

Submission in response to the

**Third Heavy Vehicle Road
Pricing Determination
Discussion Paper and Draft
Technical Paper**

August 2005

Executive Summary

The Third Determination comes at a key time for land transport in Australia.

With inter-capital city freight predicted to double by 2020,¹ Australia needs an efficient land transport sector in which clear pricing signals enable transport users to make optimal choices. The current road pricing system, in which roads are largely not priced at point of use, has a number of shortcomings that are preventing achievement of this efficiency.

The need for fundamental road pricing reform has been identified as a priority by:

- The Bureau of Transport and Regional Economics (BTRE)
- The Productivity Commission in its 2005 Review of National Competition Policy Reforms
- The Prime Minister's Exports and Infrastructure Taskforce
- The National Transport Commission (NTC), in its repeated calls for consideration of mass distance charging

It is therefore disappointing that the approach outlined in the NTC's Third Determination discussion paper only marginally addresses the under pricing of road access for heavy vehicles and is deficient in a number of key areas, including the determination of the cost base for allocation, and the allocation principles between vehicle types.

It is a further concern that despite its previous statements in support of mass distance charging, the NTC has not committed to its introduction in the discussion paper, or even outlined a basic plan for its implementation. This is despite the success of other individual user charging systems overseas, and the development of technology that specifically makes this form of charging possible in Australia.

1.0 The Opportunity for reform via the Third Determination

The optimal approach to land transport pricing and investment was outlined clearly by leading economist Professor Henry Ergas, of Charles River Associates, in his AusIntermodal Conference address in July 2005. Professor Ergas argued that the:

“overriding reason for reform of the land transport sector is to create a fair and efficient basis on which:

¹ DOTARS, *AusLink White Paper*, p 4

- *Transport infrastructure is priced so that alternative modes may compete on their merits free of distortion through arbitrary government taxes;*
- *Investments are made in transport infrastructure in an efficient manner that is competitively neutral between modes; and*
- *Consequently the resource cost to the economy of the land transport sector is optimised in a sustainable manner.”*

This is wholly consistent with the NTC’s own mandate to “progress regulatory and operational reform for road, rail and intermodal transport in order to deliver and sustain uniform or nationally consistent outcomes”.² Further, the NTC’s Road Pricing Principles state that heavy vehicle prices should “promote optimal use of infrastructure, vehicles and transport modes”.³ The pricing principles provide some flexibility to achieve these outcomes, including allowing for inclusion of variable mass distance charges and externality.

The current system of road pricing is not consistent with rail, and does not promote optimal use of infrastructure. In its working paper on competitive neutrality issues between road and rail, the BTRE concluded that:

“Under the current road user charging system, trucks overall are undercharged for their use of the road system. Moreover, larger, more heavily laden vehicles and those travelling longer distances are charged the least (per tonne kilometre) while smaller, less heavily laden vehicles and those travelling shorter distances cross-subsidise them.”⁴

The Prime Minister’s Exports and Infrastructure Taskforce said continuation of a system in which road pricing was out of line with costs would have serious consequences for infrastructure investment.

“If progress is not made in addressing competitive neutrality problems between road and rail, the distortions to infrastructure investment will become ever more widespread, as pricing that is out of line with costs leads to capacity expansion choices that poorly reflect the underlying economics.”⁵

² NTC *Third Heavy Vehicle Road Pricing Determination – Draft Technical Report*, July 2005, Foreword

³ NTC, *Third Heavy Vehicle Road Pricing Determination – Discussion Paper*, July 2005 p 3.

⁴ Abstract from *BTRE Working Paper 40, Competitive Neutrality Between Road and Rail*, 1999

⁵ Exports and Infrastructure Taskforce, *Australia’s Export Infrastructure*, May 2005, p 33

In its submission to the Taskforce, the NTC acknowledged the inadequacy of the current pricing system.

“Road use is currently priced by means of input-based excises, taxes and fees that are poor proxies for usage-related “prices.” Moving beyond incremental road pricing linked to specific reforms (eg PBS) by adopting of a mass-distance charging system for heavy vehicles, would bring more of the road network into the market economy, linking investment more closely to usage (including congestion).”⁶

According to the Productivity Commission, the pricing of freight transport infrastructure is a policy issue requiring detailed review.

“As a general principle, the pricing arrangements for such infrastructure should ensure that the freight task flows to the transport mode which in the long run will deliver the transport services concerned at the lowest overall cost to the community. Further, prices should desirably reflect not only the financial cost of providing these services, but also any externalities associated with their provision and use. Non-neutrality in the pricing of road and rail infrastructure is a particular issue in this regard.”⁷

The PC has recommended that the deficiencies of the current approach be addressed as part of a comprehensive national review of freight transport, which would examine “what is required ... to achieve competitive neutrality across all transport modes”.⁸

An alternative to this process is a Third Determination that, consistent with the NTC’s mandate, tackles the key reform issues and moves towards a road pricing system that improves the efficient use of road infrastructure by ensuring that heavy vehicles are charged according to their infrastructure use.

2.0 Review of the Third Determination Discussion Paper and Technical Paper

2.1 Overview

The Third Determination Discussion Paper and Technical Paper outline a regime that largely preserves the status quo, using the same basic methodology as the Second Determination. Aside from a partial correction of the significant undercharging of B-Doubles, which Pacific National welcomes, there is no substantial change proposed.

⁶ NTC, *Submission to the Australian Government Infrastructure Taskforce*, 20 April 2005

⁷ Productivity Commission, *Review of National Competition Policy Reforms*, 2005, p 213

⁸ Productivity Commission, *Review of National Competition Policy Reforms*, 2005, p 224

The limited reforms proposed in the Draft Determination do not address the overall problem of undercharging of heavy vehicles as a whole. They do not adequately address the cross subsidy between B-Doubles and other heavy vehicles. They do not enable vehicles which carry above average volumes and travel above average distances to be charged in line with the costs they create. They do not seek to require road operators to cover the externality costs of their activities.

Three fundamental reforms need to be addressed as part of the Third Determination:

- Changes within the current methodology to ensure that an appropriate overall level of cost is allocated to heavy vehicles;
- The incorporation of externalities in cost calculations; and
- A commitment to the introduction of individual user charging within a clearly defined timeframe.

2.2 Cost Allocation Issues

There are a number of flaws in the current NTC cost allocation methodology.

The cost allocation methodology attributes a smaller than appropriate proportion of total road costs to all vehicles, and then to heavy vehicles as a user class. This includes the failure to include externality costs. On top of this, there are further problems with the measures used to allocate attributable costs, which have the effect of reducing the level of costs allocated to the heaviest trucks. Finally, there is also a question-mark over the treatment of non-attributable, or common costs.

2.2.1 Local Road Expenditure and Use

There continues to be considerable uncertainty around the NTC's calculations and allocations in relation to local road expenditure and road use.

In its discussion paper, the NTC acknowledges the weakness in analysis underlying this substantial component of overall road costs.

“A number of assumptions are needed about how much of local road expenditure is spent on different types of road work as very little data is available on this. The shares in this paper are based on the average shares for arterial roads.”⁹

⁹ NTC *Third Heavy Vehicle Road Pricing Determination – Draft Technical Report*, July 2005, p 4

Using arterial road averages for local roads is clearly unsatisfactory, and addressing this serious data gap should be a priority for the Third Determination process.

The NTC has excluded \$2.87 billion per annum of local road expenditure from the calculation of road user charges, a major increase on the \$1.27 billion per annum excluded in the Second Determination. The NTC argues that this expenditure is excluded because “it does not relate to providing road services to motorised road users”.¹⁰

Pacific National has significant concerns with the process by which the NTC has arrived at this conclusion. The calculation of local road use is based on survey estimates provided by road engineers from 7.5 percent of local Councils. The excessive reliance on opinion is inappropriate for such a substantial road cost category. The NTC itself acknowledges that development of a separate cost allocation template would be a preferable approach.¹¹

Much of the excluded cost is in areas like curbing, guttering, all-weather access and vegetation. The approach is also inconsistent with road’s main competitor, rail operators, who are required to cover these equivalent costs in their access charges.

Overall, the NTC proposes to allocate only 35 percent of local road expenditure to vehicle users, compared to 42 percent in the Second Determination. The detailed analysis to justify this reduction has not been produced in either the discussion paper or the technical paper.

2.2.2 Externalities

It is widely recognised that there are real costs of all transport modes that are not borne directly by either operators or users.

Externality costs are substantial enough to create further distortions which mask the true cost of road from users, leading to greater use of road than is economically justified. A study of land freight external costs in Queensland in 2002 found that interstate heavy vehicles create significant cost for other road users because they cause a relatively high number of accidents, which is not the case with inter-capital freight trains.¹²

In *The Future for Freight* report, Port Jackson found that the current failure to incorporate externality costs into pricing mechanisms for road and rail delivers an approximately \$6/per 1000 net tonne-kilometre advantage to

¹⁰ NTC *Third Heavy Vehicle Road Pricing Determination – Draft Technical Report*, July 2005, p 4

¹¹ NTC *Third Heavy Vehicle Road Pricing Determination – Draft Technical Report*, July 2005, p 15

¹² P. Laird, *Land Freight External Costs in Queensland*, 2002

road.¹³ This analysis takes into account the internalisation of a proportion of accident costs via insurance.

The NTC's Pricing Principles allow for the inclusion of externality charges, although Pacific National accepts that stakeholders in Australia are yet to agree on one estimation methodology. An option supported by Pacific National and other industry participants is to incorporate externalities in the Third Determination using conservative estimates, and commit to further work to refine pricing of externalities.

While externalities are a key issue impacting on competition between road and rail for inter-capital city freight, it is also impacting in other market segments, including traditionally rail-hauled grain and bulk materials. The combination of lower than appropriate road pricing and a related deterioration in rail infrastructure are resulting in the increased use of road transport for these products. The result is an inexorable slide in rail viability on some regional networks, major externality costs in regional areas, and a significant increase in local road expenditure (which in the absence of a separate cost allocation template for local roads will not be passed on to heavy vehicle operators).

2.2.3 Attributable Costs

The NTC asks for comments on whether heavy vehicle enforcement expenditure should be included in the costs to be recovered from heavy vehicles. Pacific National believes inclusion of this item is appropriate, and is in line with user charging in rail, under which PN and other rail users are required to cover the costs of systems to monitor mass and speed limits. Heavy vehicle enforcement, however, is only one of a number of items that require re-classification.

The NTC allocations vary markedly from other jurisdictions also using traditional equity approaches. For example, the NTC allocates 85 percent of bridge construction costs by vehicle kilometres, and 90 percent of land acquisition and earthworks by this measure. By contrast, in the UK, 85 percent of bridge construction costs and land and earthworks are allocated by PCUs.

In the area of reseals and road rehabilitation, 100 percent of these costs are attributable in the UK, and allocated using equivalent standard axle loads (ESALs). By contrast, 50 percent of the cost of reseals and 55 percent of the cost of road rehabilitation are non-attributable in Australia. In its technical paper, the NTC acknowledges that pavement rehabilitation and new construction "are believed to relate to the need to provide for pavement strength and repair deep-seated pavement wear associated with the loss of

¹³ ARA, *The Future for Freight*, 2005, p 85

strength in the pavement as it is subject to loads”. Yet its cost allocation rule still only attributes 45 percent of these costs to road use.

The NTC does not appear to have completed any detailed analysis of the UK model, which appears to allocate the majority of costs using different cost allocation principles. The NTC puts these international differences down to “different environments, road types and administrative arrangements,”¹⁴ although it does recommend that further research is conducted into the drivers for cost items. Pacific National urges that the further research is completed without delay as part of the Third Determination process.

The NTC only acknowledges some uncertainty in relation to the appropriate cost allocation rules for routine and periodic maintenance. While it is encouraging that the NTC is seeking to increase the level of attributable costs in this category, Pacific National believes that neither of the alternative scenarios proposed are appropriate, because allocation is proposed by average gross mass kilometres (AGM) and passenger car units (PCUs), rather than ESALs.

A review of econometric and engineering road pricing models conducted by Port Jackson Partners as part of the Australasian Railway Association’s *Future of Freight* analysis highlighted an emerging view that “loaded axles per vehicle rather than mass, is a better parameter for the allocation of attributable expenditure”.¹⁵ These studies argue that even where gross vehicle mass is the same, “axle configurations make an important difference to the level of damage caused by vehicles”.¹⁶ Even in the UK, which as noted above uses an equity approach, 40 percent of routine maintenance is allocated by ESALs.¹⁷

Overall, the percentage of total road costs which are proposed to be directly attributed to heavy vehicles in the Third Determination is approximately 33 percent, a 10 percent increase on the Second Determination allocation. This, however, is still a long way short of the 45 percent recommended by the BTRE in its 1999 Working Paper 40, *Competitive Neutrality Between Road and Rail*.

2.2.4 Non-Attributable (Common) Costs

As indicated above, Pacific National believes there is considerable scope to re-classify a number of cost items as attributable. This move would significantly reduce the level of non-attributable or “common” costs.

¹⁴ NTC *Third Heavy Vehicle Road Pricing Determination – Draft Technical Report*, July 2005, p 33

¹⁵ Australasian Railway Association, *Future for Freight*, 2005, p 33

¹⁶ Australasian Railway Association, *Future for Freight*, 2005, p 33

¹⁷ UK Department of Transport, *NERA Report on Lorry Track and Environment Costs*, 2000

The basis for allocating common costs should also be re-examined. Currently, the NTC allocates non-attributable costs using VKTs, which basically treat a car and a truck in the same way. The basis for this is that non-attributable costs “would be incurred regardless of the level of use of the road network (and therefore regardless of the need to provide additional capacity)”.¹⁸

Even if this is correct, it does not follow that VKTs provide the best key for allocation of these common costs. Rather, the NTC needs to examine which allocation approach would be most consistent with economic efficiency and maximisation of the community’s welfare. For example, allocation of costs on the basis of the benefits principle might well lead to commercial users bearing a higher share of costs than their share of VKTs. So too might consideration of demand elasticities, at least to the extent to which their were rents that could be taxed in road transport.

What this means is that the NTC needs to explain its choice of VKTs as the relevant allocator. There is nothing in the mere fact that these costs are common costs that implies that they should be allocated on the basis of VKTs.

3.0 Charging Mechanism

The current NTC charging system which seeks to reflect allocated costs is also flawed. Other than at a number of tolled arterial roads in major cities, Australian road users are not charged at point of use. Instead, road users pay in a more remote fashion through fuel excise taxation and registration fees. The current heavy vehicle pricing methodology provides no effective price signal for mass, distance, time, or location. The upshot is that the structure of road pricing signals is almost completely unrelated to costs.

The twin effects of lower than appropriate allocation of costs to heavy vehicles, and blunt, inadequate charging mechanisms mean that operators of heavily laden trucks traveling long distances are significantly undercharged. The distance-based impact of fuel charges is reduced because of the better fuel efficiency of these vehicles, while the cost of registration is able to be amortised over large freight volumes and long distances, over a 12 month period.

The BTRE has argued that the setting of registration charges on the basis of average fleet utilisation is a central problem.

“The effect is that vehicles that carry less mass or travel below average distances pay a higher per unit road use charge than vehicles carrying more mass or traveling above average distances.”¹⁹

¹⁸ NTC, *Third Heavy Vehicle Road Pricing Determination - Draft Technical Report*, 2005, p 34

¹⁹ BTRE, *Working Paper 57, Land Transport Infrastructure Pricing*, 2003

Overall, as acknowledged by the NTC in its discussion paper:

“While the national heavy vehicle charges continue to rely on a mix of fuel charge and annual registration charges, it will continue to be difficult to establish charges for B-Double prime movers and trailers that reflect the costs allocated to these vehicles.”

It is encouraging, however, that the NTC does appear to be making some effort to address the current cross-subsidy between lighter heavy vehicles and B-Doubles through the flawed registration fee mechanism. The Second Determination deliberately provided a registration charge concession for B-Doubles to encourage the take-up of this new vehicle, which meant B-Double charges were explicitly set at less than the amount required to recover their costs. The explosion in B-Double numbers since that time indicates that this measure was successful in subsidising the entry of B-Doubles to the market. Pacific National questions the validity of the original concession decision, and agrees that the time is long overdue to cease the deliberate undercharging of B-Doubles through registration.

The major reform required in this area, however, is a commitment to a system of mass distance charging. Despite the NTC’s supportive comments to the Prime Minister’s Exports and Infrastructure Taskforce on this matter, it is disappointing that the NTC has missed the opportunity in its pricing discussion paper to put mass distance charging firmly on the agenda.

3.1 Mass Distance Charging

In its 1999 Working Paper 40 on *Competitive Neutrality Between Road and Rail*, the BTRE stated:

“Specifically, the current fuel-based heavy vehicle charges increase linearly with distance but at a declining rate with respect to vehicle load ... for more heavily laden vehicles the costs of road wear per net tonne-kilometre increases with mass whereas the fuel-based charge per net tonne-kilometre decreases with mass.”

As mentioned earlier, the NTC, in its submission to the Prime Minister’s Exports and Infrastructure Taskforce, acknowledged that the current system of pricing through taxes and fees are poor proxies for usage-related prices and that the adoption of a mass-distance methodology would link investment more closely to usage. This view was echoed in the final recommendations of the Taskforce. Understanding what would be required to introduce mass distance charging was also highlighted as a priority by the Productivity Commission, in its 2005 inquiry into National Competition Policy Reforms.²⁰

²⁰ p 216

Mass distance charging has existed in other countries for some time. For 15 years, New Zealand has had a basic mass-distance charging system based on licences, differentiated by vehicle type and weight, which are sold in 1000 km units. This is combined with a hubometer, which provides a reliable and accurate record of distance traveled. Switzerland has operated mass distance charging since 2001. This is based on short-range microwave beacons to activate and deactivate on-board units, and tachograph data stored on a smartcard. Germany introduced a mass distance charging system in 2005 for access to its motorway network. While each system is necessarily designed to meet local objectives and operate in local conditions, the lesson for Australia is clear. Other countries have shown that the policy objective, of ensuring that charging is directly linked to costs and use, can be met.

The increasing use of GPS technology for road user charging means that Australia will face no cost disadvantages from its relatively large distances and low densities. These technologies are already being used in Australia, for example to monitor the use of Tasmanian rural roads by logging trucks. Furthermore, the Intelligent Access Program is taking forward a voluntary system for the remote monitoring of freight vehicles, using satellite based telematic services to ensure they are complying with agreed conditions of operation.

Pacific National agrees with the Productivity Commission's assessment that Australia has two options on road pricing.

“...there appear to be two broad options for moving forward:

- *continue to refine the current road pricing methodology with a view to reducing any undercharging of heavy vehicles, while monitoring overseas developments in the use of mass-distance pricing (essentially the current approach); or*
- *firmly commit to introducing a mass-distance road pricing regime in Australia within a clearly defined timeframe, accepting the need for some degree of policy experimentation and uncertainty of outcome.”²¹*

Pacific National strongly favours the latter approach, which seems appropriate for a pricing system which is recognised by most stakeholders as optimal. Research should be conducted immediately into the options available for a staged introduction of this concept. It may be that the system is piloted in one geographic region. It may be that we begin with distance charging before moving to the more complex challenge of mass charging. Whatever options

²¹ Productivity Commission Inquiry Report, *Review of National Competition Policy Reforms*, February 2005, p. 270

are pursued in a staged introduction, it will be preferable to the current incremental reform approach that by its caution is proving destructive to the economic health of Australia's transport system.

4.0 Modal Shift Implications

The NTC commissioned MM Starrs Pty Ltd to prepare a report to "identify the issues involved in understanding the impact of pricing and cost recovery on the modal choice for freight between road and rail." This literature review, which was based primarily on overseas sources, and did not involve discussion with Australian transport customers or rail operators, suggested that only relatively small increases in rail market share would result from increases in heavy vehicle charges.

Pacific National rejects the report's conclusions outright. The report is flawed in four key respects:

- It makes only limited use of recent, empirical Australian data, preferring European and American literature which was generally more than five years old
- It cites inconclusive information on freight demand elasticities, and concedes a lack of detailed information on contestability between modes, and yet makes uniformly pessimistic rail market share projections in all short and medium length corridors
- It does not appear to take into account all current initiatives involving the ARTC lease of the NSW network, Commonwealth plans to fund major rail upgrades, or expansion plans of Pacific National and Queensland Rail
- It is inconsistent with the findings of an Australian-specific modal share elasticity study which predicted that modal share shifts of between 20 and 40 percent could be achieved if:
 - road and rail freight prices reflected full economic costs (including externalities);
 - forecast NSW rail cost reductions were delivered by the ARTC;
 - and rail operators improved service levels in line with performance targets established by the ATC.²²

It is also worth remembering that the level of modal shift under different road pricing scenarios should not be the central issue. Any assessment of modal implications should not detract the NTC from seeking to achieve a road

²² Port Jackson Partners, *Supplementary Appendix to "the Future of Freight – economic cost of moving freight on the inter capital corridors" - Modal Share Projections, 2005*

pricing system that reflects full economic costs and does not advantage one class of user over another.

5.0 Conclusion

The content of the NTC's Third Determination discussion paper indicates that the Commission is in danger of missing a major opportunity to correct long-standing imbalances in road pricing which are impacting on efficient choices by transport users. The NTC is proposing minimal change, which will leave three fundamental reform tasks largely unaddressed:

- Changes to the current methodology to ensure that an appropriate overall level of cost is allocated to heavy vehicles;
- The incorporation of externalities in cost calculations; and
- A commitment to the introduction of mass distance charging within a clearly defined timeframe.

Pacific National urges a reconsideration of these issues by the NTC and incorporation of a genuine reform agenda into the Third Determination process.