

**2007 HEAVY VEHICLE CHARGES
DETERMINATION
DRAFT REGULATORY IMPACT
STATEMENT VOLUME I**

July 2007



**Prepared by
National Transport Commission**

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FOREWORD

The Productivity Commission's *Road and Rail Infrastructure Pricing Inquiry*, and the direction outlined by heads of government on 13 April 2007, outlines a clear way forward for pricing to unlock more productivity from the road network.

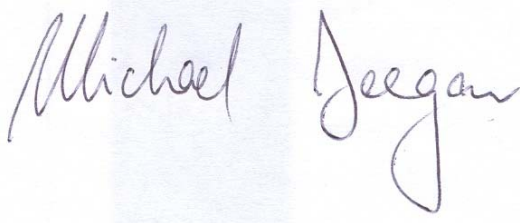
As part of the first reform phase, the Council of Australian Governments (COAG) requested that the National Transport Commission (NTC) prepare a draft Heavy Vehicle Charges Determination by 2008. This is intended to ensure heavy vehicles continue to pay their share of increasing road spending by all levels of government.

The 2007 Heavy Vehicle Charges Determination is, therefore, the 'building block' for pricing reform. It sustains the revenue base needed for governments to invest in better and safer roads; including infrastructure upgrades needed for improved heavy vehicle access.

In the past, updating heavy vehicle road use charges has been an emotive and often divisive issue. So far, however, the NTC is encouraged by the constructive and cooperative approach from the industry in developing this draft proposal. Differences between the NTC's recommended option and the industry's views – as well as independent assessments of impacts – are reported transparently and honestly. The review endeavours to manage the impacts of any 'correction'; including the phasing-in of charge increases, which will allow operators to better plan and re-negotiate freight contracts.

Australia must maintain a world class road and rail transport network to service the growing freight task, to reduce road trauma and ensure Australian businesses can compete cost-effectively in the global marketplace. It is on this basis, the NTC believes we can move forward together. A mature and informed public debate on these issues is encouraged before the NTC makes its final recommendation to the Australian Transport Council.

The NTC acknowledges the work of Meena Naidu, Chris Egger, Amy McDowell and Matthew Clarke as the major contributors to this paper. This RIS has been presented in two volumes. Volume I articulates the issues, options and recommendations. Volume II contains the technical appendices underpinning the analysis as well as the complete schedule of charges.

A handwritten signature in blue ink that reads "Michael Deegan". The signature is written in a cursive style and is positioned over a light blue rectangular background.

Michael Deegan
Chairman

SUMMARY

In April 2007 the Productivity Commission released its report on Road and Rail Freight Infrastructure Pricing (PC Inquiry). The report concluded that, although heavy vehicles were currently recovering their cost, they were unlikely to continue to do so because of significant increases in road spending.

The PC Inquiry also independently endorsed the NTC charges methodology; noting that it is “conservative” in nature (i.e. resulting in lower heavy vehicle charges).

On the basis of the above findings in the PC’s Discussion Draft, the Australian Transport Council (ATC) in October 2006 directed NTC to commence work on a new heavy vehicle charges determination.

Subsequently, the Council of Australian Governments (COAG) endorsed much of the PC Inquiry through its transport reform agenda. COAG directed that a new determination should ensure no cross-subsidisation *between* vehicle classes. The reform agenda also required the determination to be completed by the end of 2007 for implementation in 2008.

ATC has now directed NTC to commence public consultation and report back at its November 2007 meeting to allow implementation on 1 July 2008. The ATC has also confirmed that pricing principles agreed in August 2004 should also be applied.

What’s changed since the Second Determination

Road expenditure has increased by 29% since the Second Charges Determination in 2000. As a result, the revenue from current heavy vehicle charges no longer recovers heavy vehicles’ share of road expenditure.

Further, whilst there has been only marginal growth in total fleet numbers (4% since the Second Determination), there have been considerable growth in B-doubles (up by 220% over the same time period).

These changes and the PC Inquiry have led to both COAG and the ATC giving clear direction on what this determination should achieve. Both COAG and ATC have been unambiguous that heavy vehicle charges in aggregate must recover heavy vehicle expenditure and that vehicle classes must recover their attributable costs. For some vehicle types, this will mean a significant change in charges.

The new issues and options

In addition to heavy vehicle cost recovery, there are number of options to be considered as part of the public consultation process. This includes:

Cost base

- Recovering average PAYGO expenditure over a three year period could result in short-term ‘price’ shocks. ATC has endorsed a seven year averaging period to avoid ‘lumpiness’ in the charges.
- The PC Inquiry identified enforcement costs as a reasonable cost to be recovered. The regulatory impact statement seeks comment on three options:
 - Option a: Include all road agency enforcement costs.
 - Option b: Partially include road agency enforcement costs.
 - Option c: Exclude enforcement costs.

Charges

- Heavy vehicles in aggregate are no longer paying their way – this is primarily because the growing B-double fleet does not recover its share of costs. Two options are presented, both ensure aggregate cost recovery is delivered:
 - Option 1: Ensure vehicle classes recover at least their attributable (marginal road use) costs.
 - Option 2: Ensure all vehicle classes recover their fully allocated costs (i.e. include common costs).
- Some vehicle owners may face significant increases in registration charges which are difficult to pass on to customers in one year. Two options are presented:
 - Option 1: Phase-in prime mover registration charges over two years.
 - Option 2: Phase-in prime mover registration charges over three years.

A further option exists to phase in significant decreases in prime mover registration charges.

The annual adjustment

- Heavy vehicle charges do not keep pace with increases in road expenditure because only one third of the revenue base – registration fees – is adjusted annually and the indexation cap (CPI) has been less than the Road Construction and Maintenance Price Index in recent years. The options include:
 - Option 1: Maintain the current adjustment process with modifications and inclusion of fuel adjustment.
 - Option 2: Option 1 with removal of the CPI cap and 0% floor.
 - Option 3: Indexation of both registration and fuel charges.
 - Option 4: Annual re-calculation of charges.

New vehicle types

- The ATC endorsed an approach for charging new high productivity vehicle types (e.g. quad axle group trucks). This will ensure new vehicles are not denied access to the road network because of cost recovery concerns. The NTC seeks comment on the guidelines and rules developed for charging new vehicle types.

The preferred option

The NTC's preferred option ensures all heavy vehicle classes at least recover their attributable costs and relevant (partial) enforcement costs. A three year phase-in period is recommended for vehicle owners to better re-negotiate contracts and pass on cost increases. Vehicles facing a reduction in charges will receive this in full in year one (see Table ES1).

Table ES1 Preferred option (nominal)

	Option 1 (preferred)			
	Current	Year 1	Year 2	Year 3
Fuel charge c/l	19,633	21.0	21.0	21.0
Registration charges (\$ per vehicle)				
Trailer charge per axle	343	365	365	365
2 axle rigid truck, 4.5 - 7 tonnes	343	365	365	365
3 axle rigid truck over 18.5 tonnes, no trailer	914	808	808	808
4 axle rigid truck over 25t, no trailer	2,285	808	808	808
Heavy truck/trailer over 42.5 tonnes	5,543	6,696	7,234	7,234
6 axle articulated truck	4,912	4,817	4,817	4,817
B-doubles	7,769	11,388	13,101	14,814
Double road train	8,455	9,205	9,205	9,205
Triple road train	10,170	13,456	14,926	16,396
2 axle bus over 10 tonnes	572	365	365	365
Under-recovery (\$m)	132	30	14	0

The charges in this table will also be subject to the annual adjustment process. NTC's preferred approach for the annual adjustment is to extend the current formula to apply to the fuel charge but to remove the CPI cap and 0% floor (i.e. Option 2).

The impact of new charges

NTC has considered the impacts of the preferred option as well as the alternatives. In general, it believes this approach enables operators sufficient time to re-negotiate contracts and pass costs on to their customers.

It has considered the impact on the vehicle operating costs for B-doubles and road trains – the vehicle classes facing the greatest registration charge increases. The preferred option leads to a smaller impact than Option 2 for these vehicle classes.

As requested by the ATC, NTC has also considered the substitution effects for vehicles with similar carrying capacity which face different charges but which operate on the same network. This is a specific issue related to charges for B-doubles and compact road trains which operate in Western Australia. The issue is less of an issue in other states where roads trains have a more restricted network to B-doubles. Therefore, NTC has proposed that the WA Government may opt to apply a location-based concession or rebate for B-doubles. The concession or rebate would only apply to those B-doubles that operate in WA and may be adjusted to reflect any operation of the vehicle in question outside of WA.

It is important to note that whilst in some cases registration charges may be increasing by a significant amount, registration charges generally constitute only a small amount of a vehicle's operating costs.

Table ES2 Change in average vehicle operating costs

Vehicle Type	2006 Average Vehicle Operating Costs \$	Percentage Change Option 1	Percentage Change Option 2
2 axle rigid truck 4.5 to 7 tonnes (no trailer)	21,730	0.4%	-0.5%
3 axle Rigid truck over 18 tonnes (no trailer)	36,970	0.1%	0.2%
Heavy truck trailer over 42.5 tonnes	103,300	2.1%	2.1%
6 axle Articulated Truck	124,740	0.4%	0.4%
9 axle B-double	267,400	3.2%	4.8%
Double Road Train	225,160	0.8%	0.8%
Triple Road Train	400,000	2.1%	3.1%

Table ES2 shows that, on average, the vehicle operating costs for B-doubles increase by 3.2%, 0.8% for double road trains and 2.1% for triple road trains. This translates to an increased cost to rural/remote grocery bills of 19c/\$100 (0.19%), 5c/\$100 (0.05%) and 12c/\$100 (0.12%) respectively, assuming at an extreme that the vehicle class in question is the sole transporter of goods.

However, in reality freight is not transported using just one class of vehicle. Operations tend to use a mix of vehicles to service their respective task. To better understand the impact on different types of operations NTC commissioned CRA International to look at a number of case studies around the country representing various types of operations. The study found that the maximum impact of the preferred registration and fuel charges on the operations reviewed was an increase of costs of no more than 2.2%.

NTC has also considered the impact of the investment resulting from increased charges. In particular it notes that the Monash University Accident Research Centre (MUARC) estimates that improved road investment (including shoulder sealing, audible edge lines, passing lanes and rest areas) will contribute at least 38% of the total future reduction in heavy vehicle related road deaths and casualties under the current National Heavy Vehicle Safety Strategy, compared to 30% from the effective use of speed limiters, 18% from better fatigue management, 9% from increased seatbelt use by heavy vehicle drivers and 5% from safer heavy vehicles.

The next steps

NTC has now formally commenced the six week public consultation process on this Determination and seeks views from interested parties on the options presented in this regulatory impact statement.

To facilitate best use of this period, NTC invites interested parties to respond to this RIS in writing by **30 July 2007** to inform further consultations through focus groups over the subsequent few weeks. Responses will be published on the NTC website

NTC also intends on running a number of focus groups on specific issues during this period. If you wish to participate in a focus group you should advise NTC in writing or email by **20 July 2007**. In doing so you should identify the issues you wish to discuss and provide a contact person and details. Focus groups will be held from **27 July – 17 August 2007**. Transcripts from the focus groups will be published on the NTC website.

Alternatively, you may request a further briefing from the NTC on the contents of this regulatory impact statement.

NTC is required to report back to the ATC at its next meeting in November 2007 on the public consultation process for this determination. A final regulatory impact statement incorporating the results of the public consultation process will be published prior to that meeting.

ATC has stated this determination will be implemented on 1 July 2008.

CONTENTS

1. INTRODUCTION	1
1.1 The governmental directions leading to a new determination.....	1
1.2 NTC's role in developing heavy vehicle charges	2
1.3 Previous determinations	3
1.4 The Third Determination workings.....	4
2. WHAT IS THE PROBLEM	5
2.1 Changes since the Second Determination	5
2.1.1 Growth in expenditure	5
2.1.2 Meeting infrastructure safety and productivity objectives.....	8
2.1.3 Changes in the fleet and usage	9
2.1.4 The annual adjustment.....	11
2.2 Impact of the changes	11
2.2.1 Level of cost recovery.....	11
2.3 Recovery of enforcement costs	12
2.4 Charges volatility	14
2.5 High productivity vehicles	14
3. THE DESIRED OBJECTIVE	15
3.1 Objective.....	15
3.1.1 ATC pricing principles.....	15
3.1.2 COAG requirements	15
3.1.3 The considerations	15
4. THE OPTIONS.....	18
4.1 Variations to the cost base in relation to expenditure period.....	18
4.1.1 The averaging of expenditure	18
4.1.2 The years of expenditure included in the cost base.....	19
4.1.3 Variation to the cost base in relation to enforcement	20
4.1.4 Option a – full recovery of enforcement	20
4.1.5 Option b – partial recovery of enforcement costs.....	21
4.1.6 Option c – exclude enforcement costs.....	21
4.1.7 Impact of the various treatments of enforcement.....	21
4.2 Cost allocation	22
4.3 Charges options.....	23
4.3.1 Charges Option 1	24
4.3.2 Charges Option 2	25
4.3.3 High productivity vehicle charges	26
4.4 Phasing-in options	28
4.5 Annual adjustment	31
4.5.1 Option 1: Maintain the current adjustment process with modifications and inclusion of fuel indexation.....	32
4.5.2 Option 2: Option 1 with removal of the cap and floor	32
4.5.3 Option 3: Indexation of both registration and fuel charges.....	33
4.5.4 Option 4: Annual re-calculation of charges	34
5. THE ASSESSMENT OF IMPACT	35
5.1 Fuel charge impact	35
5.2 Registration charge impact	35
5.3 Impact on vehicle operating costs	36
5.3.1 Impact on road user charges per net tonne kilometre.....	38
5.3.2 Impact on the vehicle fleet.....	39
5.4 Case study analysis – operational impacts.....	39
5.4.1 Case study 1: Inbound livestock transport for an abattoir in regional NSW.....	39
5.4.2 Case study 2: Linehaul operations based in South East Australia	40
5.4.3 Case study 3: Bulk haul operations in regional Victoria	41
5.4.4 Case study 4: mine haul operations in Northern Territory.....	42
5.5 Impacts on industry production costs	43
5.6 End user impacts	44

5.6.1	<i>Urban versus rural/remote impacts on the cost of goods</i>	44
5.6.2	<i>Ability to pass on costs</i>	45
5.6.3	<i>Primary industry impacts</i>	45
5.6.4	<i>Small business</i>	45
5.7	Competition assessment	46
5.8	Implications on government financing	46
5.8.1	<i>The need for road investment</i>	46
5.8.2	<i>Charges contribution to road investment</i>	47
5.9	Improved productivity and safety on the network from road investment	47
5.9.1	<i>Case studies of improved productivity</i>	47
5.9.2	<i>Case studies of improved safety</i>	48
6.	CONSULTATION	49
6.1	Summary of discussions with industry and government	49
6.1.1	<i>Charges for high productivity charges</i>	49
6.1.2	<i>The treatment of enforcement costs</i>	49
6.1.3	<i>The cost allocation methodology</i>	50
6.1.4	<i>Impacts</i>	52
6.2	Third Determination consultation outcomes	52
7.	RECOMMENDATION	54
7.1	The preferred option	54
7.1.1	<i>Preferred period of expenditure</i>	54
7.1.2	<i>Preferred treatment of enforcement</i>	55
7.1.3	<i>Preferred charges option</i>	55
7.1.4	<i>Preferred phasing in period</i>	55
7.1.5	<i>Preferred annual adjustment process</i>	55
7.2	Compliance	56
7.3	The 2007 Heavy Vehicle Charges Determination timetable	56
8.	REFERENCES	57
9.	GLOSSARY OF TERMS	58

LIST OF TABLES

Table 1.	Total road construction and maintenance expenditure estimates (\$2006/07 millions).....	6
Table 2.	Changes in fleet numbers since the Second Determination.....	10
Table 3.	Heavy vehicle enforcement expenditure by state	20
Table 4.	Adjusted heavy vehicle enforcement expenditure by state	21
Table 5.	Allocation of enforcement costs for each option (\$/vehicle)	22
Table 6.	Charges Option 1 for select vehicles under different enforcement scenarios.....	25
Table 7.	Charges option 2 for select vehicles under different enforcement scenarios.....	26
Table 8.	Options with a two-year phase-in of registration increases (nominal)	29
Table 9.	Options with a three-year phase in of registration increases (nominal)..	30
Table 10.	Phasing in decreases in registration charges on select vehicles	31
Table 11.	Change in average vehicle operating costs due to changes in both registration and fuel charges	37
Table 12.	Changes in registration costs as a share of average vehicle operating costs	37
Table 13.	Changes in total heavy vehicle charges as a share of average vehicle operating costs.....	38
Table 14.	Impact of charges on groceries	44
Table 15.	NTC's preferred charges option for select vehicles	54
Table 16.	Consultation timetable.....	56

LIST OF FIGURES

Figure 1.	COAG road reform plan	2
Figure 2.	Total arterial expenditure (\$2006/07)	7
Figure 3.	Arterial, reported local and allocable local road expenditure movements over the past seven years (\$2006/07)	7
Figure 4.	Forecast impact of the freight task on truck numbers	8
Figure 5.	Growth in the total heavy fleet number since the Second Determination	10
Figure 6.	B-double under-recovery of fully allocated costs per vehicle	12
Figure 7.	Process for developing charges	18
Figure 8.	Heavy vehicle allocated cost base (\$2006/07)	19
Figure 9.	Road user charges per net tonne kilometre	38
Figure 10.	Case study 1: impact on vehicle operating cost shares.....	40
Figure 11.	Case study 2: impact on vehicle operating cost shares.....	41
Figure 12.	Case study 3: impact on vehicle operating cost shares.....	42
Figure 13.	Case study 4: impact on vehicle operating cost shares.....	43

1. INTRODUCTION

1.1 The governmental directions leading to a new determination

In 2006 the Productivity Commission commenced its inquiry into Road and Rail Freight Infrastructure Pricing (PC Inquiry). As part of its inquiry the Productivity Commission reviewed the NTC methodology, and whilst acknowledging its shortcomings and the conservative assumptions adopted, broadly endorsed the approach.

Following this endorsement, transport ministers at the 13 October 2006 Australian Transport Council meeting directed the NTC to commence work on a new Heavy Vehicle Charges Determination. The new determination would replace the current Second Determination charges.

The full direction recorded in the draft minutes of the October 2006 ATC meeting states the following:

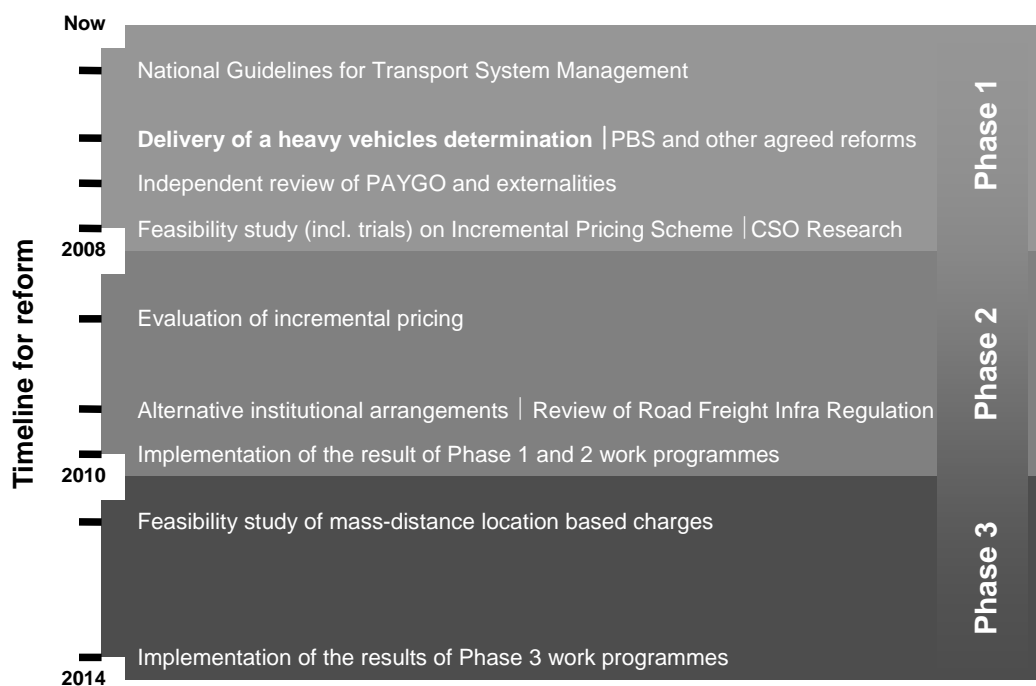
(ATC) DIRECTED the NTC, having regard to the final report of the Productivity Commission and the deliberations of COAG on future pricing issues, to develop a Heavy Vehicle Pricing Determination that:

- (i) considers the inclusion of heavy vehicle enforcement costs in the cost base; and*
- (ii) allows for incremental charging for higher productivity vehicles;*

AGREED that its preferred timeframe for the delivery of a Heavy Vehicle Road Pricing Determination is mid 2007; and

DIRECTED the NTC to report to the next ATC meeting on a Heavy Vehicle Pricing Determination.

On 13 April 2007 the Council of Australian Governments (COAG) endorsed the ATC directive for a new Heavy Vehicle Charges Determination to precede pricing reform (see Figure 1).

Figure 1. COAG road reform plan

ATC reinforced its earlier direction at its meeting in May 2007 and requested that NTC commenced preparation of a regulatory impact statement so that a new determination could be implemented in line with the COAG timetable on 1 July 2008. ATC gave clear policy direction supporting pricing principles approved in 2004 and incorporating requirements from COAG that this determination “ensure ongoing delivery of aggregate cost-recovery and removal of cross-subsidisation across heavy vehicle classes” (COAG 2007).

1.2 NTC’s role in developing heavy vehicle charges

The NTC is responsible for recommending heavy vehicle charges to the ATC. This function is set out in the Inter-Governmental Agreement for Regulatory and Operational Reform in Road, Rail and Intermodal Transport (IGA) and was established to ensure that nationally uniform charges were applied to heavy vehicles.

Clause 5.1 of the IGA sets out that one of the responsibilities and functions of the NTC is to:

- “(c) *develop*
- (i) *road use charging principles for Heavy Vehicles (until such time as the Council decides that another organisation should undertake this function);*
 - (ii) *Proposed Reforms in relation to Heavy Vehicle Road Use Charges based on charging principles agreed by the Council from time to time;”*

The IGA specifies that a:

“Road Use Charge means a fee for payment for use of the road system, which in the case of a Heavy Vehicle, does not include:

- *a nominal or other administration charge associated with registration of a vehicle;*
- *stamp duties;*
- *compulsory third party insurance premiums;*
- *injury protection charges; and*
- *administrative components of permit, licence or other fees.”*

Clause 5.2 provides for other reforms developed by the NTC to differ in the areas of Australia in which they apply. However, the IGA does not allow this to occur with heavy vehicle charges, emphasising the importance placed on their national application. The intent behind the IGA in relation to charges was to prevent “shopping around” for the lowest registration charges between jurisdictions by heavy vehicle operators, thereby distorting signals within the market, and to ensure that heavy vehicles pay their share of road expenditure.

Following the assessment of expenditure and usage, the development of charges and consultation with stakeholders, the NTC is responsible for recommending national heavy vehicle road use charges to the ATC. The ATC considers the NTC’s proposals (for regulatory and operational reforms as well as heavy vehicle charges) and determines whether or not to approve them. If a majority approves the proposals, all governments are obliged to implement them.

1.3 Previous determinations

The First Determination was agreed in 1992 and the Second Determination was approved by the ATC in 2000. The First Determination was implemented between July 1995 and October 1996. The Second Determination was implemented between July 2000 and December 2000.

These determinations both resulted in a two-part charge being implemented, with two-thirds of costs recovered through a fuel based charge and the remaining third through annual registration charges.

After the Second Determination, it was decided to implement an annual adjustment process. However, this process is only a partial update – it updates the registration charge component of the overall heavy vehicle charge, but neither accounts for changes in road use *between* vehicle categories nor changes in the type of road works undertaken. It is subject to a maximum annual rise no greater than the Consumer Price Index (CPI) and a floor applies so that annual registration charges would not be reduced. There have been six annual adjustments to date.

The fuel charge component of the overall heavy vehicle charge of 20c/litre has not been reviewed since the Second Determination. However, due to indexation of the diesel rebate and the freezing of the fuel charge, the effective rate has fallen to 19.633c/litre.

Both the First and Second Determinations sought to achieve a number of policy objectives. Primarily the charges that resulted from these determinations were required to achieve in aggregate cost recovery. However, policy decisions in relation to fuel and registration charge splits, the promotion of newer and safer vehicles and simplicity in charges meant that in aggregate charges were able to over-recover costs, and some vehicles failed to recover their share of past expenditure.

The PC Inquiry and the resulting COAG direction has lead to a new policy focus. Whilst cost recovery in aggregate remains the primary objective of heavy vehicle charges, COAG has determined that vehicle classes should recover their attributable (or marginal costs) and that there should be no cross subsidisation between vehicles classes.

1.4 The Third Determination workings

In the preparation of the Third Determination recommendations in 2006, the NTC undertook an extensive consultation process and released a number of reports documenting the technical underpinning of the determination models and the changes that were made to the models since the Second Determination.

This regulatory impact statement does not intend to duplicate this work and will refer to prior documents as appropriate. It will identify any continuing concerns that have been raised by stakeholders and will detail any further changes made since preparation of the Third Determination reports.

2. WHAT IS THE PROBLEM

In recent years there has been increasing levels of public spending on road infrastructure. This has been particularly true in relation to arterial road spending, which is currently at its highest levels (in both real and nominal terms) since NTC began collecting national expenditure data.

At the same time, revenues have failed to keep pace with expenditure. This is partly because the annual adjustment does not index the fuel charge and because heavier trucks are moving the freight task with only a marginal change to fleet size.

The result is that heavy vehicle charges no longer recover heavy vehicles share of road expenditure. This section discusses this in more detail and identifies the particular problems which have led to this imbalance. It provides background for the policy decisions that have already been made by both COAG and the ATC. The predominant policy decisions to be made are in relation to enforcement cost, phasing-in and annual adjustment.

2.1 Changes since the Second Determination

2.1.1 Growth in expenditure

Road expenditure, particularly on arterial roads, has increased significantly since the Second Determination. Table 1 shows that since the Second Determination, annual road expenditure has increased by 27%¹ in real terms. Since the Second Determination there has been an increase of over 34% in expenditure related to road pavement and shoulder maintenance. An increase of over 130% in servicing and operating expenditure has occurred during this time. On the other hand, road rehabilitation expenditure has fallen by around 11%.

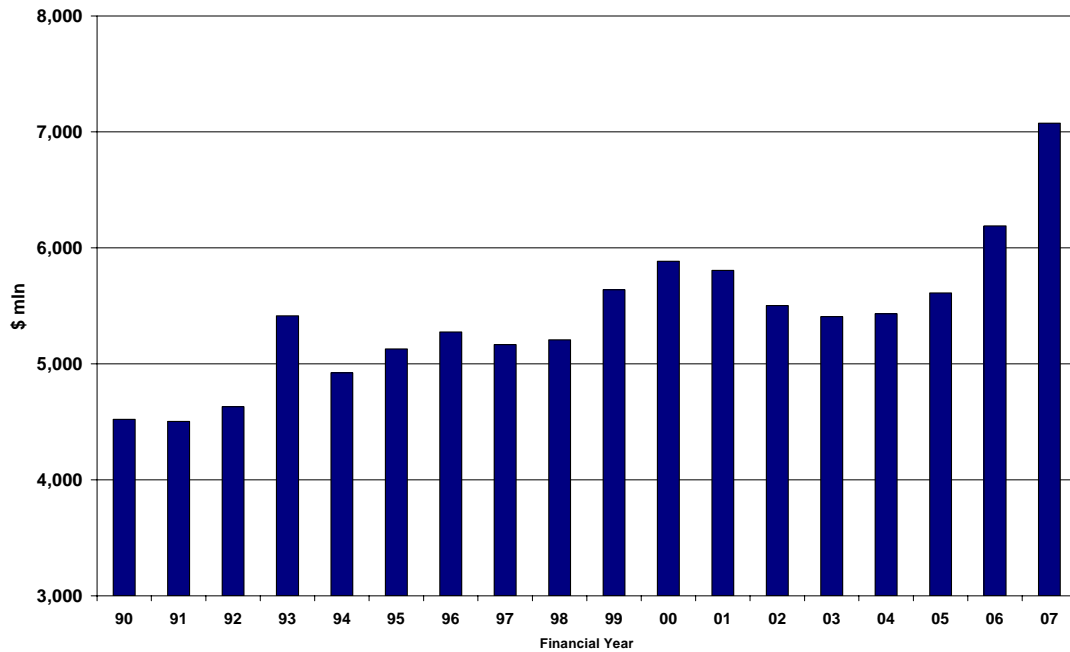
¹ The expenditure for the 2007 Determination has been calculated by averaging expenditure over seven years (to reduce short term 'lumpiness'). The assumptions relating to calculation of the cost base are discussed further in Chapter 4 and Appendices A and D (Vol II).

Table 1. Total road construction and maintenance expenditure estimates (\$2006/07 millions)

Expenditure Category	2nd Det.	2007 Det.	Change 2007 Det./2nd Det.
A Servicing and operating	706	1,628	131%
B Road pavement and shoulder construction			
B1 Routine maintenance	622	914	47%
B2 Periodic surface maintenance	585	703	20%
C Bridge maintenance/rehabilitation	227	383	69%
D Road rehabilitation	1,185	1,062	-10%
E Low-cost safety/traffic	452	810	79%
F Asset extension/improvements			
F1 Pavement improvements	1,633	1,561	-4%
F2 Bridge improvements	518	614	19%
F3 Land acquisition, earthworks, other extensions/improvement expenditure	2,375	3,010	27%
G Other miscellaneous activities			
G1 Corporate services	256	245	-4%
G2 Enforcement of heavy vehicle regulations		111	
Totals	8,559	11,041	29%

The increase in arterial road expenditure is shown in Figure 2. The significant rise in arterial road expenditure estimates from 2005-06 is mainly due to increases in spending on pavement costs associated with providing new roads, or improving the design standard of existing roadways. The Department of Transport and Regional Services has expressed the view that much of the increased expenditure has resulted from increased Auslink funding. However, Queensland and South Australia have noted that they have also significantly increased their road expenditure. The aggregate nature of the cost models do not allow accurate assessments on the true sources of the increase in heavy vehicle related expenditure, but it is fair to say that total road expenditure has increased significantly in a number of states as well as through Auslink.

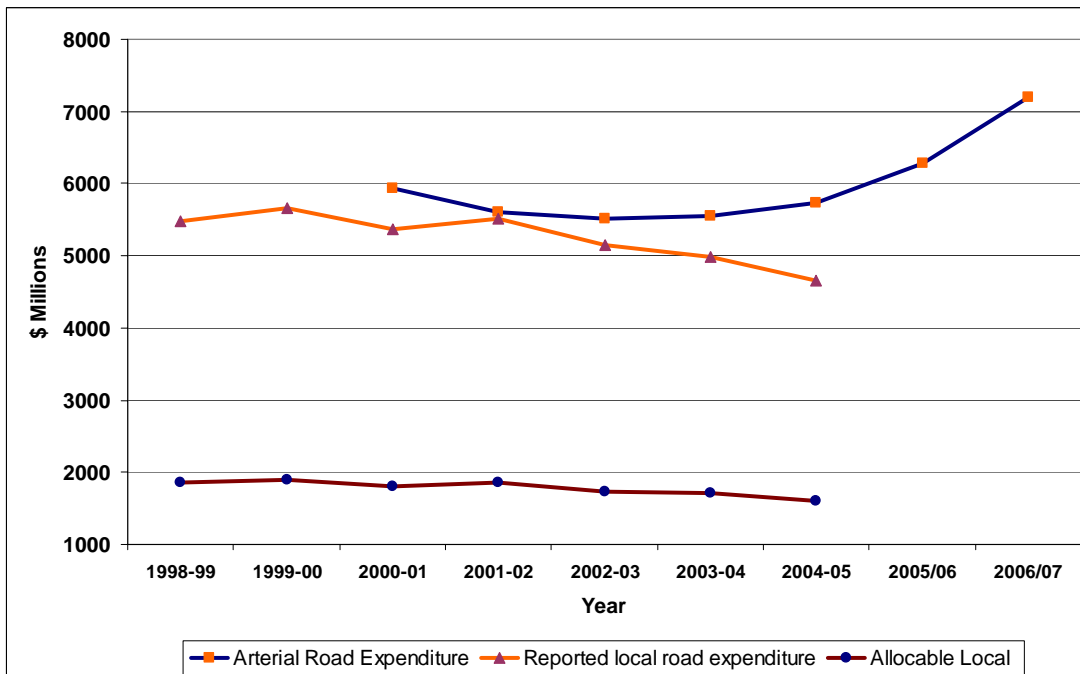
Figure 2. Total arterial expenditure (\$2006/07)



Changes in road construction and maintenance expenditure estimates for arterial and local roads over a seven year period are shown in Figure 3.

Reported local road expenditure has decreased steadily since 2000-01. Similarly, allocable local road expenditure (i.e. adjusted for the 75% of urban local and 50% of rural local expenditure believed to be provided for access purposes) displays an ongoing flat-to-negative trend over the seven-year period.

Figure 3. Arterial, reported local and allocable local road expenditure movements over the past seven years (\$2006/07)



A more detailed breakdown of the road construction and maintenance expenditure estimates being used for the 2007 Determination is provided in Appendix A, Vol II.

It should be noted that the current charges models do not incorporate state budget figures for 2007/08. This is primarily because budget figures were not available for all jurisdictions in sufficient detail in time for full analysis for this regulatory impact statement. However, most jurisdictions were able to provide sufficient detailed data to obtain a reasonable perspective on what impact inclusion of 2007/08 budget data would have prior to publication. The data showed allocable total arterial road expenditure increasing from \$5,924 million to \$6,284 million in 2006/07 real terms a rise of 6%. This results in a rise of 4.7% in total allocable expenditure for all vehicles from \$7,204m to \$8,064m, with heavy vehicle allocable expenditure rising from \$1,828 million to \$1,902 million in 2006/07 real terms a rise of 4.0%.

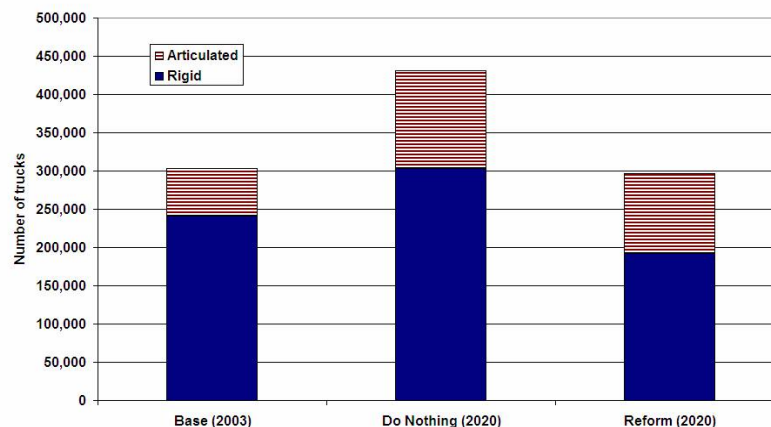
At its May 2007 meeting, the ATC requested that NTC look into the feasibility of including 2007/08 budget figures in its charges calculations. This is in recognition that the determination will not be implemented until 1 July 2008 and will therefore be a year out of date. This regulatory impact statement will discuss the options in addressing this issue in Chapter 4.

2.1.2 Meeting infrastructure safety and productivity objectives

The NTC's *Twice The Task* report (February 2006) highlighted the importance of continuing productivity, safety and pricing reform to address the growing freight task. COAG's National Reform Agenda (10 February 2006) for quad axle groups, B-triples and Performance Based Standards requires significant infrastructure investment to improve access for this 'new generation' of heavy vehicles.

An Australian Industry Group survey (*Transport & Logistics Operations in Australian Manufacturing 2006*) also found that better infrastructure plays an important role in reducing general transport costs. Heavy vehicle charges can contribute to freight link upgrades, removing bottlenecks and reducing logistics costs for exports; particularly as the freight task grows.

Figure 4. Forecast impact of the freight task on truck numbers



The transport reform option (2020) is based on improved access for more productive heavy vehicles through more flexible regulations, pricing reform and infrastructure investment.

Source: *Twice The Task* (NTC/BTRE 2006)

An international heavy vehicle road safety benchmarking study commissioned by the NTC in 2002 also highlighted the important role of better roads on truck safety. It concluded that:

“... if Australian roads were upgraded to having similar proportions of divided and limited access roads, as in the United States or Great Britain, the Australian truck fatality rate could be expected to be similar to that in these countries upgrading of the Australian road system to these standards ... require(s) significant investment.”

The National Road Safety Strategy also concludes that improving the safety of roads is the single most significant achievable factor in reducing road trauma. The research shows improving the safety of the roads could save 332 lives a year – almost half of the national target.

Box 1: What do the terms mean?

It is important to understand some of the terminology used to describe how the charges are calculated. The key terms are:

Total expenditure: This includes all the road expenditure by all levels of government including local government, state/territories and Auslink.

Allocable expenditure: This is the total pool of expenditure after a certain percentage of local road expenditure, which is already recovered through rates, has been deducted.

Allocated expenditure: This is the allocable expenditure distributed across the various classes or groups. This report will generally refer to heavy vehicle allocated expenditure which is the share of *allocable* expenditure recovered by all vehicles over 4.5 tonnes. Total allocated expenditure equals allocable expenditure.

Attributable expenditure: This is the expenditure related to the provision and maintenance of roads and which varies depending on the use of the road system by different types of vehicles. It is equivalent to the long run marginal cost and therefore includes capital as well as operational costs. These costs are directly attributable to vehicle types

Common costs: These are costs that are not attributed to particular use and include such things as signage and expenditure related to the impact of weathering on the roads. This cost is also often referred to as non-attributable expenditure.

2.1.3 Changes in the fleet and usage

Whilst expenditure has increased significantly since the Second Determination, total fleet numbers have not. The Australian Bureau of Statistics Survey of Motor Vehicle Use (SMVU) has shown total heavy vehicle numbers have increased by only 4%².

However, there have been considerable changes within the fleet mix. These are shown in Table 2.

² The fleet size derived from trend figures based on seven years data up to 2004. This methodology has been recommended by the ABS to improve the reliability of the numbers.

Figure 5. Growth in the total heavy fleet number since the Second Determination

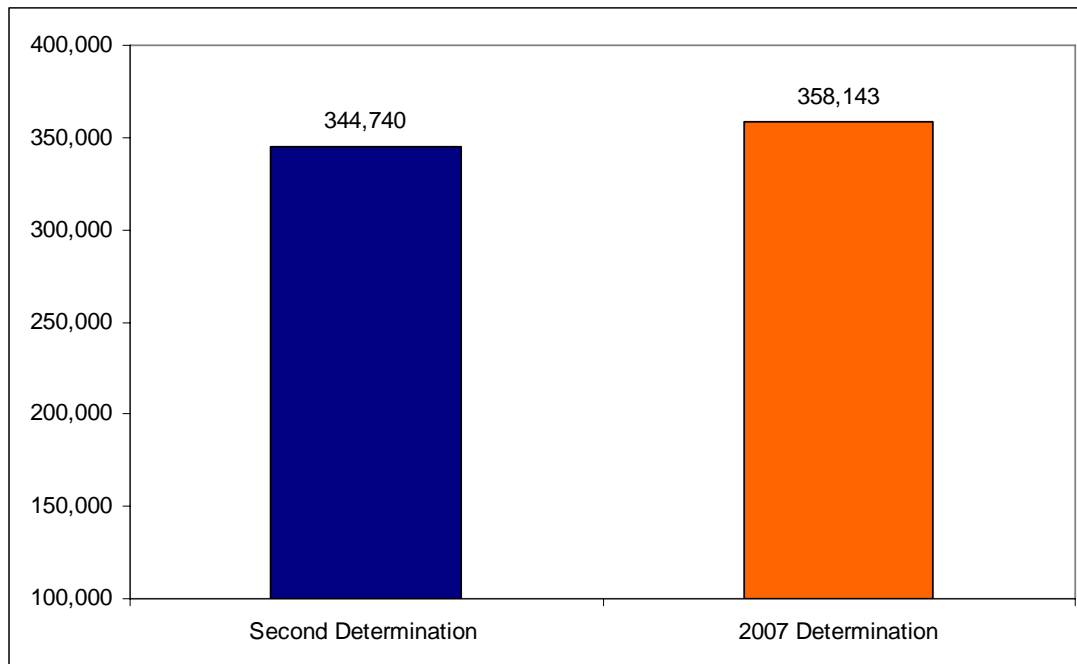


Table 2. Changes in fleet numbers since the Second Determination

	Second Detn	2007 Detn	% change
Rigid trucks	258,779	249,951	-3.4
Articulated trucks	46,565	48,097	3.3
B-doubles	2,604	8,339	220.2
Road trains	5,122	4,493	-12.3
Special Vehicles	8,900	13,453	51.2
Buses	22,770	33,810	48.5
Total Heavy Vehicles	344,740	358,143	3.9

In particular there has been a considerable increase in B-doubles with the number of vehicles in this class increasing by 220%. Whilst B-doubles have increased in number, other vehicle classes have reduced. This is particularly the case for vehicles smaller than a 6 axle articulated vehicle.

Not only has fleet composition changed significantly over the past seven years, the way vehicles are being used has also changed. This is demonstrated in the average distance travelled by vehicles and is most evident with B-doubles. Whilst the total distance travelled by this class has increased from 562 million kilometres per annum to 1,469 million kilometres, the average distance travelled has fallen by 13%. This suggests that more productive vehicles are being utilised more widely than just for long haul trips and reflects broader network access. The changes in the B-double fleet reflect changing asset utilisation, improving productivity in urban areas with safer vehicles.

2.1.4 The annual adjustment

Since the Second Determination, an automatic annual adjustment has applied to heavy vehicle charges. The adjustment enables charges to increase to reflect nominal changes in heavy vehicle expenditure whilst taking into account changes in the overall fleet size. However, the charge applies only to registration charges and is subject to a floor of current charges and a CPI cap.

Whilst this process ensures that existing registration charges are *constant* in real terms, it may not reflect real *increases* in expenditure. In other words, the annual adjustment takes into account the cost of inflation on the heavy vehicle expenditure used to calculate the second determination and recovered through registration charges. This would be sufficient if expenditure was constant and the fuel charge was also adjusted. However, the annual adjustment does not adequately accommodate increases in expenditure greater than the cost of general inflation (due to increased construction activity or a greater increase in construction costs than CPI). Further, the failure to adjust the fuel charge means the capped registration charge only partly indexes charges to expenditures.

COAG has recognised the shortcoming of this approach and has requested the adjustment be amended to enable continued full cost recovery, including between determinations.

2.2 Impact of the changes

2.2.1 Level of cost recovery

The Second Determination charges were calibrated to ensure that at minimum, historic expenditure was recovered. Indeed the Second Determination led to charges which over-recovered historic expenditure by \$140m in nominal terms. However, this situation has now reversed. This has primarily arisen because expenditure has increased at a greater rate than fleet growth. The annual adjustment has not been able to keep pace with the expenditure due to the fact that it is subject to a CPI cap.

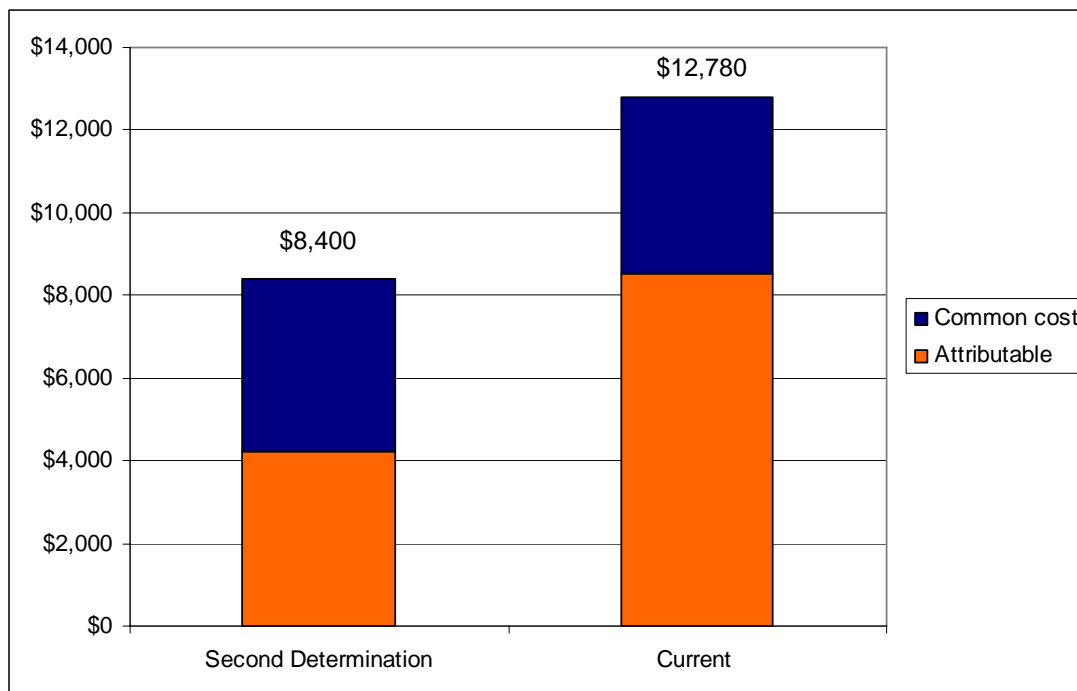
NTC has calculated that heavy vehicles in aggregate now under-recover heavy vehicle expenditure by \$132m. This figure is calculated using trend 2004 fleet numbers based on seven years of trend data over the 1998 to 2004 period. This is compared against road expenditure data that is based on the latest available seven year averages³. This methodology eliminates any lumpiness in the data and provides a consistent basis for comparison.

The Australian Trucking Association (ATA) has calculated that the heavy vehicle fleet currently over-recovers expenditure. However, the ATA estimate has been based on calculating revenues using actual fleet data for 2005 (the latest year available) and is compared against the NTC seven year averaged expenditure data. In addition this method includes around \$133 million in fuel excise revenue that relates to trucks and buses that are not included in the heavy vehicle fleet and environmental related excise revenue that is not related to infrastructure provision and is no longer collected. Further the ATA includes future projected annual adjustment registration revenue of \$19 million for the full 2007/08 year which is not relevant to an assessment of current under recovery as it does not consider budget expenditure over the same period.

³ The period for arterial expenditure is 2000/01 – 2006/07 and the period for local government expenditure is 1998/99 – 2004/05

The under-recovery of charges has arisen not only because of the increase in expenditure, but also because of the change in fleet mix and the fact that not all vehicle classes are recovering their fully allocated costs. In particular, B-doubles significantly under-recover both their fully allocated and attributable costs. Therefore, a disproportionate growth in this vehicle type since the Second Determination has meant that as a class, it under-recovers to a greater extent than it did in 2000. This is shown in Figure 6.

Figure 6. B-double under-recovery of fully allocated costs per vehicle



The PC Inquiry considered this issue. It found that vehicles that recovered their attributable (long run marginal) costs, but not their fully allocated costs (including common costs), were still paying their way. The implication is that heavy vehicle classes should at least pay their attributable cost.

2.3 Recovery of enforcement costs

With increasing pressure being placed on the freight industry, enforcement has become an increasingly important issue. There are strongly divergent views on the treatment of enforcement costs. Enforcement costs have traditionally not been included in the cost base for charges based on data quality issues. The data provided by governments on heavy vehicle enforcement costs reflects the differing enforcement systems in place, specifically:

- the way infringements are classified – heavy vehicles are not always distinguishable from other vehicles;
- data provided to NTC does not completely capture all heavy vehicle enforcement costs because of different police and road agency enforcement responsibilities – NTC only captures road agency enforcement costs;
- compliant operators are increasingly investing in self-regulation schemes; freeing-up on-road enforcement resources to address the non-compliant behaviour of others; and

- a significant component of road agency enforcement expenditure is directed to safety compliance, rather than infrastructure protection (i.e. mass-related enforcement) the PAYGO methodology seeks to recover infrastructure related expenditure.

The Productivity Commission looked into this issue as part of its Inquiry. It found:

“The costs of enforcing heavy vehicle mass and speed restrictions are appropriately recovered through road user charges. However the inclusion of these costs is not likely to have a significant effect on heavy vehicle charges.”
(PC 2007)

The Productivity Commission noted that other countries recover heavy vehicle policing costs in road charges. Whilst this may be the case, the NTC notes that other countries have different pricing objectives which may make it more appropriate to include non-infrastructure-related enforcement such as that related to speed and fatigue.

NTC also notes that whilst enforcement focuses on non-compliant operators, compliant operators also benefit from mass-related enforcement. Breaches of mass constraints leads to greater wear of the infrastructure and require more maintenance expenditure. This will ultimately lead to increased charges which must be borne by all.

The ATA raised a concern that there may be a constitutional constraint on heavy vehicle charges recovering enforcement costs. Therefore, NTC sought constitutional advice on the legality of recovering enforcement costs⁴. In confirming that there was no legal constraint to recovering enforcement costs, the advice referred to an analogous case of *Airservices Australia v Canadian Airlines International Ltd* (1999) 202 CLR 133 which was heard in the High Court. In this case McHugh J stated:

“[I]n my opinion, in characterising a charge as a fee for services ..., it is legitimate to take account of the changing circumstances of government which are exemplified by the devolving of functions from government departments to statutory authorities or other corporate bodies which, under the terms of their enabling statutes, have a monopoly on the provision of a certain service and are directed by the legislature to provide those services on a ‘user pays’ basis. Charges by such authorities and bodies should be seen as essentially cost driven, imposed on users for the purpose of reimbursing the cost of services provided. They should not be approached as if they were imposed simply to raise revenue for the general government of the country.”

NTC accepts that this advice adequately addresses the ATA concern and further supports the case for the inclusion of enforcement costs.

Whilst the NTC accepts that there may be a case for the adoption of enforcement costs, it disagrees that all heavy vehicle-related enforcement costs should be recovered through heavy vehicle charges. The charges are intended to recover infrastructure-related costs. Enforcement is not limited to infrastructure-related infringements. That is, in addition to mass-related infringements, it also captures the cost of enforcing speed and fatigue restrictions. These are related to safety.

⁴ The full advice can be found in Appendix F, Vol II.

2.4 Charges volatility

NTC's current methodology calculates a cost base to be recovered by averaging three years of expenditure (two historic years and the current budget year). The reason for doing so is to allow for variations in expenditure so that charges reflect an appropriate cost base to recover.

However, during the PC Inquiry, the NTC identified that a three-year average may not be sufficient, particularly as determinations tend to occur only every seven years. Figure 2 demonstrates this point well where the last two years of expenditure are considerably higher than previous years. A three-year average including these two years would result in charges that may over-recover expenditure in the future should expenditure later fall.

2.5 High productivity vehicles

The October 2006 ATC direction required NTC to develop incremental charges for high productivity vehicles. The direction reflected the need for a pricing solution to enable the introduction of new more productive vehicles onto the road network.

The need to provide access for high productivity vehicles was emphasised in the NTC report "Twice the Task." The report described the need to find solutions to better optimise the current road network to address the doubling of the freight task from year 2000 levels by 2020. Without more productive vehicles being given access, more vehicles will be required to service the increased freight task.

However, high productivity vehicles are believed to create more road wear than vehicles in the existing fleet. Therefore, road managers have been reluctant to grant access on the grounds that it will make the sustainability of the network more difficult. A pricing solution would overcome this problem.

Because many of these vehicles will be bespoke in nature (at least initially whilst the market is developing) it will be important that any pricing solution is flexible enough to accommodate different vehicle characteristics and operations, whilst being consistent with current pricing principles and the existing charges framework. It will also be important that the charging arrangement provides sufficient transparency and predictability that operators are able to negotiate contracts with confidence. Indeed an early consultation workshop with key stakeholders and technical experts in May 2007 indicated that any pricing solution for these vehicles:

- must be transparent;
- be based on best available data;
- must consider the treatment of common costs;
- should not lead to perverse outcomes (financial/operational decisions); and
- should be consistent with ATC and COAG pricing principles.

Options and proposed approaches for dealing with issues such as enforcement costs, charges volatility and high productivity vehicles are considered below.

3. THE DESIRED OBJECTIVE

3.1 Objective

The primary objective of heavy vehicle charges is to ensure full cost recovery of the provision of heavy vehicle allocated road expenditure in aggregate and attributable cost recovery of vehicle classes (no 'cross-subsidies' between vehicle classes). These objectives have been clearly stated by both the ATC and COAG.

3.1.1 ATC pricing principles

The NTC, in recommending national heavy vehicle charges to recover costs of heavy vehicle road use, is bound by a set of Road Use Pricing Principles (approved by ATC in August 2004). The Pricing Principles are:

“National heavy vehicle road use prices should promote optimal use of infrastructure, vehicles and transport modes.

This is subject to the following:

- *full recovery of allocated infrastructure costs while minimising both the over and under recovery from any class of vehicle*
- *cost effectiveness of pricing instruments*
- *transparency*
- *the need to balance administrative simplicity, efficiency and equity (eg impact on regional and remote communities/access)*
- *the need to have regard to other pricing applications such as light vehicle charges, tolling and congestion.*

3.1.2 COAG requirements

In addition to these principles, COAG (at its 13 April 2007 meeting) further required that there is no cross-subsidisation between vehicle classes. Specifically, the COAG Communiqué supplementary information from the April 2007 meeting states that:

“ATC direct the NTC, in developing its determination, to apply principles and methods that ensure the delivery of full cost recovery in aggregate, further develop indexation adjustment arrangements to ensure the ongoing delivery of full expenditure recovery in aggregate and remove cross-subsidisation across different heavy vehicle classes, recognising that transition to any new arrangement may require a phased approach” (COAG 2007).

In effect this means that revenues from registration and fuel charges for a given vehicle class must recover, at a minimum, the attributable cost associated with that class. The attributable cost is the infrastructure-related cost which is associated with the use of a vehicle.

3.1.3 The considerations

The previous Third Determination heavy vehicle charges recommendations had also been informed by a number of 'considerations' (NTC, 2006). These considerations were

effectively NTC's interpretation of the ATC pricing principles and provided a policy framework which guided the development of heavy vehicle charges. They were informed by both formal and informal consultation. However, these considerations were not formal directions.

A number of the considerations are now in conflict with the latest directions given by the ATC and COAG. Where this has occurred, NTC has given precedence to the direction. The discussion below identifies where a change is required in the considerations.

- A. The results of the charges should support both the pricing principles and the objectives set out for the NTC in the Inter-Governmental Agreement.
- B. The charges should ensure that heavy vehicles as a whole 'pay their way', and each major category of heavy vehicles also pays its way.
- C. The revised charges should promote freight efficiency.
- D. Cross-subsidies between vehicle classes should be kept to a minimum.

COAG has required that there are no cross-subsidies between vehicle classes therefore this consideration will be strengthened.

- E. A cautious approach should be taken where assumptions are needed and independent verification of assumptions will be sought.
- F. Imposts from changes should be minimised for any category of vehicle.
- G. The Determination should not anticipate significant policy issues that will be dealt with in a subsequent determination, and no attempt should be made to move charges in any particular direction ahead of this.

Whilst this determination adopts the 'traditional' methodology, the charges for high productivity vehicles does attempt to move in the direction of price reform. The direction from ATC requiring 'incremental charges' suggests this is appropriate. This consideration will not apply.

- H. The Determination should not be used to promote modal outcomes.
- I. Decreases in charges should only occur in exceptional circumstances.

Currently a number of vehicle classes significantly over-recover their costs. This is for a number of reasons including:

- *the method by which the fuel charge was originally set which led to an over-recovery of costs by the lighter end of the heavy vehicle fleet;*
- *the uniform increase in registration charges resulting from the annual adjustment exacerbating the original over-recovery; and*
- *changes in usage data and fleet mix.*

Therefore, in order to ensure that heavy vehicles in aggregate recover their costs, but not over-recover, and that all vehicle classes recover their attributable costs, some registration charges will need to fall.

- J. Changes that would significantly alter the balance of Commonwealth/state and territory revenues should be avoided.

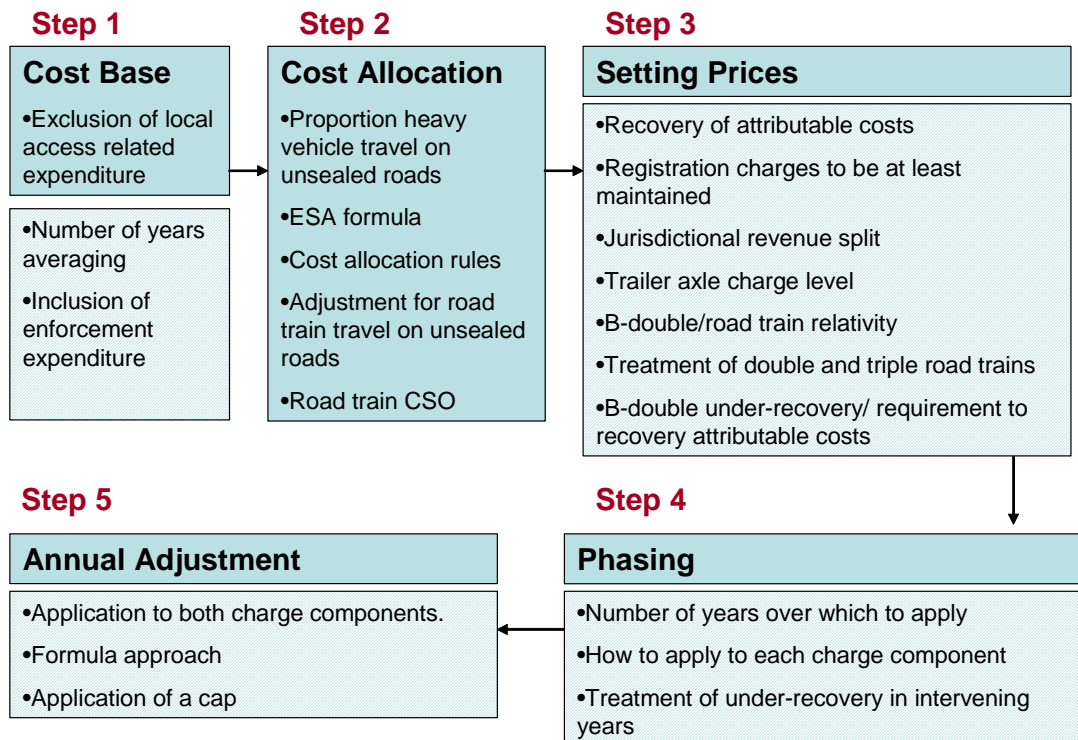
The options discussed do result in some change in the balance of revenues between Commonwealth and states/territories to ensure there is no over-recovery.

4. THE OPTIONS

There are a number of options to the various problems described in Chapter 2. However, the charges options reflect choices that have been made in relation to estimating the cost base and allocating those costs. The process for developing and adjusting charges is illustrated in Figure 7.

This chapter discusses the options available under each step.

Figure 7. Process for developing charges



4.1 Variations to the cost base in relation to expenditure period

Charges are calculated to recover historic expenditure. This is known as the cost base. In order to calculate the charges, variations to the cost base must first be discussed.

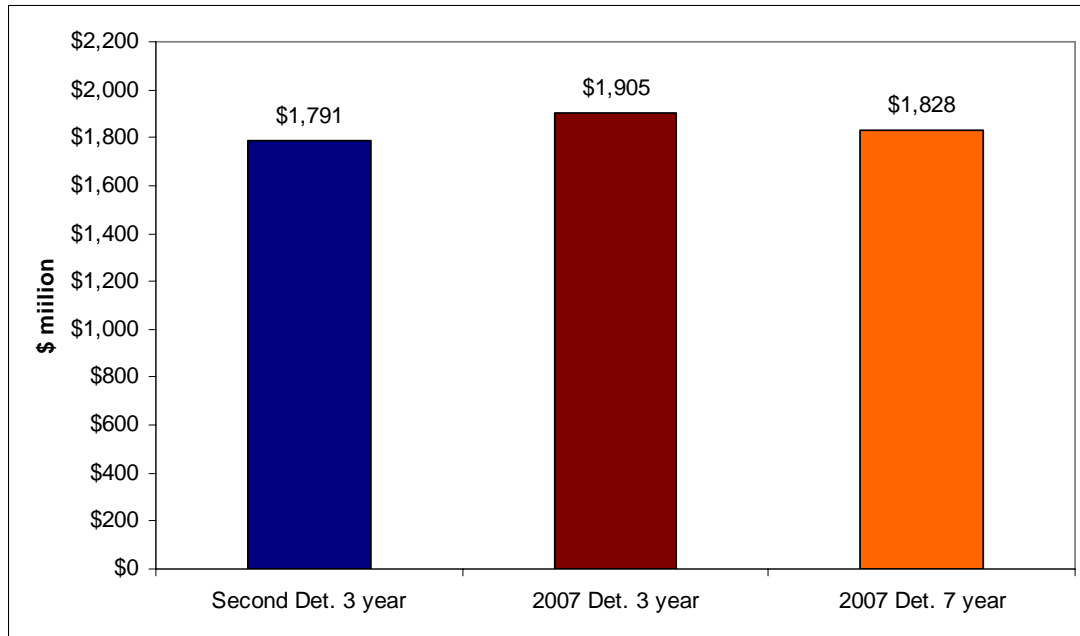
4.1.1 The averaging of expenditure

As noted in Section 2.4, inconsistency in road expenditure over time is likely to lead to greater charges volatility. That is, if more than one year of the three years used to estimate expenditure is higher or lower than the average expenditure over the period the determination covers, charges will over or under-recover. Therefore NTC has proposed to ATC that the charges methodology be amended to reflect a longer averaging period of seven years. In doing so, unusual variations from year to year are moderated, making charges less sensitive to them.

This proposal was considered by the PC Inquiry. Whilst the PC Inquiry acknowledged the benefits of such an approach, it did note “that it exacerbates the reliance on historic expenditure data and therefore the lag in under- or over-recovery.”

The ATC considered this, and on balance supported the change to a seven year averaging period. As shown in Figure 8, the impact of moving from three to seven years of expenditure in this determination means the cost base to be recovered is reduced from \$1,905 million to \$1,828 million.

Figure 8. Heavy vehicle allocated cost base (\$2006/07)



4.1.2 The years of expenditure included in the cost base

NTC has been asked to look at the feasibility of including budget expenditure for 2007/08. There are two options for doing so.

The first is to include the expenditure in the cost base for this determination and exclude expenditure data from 2000/2001. This would ensure that the determination fully recovers heavy vehicle expenditure and that the ATC and COAG pricing principles are consistently adhered to. However, the budget road spending data for 2007/08 has not yet been provided by all states.

The alternative approach is to recover 2007/08 expenditure through the annual adjustment process. The current annual adjustment process captures actual expenditure as published in the NTC annual report. Therefore actual 2007/08 data would be captured through the 2009 annual adjustment. Early incorporation of budget 2007/08 data through the process would require an amendment to the annual adjustment to capture budget rather than actual expenditure. This would better align the adjustment with the determination methodology which also includes one year of budget expenditure.

Discussion question:

How should 2007/08 arterial expenditure be captured?

4.1.3 Variation to the cost base in relation to enforcement

A further variation to the cost base in this determination is the treatment of enforcement costs reported by road agencies.

There are broadly three approaches which could be taken in addressing the issue of enforcement costs. This section discusses each approach in more detail.

4.1.4 Option a – full recovery of enforcement

There are two variations to this approach. The first is to allocate expenditure to individual vehicle classes based on nationally aggregated heavy vehicle vehicle-kilometres-travelled. This is consistent with the approach of cost allocation for other expenditure categories.

As shown in Table 3, NSW has a disproportionately large share of the total expenditure when compared with the proportion of heavy vehicle traffic (the basis upon which this expenditure is allocated). When applied at a national level this creates a situation where trucks in other jurisdictions recover the cost of enforcement in NSW.

Table 3. Heavy vehicle enforcement expenditure by state

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Enforcement Expenditure (\$2006/07m)	68.8	10.9	13.7	8.4	5.6	0.8	2.2	0.5
Percentage expenditure	62.0%	9.8%	12.3%	7.6%	5.1%	0.7%	2.0%	0.5%
HV-VKT %	32.9%	23.3%	20.9%	7.5%	11.2%	2.3%	1.2%	0.6%

A variation to this approach is to include the full amount of enforcement costs, but individually allocate the state-based totals by the heavy vehicle kilometres travelled in that state. These state based allocations for each vehicle class would then be summed, and divided among the national total of heavy vehicles to ensure uniform charges. This approach would serve to match more closely the vehicle utilisation profile with each state to its relative enforcement costs.

The principal difference between this approach and the nationally aggregated approach is the distributional impact on vehicle classes. For the lighter heavy vehicles, there is little to separate the approaches, with the difference in many cases amounting to just a few dollars per vehicle.

However, for vehicles such as road trains, the majority of whose operations occur in Western Australia and Queensland, the state-based allocation approach means that they are allocated proportionally less of the high amount of NSW enforcement expenditure. For triple road trains, this approach results in approximately \$430 less in allocated costs than under the nationally based allocation of full enforcement costs, but \$320 more than under nationally based allocation of adjusted enforcement costs. In this way, the state-based allocation approach provides a middle ground between the adjusted and full national approach. Nevertheless, this approach still requires a higher amount of expenditure to be recovered in aggregate. In general this requires a higher fuel charge, all else being equal.

4.1.5 Option b – partial recovery of enforcement costs

The partial recovery of enforcement costs reflects a view that it is appropriate to recover only mass related enforcement costs. Because these costs are not easily distinguishable from other enforcement costs, the approach NTC has developed is a proxy for this separation.

This approach reduces heavy vehicle enforcement expenditure in NSW so that its proportion of enforcement expenditure does not exceed its proportion of heavy vehicle related traffic. The relative percentages for the other jurisdictions are broadly consistent. This would reduce the total enforcement expenditure to be recovered from \$110.9 million to \$62.7 million. Such an adjustment is not, in the narrow sense, cost reflective, however it provides a lower bound for estimating mass related enforcement cost.

This represents a more conservative approach in modelling charges options, noting the lack of robustness around the data associated with enforcement costs.

Table 4. Adjusted heavy vehicle enforcement expenditure by state

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Adjusted Expenditure (\$06/07m)	20.7	10.9	13.7	8.4	5.6	0.8	2.2	0.5
Adjusted Percentage expenditure	32.9%	17.4%	21.7%	13.4%	8.9%	1.2%	3.5%	0.8%
HV-VKT %	32.9%	23.3%	20.9%	7.5%	11.2%	2.3%	1.2%	0.6%

4.1.6 Option c – exclude enforcement costs

The third option is to exclude enforcement costs completely from the cost base.

4.1.7 Impact of the various treatments of enforcement

Table 5 shows the contribution to allocated costs under each option for the treatment of enforcement costs.

Table 5. Allocation of enforcement costs for each option (\$/vehicle)

	Allocation per vehicle – Option a(i) \$/vehicle	Allocation per vehicle – Option a(ii) \$/vehicle	Allocation per vehicle – Option b \$/vehicle	Allocation per vehicle – Option c \$/vehicle
Rigid trucks: 2 axle: no trailer: GVM 4.5 to 7.0 tonne	109	107	62	0
Rigid trucks: 2 axle: no trailer: GVM 7.0 to 12.0 tonne	174	175	99	0
Rigid trucks: 2 axle: no trailer: GVM over 12.0 tonne	160	141	91	0
Rigid trucks: 2 axle: with trailer	178	169	101	0
Rigid trucks: 3 axle: no trailer: GVM 4.5 to 18.0 tonne	160	118	90	0
Rigid trucks: 3 axle: no trailer: GVM over 18.0 tonne	207	211	117	0
Rigid trucks: 3 axle: with trailer: GCM over 18.0 tonne	424	392	240	0
Rigid trucks: 4 axle: no trailer: GVM 4.5 to 25.0 tonne	88	77	50	0
Rigid trucks: 4 axle: no trailer: GVM over 25.0 tonne	224	222	127	0
Rigid trucks: 4 axle: with trailer	596	594	338	0
Rigid trucks: Heavy Truck/Trailer Combination	490	458	277	0
Articulated trucks: single trailer: 3 axle rig	140	117	80	0
Articulated trucks: single trailer: 4 axle rig	366	397	208	0
Articulated trucks: single 3 axle trailer: 5 axle rig	428	400	243	0
Articulated trucks: single 2 axle trailer: 5 axle rig	586	575	332	0
Articulated trucks: single trailer: 6+ axle rig	849	908	481	0
Articulated trucks: B-double: < 9 axle rig	1688	1861	956	0
Articulated trucks: B-double: 9+ axle rig	1662	1736	942	0
Articulated trucks: Road train: 2 trailers	1142	850	647	0
Articulated trucks: Road train: 3 trailers	1733	1306	982	0
Articulated trucks: > 6 axle rig (NEC)	887	758	503	0
Other trucks	68	58	38	0
Buses: 2 axle: GVM 4.5 to 10.0 tonne	207	215	117	0
Buses: 2 axle: GVM over 10.0 tonne	300	317	170	0
Buses: 3 axle	513	608	291	0
Buses: articulated	359	275	204	0

Discussion questions:

What is the appropriate treatment of enforcement costs and why?

Is there another approach NTC could take to include enforcement?

4.2 Cost allocation

The cost allocation methodology developed by NTC is based on best available research and was updated and consulted on as part of the Third Determination process. The methodology is detailed in Appendix B. The methodology was reviewed in detail by the Productivity Commission which found the methodology to be reasonable but conservative in nature (i.e. that overall it favoured industry).

Further NTC notes the methodology is generally supported by industry. Whilst the industry does disagree with some of the cost allocations in the NTC model (see section

6.1.3) they did note as part of the PC Inquiry that there is transparency as well as a “high degree of accuracy in the current model”⁵ as part of the PC Inquiry.

In addition, industry representatives attending a technical workshop in May 2007 acknowledged that the current models are an improvement to those used in the Second Determination.

Discussion question:

Is there any further research available that could lead to an improvement in the cost allocation methodology?

4.3 Charges options

As discussed in Chapter 2, the PC Inquiry found “prices charged to users of freight transport network services should at least cover the directly attributable or incremental costs of providing the services they consume” (p61 PC 2007). Failure to do so constituted a subsidy. Further the PC Inquiry demonstrated that based on Third Determination data, B-doubles and road trains failed to recover their attributed and allocated costs (p119 PC 2007). COAG considered this at its 13 April 2007 meeting and required that this determination ensure that there were no cross-subsidies between vehicle classes. That is, all vehicle classes must at least recover their attributable costs but need to recover common costs. This was subsequently supported by ATC at its 5 May 2007 meeting.

This principle has considerable implications on B-doubles and road trains.

a) Impact on B-doubles

In 2000, the Second Determination imposed a cap on B-double charges – then a relatively new class of heavy vehicle – to prevent their substitution by less safe road trains. Whilst this policy has been achieved, it has prevented B-doubles from recovering their attributable costs. This is because road trains benefit from a reduced cost allocation reflecting the fact that they mainly travel on unsealed roads in remote and regional areas (see Appendix B Vol II, for more detail).

NTC’s most recent fleet usage data now shows that, in most cases, B-doubles and road trains operate on distinct networks. B-doubles increasingly operate on more urban and port areas where road trains do not have access. Therefore NTC’s best assessment is that substitution is unlikely to be a significant risk.

ATC has asked to consider the implications on B-doubles and road trains which do operate on the same network. This is a particular concern in WA where road trains have the same access as B-doubles. The concern is that operators may substitute safer B-doubles with compact road trains which face lower registration charges but have the same carrying capacity. NTC notes that this is a very specific local issue and has therefore discussed options with the WA Government around offering local location based concessions for B-double operators in urban areas. B-doubles may receive a concession or rebate on their registration charge reflecting the proportion of time they operate on WA roads. WA will need to consider the compliance arrangements around

⁵ Neil Gow, ATA (PC Public Hearing, 6/11/06 Canberra)

such a concession to ensure an incentive is not created for operators to register B-doubles in WA but operate in other states and territories.

b) Impact on road trains

Currently double and triple road train prime movers are charged the same weighted average charge (the difference in charges being the number of trailers) to ensure double and triple trailer sets can be easily substituted.

The result of this decision was that triple road trains significantly *under-recover their attributable costs*, whilst double road trains *over-recover their fully allocated costs*. The reason for this is that the trailer charge does not reflect the actual infrastructure cost of a trailer. Adopting the principle of attributable cost recovery by vehicle class would differentiate the prime mover charges for double and triple road trains.

Consultation with jurisdictions and industry has indicated that whilst the principle of attributable cost recovery is supported, there is concern about maintaining vehicle configuration flexibility. That is, there is a strong desire, particularly by industry, that operators should be able to change their vehicle configuration as required by the specific trip without facing adverse financial implications. The concern is that this flexibility will be lost by having a differentiated charge for a prime mover which is the same, except for the trailer configuration.

Further, some jurisdictions have indicated a concern that a change to the charges structure would result in a greater enforcement burden.

The NTC supports the change to attributable cost recovery by vehicle class based on the following grounds:

- many road agencies already offer flexibility for heavy vehicles to switch between registration classes at short notice;
- the net impact on rural and regional areas is negligible as the costs are simply *redistributed* between road train types already servicing these areas;
- the enforcement burden should be no greater, as governments must still ensure that operators are correctly charged for their number of trailers; and
- the principle enables registration charges for most classes of vehicle to increase by only a moderate amount or to even fall.

In light of its consideration of these implications, the NTC believes that attributable cost recovery is appropriate and consistent with other ATC principles and COAG requirements for heavy vehicle charges. Therefore, NTC has treated this as a minimum requirement in the development of charges options.

Neither of the following options result in an over-recovery of expenditure.

4.3.1 Charges Option 1

Option 1 delivers full cost recovery with all vehicle classes recovering their attributable costs. However, it allows for vehicle classes to over or under recover their common costs. Further, the minimum registration charge for heavy vehicles does not fall below the maximum registration charge for light vehicles. This aligns with the ATC pricing principle that charges “should have regard to other pricing principles such as light vehicle charges” and protects against perverse vehicle investment signals.

Charges under this option and with the variations reflecting the different treatments of enforcement are shown in Table 6.

Table 6. Charges Option 1 for select vehicles under different enforcement scenarios

	Current Charges	Option 1a Full enforcement	Option 1b Adjusted enforcement	Option 1c No enforcement
Fuel charge (cents/litre)	19,633	22.2	21.0	19.5
Registration charges (\$ per vehicle)				
Trailer charge per axle	343	365	365	365
2 axle rigid truck, 4.5 - 7 tonnes	343	365	365	365
3 axle rigid truck over 18.5 tonnes, no trailer	914	760	808	888
Heavy truck/trailer over 42.5 tonnes	5,543	7,056	7,234	7,484
6 axle articulated truck	4,912	4,661	4,817	5,043
B-doubles	7,769	14,350	14,814	15,474
Double road train	8,455	8,783	9,205	9,866
Triple road train	10,170	15,517	16,396	17,836
2 axle bus over 10 tonnes	572	365	365	365

It may appear counter-intuitive that as the enforcement cost component of the cost base falls, registration charges increase. This occurs because the fuel charge falls. As a result, fuel charge revenues *decrease* by a greater amount than the increase in registration charge revenues. So whilst registration charges increase slightly, overall charges (i.e. fuel and registration) decrease as less enforcement cost is taken into account.

4.3.2 Charges Option 2

Option 2 delivers full cost recovery with each vehicle class recovering its fully allocated cost. That is, each vehicle class recovers its attributable *and* share of common cost: there is no over or under-recovery of costs by each vehicle class. The impact of this is that the fuel charge does not increase to the same extent as under Option 1. However, registration charges increase significantly for those vehicle classes that currently under-recover their fully allocated costs by a significant amount.

As with Option 1, this means that other vehicle classes face only moderate increases in charges or even reductions in registration charges. However, unlike Option 1, the minimum registration charge under Option 2 falls below the maximum registration charge faced by light vehicles. This is primarily because the lighter end of the heavy vehicle fleet over-recovers its share of common costs under Option 1 to accommodate the failure of B-doubles to do so. This result is inconsistent with the ATC pricing principles (which require charges to have regard to other road pricing mechanisms) and may lead to perverse outcomes at the boundary between light and heavy vehicles, i.e. some operators may opt to purchase a vehicle over rather than under 4.5tonnes so that they face a lower registration charge. Table 7 shows the charges under this option.

Table 7. Charges option 2 for select vehicles under different enforcement scenarios

	Current Charge	Option 2a Full enforcement	Option 2b Adjusted enforcement	Option 2c No enforcement
<i>Fuel charge c/l</i>	19.633	20.3	19.4	18.3
Registration charges (\$ per vehicle)				
Trailer charge per axle	343	365	365	365
2 axle rigid truck, 4.5 - 7 tonnes	343	254	237	214
3 axle rigid truck over 18.5 tonnes, no trailer	914	1,012	1,030	1,053
7 axle heavy truck/trailer over 42.5 tonnes	5,543	7,693	7,778	7,888
6 axle articulated truck	4,912	5,492	5,527	5,570
B-doubles	7,769	20,523	20,707	20,943
Double road train	8,455	10,322	10,521	10,842
Triple road train	10,170	22,422	22,918	23,744
2 axle bus over 10 tonnes	572	322	284	233

Discussion question:

Is it sufficient for B-doubles and road trains to only recover attributable costs or should they also fully recover their share of common costs?

4.3.3 High productivity vehicle charges

The heavy vehicle industry is currently going through a period of considerable change with COAG supporting implementation of a Performance Based Standards approach to allow new heavy vehicle types to operate. However, as these vehicles sit outside the current vehicle classifications, there are constraints on vehicles that may cause additional damage on roads but which have considerable productivity benefits.

High productivity vehicles are defined as a heavy vehicle that does not meet current prescriptive specifications based on mass, volume, height, vehicle/trailer length and or axle configuration due to productivity related improvements to the vehicle.

ATC has directed NTC to develop charges for these vehicles. In doing so, the ATC has required that these vehicles must recover their fully allocated costs. Therefore, NTC proposes that a high productivity vehicle charge formula apply unless the vehicle type can be accommodated within the registration charge range for the nearest prescriptive vehicle type. Because these vehicles do not have historical information association with their usage (as they are new) they must be considered separately to existing vehicles.

The NTC proposes the following approach in addressing higher productivity vehicles:

- to introduce a transparent formula consistent with the current determination methodology to enable to costing of new high productivity charges;
- to map to existing registration categories those vehicles that cause no additional damage to the network; and

- to produce common sense guidelines for the application of the formula to new vehicle types to minimise any perverse outcomes.

The proposed formula to derive allocated cost and charges for new high productivity heavy vehicle types is as follows and is based on average unit costs estimated for the current determination.

The key inputs to this formula are:

- average unit costs across the entire network that the NTC has derived from its cost allocation and road use modelling;
- the expected annual travel or vehicle kilometres travelled of the vehicle concerned;
- the expected average gross mass (AGM) of the vehicle per annum including both laden and unladen travel which is used to assess the AGM impact on road wear;
- the Equivalent Standard Axle (ESA) value of the vehicle is based on first principle calculation. This means it is based on expected distribution of the load across the axles using the 4th power rule and averaging the ESA's that result from the proportion of travel that is fully loaded, partly loaded and unloaded.
- the Passenger Car Unit (PCU) value of the vehicle which is a road capacity measure based on relative length of a heavy vehicle compared to a medium size passenger car
- the fuel usage of the vehicle per annum; and
- the NTC fuel charge that applies at the time.

For the ESA calculation the current proposal is that for all high productivity vehicles that are granted level 4 access (triple road train access roads) under Performance Based Standards that it is assumed that 50% of annual travel is fully loaded and the other 50% unloaded as these vehicles travel in mining and remote areas and rarely backload. This 50:50 ratio would similarly apply to any vehicle types granted level granted general access level, B-double access level 2 or double road train access level 3 that are used for bulk products that rarely backload.

For other high productivity heavy vehicles granted level 1 to 3 access it is assumed a certain amount of backloading occurs with characteristics more typical of the general fleet. For these vehicles it is assumed that 50% of annual travel is fully laden, 20% partly laden and 30% unladen. Partly laden assumes an average partly laden load equivalent to 50% of a full payload based on mass or volume whichever is the most relevant to the vehicle type

The formula states that the annual registration charge equals the allocated cost less the fuel charge revenue expected to be paid by the vehicle per annum.

Step 1: To consider whether it is appropriate to apply the formula to the new vehicle or to map to an existing vehicle class.

This will be based on a number of guidelines so as to prevent perverse outcomes. An example of such a guideline may be:

A vehicle which carries no more than the prescribed mass limit of a similar vehicle with similar characteristics is not subject to the formula.

Step 2: To derive allocated cost which is based on the sum of attributable and non-attributable (common) costs.

*Allocated cost = [(AGM unit cost*AGM in tonnes)+(ESA unit cost* ESA rate)+(PCU unit rate*PCU value)+ (VKT unit rate)+(non attributable unit rate)]* annual VKT*

Where:

AGM unit cost = 0.14 cents per tonne kilometre

ESA unit cost = 3.44 cents per ESA kilometre

PCU unit cost = 0.33 cents per PCU kilometre

VKT unit cost = 1.18 cents per kilometre

Non-attributable unit cost = 2.26 cents per kilometre.

Step 3: To derive annual fuel charge revenue based on projected fuel economy and annual travel.

*Annual fuel charge revenue = NTC derived fuel charge * fuel usage per kilometre* annual VKT.*

The current fuel charge rate is 19.633 cents per litre.

Step 4: To derive the registration charge by deducting the annual fuel charge revenue from the allocated cost.

Whilst the resulting charges would not be incremental charges, they would be specific to the new vehicle type and its expected operation. In keeping with determination models the formula applied to calculate costs and charges would be a function of AGM, VKT, ESA-km and PCU-km. It is expected that the resulting bespoke registration charges would be attached to permit fees. This will require legislative changes in most jurisdictions.

Incremental prices are not considered in this determination. Under the Road Reform Plan, COAG has required a detailed review, including trials, to assess the feasibility of incremental pricing by December 2008.

Discussion questions:

Does the formula fully capture the appropriate costs?

Does this approach provide sufficient flexibility for different types of operations?

Is the proposed ESA calculation approach reasonable and workable?

What should be included in the guidelines?

4.4 Phasing-in options

The charges resulting from the various policy positions include significant increases for prime movers of some vehicle classes. Therefore, it may be appropriate to phase-in registration charges for these prime movers over two or three years, with a greater weight being placed on the first year of implementation. This principle is supported by COAG.

The ATC also has an option to defer implementation of a fuel charge increase by one or two years. By adopting a phase-in approach, charges will not fully recover expenditure until the final year of implementation. It should also be noted that charges would still be

subject to an annual adjustment. Note: The following tables do not include any future annual adjustment and are presented in nominal terms (i.e. dollars of the day).

Table 8 shows charges for heavy truck trailers, B-doubles and double and triple road trains over a two year period. Table 9 shows the same charges phased in over three years. NTC has applied the following principles in phasing the charges:

- If prime mover registration charges have increased only marginally or have fallen, the charge is passed through in full in year one.
- For the two year phase-in, two thirds of the prime mover charge is recovered in year one and the balance recovered in year two.
- For the three year phase-in, if the charge for a class has risen by up to \$2,000, the charge for that class is phased-in over two years, on the same basis described above.
- For the three year phase-in, if the increase for a class exceeds \$2,000, 50% of the prime mover charge is recovered in year one, 75% in year two and 100% in year three.

For simplicity of comparison, the following options incorporate partial recovery of enforcement costs. The level of under-recovery is relatively small under either option with a two year phase-in of registration charges. However, should implementation of the fuel charge be deferred, the level of under-recovery will increase more significantly under Option 1 because of the higher fuel charge.

Table 8. Options with a two-year phase-in of registration increases (nominal)

	Current	Option 1		Option 2	
		Year 1	Year 2	Year 1	Year 2
Fuel charge c/l	19,633	21.0	21.0	19.4	19.4
Registration charges (\$ per vehicle)					
Trailer charge per axle	343	365	365	365	365
2 axle rigid truck, 4.5 - 7 tonnes	343	365	365	237	237
3 axle rigid truck over 18.5 tonnes, no trailer	914	808	808	1,030	1,030
4 axles rigid truck over 25t	2,285	808	808	1,030	1,030
Heavy truck/trailer over 42.5 tonnes	5,543	6,696	7,234	7,059	7,778
6 axle articulated truck	4,912	4,817	4,817	5,527	5,527
B-doubles	7,769	12,530	14,814	16,458	20,707
Double road train	8,455	9,205	9,205	9,911	10,521
Triple road train	10,170	14,436	16,396	18,784	22,918
2 axle bus over 10 tonnes	572	365	365	284	284
Under-recovery (\$m)	132	19	0	40	0

Table 9. Options with a three-year phase in of registration increases (nominal)

	Current	Option 1			Option 2		
		Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
Fuel Charge	19,633	21.0	21.0	21.0	19.4	19.4	19.4
Registration Charges (\$ per vehicle)							
Trailer charge per axle	343	365	365	365	365	365	365
2 axle rigid truck, 4.5 -7 tonnes	343	365	365	365	237	237	237
3 axle rigid truck over 18.5 tonnes, no trailer	914	808	808	808	1,030	1,030	1,030
4 axles rigid truck over 25t	2,285	808	808	808	1,030	1,030	1,030
Heavy truck/trailer over 42.5 tonnes	5,543	6,696	7,234	7,234	7,059	7,778	7,778
6 axle articulated truck	4,912	4,817	4,817	4,817	4,432	4,432	4,432
B-doubles	7,769	11,388	13,101	14,814	14,334	17,521	20,707
Double road train	8,455	9,205	9,205	9,205	9,911	10,521	10,521
Triple road train	10,170	13,456	14,926	16,396	16,717	19,818	22,918
2 axle Bus over 10 tonnes	572	365	365	365	284	284	284
Under recovery (\$m)	132	30	14	0	57	4	0

An alternative approach would be to phase in both increases *and* decreases in prime mover registration charges. This may be preferred where there are substitutability concerns. Any phase in of decreases in registration charges would follow the same methodology as the phasing in of increases in registration. That is, if the decrease was small, it would be passed through in the first year. A decrease of up to \$2,000 would be phased in over two years. No decrease in registration charge exceeds \$2000. The following vehicle classes would be impacted by a phase in of decreases in prime mover registration charges:

- 3 axle rigid trucks with trailers; and
- 4 axle rigid trucks over 25 tonnes with and without trailers.

Table 10 below shows how the charges for these vehicle classes may be phased in under option 1 over three years:

Table 10. Phasing in decreases in registration charges on select vehicles

	Current	Option 1		
		Year 1	Year 2	Year 3
Fuel charge	19,633	21.0	21.0	21.0
Registration charges (\$ per vehicle)				
Trailer charge per axle	343	365	365	365
2 axle rigid truck, 4.5 - 7 tonnes	343	365	365	365
3 axle rigid truck over 18.5 tonnes, no trailer	914	808	808	808
<i>3 axle rigid truck over 18.5 tonnes, with trailer</i>	<i>3,314</i>	<i>2,395</i>	<i>1,903</i>	1,903
<i>4 axle rigid truck over 25tonnes, no trailer</i>	<i>2,285</i>	<i>1,300</i>	<i>808</i>	808
<i>4 axle rigid truck over 25tonnes with trailer</i>	<i>3,657</i>	<i>2,760</i>	<i>2,268</i>	2,268
<i>Heavy truck/trailer over 42.5 tonnes</i>	<i>5,543</i>	<i>6,696</i>	<i>7,234</i>	7,234
6 axle articulated truck	4,912	4,817	4,817	4,817
<i>B-doubles</i>	<i>7,769</i>	<i>11,388</i>	<i>13,101</i>	<i>14,814</i>
Double road train	8,455	9,205	9,205	9,205
<i>Triple road train</i>	<i>10,170</i>	<i>13,456</i>	<i>14,926</i>	<i>16,396</i>
2 axle bus over 10 tonnes	572	365	365	365

Discussion questions:

What are the industry contractual constraints that limit operators' ability to pass on costs?

Do decreases in registration charges result in substitutability issues between vehicle classes?

Will phasing in of decreases in registration resolve any substitutability issues?

4.5 Annual adjustment

The current annual adjustment mechanism (as per the *Automatic Annual Procedure for Heavy Vehicle Charges Regulatory Impact Statement*, September 2001) is based on changes in road expenditure from year to year and an assumption about the level of fleet growth. The adjustment cannot exceed CPI and cannot be below zero.

The complexity of differentiated charges for different vehicle types makes an automatic annual adjustment difficult. The current process simplifies the determination process by applying a uniform percentage increase to the registration charge for all vehicle classes.

The latest annual adjustment of registration charges is due to be applied on 1 July 2007. The adjustment will be a CPI increase of 3.5% of existing charges. The 2007 Determination will follow the annual adjustment.

Out of the six years of annual adjustments that have occurred to date, the CPI cap has been used on four occasions. The increase in registrations since 2001, when the annual adjustment was first introduced, totals 14%.

In mid 2005, the ATC requested the NTC to review the current annual adjustment procedure. However, this was put on hold following the Third Determination outcome and the commencement of the PC Inquiry.

COAG, as part of consideration of the Productivity Commission Final Report, asked that ATC direct NTC to further develop annual adjustment arrangements to ensure the ongoing delivery of full expenditure (or cost) recovery in aggregate and the removal of cross-subsidisation across heavy vehicle classes (COAG, 2007). However, COAG also noted that any new arrangement may require a phased approach.

The current annual adjustment process has only been applicable to the registration component of the charges and not the fuel charge component. Therefore, in order to ensure full cost recovery the fuel component must also be adjusted in the same way as the registration component. This is also consistent with the Energy White Paper titled "Securing Australia's Energy Future" (2004) which stated that the future objective of fuel taxation for heavy vehicles is to link the road user charge component of the federal fuel excise to the NTC's annual adjustment mechanism.

Taking into account the desire to ensure the annual adjustment of both the registration and the fuel charges, as well as the COAG directive around full cost recovery in aggregate and the removal of cross-subsidisation across heavy vehicle classes, a number of options have been developed for the annual adjustment process:

4.5.1 Option 1: Maintain the current adjustment process with modifications and inclusion of fuel indexation

This option consists of the current adjustment process for registration charges (as per the Automatic Annual Procedure for Heavy Vehicle Charges Regulatory Impact Statement, NRTC September 2001) with the following modifications:

- updated formula components so as to align with the new 2007 Determination cost allocation model including:
 - new A,B and C Factors and Road Use Factor. The new values for these factors and the Road Use Factor will be presented during the consultation period of the regulatory impact statement. (see appendix C, Vol II).
 - replacing the three year moving average (to determine changes in road expenditure) with a seven year moving average. This seven year moving average would be based on a seven year average of real expenditure instead of the previous approach of using nominal expenditure (see appendix D, Vol II).
- the fuel charge also indexed by the Annual Adjustment Formula used to index registration charges. This may require changes to the Fuel Tax Act 2006.

4.5.2 Option 2: Option 1 with removal of the cap and floor

This removal of the CPI cap and 0% floor would ensure a closer alignment with the principle of cost recovery compared to Option 1.

This option is supported by the large increase in road expenditure (Figure 2) over the last couple of years which would not have been recovered by increases in charges capped by CPI. In addition, section 2.2 outlines that due to the fact that the annual adjustment has

been subject to a CPI cap, heavy vehicles in aggregate now under-recover heavy vehicle expenditure by \$132m.

However, just like Option 1, although this option ensures cost recovery in aggregate over time, it does not ensure that each vehicle class is allocated the correct amount of cost according to its usage. As a result, there will be inevitable over and under-recovery between vehicle classes over time. For example, if one vehicle class's contribution to the overall road task changes significantly over time, this could result in changes to the relative cost allocation per vehicle between vehicle types.

There are two potential solutions to this issue.

1. More frequent annual re-calculation of charges taking into account updated road expenditure and road usage data. This could occur every three to four years.
2. Monitoring of changes in certain parameters to gauge whether they are experiencing changes of a substantial nature that would warrant a re-calculation of charges using updated road expenditure and road usage data.
 - If certain parameters move outside of certain bounds, then this would trigger a review of the need for a determination. In particular, NTC would inform ATC if these bounds have been breached and ATC could then decide if there is a need for a new determination.
 - The parameters that would be monitored would include total road expenditure and vehicle kilometres travelled (VKT) by vehicle class. For example, monitoring the B-double VKT share of total VKT.
 - The bounds would be set with regard to the sensitivity of road cost allocation per vehicle to changes in the parameters and the acceptable amount of deviation in road cost per vehicle from the base year.

4.5.3 Option 3: Indexation of both registration and fuel charges

Under this option both fuel and registration charges would be indexed by either CPI or RCMPI (Road Construction and Maintenance Price Index). RCMPI is the index used to generate a real series of road expenditure in the cost allocation model. RCMPI is calculated by the BTRE. The application of CPI in the annual adjustment methodology therefore represents an inconsistency with the determination methodology. However, it was adopted due to its simplicity.

This approach benefits from its simplicity since it would remove the formulaic approach to the annual adjustment.

However, it has no capacity to ensure that the resulting charges match the estimated cost of road use over time and may result in major corrections to be applied in subsequent determinations. This is because changes in road expenditure are driven by changes in the price of inputs (e.g. construction materials) and changes in real output or activity. The use of a price index, such as CPI or RCMPI, would only capture the change in the price of inputs, and not the change in the real output or amount of construction work that has been undertaken. In addition, CPI and RCMPI are only proxies for the price of inputs. Appendix E shows a comparison of the estimated movement in arterial road expenditure compared to CPI and RCMPI over the period 1999/00 to 2006/07.

4.5.4 Option 4: Annual re-calculation of charges

This option requires updating expenditure and road usage data each year, assuming that the cost allocation rules and methods of charge calculation do not change. The benefit of this option is that, as well as ensuring cost recovery in aggregate over time, it ensures that each vehicle class is allocated the correct amount of cost according to its usage. However, the complexity behind heavy vehicle charges means that this process is unlikely to be undertaken as an automatic adjustment and would be more akin to a normal determination. Whilst this approach ensures the most accurate outcome, there are a number of issues:

- The process may lead to annual charges volatility. That is, the fuel and registration charges could go up or down depending on changes to the fleet. This is inconsistent with general regulatory pricing principles of consistency, predictability and certainty. As a result, it may be difficult for operators to manage forward contracts.
- The process may require a consultation process as it would lead to differentiated changes in charges. This may make it more difficult to meet an annual timetable; and
- The process is resource intensive and may involve significant legislative and administrative difficulties for governments.

Discussion questions:

Which of the approaches for annual adjustment is preferred and why?

What is the preferred solution of dealing with over and under-recovery between vehicle classes as part of the annual adjustment process?

What is the preferred indexation method for the annual adjustment?

What are the resource implications of each approach?

What are the contractual constraints for each option?

Is it appropriate to remove the 0% floor whilst registration charges are being phased in?

5. THE ASSESSMENT OF IMPACT

The heavy vehicle charges proposed in the two charges options discussed in Chapter 4 will have an impact on the heavy vehicle industry. Driving these impacts is primarily the rebalancing effect of vehicle classes now having to recover their attributable costs, which have risen as a result of increased expenditure. However, the impact is not uniform across vehicle classes and is relatively small compared to other costs operators face.

Further, the expected impact on the heavy vehicle industry is somewhat moderated by the fact that only one in four of the 260,000 heavy vehicles in Australia provide commercial 'hire and reward' services; although this sector accounts for over half of the road freight task. For most of the 200,000 companies who operate heavy vehicles, transport is ancillary to their main business, particularly in the construction and farming industries.

5.1 Fuel charge impact

Option 1 will impact all heavy vehicles by increasing the fuel charge by 1.367 cents per litre. This is less than what was proposed in the Third Determination when an increase of 2.467 cents per litre was proposed. The 1.367 cent increase will be implemented through a reduction in the fuel rebate from 18.51 cents/litre to 17.143 cents per litre. The effect of this will vary considerably in dollar terms on owner driver and fleet owners depending on the distances their vehicles travel.

The fuel charge increase will add about 1.3% to the effective fuel costs per litre paid by transport operators after the fuel rebate is taken into account, based on current diesel prices. This is relatively small compared to the rise in diesel fuel prices since mid 2004 which still sees current diesel prices 30% higher than at that time, despite a fall off from the price peaks experienced in 2006.

Under Option 2, the fuel charge will fall marginally from the current fuel charge of 19.633 cents/litre to 19.4 cents/litre.

5.2 Registration charge impact

Under Option 1, while registration fees for more than 38% of the vehicle fleet will reduce (including the 6-axle semi-trailer workhorse), 9.3% of vehicles – primarily multi-combinations – face registration fee increases of more than 7% phased over three years.

The impact of the proposed registration charges on heavy vehicle operators will vary considerably. Owners of some vehicle types (B-doubles, triple road trains, heavy truck trailers and special vehicles) will experience considerable registration increases as their registration costs are realigned to ensure that they at least cover their attributable costs, which they currently do not. These vehicles account for 9.3% of all heavy vehicles by number but provide 44% of all net tonne kilometres travelled.

In contrast, owners of all articulated trucks, most rigid trucks and most buses will have their registration costs fall to eliminate over-recovery from their vehicle classes. These vehicles account for 38% of all heavy vehicles by number and 53% of all net tonne travel. The remaining heavy vehicle fleet, namely 2 axle rigid trucks from 4.5 to 12 tonnes GVM and buses up to 10 tonnes will experience a moderate increase of less than 7% in registration charges. These vehicles provide only 3% of net tonne travel but constitute over 52% of all heavy vehicle numbers.

The impacts of registration increases for vehicles such as B-doubles and road trains will require adjustment by the industry to incorporate its effect into freight rates and contractual arrangements. For this reason the NTC proposes a three year phase in for vehicle types where large registration increases will apply to assist transport operators in planning and negotiating future contracts.

Option 2 will have a greater impact on registration charges. This is partly because there is almost no impact on the fuel charge which results in almost no change in the fuel charge will have a variety of impacts on registration charges as any changes in allocated cost and changes required eliminate any under or over recovery in each heavy vehicle class are fully reflected in the resulting change in registration for that class. For example, for vehicles that experience registration increases of greater than 7% under Option 1, in Option 2 they will experience even greater increases (such as in the case of heavy truck/trailers, B doubles and triple road trains) as there is no fuel charge increase to absorb the increase in allocated cost. For most of the vehicles that experienced decreases in registration in Option 1, the decreases are not as great in Option 2, as there is no increase in the fuel charge to force a larger reduction in the registration charge.

5.3 Impact on vehicle operating costs

The impact of the proposed charges both with regard to the proposed registration charges and fuel charges will have a direct influence on transport operator vehicle operating costs.

The NTC uses the ARRB HDM IV model (ARRB 2006a) which has been recently updated to assess the impact on each heavy vehicle class. This model looks at average vehicle impacts within each heavy vehicle class and the results are subject to the assumptions made. Although this model cannot provide exact answers that apply to all transport operators of a vehicle type, they do provide illustrative examples of the type of magnitude of impact that might be experienced.

In Table 11 the likely impact on total operating costs after full phase-in of Options 1 and 2 is shown for some key heavy vehicle types. This shows that, for example, for a B-double that has average vehicle class characteristics in terms of load and distance travelled per annum a rise of 3.2% in vehicle operating costs could be expected under Option 1. For the same vehicle under Option 2, the increase in vehicle operating costs would be of the order of 4.7%.

Table 11. Change in average vehicle operating costs due to changes in both registration and fuel charges

Vehicle Type	2006 Average Vehicle Operating Costs \$	Percentage Change Option 1	Percentage Change Option 2
2 axle rigid truck 4.5 to 7 tonnes (no trailer)	21,730	0.4%	-0.5%
3 axle rigid truck over 18 tonnes (no trailer)	36,970	0.1%	0.2%
Heavy truck trailer over 42.5 tonnes	103,300	2.1%	2.1%
6 axle articulated truck	124,740	0.4%	0.4%
9 axle B-double	267,400	3.2%	4.7%
Double road train	225,160	0.8%	0.8%
Triple road train	400,000	2.1%	3.1%

The example for a B-double is based on a vehicle that travels 176,000km per annum. However, for a shorthaul B-double operator that travels around 120,000 kilometres per annum, vehicle operating costs will increase by 4.2% as a result of increases in both the fuel and registration charges under Option 1. In contrast, a longhaul B-double operator that travels 240,000 kilometres per year will face a 2.5% increase in their vehicle operating costs due to their higher cost base. NTC has also undertaken impact analysis using alternative models to the NTC's cost model such as the ATN-PKF model (2007). This alternative model shows the impact to be the same as the NTC's vehicle operating cost modal.

Where large changes in registration charges occur, the overall impact on vehicle operating cost is not as large as might be expected. This is because registration costs represent only a small share of a transport operators' annual costs (see Table 12).

Table 12. Changes in registration costs as a share of average vehicle operating costs

Vehicle Type	Current Registration Share	Proposed Registration Share Option 1	Proposed Registration Share Option 2
2 axle rigid truck 4.5 to 7 tonnes (no trailer)	1.6%	1.7%	1.1%
3 axle rigid truck over 18 tonnes (no trailer)	2.5%	2.2%	2.8%
Heavy truck trailer over 42.5 tonnes	5.4%	6.9%	7.4%
6 axle articulated truck	3.9%	3.8%	4.4%
9 axle B-double	2.9%	5.4%	7.4%
Double road train	3.8%	4.1%	4.6%
Triple road train	2.5%	4.0%	5.6%

The total impact of the proposed registration charges and the proposed fuel charge under each option is shown in Table 13, relative to total vehicle operating costs. In the case of

B-doubles the total heavy vehicle charges they pay rise from 10.5% currently to 13.3% under Option 1 and to 14.6% under Option 2.

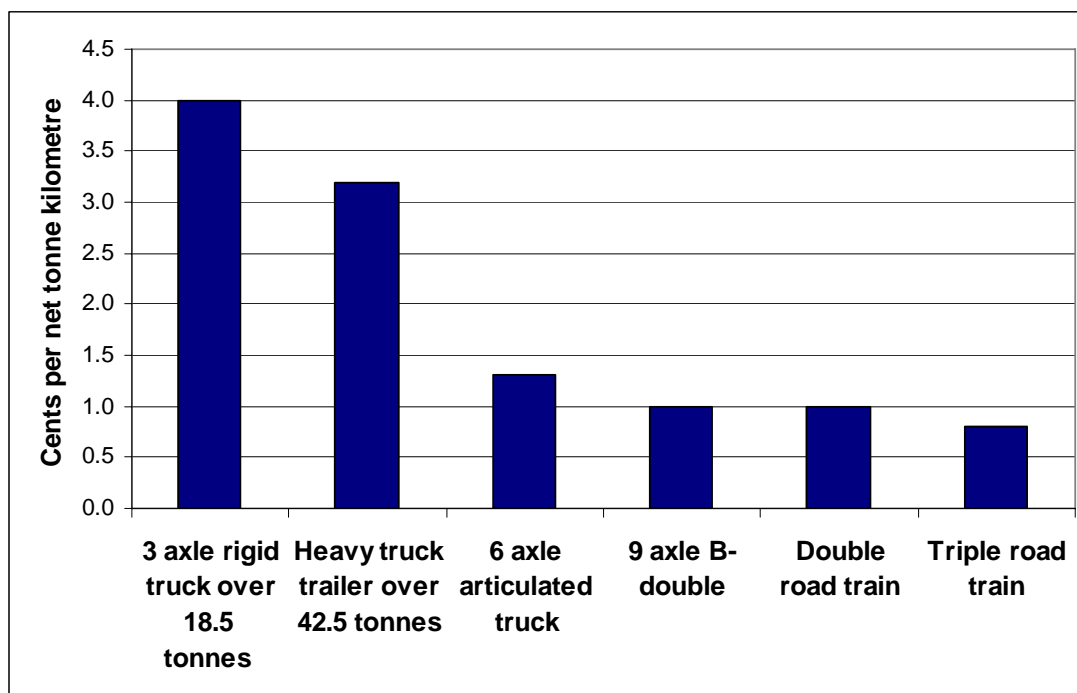
Table 13. Changes in total heavy vehicle charges as a share of average vehicle operating costs

Vehicle Type	Current Total Charge Share	Proposed Total Charge Share Option 1	Proposed Total Charge Share Option 2
2 axle rigid truck 4.5 to 7 tonnes (no trailer)	5.9%	6.3%	5.5%
3 axle rigid truck over 18 tonnes (no trailer)	8.6%	8.8%	8.9%
Heavy truck trailer over 42.5 tonnes	11.7%	13.6%	13.6%
6 axle articulated truck	11.2%	11.7%	11.7%
9 axle B-double	10.5%	13.3%	14.7%
Double road train	10.9%	11.7%	11.8%
Triple road train	9.8%	11.7%	12.7%

5.3.1 Impact on road user charges per net tonne kilometre

Once fully implemented, the proposed option ensures charges per net tonne kilometre for B-doubles and road trains remain lower than articulated and rigid trucks (see Figure 9).

Figure 9. Road user charges per net tonne kilometre



5.3.2 Impact on the vehicle fleet

Because registration fees are a relatively small component of overall vehicle operating costs, there will be little distortion of fleet buying decisions. An NTC commissioned survey of B-double operators in 2005 (NTC 2005c) found operating costs would need to increase by 15% to 25% for them to consider moving back to semi-trailers. However, as can be seen in Table 11, the expected average increase in vehicle operating costs from the proposed charges are only of the order of 3.2% under Option 1 and 4.8% under Option 2.

5.4 Case study analysis – operational impacts

NTC has also commissioned a report produced by CRA International (2007) to look at the impacts on specific types of operations of adopting charges Option 1. These case studies were undertaken with the assistance of industry, which provided data on the specific operations.

5.4.1 Case study 1: Inbound livestock transport for an abattoir in regional NSW

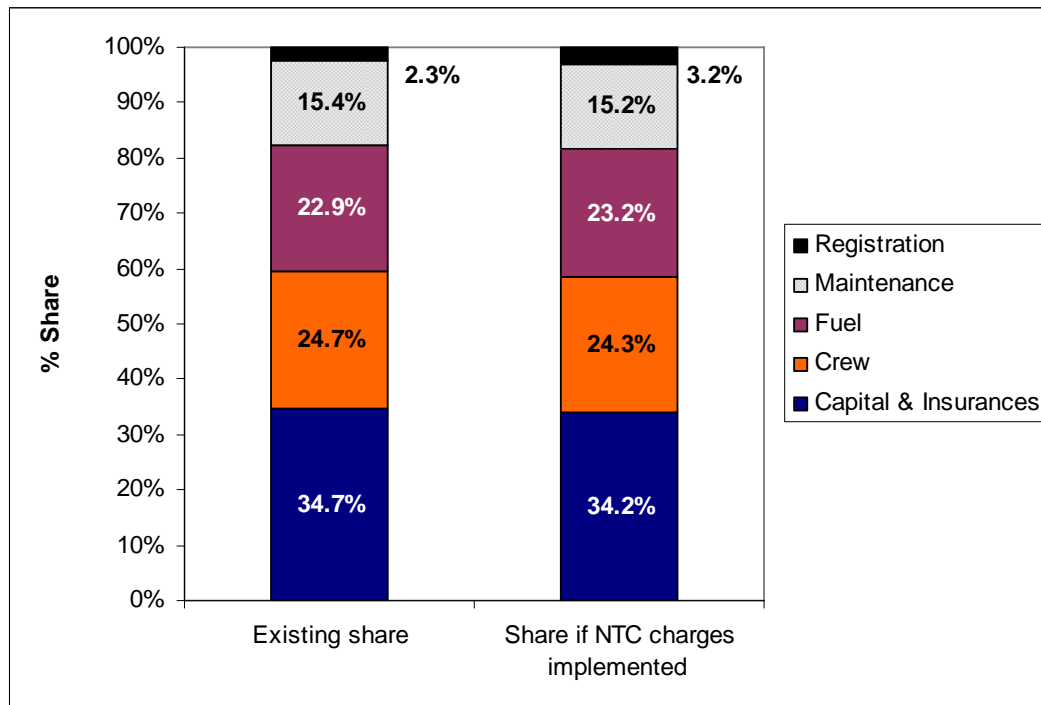
Description

The case study evaluated the inbound transport cost associated with a typical one year kill at the abattoir. Over 80% of the livestock processed was sourced from five regions in New South Wales, with 11% of the livestock sourced from Queensland and the remainder came from Victoria and South Australia. B-doubles and double road trains serviced over 85 % of the inbound livestock transport task by value.

Impacts

The 2007 NTC Heavy Vehicle Charges Determination, if implemented, would increase total truck running costs by 0.62% for a 6-axle articulated truck; 2.22% for a 9-axle B-double and 0.98% for double road trains for this operator. The impact on the relative shares of registration and fuel costs in the overall vehicle operating costs for this operation are shown in Figure 10. This shows that registration costs would rise from 2.3% to 3.2% of total operating costs, whilst fuel costs overall would rise from 22.9% to 23.2%.

For the entire operation, overall vehicle operating costs would rise by \$119,000 per annum which would represent a rise of 1.6% from its cost base of \$7.6 million.

Figure 10. Case study 1: impact on vehicle operating cost shares

5.4.2 Case study 2: Linehaul operations based in South East Australia

Description

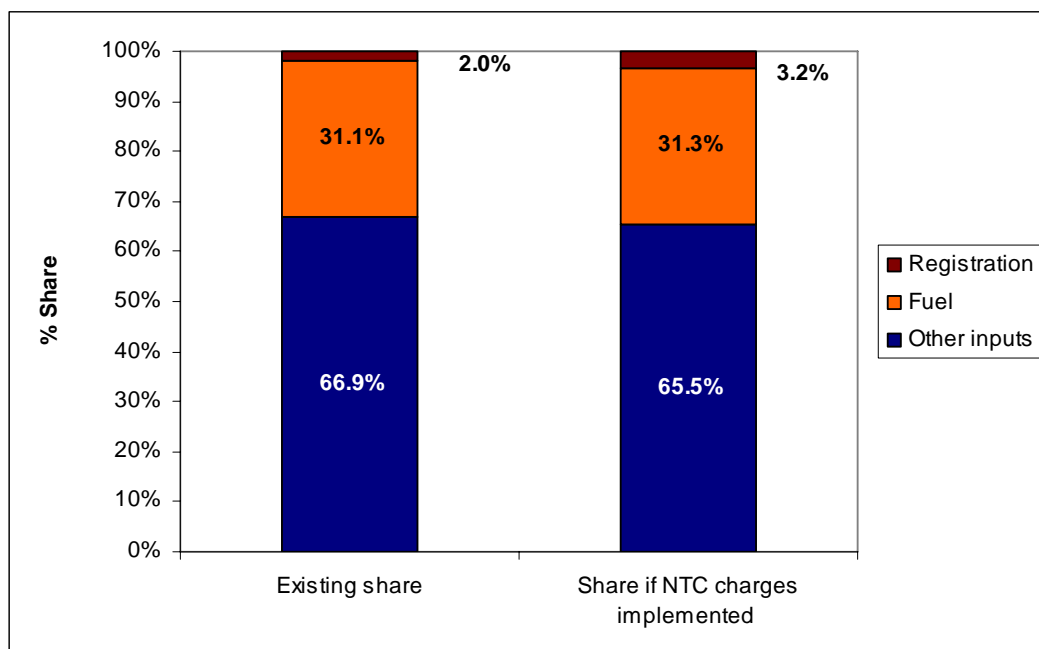
This operation employs over 200 vehicles of which over 65% were 9 axle B-doubles.

The linehaul operation was involved in the transport of bulk materials, general freight, liquids, livestock and the local distribution of freight. Kilometres travelled by B-doubles were significantly higher than kilometres travelled by the 6 axle articulated trucks.

There were also significant differences in the kilometres of travel involved in the different linehaul activities. In particular, B-doubles involved in general freight and livestock transport undertook fewer kilometres of travel per vehicle than did B-doubles involved in other linehaul activities.

Impacts

The proposed charges could raise linehaul cost from 1.7% for local distribution up to almost 3% for general freight under Option 1. Figure 11 shows that for this operation registration costs will rise from 2% of vehicle operating costs to 3.2%, with the shares of fuel costs rising slightly from 31.1% to 31.3%. In overall dollar terms, annual vehicle operating costs for this operation will rise by \$800,000 per annum. However, this is from an annual cost base of \$36.5 million, with the \$800,000 increase representing a 2.2% annual increase.

Figure 11. Case study 2: impact on vehicle operating cost shares

5.4.3 Case study 3: Bulk haul operations in regional Victoria

Description

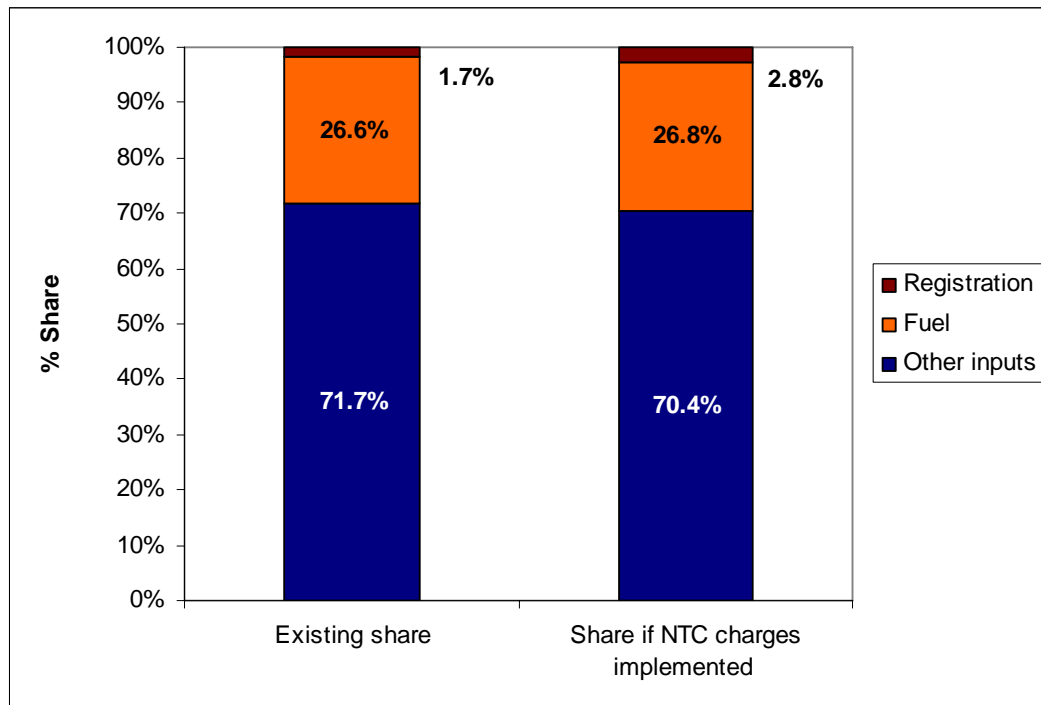
The case study of bulk haul operations involved the operation of seven 9 axle B-doubles and three 6 axle articulated trucks. These vehicles were involved in the transport of grains and other bulk materials. The data provided by the case study participant was provided on a truck by truck basis which reflects the fact that the trucks involved could be involved in the haul of grain on one occasion and then another bulk material on the next occasion.

In this case study, revenue from bulk haul operations is predominately obtained from operations undertaken by B-doubles.

Impact

The significant increase in registration charges for these vehicles, coupled with the increase in fuel charges, is estimated to increase the cost of B-double operations by 2.3%. The cost to operate a 6 axle articulated involved in buck haul operations in regional Victoria would rise by 0.64% if the proposed charges were implemented.

The effect on vehicle operating costs for this operation of the proposed charges is shown in Figure 12, with the share of registration costs rising from 1.7% to 2.8%, with fuel costs rising marginally from 26.6 % to 26.8%. Overall, for this operation its vehicle operating costs annually will rise by \$80,000 from \$4.13 million to \$4.21 million, a rise of 1.9%.

Figure 12. Case study 3: impact on vehicle operating cost shares

5.4.4 Case study 4: mine haul operations in Northern Territory

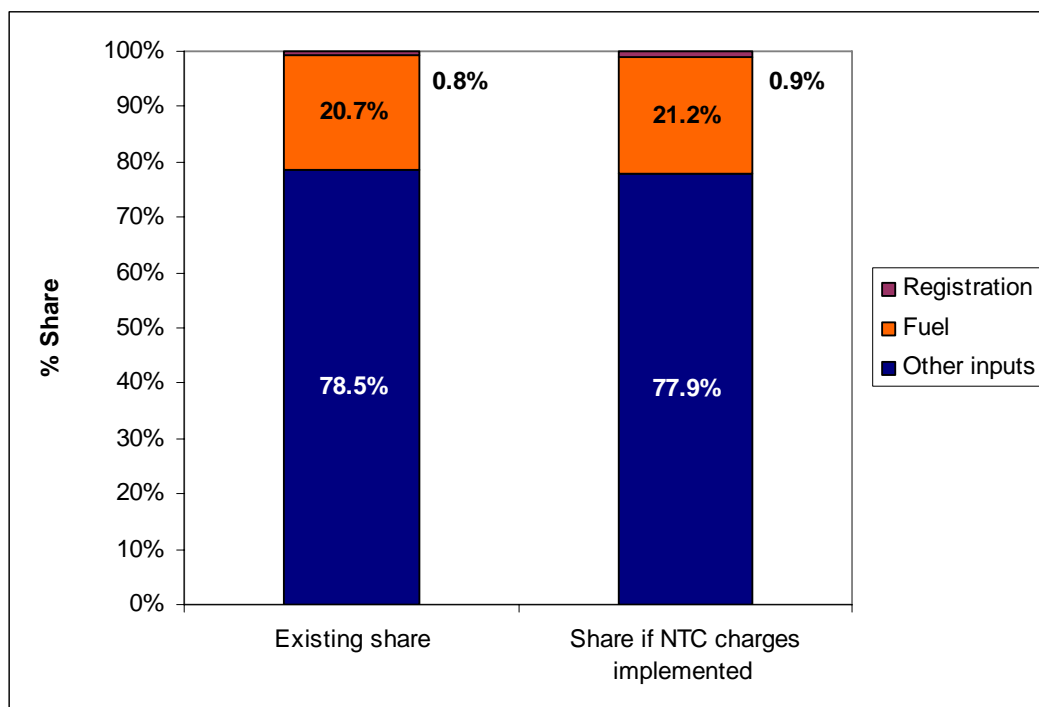
Description

The firm examined in this case study employs quad axle prime movers to haul ore from several locations to a central point for processing. The operation employs multi-combination vehicles consisting of 9 quad axle prime movers pulling B-doubles with two following trailers. There is also one spare vehicle which is a quad axle prime mover that pulls a B-double and one trailer. During the period assessed over 95 % of the revenue was obtained from operations of the quad road trains. The contract the case study participant has with the mine involves a payment per tonne of ore carried from the mine site to the central processing point. The mine supplies fuel for this operation.

Impact

These calculations indicate that registration and fuel cost account for about 20% of the calculated cost of the operation. This is a much smaller share for these costs compared to the cost share for these inputs obtained in the other case studies. While this lower share is partly due to the lower cost of fuel, it is mainly due to the fact that the mine haul operation in the Northern Territory costs more to run per unit of output compared to the cost per unit of output in the other case studies.

Because of the higher unit costs of the mine haul operation, the proposed charges are estimated to have a smaller percentage impact on the overall cost of the operation compared to the other case studies. Therefore registration costs will increase their share of overall operating costs for this operation from 0.8% to only 0.9% and fuel costs will rise from 20.7% to 21.2%. The overall impact on vehicle operating costs for this operation will see a rise in annual costs of around \$111,000, which would represent only a 0.7% increase from a cost base of \$15.25 million per annum.

Figure 13. Case study 4: impact on vehicle operating cost shares

5.5 Impacts on industry production costs

The extent to which changes in heavy vehicle operating costs will flow through to industry and the economy can be determined using the latest Input Output tables produced by the Australian Bureau of Statistics for 2001/02 (ABS 2006b). Overall, the effects of the proposed charges on industry production costs are estimated to be small. This is because the share of road transport costs in the share of the overall intermediate input costs for Australian industry comes to 1.8% including both domestic and export production. For export related production, only the share of road transport is higher at 3.2% but is still low overall.

The industries expected to be most affected will be those with the highest share of road transport costs relative to total intermediate input costs. These are cement, lime and concrete slurry industry 13%, sawmill products 11%, non-metallic minerals and plaster products 8% and meat and meat products 7%. These shares are based on total production whether for domestic or export end use. Unfortunately data by industry on an export-only basis is not available.

In translating the impact of the proposed new heavy vehicle charges onto industry inputs, it is important to realise that it is only the net change in road transport vehicle operating costs that flows through to industry, and ultimately to domestic consumer prices and export prices. Therefore given that heavy vehicle charges make up only a small percentage (around 2 to 5%) of overall heavy vehicle operating costs, the impact of even large changes in heavy vehicle registration costs is significantly reduced by the time it flows through into industry input costs.

For example, B-double registration charges are proposed to rise under Option 1 by 88% once fully phased-in from their 2006/07 level. Put in context, this increase will make the share of registration charges in B-double costs increase from 2.9% to 5.3%, (see Table 11)

with overall B-double operating costs based on an average vehicle increasing by 3.2%. If we take the cement industry (which is the most sensitive to road transport cost changes), and assume it is only serviced by 9 axle B-doubles for its input requirements, then the effect on the cement industry can be calculated by multiplying the increase in B-double operating costs by the share of road transport in its overall input costs. In this case a 3.2% increase in B-double operating costs multiplied by 13% equals a 0.42% impact on the cement industry's overall input costs.

For the export sector, road transport contributes 3.2% of overall input costs. Taking the B-double expected operating cost rise under Option 1, which has the largest vehicle class cost increase from the proposed charges, the impact on the export sector would be only a rise in input costs of only 0.1%. However, again it needs to be emphasised that these effects are based on averages and there will be individual businesses that will incur greater or lesser impacts on their production costs depending upon where they are positioned relative to the average.

5.6 End user impacts

5.6.1 Urban versus rural/remote impacts on the cost of goods

The flow-through impact of the proposed charges to consumer prices is difficult to assess due to the lack of available information. However, research by the BTRE (2000) has found that transport costs in the major cities contribute to just under 5% of grocery retail prices, whilst in regional and remote areas, the share is more around 5.5% to 6%. The impact of the proposed charges on a trolley containing \$100 worth of grocery items is shown in Table 14. This shows that for retail outlets dependent on B-doubles, the maximum additional cost per \$100 trolley of goods would be only 19 cents in Option 1 and 28 cents in Option 2 which would occur in remote areas, with the impact less elsewhere. For retail outlets dependent on triple road trains, the maximum impact would be an extra 12 cents per \$100 trolley of goods in remote areas under Option 1 and 19 cents under Option 2. These impacts are negligible, although these estimates are based on averages and consumer price impacts will vary depending upon individual transport operator circumstances and decisions made by individual retail outlets on cost mark-ups.

Table 14. Impact of charges on groceries

Area	Vehicle Type	Option 1	Option 2
Urban	2 axle rigid truck 4.5 to 7 tonnes (no trailer)	2c/\$100	-3c/100
	3 axle rigid truck over 18 tonnes (no trailer)	1c/\$100	1c/\$100
	Heavy truck trailer over 42.5 tonnes	10c/\$100	10c/\$100
	6 axle articulated truck	2c/\$100	2c/\$100
	9 axle B-double	15c/\$100	22c/\$100
Rural/Remote	2 axle rigid truck 4.5 to 7 tonnes (no trailer)	2c/\$100	-3c/\$100
	3 axle rigid truck over 18 tonnes (no trailer)	1c/\$100	1c/\$100
	Heavy truck trailer over 42.5 tonnes	12c/\$100	13c/\$100

Area	Vehicle Type	Option 1	Option 2
	6 axle articulated truck	3c/\$100	2c/\$100
	9 axle B-double	19c/\$100	28c/\$100
	Double road train	5c/\$100	5c/\$100
	Triple road train	12c/\$100	19c/\$100

5.6.2 Ability to pass on costs

The overall impact of cost increases will be less significant for larger hire and reward operators who already have contractual arrangements in place; particularly for fuel cost increases. Generally, smaller transport operators, with less negotiating power and administrative resources, are less able to pass on cost increases.

The NTC is not expecting the proposed charge increases to be absorbed by transport operators. It expects the extra cost for both fuel and registration will be passed on to end users. It is understood that, due to the highly competitive and diverse nature of the heavy vehicle industry, there is no set process to do this. The experience of the heavy industry in managing significant fuel price increases since 2004, which saw the TransEco Linehaul fuel cost index rise by 37 % between the June quarter of 2004 and the December quarter of 2007 without major disruptions to the supply chain, provides evidence that the industry has had recent experience in negotiations to compensate for cost increases. However, it is generally expected that, the larger the fleet size of a transport owner/operator, the stronger the bargaining power and more successful they will be being able to pass on cost increases from heavy vehicle charges.

5.6.3 Primary industry impacts

There may be considerable concern about the impact of a new Heavy Vehicle Charges Determination on Australia's primary producers. This is particularly in light of the current drought and its impact on economic activity.

Whilst this is an important issue, it is outside NTC's mandate to resolve. However, it should be pointed out that each jurisdiction is able to, and generally does, provide concessions for primary producers. This importantly acknowledges that primary producers generally operate vehicles well below average usage. The current concessions available for primary producers are listed Appendix E of Volume 2 of the draft regulatory impact statement with concessions generally available in the order of 40 – 50%.

5.6.4 Small business

The proposals to update heavy vehicle charges will have impacts on small business, but on average they are not expected to be significant, particularly due to the low share of registration charges in annual vehicle operating costs. The largest impacts will be on those that have vehicles that travel a lot less than the average for that vehicle class nationally.

Compliance costs and the administrative burden of paper work can be expected to be unchanged.

It is recognised that owner operators and small businesses with multi-combination vehicles will not be as well placed as large fleet operators to re-negotiate contracts to take account of heavy vehicle charge increases. In addition there will be small businesses dependent on

multi-combination vehicles that will have difficulty passing on freight rate increases due to the impacts of the additional charges. Overall the impacts of higher heavy vehicle charges are not expected on their own to result in significant disruption to economic activity either on a national or regional basis.

5.7 Competition assessment

National heavy vehicle charges do not provide any restrictions on competition. The charges are set to recover road expenditure, and therefore simply reflect the costs of road use associated with different types of vehicles.

Differences in charges for different types of vehicles reflect differences in the costs to government of providing and maintaining roads for different vehicles, while ensuring that appropriate price signals are delivered *vis-à-vis* light vehicle charges, environmental concerns regarding emissions and relative safety of different vehicle configurations. Neither the existing nor proposed heavy vehicle charges:

- impose methods of work on operators;
- directly restrict the number of operators in the industry;
- advantage one operator compared to another, regardless of size; and
- erect barriers to entry to the industry.

The levels of charges and the way in which they are administered has little, if any, impact on methods of work employed by different operators. Heavy vehicle charges have no bearing on the number of operators in the industry, as there is no restriction on the number of vehicles that can be registered or the number of operators that can register heavy vehicles. As all operators with the same vehicle type pay the same charges, which are commensurate with their share of road expenditure, and the charges do not vary with the number of vehicles registered by any one operator, they do not advantage large versus small operators.

As with existing charges, a large component of the charge (two thirds overall) is levied as a variable charge through diesel excise payments. Consequently, fixed annual charges are a relatively small component of the charges. They are small in comparison to the capital costs of heavy vehicles and therefore do not constitute barriers to entry to the road transport industry. Typically, the fixed annual charge on registration of a heavy vehicle represents between 2% and 5% of the total costs of operating the vehicle.

Impacts of the revised charges on road/rail competition are likely to be small. Registration charges for road freight vehicles which compete most directly with rail are subject to the largest increases, namely B-doubles and triple road trains, as a result of the higher degree of recovery from these classes. However, as the registration charges are a small proportion of vehicle operating costs, it is likely that the extent of these revised charges will be marginal.

5.8 Implications on government financing

5.8.1 The need for road investment

The NTC's *Twice The Task* report (February 2006) highlighted the importance of continuing productivity, safety and pricing reform to address the growing freight task.

COAG's National Reform Agenda (10 February 2006) for quad axle groups, B-triples and Performance Based Standards requires significant infrastructure investment to improve access for this 'new generation' of heavy vehicles.

Multi-combination vehicles, such as B-doubles and road trains, currently under-recover their costs. The Productivity Commission and COAG recently endorsed the principle of individual vehicle classes 'paying their way'. This recognises the investment needed on major freight corridors, which are generally used by these heavier vehicles.

An Australian Industry Group survey (*Transport & Logistics Operations in Australian Manufacturing 2006*) also found that better infrastructure plays an important role in reducing general transport costs. Heavy vehicle charges can contribute to freight link upgrades, removing bottlenecks and reducing logistics costs for exports, particularly as the freight task grows.

In conclusion, charges need to keep pace with governments' growing road building and upgrading programs.

Although heavy vehicle charges are not directly hypothecated into heavy vehicle specific end uses currently, the funds raised under the PAYGO system are a proxy for future heavy vehicle road expenditure requirements that are necessary to maintain the network. Given that road expenditure benefits both light as well as heavy vehicles, the general level of road expenditure both current and future planned investment has important implications for the heavy vehicle industry in improving access and catering for the growth in land freight requirements.

5.8.2 Charges contribution to road investment

Even though two thirds of heavy vehicle charge revenue is collected through fuel charges (which goes as consolidated revenue to Federal Treasury), a fair proportion of registration revenue is either directly or indirectly hypothecated by the states into road related expenditure.

Only two jurisdictions, namely New South Wales and South Australia, allow vehicle registration revenue both for light and heavy vehicles to go direct to a fund that is specifically required to be used on road expenditure by the road authority. Queensland's vehicle registration revenue, despite initially going to its Treasury consolidated revenue, is then 100% reallocated to the road authority for expenditure on roads. Also, Federal Interstate Registration scheme revenue is forwarded directly to the Federal Department of Transport and Regional Services for re-distribution to jurisdictions based on a tonne-km travel formula for most jurisdictions. In effect, up to 60% of registration revenue is either directly or indirectly hypothecated, with the level of heavy vehicle charges having an important influence on the level of available state sourced funds for road expenditure for states such as New South Wales, South Australia and Queensland.

5.9 Improved productivity and safety on the network from road investment

5.9.1 Case studies of improved productivity

There is very little information available on the quantitative benefits of road investment for heavy vehicle productivity. However, it is clear that some projects have very important influences on the operating costs of heavy vehicle operators that use the new or upgraded roads in question, through savings in travel time and reduced fuel costs, which result in higher productivity and lower operating costs. There can be no doubt that road projects

such as the Albury/Wodonga Bypass and Craigieburn Bypass have had an impact on operating costs for heavy vehicle users using the Hume Highway, saving them both travel time and fuel costs, which translates into lower operating costs and increased productivity.

In the case of the Deer Park Bypass in Victoria, which is a \$331 million project to construct 9.3km of four lane freeway between the Western Highway and Western Ring Road in Melbourne, there are substantial benefits to the heavy vehicle industry. The current road carries 70,000 vehicles per day of which 10% are heavy vehicles. This project will result in reduced and more reliable travel times and more direct access to the Western Ring Road and Melbourne ports.

The estimated benefit to the heavy vehicle industry based on a 30 year time frame and a discount rate of 7% is of the order of \$98 million in 2007 dollar terms, of which 90% is due to travel time savings, 9% due to vehicle operating cost savings and 1% due to accident savings.

5.9.2 Case studies of improved safety

National Heavy Vehicle Safety Strategy

Approximately 330 people are killed each year in Australia in crashes involving heavy vehicles (one in five fatalities) and three times as many are injured, costing around \$2 billion annually.

It is estimated by the Monash University Accident Research Centre (Austroads 2005b) that improved road investment including shoulder sealing, audible edge lines, passing lanes and rest areas will contribute at least 38% of the total future reduction in heavy vehicle related road deaths and casualties under the current National Heavy Vehicle Safety Strategy. Other contributing factors will be effective use of speed delimiters 30%, better fatigue management 18%, increased seatbelt use by heavy vehicle drivers 9% and safer heavy vehicles 5%.

Black spot and general road improvement programs

MUARC has estimated that for each \$100 million spent on black spot programs that at least 20 lives will be saved (including four related to heavy vehicle crashes) (Austroads 2005a). For each \$100 million spent on general road improvements at least 1.5 lives will be saved (including 0.3 lives related to heavy vehicle crashes). By 2010 the number of fatalities prevented per year in Australia as a result of road improvements will total 453, of which 144 lives will be saved from black spot expenditure and 309 from general road improvement expenditure. Of the 453 lives saved, 91 will relate to reduced heavy vehicle crashes.

6. CONSULTATION

NTC has engaged in a number of initial discussions with stakeholders which informed an initial workshop on the technical underpinnings of the determination models. In addition, NTC has referred to the consultation processes undertaken as part of both the Third Determination and the PC Inquiry.

6.1 Summary of discussions with industry and government

NTC held an initial technical workshop in May 2007. The meeting was attended by industry, government officials and technical experts from ARRB, Maunsell, Meyrick and Associates and Melbourne University. The key outcomes of that meeting and earlier bilateral discussions are detailed in this section.

6.1.1 Charges for high productivity charges

Key stakeholders and technical experts in May 2007 indicated that any pricing solution for these vehicles:

- must be transparent;
- must be based on best available data;
- must consider the treatment of common costs;
- should not lead to perverse outcomes (financial/operational decisions); and
- should be consistent with ATC and COAG pricing principles.

Other discussions with stakeholders have emphasised the need for flexibility in setting the charges so that as operations change, so does the charge.

6.1.2 The treatment of enforcement costs

There are divergent views on how treatment costs should be recovered. Australian Livestock Transport Association (ALTA), ATA, Australian Road Train Association (ARTA) and the National Farmers Federation have all indicated opposition to the inclusion of enforcement costs. The Federal Minister of Transport has also indicated support for this position.

However, other jurisdictions, particularly New South Wales, have argued that it is a cost that is rightly recovered through charges. New South Wales has referred to the Productivity Commission Final Report on Cost Recovery by Government Agencies (August 2001) which concluded that regulatory costs, including enforcement costs, should be recovered from the regulated industry.

NSW notes that the Productivity Commission found that:

- regulatory activities that should be recovered from a regulated industry include: registration, monitoring ongoing compliance, and investigation and enforcement activities;
- well designed cost recovery arrangements can improve economic efficiency;
- in principle, the prices of regulated products should incorporate all of the costs of bringing them to market, including the administrative costs of regulation; and

- the Australian Maritime Safety Authority and the Civil Aviation Safety Authority achieved cost recovery of their total expenses of 67% and 71% respectively in 1999-2001.

Furthermore, the Productivity Commission proposed detailed cost recovery guidelines for assessing the appropriateness of cost recovery of regulatory costs and the best approach to implement such recovery. The guidelines support recovery of regulatory costs where:

- charging is consistent with policy goals - heavy vehicle regulatory activities are responsive to level of activity and compliance of the industry and should not be constrained by budget processes;
- charging is efficient and cost effective - there is a clear link between the regulatory activity and the regulated industry.

The charges can be cost effectively recovered through the 2007 Heavy Vehicle Charges Determination.

The industry also argues any enforcement costs should be net of penalty revenues. However, jurisdictions have argued that penalty revenues are not set to recover enforcement costs, but instead to act as a deterrent to the infringement. The revenues do not flow back to the road agencies.

6.1.3 The cost allocation methodology

The over-riding view of the stakeholders at the May 2007 meeting was that the 2007 charges model is an improvement on the Second Determination model. However, industry has raised a number of issues, many of which were raised during the Third Determination process.

Disagreement as to how NTC calculates under/over recovery

The NTC has been given clear direction that the charges resulting from this determination should not over-recover expenditure. To ensure compliance with this instruction, NTC must calculate current revenues to determination any over or under recovery. The ATA has adopted an alternative approach to the NTC in calculating revenues to compare against current allocated road expenditure. The ATA has argued that it is inappropriate to calculate current revenues using 2004 trend usage figures. Following discussions with the ATA, NTC understands it has calculated revenues using 2005 published usage data (latest available) and compared to NTC estimated expenditure averaged over 7 years but excluding any enforcement expenditure. In doing so it has included environmental related excise revenue which does not relate to heavy vehicle road user charges or has included excise revenue from a large number of non-heavy vehicles. The ATA method results in an over recovery of \$63 million in aggregate for heavy vehicles compared to the NTC estimate of an under recovery of \$69 million if no enforcement expenditure is included.

NTC notes that the data it uses to calculate revenues is the same data that it uses to calculate charges. It is therefore calculating revenues and charges on a consistent basis. That is, usage data is also used to calculate the cost base for heavy vehicles. The total PAYGO cost estimate is allocated across all vehicles on the basis of their usage of the network. Heavy vehicle charges are calculated to recover the costs allocated to vehicles 4.5 tonnes and over. In order to determine over and under-recovery, it is important to use the same usage figures to calculate revenues.

NTC acknowledges the argument that the latest usage data should be used in calculating costs and revenues to calculate the extent to which heavy vehicles recover their costs. At the time of preparation of this RIS, *disaggregated* 2005 usage data (used to calculate trend figures) was not available. **However, NTC intends to use the latest available disaggregated usage data in the calculation of the final charges.**

Disagreement as to how NTC allocates costs associated with weathering

The ATA has argued for retention of the previous pavement maintenance cost allocation rules that were used in the Second Determination, which made a larger allowance for weathering/climate impacts on road wear than is now being used.

During the Third Determination it was decided to review the pavement maintenance cost allocation rules as they were based on work by ARRB in the early 1990's with the rules having a low level of statistical confidence. Considerable work was commissioned by the NTC over 2003 to 2005 to review these rules, but most of the results were not satisfactory due to problems with the national pavement maintenance database that ARRB uses. However, one of the pieces of research undertaken by Melbourne University produced relationships with high statistical confidence, using a different approach than had been previously used. When tested these relationships were able to predict most past expenditure up to a point, with the difference between their estimated pavement expenditure based on road use and actual pavement expenditure being the impact of weathering and ageing of the road surface.

The results of the Melbourne University work were superior to any previous work on pavement maintenance and so the NTC changed their cost allocation rules for pavement maintenance for the Third Determination, and in the absence of better research, intends to continue to use this new method in the current determination. More detailed discussion on pavement maintenance is provided in the NTC Third Determination Technical Report (2005d) Section 5.2 and the Third Determination Regulatory Impact Statement (2006a) Section 6.1.

Disagreement on the calculation of ESAs for B-doubles

As with pavement maintenance rules, the ATA also supports the retention of Equivalent Standard Axle (ESA) estimates for B-double heavy vehicle classes that were used in the Second Determination. ESAs measure deep pavement wear impacts.

ESA rates is another area where low confidence in the statistical estimates used in the Second Determination has been an issue for the NTC. The values used for B-doubles in the Second Determination were based on modified double road train estimates. However, during the Third Determination the NTC commissioned ARRB to undertake significant research where they looked at millions of observations based on actual Weigh In Motion data (WIM). This work derived new predictive equations to predict ESA rates based on a given level of Average Gross Mass than had been used previously.

Due to the far greater statistical robustness of this work the NTC modified its ESA predictive equations based on the ARRB work for the Third Determination, with these new equations to be used again in this determination. More detailed discussion on the ESA work commissioned by the NTC during the Third Determination and the results is provided in the following NTC reports: (2005b), (2005d) Appendix E, and (2006a) Section 6.3.

6.1.4 Impacts

The inability of industry to pass on large and sudden increases in charges

Smaller operators in particular argue they find it difficult to fully pass on higher costs. The phasing-in of charges should help address this issue by allowing businesses to plan and re-negotiate their contracts. The NTC seeks industry submissions to further understand operator impacts.

The impact on industries suffering under the drought

The National Farmers Federation (NFF) has articulated its concern about primary producers' ability to absorb increased heavy vehicle charges. Considerable registration charge concessions are currently available to primary producers reflecting the generally low use of these vehicles; however the hire and reward sector is unable to access those concessions. Some vehicles, such as the six-axle semi-trailer, which are widely used on rural roads by farmers, do not face registration charge increases. Indeed, a survey conducted by the NFF indicated that B-doubles and road trains constitute only a small proportion of heavy vehicles owned and operated by farmers (around 6%). Rigid vehicles tend to be more prevalent. However, as the NFF has also pointed out, heavier vehicles are more prevalent in the hire and reward sector which transports agricultural product. The phasing-in of charges should assist the industry in adjusting to any change in cost.

Additional revenue will not be spent on roads

The 2007 Heavy Vehicle Charges Determination recovers long-run road expenditure already spent in the past six years plus budgeted expenditure in the current year, with an assumption that this will also reflect future spending. Some operators, particularly in rural and remote areas, argue that they do not directly benefit from this increased spending. However, the averaging system means that high-use roads actually subsidise low-use regional and remote roads.

6.2 Third Determination consultation outcomes

Cost Recovery: One of the more contentious policy decisions of the Third Determination was to set charges which led to an over-recovery of \$163m. Clear guidance has been given by jurisdictions as well as industry that a continuation of this policy would be unacceptable.

Some jurisdictions have indicated concern over the price shock impact that the cost base will lead to. NTC has addressed this through its phasing-in options.

Cost Allocation: NTC's cost allocation model reflects policy decisions on cost drivers. The industry disputed the allocation methodology during the Third Determination and the Productivity Commission Inquiry. These arguments have been described above.

NTC notes the cost allocation approach has been validated by the Productivity Commission which noted that it was 'conservative' (i.e. it favoured heavy vehicle operators) although defensible. Further, during the technical workshop, industry representatives conceded that on the whole, the Third Determination cost allocation model (which has been adopted for this determination) is transparent and represents an improvement on the Second Determination model.

Further, NTC has calculated the level of heavy vehicle allocated expenditure under the Second Determination cost allocation methodology. Allocated expenditure equates to

\$2,248 million under this methodology which is 27% higher compared to a heavy vehicle allocated cost base of \$1,765 million under the 2007 approach if enforcement costs are fully excluded. This is primarily because the current methodology includes a refinement of attributions for routine and periodic maintenance, equivalent standard axle wear and heavy vehicle use of local roads and includes a longer averaging period of 7 years versus 3 years which was used previously.

B-double under recovery: A clear policy decision was made during the Second Determination that B-doubles should be allowed to under-recover their allocated costs (NRTC 1998 2000). The reason behind this decision reflected largely a desire for the industry to move from use of road trains to B-doubles for safety reasons. This has to a large degree been achieved with growth in the B-double fleet of 220% since that time. Further, substitution is unlikely to be a concern as the two vehicle classes generally operate on different networks (except in WA). Subsequently, the Productivity Commission report argued that it would be inappropriate to continue to allow any vehicles to under-recover their allocated costs and COAG and ATC have endorsed the removal of cross-subsidisation across different heavy vehicle classes. This has significant implications for the registration charge for B-doubles where at an extreme, registration may more than double from current charges. However, because the registration charge is such a small proportion of vehicle operating costs, this extreme example still only results in an increase in operating costs of 3.2% and has only a negligible impact on rural and remote areas which are serviced by B-doubles.

7. RECOMMENDATION

7.1 The preferred option

NTC's preferred option (Table 15) is to adopt charges which ensure vehicle classes recover at least their *attributable* costs and includes *partial* enforcement costs in the cost base. The full schedule of charges is contained in Appendix H Vol. II.

Table 15. NTC's preferred charges option for select vehicles (nominal)

	Current	Option 1 (preferred)		
		Year 1	Year 2	Year 3
Fuel charge c/k	19.633	21.0	21.0	21.0
Registration charges (\$ per vehicle)				
Trailer charge per axle	343	365	365	365
2 axle rigid truck, 4.5 - 7 tonnes	343	365	365	365
3 axle rigid truck over 18.5 tonnes, no trailer	914	808	808	808
4 axle rigid truck over 25t, no trailer	2,285	808	808	808
Heavy truck/trailer over 42.5 tonnes	5,543	6,696	7,234	7,234
6 axle articulated truck	4,912	4,817	4,817	4,817
B-doubles	7,769	11,388	13,101	14,814
Double road train	8,455	9,205	9,205	9,205
Triple road train	10,170	13,456	14,926	16,396
2 axle bus over 10 tonnes	572	365	365	365
Under-recovery (\$m)	132	30	14	0

Note: The option described applies the following principles: If registration charges have increased only marginally or have fallen, the charge is passed through in full in year one. If the charge for a class has risen by up to \$2,000, the charge for that class is phased-in over two years. If the increase for a class exceeds \$2000, that charge is phased-in over three years.

This preferred option has been developed to meet the requirements of COAG and ATC and responds to the guidance provided by the governments of Australia. It considers the impact on the industry and proposes a manageable implementation path, particularly for B-doubles and road trains which not only service highly commercial sectors (such as mining) but also meet community needs through servicing remote and regional areas.

The NTC notes that this option is simply the first step in the reform process outlined by COAG in its meeting of 13 April 2007. However, it crucially enables investment on a safer and more productive road network whilst the reform process continues.

The basis for preference of this option is described below.

7.1.1 Preferred period of expenditure

NTC has considered the inclusion of 2007/08 budget arterial expenditure data in the determination and currently believes that it would be inconsistent with the accepted methodology to do so. The primary concern is that the inclusion of the data would mean that charges incorporate two budget years – 2006/07 and 2007/08. In particular NTC is concerned about deviations from budget expenditure during the course of the year. The concern is that budgeted expenditure may have deviated from actual expenditure in 2006/07 and that charges may over-recover expenditure. NTC believes it more appropriate to capture 2007/08 arterial expenditure as part of the annual adjustment process.

7.1.2 Preferred treatment of enforcement

NTC is currently of the view that it is appropriate to partially recover enforcement costs. NTC supports the principle alluded to in the PC Inquiry that enforcement costs are rightly recovered through heavy vehicle charges. However, NTC does not believe that it is appropriate for all enforcement costs to be recovered. Specifically NTC believes that the recovery of safety-related enforcement such as speed and fatigue is inconsistent with the requirements of heavy vehicle charges to recover infrastructure costs.

Whilst the data currently collected is difficult to break down into the various enforcement categories, NTC is satisfied that the adjustment to NSW enforcement expenditure represents satisfactory reflection of mass-related enforcement cost. This is on the basis that most transport agencies manage mass and fatigue-related enforcement: speed-related enforcement is primarily addressed by police who bear the cost of doing so.

7.1.3 Preferred charges option

NTC is conscious that although registration charges constitute a relatively small proportion of vehicle operating costs, the increase in this charge for some vehicles is considerable. Charges Option 1 provides for a more moderate increase in charges for those vehicles whilst still adhering to the pricing principles of both ATC and COAG.

In addition, NTC believes that Option 2 does not adequately adhere to the pricing principle of having “regard to other pricing applications, such as light vehicle charges...”. This is because Option 2 includes a registration charge for two axle rigid vehicles which is below the maximum charge for light vehicles.

7.1.4 Preferred phasing in period

This option adopts a phase-in period of up to three years for registration charges, depending on the magnitude of the increase for a vehicle class.

The proposed national heavy vehicle charges system comprises, as in previous Determinations, a combination of a fuel charge and a registration charge. The national charges are to be implemented from 1 July 2008. Phasing or transitional arrangements will apply in relation to some vehicles, in particular multi-combination vehicles.

The road use charge component of the fuel tax will be set by the Federal Minister for Transport under the Fuel Tax Act (2006) and delivered through a disallowable instrument.

The *Road Transport Charges (Australian Capital Territory) Act 1993* provides the basis to apply the annual registration component of the charges.

7.1.5 Preferred annual adjustment process

The NTC believes that the most attractive approach is Option 2. This is because it should achieve a good degree of alignment with the principle of achieving full expenditure recovery in aggregate over time (compared to Options 1 and 3) and it also delivers a process that will not require a significant amount of maintenance and consultation as well as charges volatility which would be the outcome under Option 4.

7.2 Compliance

Updating heavy vehicle charges is not a compliance issue as compliance costs are negligible.

7.3 The 2007 Heavy Vehicle Charges Determination timetable

NTC invites interested parties to respond to this regulatory impact statement in writing. The closing date for written responses to the regulatory impact statement is **30 July 2007**. All responses will be published on the NTC website

NTC also intends on running a number of focus groups on specific issues during this period. If you wish to participate in a focus group, you should advise NTC in writing or email by **20 July 2007**. In doing so you should identify the issues you wish to discuss and provide a contact person and details. Transcripts from the focus groups will be published on the NTC website.

Alternatively, you may request a further briefing from the NTC on the contents of this regulatory impact statement.

NTC is required to report back to the ATC at its next meeting in November 2007 on the public consultation process for this determination. A final regulatory impact statement incorporating the results of the public consultation process will be published prior to that meeting.

Table 16. Consultation timetable

Action	Date
Draft regulatory impact statement published	6 July 2007
Consultation Period	6 July – 17 August 2007
Expression of interest in focus group participation	20 July 2007
Closing date for written responses	30 July 2007
Focus groups conducted	27 July – 17 August 2007
Final regulatory impact statement published and presented to ATC	November 2007
Implementation	1 July 2008

8. REFERENCES

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- National Transport Commission, (2005d), *Third Heavy Vehicle Pricing Determination Technical Report*, NTC, Melbourne
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9. GLOSSARY OF TERMS

Term	Definition
AGM	Average Gross Mass (an average of the total mass of a vehicle and its load per kilometre travelled).
Attributable costs	Costs of providing and maintaining roads that vary depending on the use of the road system by different types of vehicles. These costs are directly attributable to vehicles.
CPI	Consumer Price Index.
Equivalent Standard Axles (ESA)	<p>A measure of the relative road wear of different axles carrying different loads, calculated as:</p> $ESA = \left(\frac{\text{load}}{\text{reference load}} \right)^4$ <p>where the reference load varies depending on the number of axles in the axle group and the types of tyres it is fitted with.</p>
Externalities	Externalities can be of a detrimental or beneficial nature. Detrimental externalities are the result of an activity that causes damage to others with no corresponding compensation paid by those who generate the externality such as noise, air pollution and greenhouse gas emissions. Beneficial externalities are the result of activity which causes incidental benefits to others with no corresponding compensation provided to those who generate the externality.
Gross Vehicle Mass (GVM)	The maximum mass the manufacturer or road authority has rated the vehicle as safe to carry.
Heavy vehicle	Vehicle 4.5 tonnes and above GVM.
Higher Mass Limits (HML)	A scheme which allows for increases to general access mass limits provided the vehicle is operated in accordance with conditions stipulated for HML.
High productivity vehicle	<p>This is a heavy vehicle that does not meet current prescriptive specifications based on mass, volume, height, vehicle/trailer length and/or axle configuration due to productivity related improvements to the vehicle.</p> <p>For these vehicles it is proposed that a high productivity vehicle charge formula apply unless the vehicle type can be accommodated within the registration charge range for the nearest prescriptive vehicle type.</p>
IGA	Inter-Governmental Agreement.
Incremental pricing	Heavy vehicle pricing that would operate in addition to the existing heavy vehicle charges. The aim of incremental pricing

Term	Definition
	is to provide opportunities for charges to be levied for specific activities, mainly (but not exclusively) to allow vehicles to operate at higher masses or with additional access.
Non-attributable costs (common costs)	Costs of providing roads that have little relation to road use. Examples include the costs of repairing storm or flood damage and the costs of building a minimum possible standard of road or bridge. Some pavement wear occurs because road building materials deteriorate with age and weather. This wear would occur regardless of whether vehicles used the road or not and is therefore non-attributable to vehicles.
NTK	Net Tonne Kilometres
PAYGO	Pay-as-you-go approach used to determine the amount to be recovered from vehicles through the pricing system. Under this approach, current levels of construction and maintenance expenditure are assumed to reflect the annualised costs of providing and maintaining roads for the current level of traffic.
PCU	Passenger Car Equivalent Units.
PCU-km	Passenger Car Equivalent Unit kilometres.
RCMPI	Road Construction and Maintenance Price Index.
SMVU	Survey of Motor Vehicle Use.
VKT	Vehicle Kilometres Travelled.