Submission to the Productivity Commission's draft report

Inquiry into road and rail freight infrastructure pricing

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1. Introduction

This submission is in response to the draft report and will again draw on research conducted at the University of Wollongong. This research is supported, in part, by the Co-operative Research Centre in Railway Engineering and Technologies (Rail CRC). However, it does not necessarily reflect the views of either organisation.

There are three main areas where the Commission's draft report is considered in need of improvement. These are:

- estimates of attributable road system costs for heavy trucks,
- the external costs of road crashes involving articulated trucks, and,
- substandard mainline interstate and regional rail lines that are an actual "cause of inefficiency" in rail freight.

In addition, comments are made regarding:

- a recent report of a NSW inquiry into the Pacific Highway, and,
- oil vulnerability, rails superior energy efficiency, and a related Senate Inquiry.

2. Road pricing for heavy trucks

It is clear that the Commission (Chapter 4) places much credence on PAYGO and the methodology adopted by the National Transport Commission (NTC) in its third determination. This methodology goes back to the former NRTC in its first and second determination.

Appendix B of the draft report examines a limited range of previous cost allocation studies, going back to the Bureau of Transport and Communications Economics (BTCE -1988) that used, inter alia, Equivalent Standard Axles and Ramsey pricing. Conspicuous by its absence is any detailed discussion of the studies undertaken during the 1980s of the former Inter-State Commission (ISC), although the 1990 ISC report is cited. These detailed ISC studies include:

(1986) Cost recovery arrangements for Interstate land transport

(1987) A Review of Federal Registration Charges for Interstate Vehicle

It is submitted that the final PC report could usefully outline at least the attribution parameters of the 1990 ISC report and acknowledge the earlier ISC reports

along with the 1991 Over-Arching Group of report. This report, compiled from officials from State road authorities outlined 'user pays' charges for heavy trucks.

It is further submitted that the Commission should acknowledge the 1980 McDonell report, whose findings were summarised by the ISC (1986) as well as by this writer (in his primary submission). In addition the so called “alternative method” mentioned on page B.5 of the draft report could well be attributed to McDonell rather than to this writer.

It would be interesting to see the BTCE (1988) methodology applied to NTC third determination data to gain estimates of road system costs attributable to heavy trucks. (The information in Table B.1 noting an extra $590m for maintenance expenditure over the base case may assist such a calculation).

It is of note that McDonell’s methodology when applied to NSW data found attributable costs of the same order as either:

A. BTCE (1988) cost attribution levels for 1984-85 (as per p220 of a 1990 paper[1]), or,
B. Costs estimated by a hypothetical application[2] of New Zealand Road User Charges to the NSW road freight task for 1978-79.

Basically, there are three notable broad groups of estimates for road system costs attributable to heavy trucks.

- Conservative - as per the NTC third determination values.
- Intermediate - including the former Over-Arching Group findings and NSW permit fees for heavier semitrailers and all B Doubles in use to 30 June 1996.
- High - including McDonell (NSW), BTRE (1988) and ongoing New Zealand Road User Charges.

2.1 Some New Zealand Road User Charges for B-Doubles

The report (page 4.39) notes that a 9 axle B-Double travelling 102,500 km pa (25th percentile) under-recovers its allocated cost ($25,800) by about 20 per cent, whilst one hauling 227,500 km pa (75th percentile) under-recovers its allocated cost ($57,200) by about 40 per cent. It is assumed that the average gross mass (GVM) is

[1] Laird PG (1990) 'Road cost recovery in Australia and New Zealand', Transport Reviews (United Kingdom), Vol 10, p 215-227

[2] Laird PG (1983) 'The assessment of NSW road freight deficits' 8th Australian Transport Research Forum, Canberra Proceedings, Volume 1, p.287-303.

Table 1 New Zealand Road User Charges – 9 axle B-Double calculation

Mass	GVM tonnes	Prime Mover Mass (t)	Prime Mover Charge ($)	Triaxle trailers (2) Mass (t)	Triaxle trailers (2) Charge ($)	Charge per 1000km dollars NZ
Average	52	16	144.67	18	148.34	441.35
Heavy	62.5	22.5	402.79	20	200.57	803.93

Reference: Road User Charges Booklet April 2006 Land Transport NZ

Table 2 New Zealand Road user charges – 9 axle B-Double charges

In Australian dollars [NTC in brackets]

Mass	Charge per 1000km	(25th percentile) (102 500 km)	(75th percentile) (227 500 km)
Average	387.15	39 683 [25 800]	88 077 [57 200]
Heavy	705.70	72 283	160 433

Reference: Table 1 and text. Currency conversion at $A1=$NZ1.14 as at 17 Oct

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[is] 51.8 tonnes (could this be clarified in the final report; also, could the allocated costs and revenues be given for a 9 axle at 62.5 tonnes GVM).

As noted in the draft report New Zealand has used mass-distance charges for heavy trucks since 1978. Examples of current charges are provided in Table 1 for B - Boubles at average and standard maximum GVMs.

Table 2 gives estimates of indicative New Zealand road user charges for B - Doubles. It can be seen that these are appreciably higher than the NTC cost estimates.

The final report could usefully include indicative New Zealand road user charges for six axle articulated trucks, and compare these with the Australian estimates of attributable costs.

Table 2 suggests that if B-Doubles with an average load hauling the 75th percentile distance each year in Australia paid New Zealand charges, they would pay about two and one half times the current NRTC charges.

As per this writers primary submission, it is suggested that the appropriate level and structure of charges for long distance heavy trucks hauling in the populous zone of Australia lies somewhere between the current Australian system and the New Zealand system.

2.2 Inclusion of road capital costs

It is difficult to see the basis for an ongoing approach that effectively attempts to have rail track to pay its way (including loans which include the Albury - Melbourne gauge standardisation project being paid off from 1962 to 2012 and now some ARTC upgrades) whilst setting aside:

a) the demonstrable under-recovery of road system costs from interstate trucks from 1954 to at least 1986,
b) the large investment into reconstructing the former National Highway System from 1974 to 2004, and,
c) the recent ramp up in expenditure on the Hume and Pacific Highways along with other roads [a total of $2 billion in the 2006 budget]

As noted in this writers primary submission, in the 30 financial years from 1974 to 2004, in 2004 values, the Federal Government allocated an estimated $24.6 bn to the National Highway System with $58.0 bn on all roads, $2.2 bn to rail capital works, and about $1.8 bn to urban public transport.

This includes a total outlay by the Federal Government on the Hume Highway in the 30 years from 1974 to 2004, which is estimated $5 billion (4.98 bn) in 2004 values. This estimate was derived by obtaining Department of Transport estimates for each year (supplemented by State maintenance estimates in recent years), and applying appropriate inflation indices.

In reconstructing about 85 per cent of the length of the Hume highway from 1974 to 2004 at a cost of about $5 billion in 2004 terms, enhanced design standards were adopted to facilitate the haulage of increasing tonnes of Sydney-Melbourne intercity freight. Additional expenditure was incurred for:

- Rigid pavements (concrete) as opposed to flexible pavements (asphalt)
- Climbing Lanes
- Heavier Bridges
- Bringing forth town bypasses and dual carriageways in sections with a moderate Annual Average Daily Traffic (AADT).

2.3 Mass differentiation in charges

The point is made by Coles Myer (as quoted on p4.39 of the draft report) that *"pricing structure should recognise or offer incentives for reducing axle weight."*

Chapter 8 could be usefully revised to give more attention to mass differentiation.

As noted elsewhere (eg this writers main submission, Appendix B) the former Federal Interstate Registration Scheme has two levels; effectively 'standard' and 'heavy'; whilst NSW had until 1996 a permit scheme allowing effectively for 'standard', 'intermediate' and 'heavy' loading (with respective GVMs of 38, 41 and 42.5 tonnes for a six axle articulated truck).

2.4 Distance – differentiation schemes

This is given some attention in Chapter 8; however, it should be noted that such schemes were proposed in principle as far back as 1990 by the ISC for the heavier long distance trucks.

Incidentally, as noted in the draft report Switzerland, Austria and Germany have made progress in this area, also as noted on p D.7 much (about 45 per cent) of the revenue generated from their truck distance tax is directed to improving their rail system (including not one rail tunnel but two rail tunnels - Lotschberg plus NEAT).

2.5 Competitive neutrality in access pricing

Both page 7.10 and Appendix G note that increasing costs allocation of truck charges by as much as 40 per cent would have a limited impact on modal shares. However, it does have an impact on rail freight profitability which in turn would affect rail investment - both above and below rail.[3]

What would be interesting to see modelled is the anticipated impact on road freight's modal shares if any of the following increases in charges were to be applied:

A. The BTCE (1998) implied level of charges.

B. The New Zealand Road User Charges.

C. Switzerland, Austria or Germany levels of charges.

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[3] As noted Laird (1993) 'Rational road user charges for heavy trucks', ATRF Papers, Volume 18, Part 1, p 1-14. *"Road pricing for heavy trucks affects the rates charged for rail freight services in New Zealand .... During 1992-93 New Zealand Rail Ltd was in the process of privatisation. The parties that have expressed an interest in purchasing this rail system are understood to have sought guarantees that New Zealand's present system of road user charges would remain intact for at least five years."*

2.6 Funding boosts to road transport

From the 2006 Federal Budget speech delivered by the Treasurer on 9 May:

"The largest allocation will be $800 million this year to accelerate duplication of Australia's busiest interstate road freight route - the Hume Highway. Apart from three by-passes, this money will complete the dual carriageway from Sydney to Melbourne and pull it forward from 2012 to 2009.

"We will provide $220 million to accelerate works to improve the safety of the Bruce Highway between Townsville and Cairns, and an extra $48 million to the Tully flood works project. …

In addition to these works this Budget will allocate new money of:-

- $323 million for the Great Northern, Great Eastern and Eyre Highways in Western Australia;
- $160 million for the Pacific Highway in New South Wales;
- $100 million for the Sturt Highway in South Australia;
- $60 million for the East Tamar Highway in Tasmania; and
- $30 million for the Victoria Highway in the Northern Territory. Earlier this year I announced additional funding for the Western, the Calder and the Goulburn Valley Highways in Victoria.

"All these projects are AusLink national network roads. At the local level the Australian Government … will pay an additional $307.5 million to Local Councils this year …

"**The Road User Charge for heavy vehicles currently stands at 19.6 cents per litre. The Government will not proceed with an anticipated increase in this charge which was to have come into effect on 1 July 2006. This is a saving to the road industry of $1.2 billion over the forward estimates.** (emphasis added)'

The combined boost to roads amounts to $ 2048.5 million. This far exceeds the additional $270 million allocated to interstate rail.

3. Externalities

Apart from noting that air pollution and noise from heavy trucks and freight trains do impose external costs that mostly are <u>not</u> internalised, this section shall be confined to road crashes involving articulated trucks. As noted (page 6.7) *"Accidents involving motor vehicles (including freight vehicles) are a very large cost associated with road use"*. However, the discussion of costs given in both Chapter 6 and Appendix C of the draft report could usefully be expanded to include the following:

A. The 2000 *Report of Inquiry into Safety in the Long Haul Trucking Industry* of Professor M Quinlan for the NSW Motor Accidents Commission – the detailed report and its relevant findings are not cited in the draft report.

B. Actual numerical data on facilities involving articulated trucks from the ATSB data base.

C. Recognition of more estimates of unit road accident costs even if they include internalised costs (including those this writer of 0.60 cents/ntkm to match cited rail estimates of 0.03 cents/ntkm (p 6.11 and C.4 of the draft report).

3.1 The Quinlan Report

Some pertinent quotes from the year 2000 *Report of Inquiry into Safety in the Long Haul Trucking Industry* follow

'Quite apart from the toll in terms of human suffering, the poor safety performance of the long haul road freight industry entails significant economic costs to the community.' (p.18)

'Speeding heavy vehicles are significantly over-represented in crashes.' (p.20)

'The inquiry received considerable evidence to show that speeding trucks represented a pervasive and serious safety issue.' (p.20)

'externalities (such as the full cost of the resulting injuries, deaths and illness) and the absence of competitive neutrality (for example, in terms of road/rail infrastructure investment/cost recovery and regulatory requirements) act as a hidden subsidy to freight rates.' (p.21)

'Roughly speaking, the fatality/fatal crash rate involving heavy vehicles remains almost twice that of the USA (where trucks cover similar vast differences but with climate and road quality differences) and the UK.' (p.48)

'In sum, both Australian and USA data show that road transport accounts for more work-related fatalities than any other industry and a disproportionate share when adjusted for employment levels. Truck drivers killed in collisions (most on highways) constitute the biggest single group of road transport worker deaths (and again disproportionate to their share of overall employment in the industry). Truck driving remains one of the most dangerous occupations and has certainly not improved its ranking over the past decade.' (p.52)

3.2 Road fatalities involving articulated trucks

Firstly, it should be noted that driving articulated trucks is a hazardous operation with appreciable loss of life (which could be acknowledged and quantified in the final report).

Table 3 Fatalities involving articulated trucks

	On roads with speed limits exceeding 81 km/h	*On all roads*
1999	122	191
2000	151	208
2001	126	178
2002	142	200
2003	114	171
2004	104	149
2005	113	156
2006*	85	114
Totals	**957**	**1367**

Reference: ATSB fatalities data base accessed 18 Oct 06 via http://atsb.gov.au/
* Data to 30 September only for 2006

Table 4 Fatalities involving all vehicles

	On roads with speed limits exceeding 81 km/h	*On all roads*
1999	876	1764
2000	879	1817
2001	848	1737
2002	873	1751
2003	797	1621
2004	771	1583
2005	826	1627
2006*	483	1196
Totals	**6353**	**13 096**

Reference: ATSB fatalities data base accessed 18 Oct 06 via http://atsb.gov.au/
* Data to 30 September only for 2006

Secondly, such fatalities are usually not the drivers fault. Thirdly, too many truck drivers lose their lives in moving other peoples freight.

Extensive data for fatal road crashes involving articulated trucks and other vehicles in Australia is given by the ATSB. A very brief summary of some of the available data is given in Tables 1 and 2. However, data from the ATSB for serious and other injuries due to road crashes involving articulated trucks is limited.

Tables 3 and 4 show that over the 7 years and 9 months to 30 September 2006, on roads with speed limits exceeding 80 km/h there was a loss of 957 lives in road crashes that involved articulated trucks, and, over this period of time, about **on roads with speed limits exceeding 80 km/h, about two road fatalities in thirteen involves articulated trucks.**

Table 3 shows about 70 per cent of the loss of life in all road accidents involving articulated trucks during this time occurs on that on roads with speed limits exceeding 80 km/h, whilst Table 4 shows that for all vehicles, about 48.5 per cent of loss of life on all road accidents occurs on roads with a speed limit exceeding 80km/h.

Data provided by the NSW Roads and Traffic Authority to the University of Wollongong in Appendix A shows that for the 10 years to 31 December 2003, about 36 per cent of the lives lost on road crashes on the National Highway System within NSW were in crashes involving articulated trucks. Accordingly, over this time **on New South Wales Section of the National Highway System, about one road fatality in three involves articulated trucks.**

It is of note from an NTC media release of August 2004 that the number of fatal crashes involving trucks in Australia jumped 12.9% in the 12 months to July this year, while the **number of people killed in those crashes increased by 20.4%.**

The 12.9% increase in fatal crashes involving trucks compared with only a 1.3% increase in fatal crashes involving all vehicle types during 2005-06. The jump in the number of deaths as result of truck crashes compared with a 2.5% jump in total Australian road deaths.

3.3 Two unfortunate fatal accidents

The first accident of note is one on 25 May 2006 at a level crossing at Victoria involving a B - Double whose driver lost his life, with considerable damage to an intermodal freight train, some damage to the track, and line closure for five days.

The second example of such a truck accident with the regrettable loss of life of a truck driver was noted by the Canberra Times for 20 September *'Truckie dies in Hume smash fire'*. The article notes that on the previous day (Tuesday 19 September 2006) "*another horrific crash on the Hume Highway claimed the life of a truck driver" [occurring shortly before 5.00 am when despite placement of warning devices] a semi-trailer ran into a B-Double which had broken down causing a fire] and " left northbound lanes between Yass and Goulburn closed until around 6 pm. Traffic was diverted through north Canberra …"*

When cars have accidents requiring road closures, truck operators and their clients can incur additional costs. Similarly when trucks have accidents requiring road closures, car drivers and other truck drivers can incur additional costs.

3.4 Unit cost estimates

It is submitted that the draft report has failed to demonstrate that the costs of fatal road crashes involving articulated trucks are internalised to the operators of articulated trucks and their clients. Note that this is a different question as to whether the accident costs of ALL road vehicles are internalised.

Given that the high number of fatalities involving articulated trucks occur on roads with speeds exceeding 80 km/h it is probable that these costs are higher in non-urban areas than urban areas (opposite to air pollution and noise costs).

It is of note that Austroads[4] (2003, p75) found a derived road crash cost of $15.58 per 1000 tkm (ie 1.56 cents per net tkm) for road crashes involving articulated trucks. This was by noting that in 1996, 193 fatalities involving articulated trucks formed 8.2 per cent of all road fatalities and then allocating this percentage to the BTRE (2000) estimate of the cost (inflation adjusted to 2000 values) of all road crashes, and dividing by the articulated truck freight task.

4. Substandard rail infrastructure

The inquiry draft report notes measures to improve efficiency and productivity within both the road and rail freight sectors. These appear to include in effect ‘better roads’ (several references), some ‘heavier loads’ and enhancing intermodal connections (Section 10.4) more so than better rail track.

Under-investment in rail is briefly noted in Section 3.4 and all but set aside in the draft report. This is despite the recognition given by the Commission in its 1999 report on rail (briefly noted p3.15 of the draft report) which gave some detail. The Prime Ministers 1998 Report on Revitalising Rail (not cited in the draft report) also noted ‘substandard track’, the 1998 House of Representatives Standing Committee on Transport and Regional Services report *‘Tracking Australia’* (also not cited) and other reports are also relevant. These include the 2005 Engineers Australia 2005 Infrastructure Report Card which is cited re Roads on page 9.8 but rail's C- rating is not cited. To quote in part from this report card (with emphasis added).

> *In 2001, rail was graded between A and F with an overall grade of D-. In 2005, rail has improved its rating to C-.*

[4] *Valuing Environmental and Other Externalities* ARRB Transport 2003

There have been some notable improvements, but widespread delays remain and there are uncertainties with new investments. There is emerging congestion in many metropolitan rail networks. …Improved infrastructure is required to support the transfer of inter-State freight from road to rail and rail access to ports should have an appropriate level of investment.

The Melbourne to Sydney to Brisbane corridor is still sub-standard and is seriously affecting rail freight viability. ***There is an urgent need for funding.***

4.1 Substandard interstate rail

These general comments are to supplement earlier submissions to this and other inquiries that have argued for a further round of track upgrades to follow the present ARTC investment programme that is due to be completed in 2009. The extra upgrades include grade easing and extensive track straightening.

In July 1995, when freight forwarder SCT started their Melbourne – Perth rail freight service as an early application of National Competition Policy, a weekly 600 metre train with 22 louvre vans was placed into service. Today, SCT run four and sometimes five trains per week with each train having up to 70 wagons. This growth factor is at least twelve. Other data shows that the rail freight task on the East - West corridor has had very strong growth from 1994-95 to 2003-04. This strong growth would not have been possible without three major Federal initiatives. These are the Kalgoorlie Perth gauge standardisation with its new route in the Avon Valley during the 1960s, Australian National's concrete resleepering in South Australia (1978-95) and the Melbourne Adelaide Rail Standardisation project (1992-95).

However, on the North South corridor, linking Australia's three largest cities, there has been little or no growth in the rail freight task. This reflects the substandard track with minimal investment to date coupled with rebuilding the Hume and Pacific Highways (at a cost of about $10 billion to 2004). The worst performing part of this corridor is Sydney Melbourne where rail wins less than 10 per cent of market share of 11 million tonnes per annum of general freight.

Some people argue the low share reflects a corridor of relatively short length (900±km). Yet Melbourne - Adelaide (840km), is a shorter length corridor where rail wins a higher share (21 per cent). Auckland - Wellington is shorter still (640km) with an even higher modal share reflecting a poor intercity road and New Zealand's mass - distance pricing for heavy trucks.

4.2 Too many circles

Using computer track file data which gives at 10 metre intervals the grade and the radius of any curve, it is possible to calculate the angle subtended by each curve on the track. Adding these angles gives the number of circles as in Table 5.

Table 5 Aggregate lengths of rail track with curve radius tighter than 800 metres, number of circles traversed, and with gradients steeper than 1 in 66 and/or tight curves

Section of Track	Length km	Curves less than 800 m radius **km**	Number of circles	Circles per **100 km**	Steep grades on tight curves **km**
MELBOURNE - GLENLEE (approx 55 km south of SYDNEY)					
Melbourne - Albury	312	6	7	2	3
Albury - Junee	160	11	3	2	0
Junee - Goulburn	263	82	39	15	17
Goulburn - Glenlee	165	50	23	14	0
Total	**900**	**149**	**72**	**8**	**20**
STRATHFIELD (near SYDNEY) - ACACIA RIDGE (near BRISBANE)					
Strathfield - Maitland	181	57	27	15	14
Maitland - Grafton	506	237	111	22	0
Grafton - Acacia Ridge	274	102	39	14	14
Total	**962**	**396**	**177**	**18**	**28**

Reference Laird (1998)[5] with data rounded and number of circles added. The Bethungra spiral is included.

It can be seen that **a train moving between Sydney and Brisbane turns a total of about 177 circles** – some 88.5 to the left and 88.5 to the right. This reflects the original ‘Branch Line’ status of most of this 'long and winding' track. Appendix B gives an outline of how construction of a 67 kilometre section of new track along the Karuah Valley in New South Wales to replace the existing 91 kilometre Hexham-Stroud Road section (see map) with its poor alignment could halve transit times and reduce fuel by 40 per cent. Trains using the current Hexham-Stroud Road alignment

[5] Laird, 1998, *Rail freight efficiency and competitiveness in Australia,* Transport Reviews, Taylor and Francis, London, 1988 Vol 18, No 3, p241 - 256

have to traverse the equivalent of 18.5 complete circles of curvature, where trains going on the new alignment would turn the equivalent less than one circle.

Table 5 also gives other Sydney-Brisbane track information, and data for Sydney - Melbourne. The steam age alignment of much of the Junee - Glenlee track is also apparent from Table 5. Note (from this writers main submission, Section J) that the construction of about 200 km of new track between Menangle (60 km south of Sydney) and Junee could get rid of nearly 260 km of track with "steam age" alignment where trains turn a total of about 50 circles. The new track would give big reduction in freight train transit times, fuel use and operating costs. It would also improve train reliability and improve rail freight efficiency and competitiveness.

4.3 Substandard regional track

Grain lines are disintegrating in three main land states, whilst the Tasmanian track is in need of rehabilitation. Some findings from a Study Tour of Railway Engineering conducted in late March 2006 by the Railway Technical Society of Australasia (RTSA)are of note.

As per section 35 of my main submission, a 19 Tonne Axle Loading (TAL) on grain trains from Boree Creek to The Rock where the branch line joins the mainline. The 19 TAL limit means that each grain wagon can only be partially loaded and this affects trains loaded at either Boree Creek or the ABB facility at The Rock. In the case of the ABA silo at The Rock, this is despite the main line capable of handling 25 TAL being no more than two kilometres away. It is odd that at the time of installation about 1999 neither ABA (with its joint partner Sumitoto), or the Rail Access Corporation, or Freight Corp sought to make a small marginal investment to lay heavier rail etc for two kilometres. It is also puzzling why this situation has persisted for so long. To date, between them, ABA, the NSW Government and/or ARTC, and Pacific National have declined to make the necessary investment. It appears that construction of a triangle and loop on heavier rail to give direct access to Melbourne Port (where most of the wheat from this silo goes) could be a good investment.

The second constraint (noted in section 36 of my main submission) affects the export of wine from the Riverina area through the port of Melbourne. The issue of limited weight for wagon loadings also affect the Patrick Intermodal operations at Griffith. Their trains currently go via Leeton to Junee and Melbourne, but the track to Junee is restricted to 19 TAL. In this case, a modest increase 21 TAL would give

good benefits. The necessary investment in rail track would be very small when compared to the private investment of over $150m by Casella Estate Wines to build a large new state of the art grape receival, wine making and bottling plant (12 million bottles a year of [Yellow-tail] wines with most of this for export to the United States.

In the short term, there is a good case for rehabilitation of branch lines. The alternative is to see more and more freight move by B-Doubles on lightly constructed roads. The fact that rail operations are no longer vertically integrated means that government may need to work harder to seek contributions from beneficiaries as well as provide funds to facilitate upgrades that will enhance Australia's export potential.

4.4 Some other expression of concern re rail capacity

Re above rail operations, it is understood (ARA presentation to the Parkes Rail Conference on 25 September) that the average age of Australia's locomotive fleet is 32 years. More investment is needed to improve this situation.

Re below rail, as noted by the Australian Logistics Council[6] rail is a key action area and preparing the rail system for future challenges is the first of four top action priorities. To quote from page three *" current rail infrastructure is not capable of providing an adequate level of service even for the existing task. This is a reflection on past under-investment…"*

An editorial **Road or rail ? that is *not* the question** from the current issue (2) Oct/Nov 2006 of the magazine Australian Freight Logistics says it well.

To quote in part, it is *"…easy to see why rail transport has so much trouble competing with trucks. Major connecting roads … have received mega-millions in funding and now feature nea -freeway quality, well maintained, straightened roads. …*

Comparing the railway track to the new road is enough to make you cry. The track that was laid early last century was designed for steam engines … train operators [today with powerful locomotives] *are forced to contend with having to wind their way around a snaking track* [with excessive length]. *Rickety bridges, an antiquated, aging track and low headroom add further pain to the already painful journey. …*

[6] Australian Logistics Council (2006) Infrastructure Action Agenda

"…if the freight task is indeed going to double over the next twenty-odd years [governments] will have to spend the billions needed on rail, as well as maintain the funding for roads. The time for feel-good tax cuts is over."

This writer would also suggest that the time for hidden subsidies to freight is over, with the proceeds from increased road and rail pricing going to infrastructure.

4.5 Query re Draft Finding 6.8

DRAFT FINDING 6.8 reads "*Including an allowance in rail infrastructure investment decisions, or making selective adjustments to road freight infrastructure pricing for the average impact of road externalities, is unlikely to be an efficient way of dealing with freight transport externalities. It does not address the externalities directly, nor assess optimal levels of an externality, nor consider opportunities for other, possibly lower-cost, abatement alternatives.*"

This draft finding is hard to understand. It also appears to be in conflict with the use of external costs as part of AusLink project assessment in the *National Guidelines for Transport System Management In Australia* released in November 2004 by the Australian Transport Council (Vol 2, Project Appraisal, page 87).

The use of external benefits has long been used in the evaluation of benefit-cost ratios for major road projects in Australia. Abelson[7] recognises Vehicle Operating Costs (including a NIMPAC model), the value of travel time savings, road accident costs, and environmental benefits (which may be offset by other environmental costs). Such external benefits are also discussed in the Austroads 1996 Benefit Cost Manual. Favourable travel time savings can result in a high Benefit Cost Ratio (BCR) for a road project. Is the Commission suggesting the Draft Finding 6.8 approach for road projects?

5. The Pacific Highway

In May 2006, the General Purpose Standing Committee No. 4 of the NSW Legislative Council released its final report on Pacific Highway Upgrades. The report of this inquiry is of potential interest to the present inquiry by the Commission.

The Committee supported the view that a major upgrade (the Yelgun-Chinderah deviation) and approval of B-Doubles, both in August 2002, had led to

[7] Abelson (1986) The Economic Evaluation of Roads in Australia, Sydney

'induced heavy traffic'. The report noted an increase in heavy vehicle numbers of 340 per day from 2001 to 1230 in late 2002. There was only a fall of about 50 heavy trucks per day on the New England Highway. Since about 2002, there was an increase in B-Doubles from about 120 per day to 300 per day, with a fall of about 105 semitrailers per day.

As noted in part by the Committee Chair, The Hon Jenny Gardiner MLC

> *"This Inquiry demonstrated that coastal residents are extremely concerned about the dangers of mixing local and heavy vehicles on the Highway. Many North Coast residents claimed that heavy vehicles are having a deleterious impact on their communities and that this situation worsened dramatically when B Doubles were allowed onto the Highway in 2002.*
>
> *"…There was widespread community support for greater use of rail freight to reduce the environmental and safety impact of heavy vehicles. While substantial investment is needed to improve rail infrastructure on the key freight corridors in New South Wales, the Committee supports greater use of rail freight. "*

It would be good to see such concerns reflected in the Commission's final report.

6. Oil pricing and oil vulnerability

Oil pricing appears to rate only a brief mention in the Commission's draft report, with no attention to any need to ensure that plans for future infrastructure can be modified if it is confirmed that high oil prices will be sustained (or continue to increase) as opposed to the scenarios raised from time to time that oil prices will fall.

For line haul general freight, rail has an energy efficiency of about three times that of road. A more extreme comparison, from data given on page 18 of this writers primary submission, is that BHP Billiton's iron ore train have a energy efficiency of about ten times that of the same company's contractors hauling coal by road to Port Kembla.

Attention is drawn to the recently released interim report of the Senate Rural and Regional Affairs and Transport Legislation Committee re Inquiry into Australia's future oil supply and alternative transport fuels, and, its consideration of rail freight. The interim report is commended to the Commission, as is its observation (p30) of a potential need *"to increase the pace of catchup investment in rail infrastructure."*

Appendix A National Highway System accident data

Some data supplied by the relevant State agencies in Queensland, New South Wales and Victoria for various parts of the National Highway System (NHS) within these states is given in Table A1. A description of various sections of the NHS is given by (DOTARS, 2004b). Table A2 gives more details about fatalities involving all vehicles and articulated trucks on sections of the NSW National Highway System and all NSW roads over a longer time period.

Table A1 Fatalities involving all vehicles and articulated trucks

All Vehicles	National Highway System				All of state			
	Qld	NSW	Vic	total	Qld	NSW	Vic	total
2000	83	54	28	165	317	603	407	1327
2001	74	53	32	159	324	524	444	1292
2002	64	54	33	151	322	561	397	1280
2003	49	43	29	121	310	539	330	1179
Total	**270**	**204**	**122**	**596**	**1273**	**2227**	**1578**	**5078**
Involving Articulated Trucks								
2000	29	32	10	71	40	84	40	164
2001	18	16	8	42	33	60	48	141
2002	18	25	8	51	28	86	49	163
2003	11	13	15	39	35	63	41	139
Subtotal	**76**	**86**	**41**	**203**	**136**	**293**	**178**	**607**
per cent of total	**28.1**	**42.1**	**33.6**	**34**	**10.7**	**13.2**	**11.3**	**12**

Reference: Data kindly supplied by Queensland Transport, NSW Roads and Traffic Authority, and Vic Roads.

Table A2 (part) NSW Fatalities involving all vehicles and articulated trucks
All vehicles

	Hume	NewEngland	Syd N'ctle	Newell	Sturt	All NHS	Total NSW
1994	26	15	7	25	8	81	647
1995	26	22	6	11	6	71	620
1996	19	19	7	4	1	50	581
1997	26	15	7	17	4	69	576
1998	25	25	8	14	1	73	556
1999	27	21	6	18	3	75	578
2000	13	18	5	15	3	54	603
2001	18	14	9	11	1	53	524
2002	21	8	7	17	1	54	561
2003	14	14	5	5	5	43	539

Total	**215**	**171**	**67**	**137**	**33**	**623**	**5785**

Table A2 (ctd) NSW Fatalities involving all vehicles and articulated trucks

Involving Articulated Trucks

	Hume	NewEngland	Syd N'ctle	Newell	Sturt	All NHS	Total NSW
1994	12	2	1	10	4	29	67
1995	3	8	0	6	2	19	63
1996	5	10	3	2	0	20	56
1997	8	4	1	13	1	27	71
1998	12	7	3	1	1	24	71
1999	3	9	2	5	0	19	64
2000	9	9	2	9	3	32	84
2001	3	5	3	4	1	16	60
2002	11	1	2	11	0	25	86
2003	5	3	2	2	1	13	63
Subtotal	**71**	**58**	**19**	**63**	**13**	**224**	**685**
% of Total	***33***	***33.9***	***28.4***	***46***	***39.4***	***36***	***11.8***

Reference: Data kindly supplied by the NSW Roads and Traffic Authority.

APPENDIX B "How benefits could flow from one section of realignment"

From Track and Signal, Vol 10 April May June 2006 page 34 By Alex Stoney

Construction of a 67 kilometre section of new track along the Karuah Valley in New South Wales to replace the existing 91 kilometre Hexham-Stroud Road section (see map) with its poor alignment could halve transit times and reduce fuel by 40 per cent.

It is one example of how planning realignments on the north-south line could dramatically improve rail operational efficiency and save money. The existing track has 22 km on 400 metre radius curves, 12.2 kms on curves 400-600 metre radius, and 7.2 kms on curves with a radius of 600-810 metres. The effect of this alignment is to require trains to traverse the equivalent of 18.5 complete circles of curvature.

A 67.2 km track deviation … with a ruling gradient of 1:80 has for most of its length a ruling curvature of 2200 metres with no tunnels. Trains going either way would reduce the curvature to less than one circle. Train simulation (using Simtrain by Samron Pty Ltd) indicates that for a 'standard' intermodal freight train of three locomotives (mass 132 tonnes each) hauling a trailing load of 3,900 tonnes and 1,500 metres long, averages (north-south train movements) are shown in Table B 1. Assumed updated cost parameters in 2009 values (at 3% pa inflation) for such a train are as given in Table B2.

Table B1– Reference train simulation outputs

	Extg	New	Reduction
Track Length (KM)	90.8	67.2	23.6
Transit time (min.)	82	40	42
Fuel Use (litres)	1582	952	630
Brake Work (kWh)	1335	207	1128

Table B2 – Reference train cost inputs

Time Penalty	$8.36 per min
Fuel Cost	$0.75 per litre
Braking	$0.13 per kWh

Track maintenance cost in 2009 terms (variable only) $0.61 per thousand gtkm plus $1.30 per thousand gtkm on track with curves of less than 400 metre radius $0.91 on curves of radius 400-600 metres, and $0.41 on curves of radius 600-810 metres. Base cost is about $7700 per kilometre of track. Applying these parameters to the simulation results gives the following savings for use of new track as compared with the existing track for the reference train:

- To the train operator – about $960 per train movement
- To the track owner variable costs – $240 per train movement

The present estimated intermodal interstate freight volume (Sydney-Brisbane and Melbourne-Brisbane) on this section of track is 4.7 million gross tonnes per

annum (mtpa). With about 2.4 mtpa net requiring 1094 trains per annum, this would generate a saving to operators of $1 million per annum.

The present bulk (mainly coal) and steel freight and the XPT is about 5.8 mtpa gross which has a potential $1.3 million per annum saving on the above basis. The overall train operator savings are then some $2.3 million per annum. For the track owner the overall annual savings are about $0.8m. These are variable costs (reduced maintenance, less distance and less curvature for 2444 trains per year) plus an annual per kilometre base cost saving. The total is about $3 million per annum in 2009 terms on present traffic (which would be expected to increase over time).

Like all Pacific Highway projects, rail deviations will need inclusion of external benefits to get an acceptable cost-benefit ratio. It can be demonstrated using unit external costs adjusted to 2009 values (inflated by 3% pa) that there is an external costs of $24.20 for each tonne of road-hauled intercity freight. This is against $2.20 per tonne for rail line haul and $1.80 for road pickup and delivery. Accordingly for each tonne of intercity freight between Sydney and Melbourne by road diverted to rail, with road pickup and delivery there is a net reduction of external costs of about $20.

Ref: Article Australian Freight Railways for a New Century (P.Laird, M.Michell, A.Stoney, G Adorni-Braccesi at the 2005 AusrailPlus conference).

APPENDIX C Pacific Highway Upgrades

In May 2006, the General Purpose Standing Committee No. 4 of the NSW Legislative Council released its final report on Pacific Highway Upgrades. The following is of potential interest to the present inquiry.

A. Five recommendations were made in the report. This includes (p113)

That the NSW Government act on its responsibility for strategic transport planning for freight by developing an integrated NSW Freight Strategy, and work through CoAG to develop a national freight strategy to encourage integrated strategic planning for all modes of transport.

In addition to developing a strategy to guide all freight movements in New South Wales, the NSW Freight Strategy should:

- *outline measures to encourage a shift from road to rail freight, including through integrated strategic planning for both road and rail upgrades*
- *investigate the adequacy of less extensive upgrades to the Pacific Highway on the Mid and Far North Coasts, taking into consideration the outcomes of investigations concerning the North Coast Highway Strategy investigate including the feasibility of incorporating the Summerland Way and measures to shift freight from road to rail.*

B. Many NSW North Coast residents are concerned about the increasing number of B-Doubles and the way some heavy trucks are driven (with areas of complaint on p 67 including very dangerous tailgating, excessive speeds of up to 130 km/h and deliberate cutting off of smaller vehicles at the end of overtaking lanes). Noise is a further concern and had been addressed by an early Noise Taskforce Report. Some residents wanted some of the heavy trucks diverted back to the New England Highway but this received some opposition.

No fewer than nine pages of the report addressed support for rail freight and increasing rail's share of the land freight task (p102) *"There was considerable support among Inquiry participants for greater use of rail freight as a means of decreasing the number of heavy vehicles on the road, thus improving road safety and lessening the environmental impact of road freight. However the Committee also heard that support for rail freight must be balanced against the advantages of road transport, which tends to be more cost and time efficient."*

The support from many residents for more use of rail included that of a Mr Armstrong from Coffs Harbour who noted (on page 102) *'To make rail freight attractive and hopefully remove much freight from the Pacific Highway, it goes without saying that the rail line from Sydney to Brisbane along and through the coastal population centres must be straightened and duplicated."*

C. As noted at a public hearing of the Committee held 21 March, implementing shared road and rail corridors would *'be putting into practice the Government's policies on the environment and land transport.'* Discussions between the ARTC and the RTA were noted in the report (p109). However, to date, shared corridors for Pacific Highway upgrades and rail upgrades remain restricted to the Tugun Bypass at the initiative of Queensland Transport and Queensland Rail.