

Submission to the Senate Rural and Regional Affairs and Transport Standing Committee inquiry into the Interstate Road Transport Amendment (No.2) Bill 2008

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The writer is an Associate Professor and Research Fellow at the University of Wollongong. He has over sixty publications in the field of land transport, with some ten on road pricing for heavy trucks (including Road cost recovery in Australia and New Zealand, Transport Reviews (United Kingdom), Vol 10 (1990), p 215-227).

Introduction

With regard for road user charges, it is submitted that the diesel excise and Federal Interstate Registration Scheme charges are now overdue for the modest increases that were recommended in 2007 by the National Transport Commission or NTC. These charges have been endorsed by the Transport Ministers. In addition the Productivity Commission's 2006 report *Road and rail freight infrastructure pricing* recognised that the operations of heavier B-Doubles hauling large distances each year are in receipt of large subsidies, and the a need for improved cost recovery from such trucks.

Increased charges for goods and services for most individuals and companies are a fact of life and as such are generally accepted. Not so it appears for the Australian Trucking Association, or ATA. Yet the ATA in the (Sydney) Sun Herald for 28 September 2008 insists that more money is needed for "rest areas" on top of the \$70 million already allocated by government. The ATA also supports more investment in roads, and this has also been granted.

Given significant increases in road funding by the former and present federal government that benefit heavy truck operations, and, given the delays to date in approving the new NTC charges, it is hard to see how further delays can be justified. These delays include the failure to endorse the benign 2005-06 third determination of the NTC that followed extensive consultation with the road freight industry and other stakeholders.

It is submitted that there is a strong case that the new NTC charges will fail to recover all road system costs from articulated trucks, and, that mass-distance charges for such trucks hauling heavy loads over longer distances are long overdue in Australia. Such charges have been in use in New Zealand since 1978. As well, distance charges are now in use in Europe.

It is further submitted that more attention is needed to promoting competitive neutrality between road and rail freight, external costs of road freight (and rail freight) along with reducing dependence on imported oil and greenhouse gases from freight transport. Rail freight is on average three times more energy efficient than road freight.

2. As seen by the National Transport Commission and Productivity Commission

i. From the website of the National Transport Commission (NTC) accessed 13 October 2008.

The NTC was directed by the Australian Transport Council (ATC) to update heavy vehicle charges after the Productivity Commission's *Road & Rail Freight Infrastructure Pricing Inquiry* (2007) concluded: "*Substantial increases in road investment in the past couple of years make it likely that heavy vehicle charges would have to rise to maintain cost recovery.*"

In April 2007, the Council of Australian Governments' (CoAG) endorsed the charges review as the first 'building block' of broader road pricing reform.

Why are large increases proposed for B-doubles? Bigger trucks are currently cross-subsidised by smaller trucks. CoAG's pricing principles require those cross-subsidies to be removed.

B-doubles have benefited significantly from higher road spending; particularly improved access around ports, urban arterials, grain silos, sale yards etc. The number of B-doubles has increased by 267% to 9564 vehicles since 2000.

Governments have little incentive to further extend the B-double (and other high productivity vehicles) network if they don't pay their way. The Business Council of Australia's Infrastructure Roadmap for Reform (September 2007) recently concluded: "We need to ensure that high productivity (that is, larger and longer travelling) trucks are charged appropriately. Not only will this help road/rail neutrality, it will facilitate having B Doubles and B Triples on our roads." - (BCA 2007)

Is the NTC calculation accurate? "The Productivity Commission independently audited and endorsed NTC's charges methodology noting that it is "**conservative**" (emphasis added) by international standards (i.e. resulting in lower charges)."

ii. As noted by the 2006 Productivity Commission Road/rail freight infrastructure pricing report (on page 125), the recent annual subsidy paid for the operation of a 9 axle B - Doubles hauling the 75 th Percentile distance (227 500 km) is \$23,000. This was under National Transport Commission (NTC) charges and methodology, based on revenue of \$34,200 and an allocated cost of \$57,200.

This report of the Productivity Commission also gives figures showing that payments made by certain six axle articulated trucks hauling the 75 th Percentile distance do not meet NTC allocated costs.

3. Other ways of looking at road pricing for heavy trucks

There appears to be three notable broad groups of estimates for road system costs attributable to heavy trucks¹ (see also Appendix A):

¹ *Road pricing in Australia – too much or too little*, P Laird, Australian Road Summit, February 2007 attached as Appendix A

- **Conservative or NTC** - as per the National Road Transport Commission (NRTC) first and second determinations and the NTC third determination.
- **Intermediate** - including the former Inter-State Commission findings² during the 1980s, the 1990-91 Over-Archiving Group (OAG) recommendations and NSW permit fees for heavier semitrailers and all B Doubles in use to 30 June 1996.
- **High, or "user pays"** - including the Bureau of Transport and Communications Economics (BTCE) 1988 report³ noted in the draft report of the Productivity Commission, McDonnell's methodology (NSW) (see for example⁴), and ongoing New Zealand Road User Charges.

The difference between road system costs attributable to articulated trucks under the 2005 NTC model and using Macdonnell's Methodology is approximately \$1.5 billion per year. The average unit hidden subsidy is then over 1 cent per net tonne kilometre.

The ongoing use of the forth power law is supported as a cost component of road user charges along with the following parameters: Passenger Car Equivalents (including 3 for a semitrailer and 4 for a B-Double) kilometres, Average Gross Mass Vehicle kilometres, and, Vehicle kilometres. These parameters are outlined in various reports of the National Transport Commission.

Subsidies are one reason why the number of large B-Doubles has grown so rapidly in recent years. As noted in the final 2006 freight report of the Productivity Commission (p125) their number increased by over 180 per cent from 1997 to 2003.

4. A look across the Tasman Sea

New Zealand has had in successful use, since 1978, a system of mass-distance pricing for heavy trucks. These charges for the heavier articulated trucks hauling long distances are appreciably higher levels than the combined annual registration charges and fuel road user charges that apply in Australia. These were recently increased in July 2008, and for a 9 axle B-Double operating at 62.5 tonnes Gross Vehicle Mass with 22.5 tonnes on the prime mover and 20 tonnes on each of triaxle trailers would amount to \$NZ942 per 1000 km (taking the prime mover at the average of charges of \$452.03 for 22 tonnes and 523.33 for 23 tonnes plus \$227.19 for each trailer to 20 tonnes).

From the above 2006 Productivity Commission report, a 9 axle B - Double hauling the 75 th Percentile distance of 227 500 km) in a year would pay \$34,200 and have, under the NTC's 'conservative' methodology, an allocated cost of \$57,200. Yet, the same B-Double in New Zealand would pay \$NZ214,305 in road user charges.

Even allowing for currency conversion, the New Zealand charges being current and including GST, and the NTC charges being c2005, there is a large difference. The

² Inter-State Commission (1986) Cost recovery arrangements for interstate transport, to (1990) Road use charges and vehicle registration: a national scheme Canberra

³ BTCE (1988) *Review of road cost recovery*, Canberra

⁴ Laird PG (2006) *Freight transport cost recovery in Australia*, Australasian Transport Research Forum, Gold Coast (abstract attached as Appendix B)

ratio between New Zealand and Australian road user charges for a heavy 9 axle B-Double hauling long annual distances is at least four to one. For heavily laden semitrailers hauling long annual distances, the ratio between the New Zealand user pays charges and recent NTC charges are about three to one.

5. External costs

It is further submitted that more attention is needed to the external costs of road freight (and rail freight). Externalities, including air pollution in cities, and accidents involving articulated trucks were considered by the Productivity Commission in its 2006 freight report. These environmental and social costs are not all internalised and some 'polluter pays' and other charges are warranted with the proceeds being applied to infrastructure upgrades.

Following introduction of the New Tax System in 2000, the operators of heavy vehicles were granted conditional rebates for the use of diesel, which have since been further extended to effectively require no payment of external costs (cf about 20 cents per litre prior to 2000).

External costs are a required part of AusLink project assessment in the *National Guidelines for Transport System Management In Australia* released in 2004 (and updated in 2006) by the Australian Transport Council. External costs were also addressed in the ARTC Track Audit⁵ which gave unit estimates for "... noise pollution, air pollution, greenhouse gas emissions, congestion costs, accident costs, and incremental road damage costs" for road and rail freight in both urban and non-urban areas.

These unit estimates were revised⁶ by this writer (see Appendix C of this submission) as 2000 costs of 2.75 cents per ntkm for road haulage in urban areas, 1.98 for road haulage in non-urban areas, 0.43 for rail haulage in urban areas, and 0.17 for rail haulage in non-urban areas. The road freight social and environmental costs, setting aside under recovery of road system costs, and adjusted to 2007 values (using CPI multiplier $155.6/125.2 = 1.243$) are approximately 2.2 cents per ntkm for road haulage in urban areas, and 1.2 cents per ntkm for road haulage in non - urban areas.

Using ABS Survey of Motor Vehicle Usage data for 12 months ending 31 October 2006, an articulated road freight task in Australia of 129.014 billion tonne km (btkm) required the use of 3415 million litres of diesel. This gives an average of 37.7 tkm per litre. At 2.2 c/ntkm for urban areas, this suggests an average external cost that would require an average charge of about 83 cents per litre to offset.

6. Energy use and greenhouse gas emissions

It is further submitted that more attention is needed by Australia to reduce its dependence on imported oil and greenhouse gas emissions from freight transport. Rail freight is on average three times more energy efficient than road freight.

⁵ Australian Rail Track Corporation (2001) Booz.Allen and Hamilton Appendices *Interstate Rail Network Audit*

⁶ Laird P (2005) *Revised Land Freight External Costs In Australia*, Australasian Transport Research Forum (ATRF)

**APPENDIX A Excerpts of a paper presented at the Australian Road Summit
Sydney February 2007 by Dr Philip Laird, University of Wollongong**

Road pricing in Australia - too little or too much ?

Road user rip offs or road deficits ?

Road user pricing for heavy trucks - has the Productivity Commission got it right ?

How would a carbon tax affect road use ?

A ten point plan for road pricing

1. Road user rip offs or road deficits ?

During the 1990s, it was common for motoring organisations and road transport interest groups to claim that aggregate vehicle related payments to Government exceeded road outlays by Government. Often, in their more extreme forms, propositions were advanced along the lines that motorists are ripped off and trucks more than pay their way. A good account of the question as to whether motorists pay too much was given in a 1999 booklet by Howard Pender⁷. This study was sponsored by the Australian Automobile Association and addressed three questions. First, are motorists lightly or heavily taxed? Secondly, should they be heavily taxed? Thirdly, what is the appropriate balance between taxes on vehicle ownership and use?

Like earlier studies (eg. May et al⁸ 1984), Pender differentiates between ‘charges’ and ‘taxes’. He refers to both overseas and Australian studies including those of Neutze⁹ during the 1960’s, the Inter-State Commission¹⁰ the Industry Commission’s 1994 definitive report on Urban Transport, the Business Council of Australia¹¹, and the Bureau of Transport and Regional Economics (BTRE)¹². Externalities are addressed in some detail. During 1997-98 in Australia, motor vehicle payments were \$12.4 billion (BTE¹³) including \$8.6 billion on fuel excise and \$2.3 billion on registration fees (but excluding

⁷ *Taxing cars - fleecing the fleet or subsidising smog ?* Australian Tax Research Foundation, Research Study No 33

⁸ Report National Road Freight Industry Inquiry

⁹ Max Neutze (1964) ‘Pricing Road Use’ *Economic Record* 40:175-186, and (1966) *Investment Criteria and Road Pricing The Manchester School*,

¹⁰ Inter-State Commission (1990) Road use charges and vehicle registration: a national scheme

¹¹ Cox, J, 1994, Refocussing road reform

¹² Up to and including (1997) Taxes and charges in Australian Transport; a transmodal overview Working Paper 34

¹³ Bureau of Transport Economics (1999) Public road-related expenditure and revenue in Australia

stamp duty which is not specific to motor vehicles). In 1997-98, the outlay on road maintenance and construction was \$7.0 billion. The difference is over \$5 billion.

More recently, the BTRE¹⁴ noted motor vehicle payments were \$15.8 billion in 2003-04 including \$9.6 billion fuel excise, \$3.2 billion registration, and \$1.9 billion stamp duty whilst in that year, the outlay on road maintenance and construction by Australia's three levels of governments was \$8.3 billion. By 2005-06¹⁵, urban and rural road agency expenditure (Federal, State and Local Governments) was \$10.4 billion.

1.1 One estimate of a 'road deficit'

With the exception of fuel excise, there is a very limited effort to recover external costs from motor vehicle use. However, this is offset by Federal funds for roads (now at record levels), generous taxation deductions for motor vehicle expenses (about \$4.8 billion was returned in 2003-04 to taxpayers who as individuals, companies, partnerships or trusts claimed over \$18.5 billion that fiscal year¹⁶) and the Queensland Fuel Subsidy Scheme,

The BTRE¹⁷ mid-range estimate of the annual health related costs from air pollution from motor vehicles in Australia's capital cities was \$2.33 billion for the year 2000. This comprises \$1596 million from the estimated cost of mortality (premature death as a result of air pollution), and \$735 million for morbidity (quality of life and/or productive capacity of victims impaired or reduced as a result of air pollution). Following a European approach¹⁸ (the BTRE effectively attributes air pollution costs to PM10 (particulate matter of size less than 10 microns) levels.

In a further BTRE paper¹⁹, estimates are given of both PM10 emissions in Australia's capital cities and the kilometres driven for various types of motor vehicles. Analysis of this data²⁰ shows that the average health cost of air pollution from operations of cars (and other small passenger vehicles) in Australia's capital cities is 1.3 cents per

¹⁴ BTRE Public road-related expenditure and revenue in Australia (2006 update) Info Sheet 25

¹⁵ National Transport Commission Third Heavy Vehicle Road Pricing Determination (THVRPD) Technical Report (Oct 2005, p13).

¹⁶ Australian Taxation Office, Taxation Statistics 2003-04 which notes inter alia companies claiming \$7.5 billion motor vehicle expenses (assume taxed at 30%), and individuals, partnerships and trusts claiming about \$11.1 billion (assume taxed at the average personal rate of 23%),

¹⁷ BTRE 2005 *Health Impacts of transport emissions in Australia: Economic costs* Working paper

¹⁸ Kunzli N, Kaiser R and Medina S, Public health impact of outdoor and traffic related air pollution: a European assessment, *Lancet* Vol 356, Sept 2 2000)

¹⁹ BTRE 2003 *Urban pollutant emissions from motor vehicles: Australian trends to 2020*

²⁰ Laird P, *Revised Land Freight External Costs In Australia*, Australasian Transport Research Forum 2005

vehicle kilometre (ranging from 0.7 cents per vehicle kilometre in Perth to 1.6 cents per vehicle kilometre in Sydney). To recover an average cost of 1.3 cents per car kilometre through fuel taxes, assuming an average fuel use of 11.4 litres per 100 km (ABS SMVU 2001 estimate), a **fuel levy of about 12 cents per litre** is warranted.

An outline of some external costs of motor vehicle use and 'road deficits' follows. This excludes an earlier estimate of road congestion costs in major cities of about \$12.8 billion in 1995 (BTRE, 1999)²¹;

- i. Road crash costs were estimated by the BTRE (2000) at \$15 billion (bn) in 1996. Less congestion costs it was \$13.5 bn. Only about \$8 bn was covered by insurance in 1997-98 (Laird et al 2001²²); leaving about \$5.5 bn being a cost to the wider community.
- ii. Health related costs from the effects of air pollution from motor vehicles with mid-range estimates for the year 2000 of the BTRE as \$2.6 billion (capital cities as above plus \$0.3 billion for regions);
- iii. The cost of noise from all motor vehicles in urban areas as \$0.7 billion, as per a low range estimate of the Bus Industry Confederation (2001);
- iv. Net taxation refunds for motor vehicle use of \$4.8 billion in 2003-04 as above;
- 1.1.1.1 v. A \$1.9 bn greenhouse gas cost in 2004 (at \$25 per tonne²³);
- 1.1.1.2 vi. An annual \$0.8 bn non-tariff automobile industry assistance programme (ACIS);
- vii. An estimated increased health cost of lack of physical activity due to excessive car use of about \$0.8 bn per annum in Australia (Mason 2003)²⁴
- 1.1.1.3 viii. A Queensland Fuel Subsidy Scheme payment now costing the Qld Government over \$0.5 bn per year, and the NSW Government about \$40m per year; and,
- ix. Toll rebates in Western Sydney costing about \$60m per year.

²¹ BTE 1999 Urban transport - looking ahead

²² Laird, P Newman, P Bachel, M and Kenworthy, J (2001) *Back on Track: Rethinking Transport Policy in Australia and New Zealand* UNSW Press

²³ Based on the Australian transport sector accounting for around 76 million tonnes of Australia's total net greenhouse gas emissions in 2004 (from www.greenhouse.gov.au) see also Laird P (2003) Australian transport and greenhouse gas reduction targets Australasian Transport Research Forum, Wellington, New Zealand

²⁴ Mason, C (2003) Personal communication, also *Transport and health: en route to a healthier Australia?* Medical Journal of Australia Vol 172, 6 March 2000 pp230-232)

These approximate cost estimates add up to some \$17.7 billion. Road system costs in 2001-02 were about \$8 billion a year and road vehicle specific revenues (excluding stamp duty) to Government in 2001-02 were about \$12.7 bn (BTRE, loc cit). Hence, excluding congestion costs, a case can be made that there is a 'road deficit' that is now about \$13 billion per year.

In regards to the costs of accidents involving motor vehicles it can be argued that some, but not all of these costs fall on other road users (see, for example, a 2005 BTRE paper²⁵). Thus, the percentage of road crash costs that should be regarded as an external cost is open to question. Hence, the estimate of 'road deficit' of about \$13 billion per year is also open to question. However, treating external costs as zero is not a satisfactory policy option.

2. Road user pricing for heavy trucks - has the Productivity Commission got it right?

Under a CoAG generated process, the Productivity Commission was directed in February 2006 to hold an inquiry into road and rail freight infrastructure pricing. This followed considerable difficulties experienced over many years by government in leading reform in the area of road pricing of heavy vehicles, and, the increasing need for Australia as a nation to make more effort in the provision of 'fit for purpose' transport infrastructure.

In March 2006, Australia's Federal and State transport ministers declined to adopt a benign third determination by the National Transport Commission (NTC) of charges for heavy vehicles. This was followed in May 2006 with a Federal budget granting an additional \$2 billion in road funding and a \$1.2 billion concession in road pricing for heavy trucks.

There appears to be three notable broad groups of estimates for road system costs attributable to heavy trucks:

- ***Conservative or NTC*** - as per the National Road Transport Commission (NRTC) first and second determinations and the NTC third determination.

²⁵ Martin L (2005) *External accident costs of motor vehicles revisited* Australasian Transport Research Forum 2005

- *Intermediate* - including the former Inter-State Commission findings²⁶ during the 1980s, the 1990-91 Over-Archiving Group (OAG) recommendations and NSW permit fees for heavier semitrailers and all B Doubles in use to 30 June 1996.
- *High, or "user pays"* - including the Bureau of Transport and Communications Economics (BTCE) 1988 report²⁷ noted in the draft report of the Productivity Commission, McDonnell's methodology (NSW) (see for example, this writer²⁸), and ongoing New Zealand Road User Charges.

When announcing the NRTC first generation charges in 1992, the chairman, the late Gordon Amadee, conceded they would not be "user pays" as this would not be tenable²⁹. The costs to the NSW Government of implementing the then new NRTC charges (as of 1 July 1996) was over \$60 million per year and NSW annual permit and registration fees of \$12,650 a year in 1989 for an 8 axle B-Double were slashed to \$5500. With Consumer Price Indexation, the 1989 NSW B-Double fee would now be about \$20,500 pa. This is almost three times more than the current NTC's \$7426 pa for an 8 axle B-Double. Subsidies are one reason why the number of large B-Doubles has grown so rapidly in recent years, as noted in the draft report — up from about 700 in 1997 to more than 6000 now. The difference between road system costs attributable to articulated trucks under the 2005 NTC model and using Macdonell's Methodology is approximately \$1.5 billion per year.

In 1992, the Industry Commission (IC)³⁰ had no doubt that the NRTC charges subsidized the heavily loaded big trucks that haul long distances each year. As the IC 1992 Annual report noted, the NRTC charges would distort road-rail competition as rail reform took place. After 15 years of rail reform following the formation of National Rail in 1992, Australia has now reached the point where such competition for freight is being distorted.

2.1 Externalities

²⁶ Inter-State Commission (1986) Cost recovery arrangements for interstate transport, to (1990) Road use charges and vehicle registration: a national scheme Canberra

²⁷ BTCE (1988) *Review of road cost recovery*, Canberra

²⁸ Laird PG *Freight transport cost recovery in Australia*, Australasian Transport Research Forum, Gold Coast

²⁹ Sydney Morning Herald April 13, 1992 "Recession puts truck plan off road."

³⁰ Industry Commission (1992) Annual Report for 1991-92 page which held as a result of the NRTC charges *The result is that some vehicles - the heaviest travelling long annual distances - will meet less than 20 per cent of their attributed costs. ...The charges, as recommended, will therefore potentially distort the long-haul freight market as rail reforms take effect.*"

Externalities, including air pollution in cities, and accidents involving both articulated trucks and freight trains were considered by the Productivity Commission. These environmental and social costs are not all internalised and some 'polluter pays' and other charges are warranted with the proceeds being applied to infrastructure upgrades. Although articulated trucks are driven about three per cent of all vehicle kilometres, about one road fatality in ten involves an articulated truck. In most cases, this is not the fault of the truck driver.

Most fatalities involving articulated trucks are on roads with speed limits exceeding 80km/h. Worse still, on the National Highway System in NSW, about one road fatality in three involves an articulated truck. More information on heavy vehicle safety is given in a report released by the NSW Motor Accidents Authority³¹. The May 2006 report of the General Purpose Standing Committee No. 4 of the NSW Legislative Council on Pacific Highway Upgrades notes that many people do not like seeing highways and roads overrun with big trucks – even on upgraded roads.

Energy efficiency and oil vulnerability issues affecting the transport of people and freight are identified in a report released 7 February 2007 of the Senate Rural and Regional Affairs and Transport Committee³².

3. Greenhouse Gas emissions - impacts of a carbon tax ?

In regards to various estimates for the costs of greenhouse gas emissions, a value of \$25 per tonne of carbon dioxide equivalent (CO₂e) was supported by several writers (eg Quiggin³³) and is similar to a value of \$NZ30 per CO₂e tonne used by Transfund New Zealand³⁴. It may be argued that a cost of \$25 per tonne of CO₂e is either too low, or too high. A BIC³⁵ (2001) recommendation was for a tax using \$40 per tonne of CO₂e, with their view that this estimate may prove to be conservative. Greenhouse gas emissions are discussed by the Productivity Commission in their draft freight report (on page 6.16-18 and Appendix C of this report) with data showing that at \$10 per tonne

³¹ 2000 *Report of Inquiry into Safety in the Long Haul Trucking Industry*

³² Report of the Inquiry into Australia's future oil supply and alternative transport.

³³ Quiggin J (1998) *Taxing times: A guide to Australia's tax debate*, UNSW Press

³⁴ Austroads (2000) *Australia Valuing emissions and other externalities: A brief review of recent studies*

³⁵ Bus Industry Confederation (2001) *Getting the Prices Right: Policy for More Sustainable Fuel Taxation for Road Transport in Australia* Submission (by Mr John Stanley) to the Commonwealth Fuel Taxation Inquiry.

CO₂e, line haul road freight would accrue climate change costs of between 0.06-0.08 cents per net tonne km. For Sydney - Melbourne line haul road freight, the mid range is then about \$0.60 per tonne and for rail is about \$0.25 per tonne of freight. At \$25 per tonne CO₂e, this is respectively \$1.50 (road) and \$0.62 (rail - which would reduce with the track straightening as above).

For petrol use in cars, using a factor of 1 litre of petrol directly emits 2.4 kg of CO₂e³⁶, at \$25 per tonne, a **fuel levy of 6 cents per litre** is warranted.

The year of 2006 was notable for an increased concern about global warming³⁷ (and the need to do something about it as per the UK Stern Report). Australia has the highest road freight per capita in the world (Austroads loc cit) in terms of net tonne-km per person) and hence the highest greenhouse gas emissions from freight movements per capita in the world (due to road freight being an energy intensive way of moving freight).

In reducing greenhouse gases, one can take a view that each sector should be required to 'pull its weight'. In the transport case, imposition of a charge is supported with the proceeds going into upgrading land transport infrastructure that will reduce oil use and greenhouse gas emissions in land freight transport. The appropriate level at this stage would appear to be \$10 per tonne, then moving to a higher amount.

4. Road pricing policy options

A BTRE 2002 report³⁸ gave some 11 groups of measures to reduce vehicle kilometres travelled (VKT), nine measures to reduce emissions per VKT, four road pricing measures (mass-distance charges for heavy trucks, tolls, internalising transport externalities and emission charging), carbon taxes and tradable permits. Optimal road pricing was held to offer the best way forward.

This view was shared by a NSW Inquiry³⁹ *"The thinking underlying the support for road use pricing is that road access is currently 'too cheap' ...*

APPENDIX B Freight Transport Cost Recovery in Australia

³⁶ AGO Factors and Methods Workbook, Department of the Environment and Heritage, December 2006 page 10

³⁷ See for example, Steffen, W (2006) Stronger evidence but new challenges: 'Climate change science 2001 – 2005, DEH-AGO

³⁸ Bureau of Transport and Regional Economics (2002) *Greenhouse policy options for transport 2020* Report No 105

³⁹ (NSW Ministry for Transport (2003) Ministerial Inquiry into Sustainable Transport (Parry Inquiry via www.transport.nsw.gov.au)

Executive Summary (2006 ATRF Paper- full paper at patrec.org)

Philip Laird University of Wollongong

The paper commences with Section 1 noting the Australian land freight task and its recent strong growth. In the nine years from 1994-95 to 2003-04, the iron ore and coal rail freight task increased some 57 per cent to 118 billion tonne kilometres (btkm), the interstate rail freight task increased 59 per cent to 27 btkm and the remaining rail freight task increased 28 per cent to 23 btkm. During these nine years the articulated road freight task increased about 36 per cent to 121 btkm, with a four plus fold increase in the B-Double freight task.

The New Zealand land freight task is noted in Section 2 (as about 14 btkm for road and 4 btkm for rail), along with the 2005 Surface Transport Costs and Charges report. This study found that rail freight users pay more (on average 82%) of the costs they impose on society than trucks (some 56%) of their costs. This general finding is echoed in cost recovery in land freight in Australia.

Section 3 of the paper notes that although rail freight deficits significantly decreased during the 1990s, explicit rail freight Community Service Obligation payments in New South Wales and Queensland amounted in 2002-03 to about \$23m with larger payments for maintaining rail track. The paper raises questions about the ability of current rail access pricing to generate sufficient funds to adequately maintain the lighter density lines or funds to upgrade medium density lines.

In Section 4, by use of methodology developed by an earlier Commission of Enquiry into the NSW Road Freight Industry, the 2005-06 road system costs attributable to the operation of articulated trucks in Australia is estimated. Using National Transport Commission (NTC) 'third determination' data for heavy vehicles, these costs are estimated at \$2436m. This far exceeds the NTC 2005-06 estimate of \$1039m for the road system costs attributable to articulated trucks. The difference is due mainly to the NTC making less use of the Equivalent Standard Axle kilometre (ESA - km) factor for cost allocation, using a lower unit ESA - km value, and, using vehicle kilometres rather than Passenger Car Equivalent unit kms for the allocation of non-separable costs. With an estimated \$920m in 2005-06 from annual registration fees and a road user charge set at 20 cents per litre for diesel, the resultant under-recovery is about \$1.5 billion for articulated trucks (and \$420m for rigid trucks).

A brief examination of charging options for heavy trucks is made. These include weight distance taxes that are in successful use in New Zealand and are suggested as being suitable for highly productive units such as road trains, B-Doubles and the heavier six axle articulated trucks. In the interim, more attention could well be given to distance differentiation charges and mass differentiation charges for the heavier articulated trucks.

Section 5 briefly considers external costs such as rail and road accidents, air pollution, noise and greenhouse gas emissions. Using estimates from a 2005 ATRF paper, the social and environmental costs of articulated truck operations for 2003 - 04 are estimated at about \$1525m. Such costs for the non iron - ore rail task are estimated at about \$215m.

In Section 6, impediments to efficient land freight operations are considered, with attention given to substandard rail track. Section 7 briefly considers implications for road

and rail of a doubling of the Australian land freight task and how 'Twice the task' along with increasing oil prices require a rethinking of land freight transport policy. The paper concludes that it would be in the national interest to reduce the total subsidies to land freight transport in Australia.

APPENDIX C Land Freight External Costs

Executive Summary (in part) of an Australasian Transport Research Forum Paper *Revised Land Freight External Costs in Australia* Sydney September 2005 Philip Laird, University of Wollongong

This paper outlines some estimates of external costs of land freight transport published in Australia since 1990. The earlier reports include those of the former Inter-State Commission, the National Transport Planning Taskforce, the Victorian Environment Protection Authority and the Bureau of Transport and Regional Economics with its 1999 report *Competitive Neutrality between road and rail*.

With the increasing land freight task and projections for future growth, estimates of external land transport costs have been of increasing interest to government. Recent examples include Queensland Transport, the Victorian Department of Infrastructure, the NSW Department of Transport study of grain transport options, the Australian Transport Council's 2004 *National Guidelines for Transport System Management*, and, the 2003 Austroads report *Valuing Environmental and Other Externalities*. A New Zealand Ministry of Transport *Surface Transport Cost and Charges* study released in 2005 is also of note.

The paper gives particular attention to six external costs of road and rail freight operations in both metro and non-urban areas identified for the Australian Rail Track Corporation's 2001 Track Audit. These external costs are accidents, air pollution, noise pollution, greenhouse gas emissions, congestion, and incremental road damage. The results of two studies conducted for Queensland Transport in 2001 and 2004 that provided updated estimates for each of the Track Audit externalities are discussed. The revised estimates of unit costs include:

1. Australia wide accident costs of 0.6 cents per net tonne kilometre (ntkm) for road freight moved by articulated trucks and 0.03 cents per ntkm for rail freight.
2. An average cost of air pollution in capital cities of 0.65 cents per ntkm for freight moved by articulated trucks and 0.22 cents per ntkm for rail freight moved by diesel electric locomotives. These estimates are based on PM10 emissions as discussed in two BTRE reports *Health Impacts of transport emissions in Australia: Economic costs* (2005) and *Urban pollutant emissions from motor vehicles: Australian trends to 2020* (2003).
3. Noise in capital cities - 0.22 cents per ntkm for road, 0.12 cents per ntkm for rail.
4. A greenhouse gas cost (based on \$25 per tonne of carbon dioxide) of 0.18 cents per ntkm for road freight moved by articulated trucks and 0.06 cents per ntkm for rail freight.

5. Road congestion (metro only) 0.10 cents per ntkm for road. -
6. Pending the third determination of road user charges for heavy vehicles of the National Transport Commission, under-recovery of road system costs from articulated trucks at 1.0 cents per ntkm.

Table 1 Recommended revised Australian land freight externality costs		
Externality Measure	Road (c/ntk)	Rail (c/ntk)
Accident Costs	0.60	0.03
Air pollution		
- Metro	0.65	0.22
- Rural	0.13	0.04
Noise pollution		
- Metro	0.22	0.12
- Rural	0.07	0.04
Greenhouse gases	0.18	0.06
Congestion (Metro only)	0.10	-
Increased road maintenance	1.00	
TOTALS		
Metro	2.75	0.43
Rural	1.98	0.17

Reference: As per text. Note that road maintenance costs for roads of light construction are higher, also that any rail track subsidies may need to be taken into account.

It may be noted that, excluding unrecovered road system costs, the metro articulated truck road external cost of about 1.75 cents per net tonne km is less than half the approximate value cited in the above Austroads report of some 4 cents per net tonne km.

Lower unit costs are given for air pollution and noise for road and rail haulage in non-urban areas.

Even if the users of land freight transport are not required to meet their full external costs, such costs should be fully accounted for when major infrastructure investment decisions are being made. Based on the information in this report, the values in Table 1 are recommended.