or more services combine to provide a passenger trip (such as a bus then a train), benefits accrue to the passenger if the infrastructure, ticketing, provision of information, and timing of these services are well integrated. This coordination does not always occur, resulting in a suboptimal outcome for passengers."

Unfortunately there is too much evidence of this coordination not occurring. In Melbourne, the number of fully coordinated modal interchanges is limited to three services: "TrainLink" buses at Epping and Cranbourne (Mees 2009), and "TramLink" buses at Vermont South. After reviewing available evidence and international best practice, a recent bipartisan Senate inquiry into Investment of Commonwealth and State funds in public passenger transport infrastructure and services concluded that:

> "Australian government funding for transport initiatives should be conditional on reforms to state and territory transport and planning departments to create central coordinating agencies along the model of the Public Transport Authority of Western Australia."

Recommendation 7: Establish a central public transport authority based upon those in Perth, Vancouver, Zurich and London to plan and coordinate public transport services so that households are offered genuine opportunities to shift to public transport.

3.1.1 Removing barriers to active transport

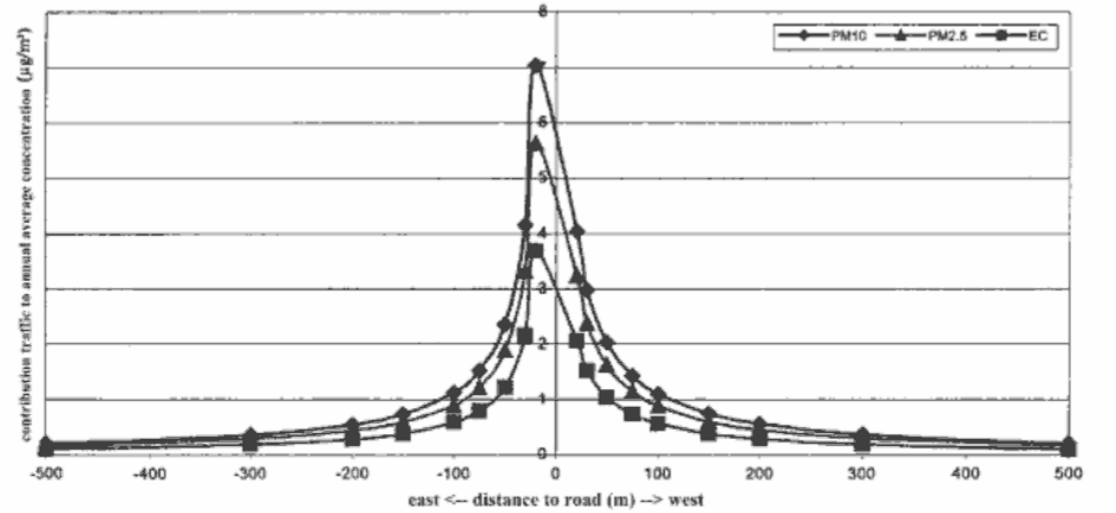
Around two thirds of trips made in Melbourne are less than 5 kilometres, and many journeys within regional cities and towns are also quite short due to the relatively small size of their urban areas. This indicates enormous potential to shift a large share of motor vehicle travel to walking and cycling if supportive policies are adopted.

There is growing interest in walking and cycling due to their health and environmental benefits, however many people are deterred from taking up active transport by the results of car-dominated transport policies. For example, roads and car parks can act as barriers to pedestrians and cyclists, road traffic can make active transport unpleasant (e.g due to pollution), and proximity to fast-moving traffic makes pedestrians and cyclists feel unsafe (PTUA 2008c, pp.37-38; Van Souwe 2009, pp.16-23). Removing these barriers to active transport would open up cost-effective abatement opportunities to more households as well as deliver a range of co-benefits such as a healthier workforce, reduced pressure on transport infrastructure and reduced local pollution.

The strategic directions identified in the recently released *Victorian Cycling Strategy* are certainly commendable, however the strategy suffers from lack of resourcing relative to traditional motorised transport and is consequently compromised by the lack of attention to areas outside a 10 kilometre radius around Melbourne's CBD where car dependence is most pronounced. This proposed inner city focus may also constrain bicycle access to the planned Central Activities Districts (CADs) - which are typically more than 10 kilometres from Melbourne's CBD - unless good quality cycling networks extend well beyond the immediate vicinity of the CADs.

There is also a strong risk that key barriers to active transport will not be properly addressed - and may even be exacerbated - by tying the development of bicycle facilities to major transport projects as proposed under the *Victorian Cycling Strategy* (p.29). Proximity to traffic is a major deterrent to walking and cycling (PTUA 2008c, pp.37-38; Van Souwe 2009, pp.16-23), yet the strategy suggests including bicycle paths as part of major road projects where traffic and associated air pollution will be concentrated (see Figure 3.2). Not only may such projects fail to remove barriers to active transport, such roads (e.g. bypasses) are often deliberately designed to avoid trip generators that cyclists may wish to access, they may result in poor urban design (PTUA 2008d, pp.21-22), and they may crowd out other projects that would more effectively improve safety, connectivity and amenity for pedestrians and cyclists.

Figure 3.2: Contribution of road-traffic-related emissions as a function of the distance to the road



Source: Janssen et al 2002

Recommendation 8: Better resource cycling infrastructure programs at the state and municipal levels to accelerate the completion of a high quality cycling network focused on trip generators (e.g. activity centres and public transport interchanges) rather than on major roads, and accelerate the provision of secure, under-cover bicycle parking at public transport interchanges.

Recommendation 9: Reduce traffic speeds where motor vehicles interact with pedestrians and cyclists, and implement incentives (e.g. through planning and taxation systems) for employers to convert car parking to secure bicycle parking.

3.2 Goods transport

3.2.1 Rail freight

As the Climate Green Paper notes, transport is the second largest producer of greenhouse gas emissions in Victoria after stationary energy production, with almost 90 per cent of transport emissions coming from road transport – private vehicles, trucks, buses and commercial vehicles.

In relation to the freight transport task, the discussion of solutions to this problem briefly lists possible measures such as a more integrated freight network, the greater use of high productivity road vehicles, more rail freight services and innovative applications of new technologies within the freight supply chain.

Building an effective and efficient rail freight system is essential if many of these aims are to be effectively accomplished. Increasing the proportion of freight sent by rail will not only help reduce greenhouse gas emissions created by the freight transport sector, it will also enhance road safety, lessen road damage and relieve capacity constraints in the road freight system (RTSA 2005).

As the Victorian Rail Freight Network Review (DOI 2007, p.18) noted:

> "Rail is still more energy efficient than road even when the 'full fuel' cycle is considered taking into account fuel use from all aspects of the transport task including line haul, pickup and delivery and energy production and distribution. Even the biggest and heaviest trucks – triple road trains weighing 124.5 tonnes – are nearly 50% more energy intensive than rail on a full fuel cycle basis."

Unfortunately, the rail industry has been hampered by the underfunding of rail networks over many decades. This means that there must significant investment to rehabilitate and upgrade the state's rail network if greenhouse reduction initiatives in the freight area are to be successful.

In 2001, the State Government pledged to boost the freight carried by rail from 10 per cent to 30 per cent. Instead, rail's share of the freight task has dropped to 2.5 per cent of the state's freight load - a quarter of what it was a decade ago (Lucas 2009).

3.2.2 Emphasis Must Change from Major Road Building

In recent years, federal government funding of transport infrastructure has often been driven by the stated objective of facilitating the movement of road freight. State governments have also frequently framed the need for road spending in terms of freight requirements. Yet calls for big road infrastructure expenditure, founded on projections of strong growth in the freight task, do not stand up to close scrutiny (PTUA 2007, pp.15-20; PTUA 2008e, pp.29-32), and projections based upon them cannot be considered as robust.

Despite the emphasis often given to freight in the discussion of road infrastructure needs, the reality is that passenger cars make up the vast majority of road vehicles (ABS 2008), especially during the most congested periods. Passenger cars therefore present the most significant impediment to the efficient movement of road freight. Road expansion aimed at enhancing freight movement is invariably frustrated by the increased volume of private motor vehicle traffic induced by the expanded road facilities. The massive scale of unrecovered external costs resulting from road provision and use outlined above also demonstrates that utilisation of our national transport infrastructure is far from efficient in this regard.

Given the composition of traffic utilising major roads, and the professed importance of freight movements, it is puzzling that additional charges have been suggested for freight vehicles, while the major contributor to congestion – private passenger vehicles - would retain free access (Gardiner 2008).

This move would bring about less-efficient utilisation of major transport infrastructure, as well as leading to overcapitalisation in road infrastructure, at a time when there are major infrastructure inadequacies in our rail network and non-transport sectors.

3.2.3 Impediments to Increasing Rail Freight's Role

Considerable sums of federal, state and local government money have been directed to roads in recent decades, at the same time as rail networks have deteriorated due to decades of neglect. The inadequacy of rail networks is exemplified by long-standing speed restrictions on numerous sections of track, or on whole rail lines, throughout Victoria.

Another reason that a fully-effective, integrated rail network is difficult to achieve at present is the break of gauge problem, which especially affects Victoria. The failure to fulfil past commitments to standardise most of Victoria's broad gauge rail network (Batchelor 2001) has helped to create uncertainty over continuity of services in the state. Although the incumbent major operator, Pacific National, no longer controls track access to Victoria's rail network, potential alternate operators cannot provide a viable alternative because they don't have rolling stock which can run on Victoria's broad gauge. Standardisation of the rail infrastructure would enable a more efficient and integrated rail logistics market which could drive productivity improvements within the mode, as recommended by the Productivity Commission[4], and provide greater effectiveness in the rail service by enhancing the movement of rolling stock around the whole system.

Since both rail infrastructure condition and breaks of gauge cause problems with the performance of Victoria's rail network, we recommend that the state continue the start made this year on standardising the current broad gauge lines to Albury and Oaklands (NSW), by progressively standardising remaining broad gauge lines, and at the same time, ensuring they are in the condition required for fast and efficient services.

Recommendation 10: Immediately initiate an on-going program to convert the whole non-metropolitan broad gauge network to standard gauge.

Recommendation 11: Upgrade the Victorian freight-only network to at least Class 3 standard as defined by the Australian Rail Track Corporation (ARTC)[5].

[4] "Recommendation 12.1: The focus of the policy reform agenda for road and rail freight infrastructure should be on enhancing efficiency and productivity within each mode." Productivity Commission 2006, *Road and Rail Freight Infrastructure Pricing*, Report no. 41, Canberra, December

[5] Australian Rail Track Corporation Ltd, Engineering (Track & Civil) Standard TDS 11: Standard Classification of Lines

3.2.4 Innovation in the freight industry

Particularly in light of the low average loadings of road freight vehicles in Melbourne (PTUA 2007, pp.18-20), there is also significant scope to carry more freight without increasing the amount of commercial vehicle traffic. Innovations in other parts of the world, particularly in Europe, exemplify how being smarter about goods transport can provide savings and reduce emissions. Such innovations include cargotrams, freight consolidation and more efficient warehousing (PTUA 2008e, pp.30-32).

3.3 Green jobs

The combination of carbon pricing and peak oil are likely to drive increased demand for rail freight, public transport and active transport. As noted in our previous submission (PTUA 2008b, pp.1-4), this could potentially open up significant commercial opportunities for Victoria's rail industry, including infrastructure construction and maintenance, rolling stock manufacture and service, and rail freight hire and reward services.

The rail industry has been beset by skills shortage in recent times as a result of previous neglect of rail infrastructure and institutional arrangements that failed to ensure adequate recruitment and training (e.g. AMWU 2009; Engineers Australia 2009, p.4). Investment certainty in the sector should be enhanced by ensuring a clear and ongoing commitment to the rail sector in the form of a pipeline of rail infrastructure upgrades including duplications (e.g. Dandenong to Cranbourne, Keon Park to Epping, Sunshine to Bacchus Marsh), extensions (e.g. South Morang and Clyde), overdue additions (e.g. Rowville and Doncaster) and gauge standardisation.

4 Adaptation

The performance of the rail network over the summer of 2008-09 highlighted serious underlying problems with Melbourne's suburban rail network and Victoria's regional rail network (PTUA 2009d, pp.10-13). These problems were a foretaste of what Victorians can expect on a regular basis as the climate warms if ongoing deficiencies in public transport planning and operation are not resolved. We refer to our submission to the Parliament of Victoria Select Committee on Train Services for a range of recommendations designed to deal with underlying problems that could be exacerbated by climate change (PTUA 2009d, pp.23-26).

5 References

ABS, 2006, *Environmental Issues: People's Views and Practices*, Mar 2006, Australian Bureau of Statistics, Canberra

ABS, 2008, *Survey of Motor Vehicle Use: Data Cubes, Australia, 12 months ended 31 October 2007*, Australian Bureau of Statistics, Canberra

Australian Conservation Foundation [ACF] 2009, *Submission in response to exposure draft legislation: Carbon Pollution Reduction Scheme - Fuel Tax Adjustment Arrangements*, Australian Conservation Foundation, Carlton, http://www.treasury.gov.au/documents/1600/PDF/Australian_Conservation_Foundation.pdf

Australian Manufacturing Workers' Union [AMWU] 2009, *Submission to the Parliamentary Inquiry – Skill shortages in the rail industry*, http://www.parliament.vic.gov.au/etc/Submissions/rail_industry/amwu230409.pdf

Batchelor, P. 2001, *Bracks Govt ends 120 years of different rail gauges*, media release, 15 May, http://www.budget.vic.gov.au/domino/web_notes/budgets/budget01.nsf/77a4bf9f4e5005c64a2567600023b4a3/eebe1e842690f0ff4a256a4d0018c363!OpenDocument

Connor, S., 2009, 'Warning: Oil supplies are running out fast', *The Independent*, 3 August, http://www.independent.co.uk/news/science/warning-oil-supplies-are-running-out-fast-1766585.html

Department of Infrastructure [DOI] 2007, *Victorian Rail Freight Network Review, Switchpoint: The template for rail freight to revive and thrive*,

Dowling, J., 2008, '20% dump car for public transport', *The Age*, 29 July, http://www.theage.com.au/national/20-dump-car-for-public-transport-20080728-3mb6.html

Engineers Australia 2009, *Inquiry into Skill Shortages in the Rail Industry: Submission to the Victorian Education and Training Committee*, http://www.parliament.vic.gov.au/etc/Submissions/rail_industry/engineersaustralia.pdf

Future Fuels Forum, 2008, *Fuel for thought*, Commonwealth Scientific and Industrial Research Organisation, http://csiro.au/files/files/plm4.pdf

Gardiner, A., 2008, 'Trucks face toll threat on old roads', *Herald Sun*, 26 August, http://www.news.com.au/heraldsun/story/0,21985,24240215-2862,00.html

Garnaut, R. 2008, *The Garnaut climate change review*, Cambridge University Press, Port Melbourne

Hansen, J., Sato, M., Kharecha, P., Beerling, D., Berner, R., Masson-Delmotte, V., Pagani, M., Raymo, M., Royer, D.L., Zachos, J.C., 2008, 'Target atmospheric CO2: Where should humanity aim?', *Open Atmos. Sci. J.* (2008), vol. 2, pp. 217-231, http://arxiv.org/abs/0804.1126

Janssen, N., Brunekreef, B., Hoek, G. & Keuken P., 2002, *Traffic-Related Air Pollution and Health*, Utrecht/Apeldoorn: Utrecht University, Institute for Risk Assessment Sciences, Environmental and Occupational Health Division/TNO Milieu, Energie en Procesinnovatie

Litman, T., 2005, 'Efficient Vehicles Versus Efficient Transportation: Comparing Transportation Energy Conservation Strategies', *Transport Policy*, Vol. 12, No. 2, pp.121-129, http://www.vtpi.org/cafe.pdf

Litman, T., 2008a, *Appropriate Response to Rising Fuel Prices*, Victoria Transport Policy Institute, http://www.vtpi.org/fuelprice.pdf

Litman, T., 2008b, *Smart Transportation Emission Reductions: Identifying Truly Optimal Energy Conservation And Emission Reduction Strategies*, Victoria Transport Policy Institute, http://www.vtpi.org/ster.pdf

Litman, T., 2009, *Evaluating Transportation Land Use Impacts*, Victoria Transport Policy Institute, http://www.vtpi.org/landuse.pdf

Lucas, C., 2009, "Our clogged freeways just keep on truckin'", *The Age*, 29 September, http://www.theage.com.au/national/our-clogged-freeways-just-keep-on-truckin-20090928-g98e.html

McManus, G. and Jean, P., 2008, 'Industry backs cap on petrol in emissions trading scheme', *Herald Sun*, 2 July, http://www.news.com.au/heraldsun/story/0,21985,23955450-661,00.html

Mees, P. *Inquiry into the factors leading to and causes of failures in the provision of metropolitan and V/Line train services*. [Evidence] Parliament of Victoria Select Committee on Train Services. 22nd September 2009, http://www.parliament.vic.gov.au/council/trainservices/Transcripts/Mees.pdf

Porter, I., 2008, 'Money rules the road to a green car', *The Age*, 6 March, http://www.theage.com.au/news/environment/money-rules-the-road-to-a-greencar/2008/03/05/1204402555605.html

PTUA, 2007, *Submission to the East-West Needs Assessment*, Public Transport Users Association, Melbourne, http://www.doi.vic.gov.au/DOI/DOIElect.nsf/$UNIDS+for+Web+Display/9037E4135D688A1ECA2573010004E4AD/$FILE/East-West%20Submission%20Public%20Transport%20Users%20Assoc.pdf

PTUA, 2008a, *Climate Policy at the Junction*, Public Transport Users Association, Melbourne, http://www.ptua.org.au/files/2008/Garnaut_transport_submission_2008-04-11.pdf

PTUA, 2008b, *Response to A Climate of Opportunity*, Public Transport Users Association, Melbourne, http://www.ptua.org.au/files/2008/PTUA_response_to_climate_summit_paper_2008-08-06.pdf

PTUA, 2008c, *Enhancing Victoria's Liveability*, Public Transport Users Association, Melbourne, http://www.ptua.org.au/files/2008/PTUA_VCEC_liveability_submission_2008-01-31.pdf

PTUA, 2008d, *Response to A State of Liveability*, Public Transport Users Association, Melbourne, http://www.ptua.org.au/files/2008/PTUA_VCEC_liveability_response_2008-08.pdf

PTUA, 2008e, *Submission to the Victorian Government on the East West Link Needs Assessment*, Public Transport Users Association, Melbourne, http://www.ptua.org.au/files/2008/PTUA_EWLNA_submission_20080715.pdf

PTUA 2009a, *Designing a more efficient, equitable and sustainable motor vehicle tax system*, Public Transport Users Association, Melbourne, http://www.ptua.org.au/files/2009/tax_review_submission_2009_05.pdf

PTUA 2009b, *Connecting to the Future: the Alternative to the Victorian Transport Plan*, Public Transport Users Association, Melbourne. http://www.ptua.org.au/publications/connecting/

PTUA 2009c, *Submission to the Inquiry into the investment of Commonwealth and State funds in public passenger transport infrastructure and services*, Public Transport Users Association, Melbourne, http://www.aph.gov.au/Senate/committee/rrat_ctte/public_transport/submissions/sub136.pdf

PTUA 2009d, *Submission to Parliament of Victoria Select Committee on Train Services*, Public Transport Users Association, Melbourne, http://www.parliament.vic.gov.au/council/trainservices/submissions/SCTS%2032.pdf

Railway Technical Society of Australasia [RTSA], 2005, *Submission to Inquiry into the Integration of regional rail and road freight transport and their interface with ports*, http://www.aph.gov.au/house/committee/trs/networks/subs/sub014.pdf

Rockström, J., Steffen, W., Noone, K., Persson, Å, Chapin, F.S., Lambin, E., Lenton, T., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., de Wit, C., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R., Fabry, V., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P. & Foley, J., 2008, 'Planetary Boundaries: Exploring the safe operating space for humanity', *Ecology and Society*, In Press 14th September 2009

SKM/Maunsell, 2009, *East West Needs Study: Transport Supply and Demand (Existing and Future).*

European Federation for Transport and Environment [T&E], 2008, *Biofuels and land use change: further reading*, http://www.transportenvironment.org/Publications/prep_hand_out/lid:522

Van Souwe, J., 2009, *Encouraging Walking and Cycling: Focus Group*, Final Report, Wallis Consulting Group, http://www.transport.vic.gov.au/DOI/DOIElect.nsf/$UNIDS+for+Web+Display/FA43E6D4459B23B8CA2575E8000BDB7E/$FILE/WalkingCyclingFocusGroupReport.pdf

Wald, M., 2005, 'Hybrid Cars Burning Gas in the Drive for Power', *The New York Times*, 17 July, http://www.nytimes.com/2005/07/17/automobiles/17hybrid.html

Weiss, M., Heywood, J.B., Drake, E.M., Schafer, A. & AuYeung, F.F., 2000, *On the Road in 2020: A Life Cycle analysis of New Automobile Technologies*, Energy Laboratory, Massachusetts Institute of Technology, Cambridge