Report outline

Title
Heavy vehicle charges: Options for improving the accuracy and stability of the PAYGO heavy vehicle charges methodology

Type of report
Policy paper

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For publication

Abstract
In November 2015, the Transport and Infrastructure Council instructed the National Transport Commission (NTC) to investigate options to advance the pay-as-you-go (PAYGO) methodology. These options would seek to better balance heavy vehicle charges and government revenues.

In June 2016, the NTC released a discussion paper that looked at PAYGO’s past performance, its inherent limitations, and outlined options that could improve PAYGO’s ability to meet future investment needs and ensure the stability of charges over time.

This paper considers stakeholder feedback received, describes our analysis of options and proposes a way forward in addressing the identified issues as part of the Heavy Vehicle Road Reform (HVRR) project.

Key words
Heavy vehicles charges, PAYGO, consultation, NTC, HVRR, cost recovery, cost base, road expenditure, cost allocation matrix, pricing principles, expenditure template, expenditure accountability, economic efficiency, forward looking cost base, FLCB, ring-fencing, independent price setting.

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Executive summary

This paper describes and assesses the merits of nine options considered in the discussion paper for advancing the pay-as-you-go (PAYGO) methodology for heavy vehicle charges.

In this paper, we, the National Transport Commission (NTC), outline our preferred options for further investigation as well as identifying possible implementation pathways. We believe that progressing the investigation of a number of options simultaneously, will provide the Transport and Infrastructure Council (the Council) with the necessary information to substantially improve the stability and predictability of revenues and heavy vehicle charges.

We determined our preferred options by considering stakeholder views, the objectives and processes of the Heavy Vehicle Road Reform (HVRR) project led by the Commonwealth Department of Infrastructure and Regional Development and our own analyses against assessment criteria.

Context

On 6 November 2015, the Council decided to freeze total revenue from road user charges (RUC) and registration charges at 2015-16 levels for two years. At this meeting, the Council also instructed the NTC to investigate and report back to the Council on options to advance the PAYGO methodology (Transport and Infrastructure Council, 2015).

The investigation of options had the following aims:

- ensuring heavy vehicle charges make the appropriate contribution towards the cost of governments’ road building and maintenance activities
- enhancing the stability and predictability of both government revenues and heavy vehicle charges.

Options

In this policy paper, we assessed the nine options that seek to address the current PAYGO system’s limitations. Options assessed were:

- Option 1: Forward Looking Cost Base - ‘life cycle’ approach using forward looking costs
- Option 2: Revised cost base - using forecast budgets of financial costs
- Option 3: Ring-fencing heavy vehicle charges revenue
- Option 4: Introduce an ‘unders and overs’ account
- Option 5: Turn heavy vehicle charges into a tax
- Option 6: Continue freezing revenues
- Option 7: Re-examine the heavy vehicle cost base allocators
- Option 8: Re-examine the amount of local government expenditure excluded from the PAYGO cost base
- Option 9: Change the heavy vehicle charge setting process: independent price regulation.

A number of these options are not mutually exclusive, and more than one could be implemented either concurrently or in a phased manner. Some options are required in order to implement other options, while others logically go together.

Our assessment of the options has been informed by feedback from stakeholders and a multi-criteria analysis (MCA) of the options against selection criteria (Appendix B contains a summary of submissions and Appendix C provides the complete MCA).
Preferred options

Based on the views of submitters and our own assessment of the options, our preferred options were to:

1. create and evaluate a prototype forward looking cost base (FLCB) using the life-cycle approach (option 1) in 2016-17 and 2017-18. A FLCB prototype developed in collaboration with jurisdictions, could be used to produce indicative shadow charges for 2018-19 and beyond.

2. proceed with a re-examination of the cost base allocators (option 7) in 2016-17 to inform a possible change in the PAYGO methodology as well as being used as an input to a new FLCB prototype.

3. develop a detailed proposal for introducing independent price setting (option 9), providing advice to the Council in November 2017.

4. assess any recommendations resulting from the work above against the current PAYGO methodology based on historic costs.

Proposed approach

Each of the preferred options listed above are key elements of the proposed next phase of reforms under the HVRR project — phase two of the HVRR Road Map (Transport and Infrastructure Council, 2016). Given the strong similarities between the recommendations in this policy paper and the HVRR process, we recommended to the Council that the options should be progressed through the HVRR project.

In line with the recommendations above, we propose a collaborative development of a FLCB prototype using the ‘life cycle’ approach (option 1), and an exploration of how an ‘unders and overs’ account (option 4) could be incorporated into this approach. The NTC will lead the technical policy work in this area and provide advice to governments on the feasibility of this approach, in line with the Council’s 4 November 2016 Communiqué.

Additionally, the NTC will conduct a review of existing primary research on heavy vehicle cost base allocators (option 7) and provide advice to governments on the review’s findings. Outcomes from this research are an essential input to the FLCB prototype and could also be incorporated into possible changes to the PAYGO methodology from 2018-19 (if necessary).

Independent price regulation of heavy vehicle charges (option 9) will be progressed by the Commonwealth Government, working with states and territories, in accordance with the Council’s November 2016 Communiqué.

At this time, we propose no further development of the remaining five options:

- using forecast budgets of financial costs (option 2)
- ring-fencing revenues (option 3) unless as part of a future reform package as benefits are limited if applied in a partial market context
- turning heavy vehicle charges into a tax (option 5)
- continuing freezing revenues (option 6)
- re-examining the amount of local government expenditure excluded from the PAYGO cost base (option 8).

Next steps

We will work with the Commonwealth, state, territory and local governments to provide advice to the Council by November 2017 on:

1. a prototype working model for a FLCB using the ‘life cycle’ approach (option 1), to underpin future heavy vehicle charge calculations.
2. A review of the heavy vehicle cost base allocators (option 7) to be included in the prototype working model for a FLCB.

The Commonwealth Department of Infrastructure and Regional Development will progress the development of a framework for independent price regulation of heavy vehicle charges under HVRR project (option 9).
1 Introduction

1.1 Purpose and scope

The purpose of this policy paper is to outline the National Transport Commission’s (NTC’s) preferred options for advancing the performance of the pay-as-you-go (PAYGO) methodology to progress for further investigation.

On 1 June 2016, we released a discussion paper identifying nine options for improving the accuracy and stability of the PAYGO heavy vehicle charges methodology (NTC, 2016). The scope of those options was limited to incremental changes to the PAYGO methodology that relates only to heavy vehicles. Key charging features such as the use of fuel based road user charges (RUC) and annual vehicle registration charges will remain unchanged.

1.2 Background

In May 2014, the NTC presented a new heavy vehicle charges determination to the Transport and Infrastructure Council (the Council). The Council agreed to delay the implementation of the determination for two years.

In its decision of 6 November 2015, the Council decided to freeze total revenue from RUC and registration charges for two years at 2015-16 levels. At this meeting, the Council also instructed the NTC to investigate and report back to the Council on options to advance the PAYGO methodology. Specifically, the Council directed the NTC to explore options ‘to advance the methodology to better balance heavy vehicle charges and government revenues’ (Transport and Infrastructure Council, 2015, p. 1).

At the Transport and Infrastructure Senior Officials’ Committee (TISOC) meeting on 16 September 2016, TISOC members agreed that future advancements of the PAYGO system would be progressed as part of the Heavy Vehicle Road Reform (HVRR) project. Accordingly, we recommended to the Council that the preferred options should be progressed through the HVRR project.

Appendix A provides additional background information on PAYGO and describes how it works.

1.3 Progressing preferred options as part of the Heavy Vehicle Road Reform project

The HVRR project group identified reform of the heavy vehicle cost base and a more independent charge setting process as part of the next phase of heavy vehicle road reform.

Given the strong similarities between the recommendations in this policy paper and the HVRR process, we recommended to the Council that the preferred options should be progressed through the HVRR project.

Under this approach, the NTC will lead the technical policy work in developing a FLCB prototype using the ‘life cycle’ approach (option 1), including an ‘unders and overs’ account (option 4). We will also conduct a technical review of existing primary research on heavy vehicle cost base allocators (option 7).

We will provide advice to the Council on the findings of the technical policy work in developing a FLCB prototype and from the technical review of heavy vehicle cost base allocators in November 2017.

The Commonwealth Government, working with states and territories, will progress further investigation of independent price regulation of heavy vehicle charges (option 9).

Even though work is progressing under the HVRR project, heavy vehicle charges will continue to be set under the PAYGO methodology until the Council decides to implement an alternative mechanism for setting heavy vehicle charges. The timing of this is still uncertain.
2 What are the problems that we are seeking to address?

2.1 Overview of problems with current PAYGO system

In the discussion paper we observed that, in practice, the PAYGO system has produced the following outcomes:

- It has been difficult to achieve broad consensus on the appropriate level and structure of heavy vehicle charges. There have been a number of occasions where determinations were either rejected or implemented with delay or modification.

- Expenditure on roads allocated to heavy vehicles has not matched revenue from heavy vehicle charges at any time. This results in either governments being concerned that they are not receiving sufficient revenue, or heavy vehicle operators considering that charges are higher than they should be.

- Governments are sensitive to revenue reductions as they depend on the revenue to fund expenditure and maintenance programmes. This makes any downward adjustment of heavy vehicle charges difficult. Heavy vehicle operators are sensitive to volatility or large increases in heavy vehicle charges. The cost recovery approach underpinning PAYGO has not been able to produce outcomes that simultaneously address these concerns. Both governments and heavy vehicle operators are concerned that revenues and charges respectively are subject to significant change over time (NTC, 2016).

We also identified several inherent limitations of the current PAYGO system, which have been refined after considering stakeholder submissions. These limitations are defined as:

- Volatility in the cost base and heavy vehicle charges and, concurrently, persistent mismatches between actual revenue and the cost base – The volatility and mismatches have led to problems, with both industry and governments not fully accepting NTC charging recommendations in the past.

- Revenue uncertainty for governments and no direct link between expenditure and revenue – Revenue should be sufficient to meet future investment and maintenance needs. However, because charges are set based on historic costs and averaged across jurisdictions, revenues are not directly linked to future road investment needs. This can lead to a shortfall, or excess, in government revenues.

- Lack of predictability and stability – The outcomes achieved under PAYGO lack sufficient predictability and stability, which hampers planning and decision-making by governments and heavy vehicle operators.

- The charge setting process – The NTC makes what is effectively a recommendation on national charges. This recommendation is not binding on jurisdictions, which has led to non-implementation of national charges and concessions being offered across jurisdictions.

- Lack of independent verification, user input or appeal mechanism – There are no independent oversight or verification mechanisms, such as reviews or scrutiny of expenditures and allocations of costs included in the heavy vehicle cost base. Heavy vehicle users are consulted, but do not have direct input into expenditures that ultimately are recovered through heavy vehicle charges. Additionally, heavy vehicle operators have no avenue to appeal, challenge or opportunity to seek an independent review of heavy vehicle charges. This lack of transparency and opportunity has the potential to undermine perceptions of fairness.

Any further investigations on changes to the PAYGO system should seek to address some or all of these limitations as well as being consistent with the direction and objectives of the HVRR project and broader road reform.
2.2 Volatility in the cost base and charges and persistent mismatches between actual heavy vehicle revenue and the cost base

In the discussion paper we showed how well the current system achieved its primary objective of cost recovery for heavy vehicles over the past 10 years¹ (NTC, 2016, p. 12). Figure 1 shows historic expenditure (i.e. costs) and revenue figures, using de-averaged costs and revenues relating to heavy vehicles for each year between 2005-06 and 2014-15.

Figure 1. Heavy Vehicle road related expenditure vs. revenue – nominal ($ millions)

![Graph showing year-on-year comparison of revenue and expenditure ($ millions)]

During the observed period, expenditure increased in five years and decreased in four. Despite the 'smoothing effect' of averaging historical expenditures in calculating the cost base, volatility in the cost base is still exists. As the cost base is a key input into the PAYGO methodology, volatility in the cost base produces further volatility in the heavy vehicle charges.

While expenditure and revenue have moved in broadly similar directions in the long-run, expenditure and revenue have been different in every single year. Revenue exceeded expenditure in 2005-06 and from 2012-13 onward. Conversely, expenditure exceeded revenue from 2006-07 through to 2011-12.

A number of factors likely to have contributed to this pattern, including:

- The averaging mechanism used in PAYGO that smooths the year-to-year changes in heavy vehicle charges. This also means that changes in revenue will tend to lag following steep increases or decreases in expenditure.
- The Council’s decision to phase in an increase in the lead trailer charge over the period from 2008-09 to 2010-11. This decision further widened the gap between revenue and expenditure between 2005-06 and 2012-13.

¹ The analysis period was limited to a 10-year review period due to data availability.
- Limiting annual adjustment increases to the CPI until the annual adjustment formula was amended in the 2007 Determination. Any limit to annual adjustments will generally have the effect of increasing the difference between revenue and expenditure.

- The existence of a two-year lag in the current PAYGO methodology between the year in which the expenditure and cost base data is reported and the year in which the approved charges are implemented. During this lag period, expenditure, vehicle numbers, and fuel consumption can all change.

We did not attempt to quantify the revenue impacts associated with each factor. However, overall we can see that the PAYGO mechanism has generally performed as intended i.e. smoothing expenditure (and revenue) over time. In the long run, it is reasonable to assume that revenue will equate to expenditure. Yet, in the short term, differences between the two will exist.

For governments and heavy vehicle operators alike, these differences create short-term challenges. For governments, any shortfall in revenue compared to expenditure creates undesirable fiscal pressure. Whereas for vehicle operators, an excess in revenue over expenditure indicates that heavy vehicle charges are higher than the cost recovery principle requires.

### 2.3 Revenue uncertainty for governments and no direct link between expenditure and revenue

Since 1995, the PAYGO system has linked heavy vehicle-related road expenditure and charges, however most state and territory governments do not directly apply the revenue from heavy vehicle charges to expenditure on roads.

In most cases, revenue from heavy vehicle charges is treated as general revenue that is not dedicated to any specific type of government expenditure. Like any other type of government expenditure, expenditure on road construction and maintenance is appropriated from this general revenue from year to year.

In determining how much to spend on roads, governments consider a wide range of competing priorities that are all funded from general revenue.

One outcome observed under this approach is that changes to expenditure on roads can be one of many options a government has to achieve a desired level of expenditure. In years of fiscal constraints, maintenance and capital works may be deferred; and in years of surplus revenue, road projects may be accelerated. From a broader government perspective, this flexibility is desirable. However, for road agencies, this means that they have limited certainty over their ability to fund investment and asset management plans.

### 2.4 Lack of predictability and stability

Heavy vehicle charges are set as part of a determination and then adjusted on an annual basis until the next determination. The annual adjustment incorporates the latest available expenditure, vehicle fleet and usage data to determine the amount of adjustment to charges needed to recover the aggregated costs from the previous period. Charging and revenue outcomes can change significantly year to year because of changes in the data used to calculate the annual adjustment, which can be affected by political and economic factors. A lack of sufficient predictability and stability can hamper planning and decision-making by governments and heavy vehicle operators alike.

### 2.5 The charge-setting process

The current charge-setting process, as illustrated in Figure 2, involves road agencies reporting historic road expenditure data to the NTC each year. We then calculate charges using the PAYGO model and recommend national heavy vehicle charges to the Council. The Council considers our recommendations and may approve or reject the recommended charges, or approve a modified set of charges. The pricing principles are binding on the NTC when we formulate our recommendations. However, the Council’s decision is not bound to these principles.

Furthermore, state and territory governments are not bound to implement the charges approved by the Council. Currently, heavy vehicle registration charges in Western Australia and the Northern
Territory are different from the national charges. State and territory governments also offer a range of concessions to different types of heavy vehicle operators further deviating from national consistency. A NTC-commissioned study in 2013 calculated that the total cost of non-implementation of national charges and concessions equated to $126 million a year (Marsden Jacob Associates, 2013).

**Figure 2. Current Heavy Vehicle Charging regime**

There are no independent oversight or verification mechanisms, such as reviews or scrutiny of expenditures and allocations of costs included in the heavy vehicle cost base.

As shown in Figure 2, the NTC obtains expenditure data from each jurisdiction each year. We provide jurisdictions with written guidelines that specify expenditure categories and provide guidance on the types of expenditure that should be included or excluded. Under PAYGO, there is no provision for an audit or external review of the expenditure data submitted by jurisdictions.

Government road agencies routinely consult road users and representative organisations on future investment and maintenance programs. However, these consultations do not directly explore the implications of various levels of expenditure on future heavy vehicle charges. We believe that many road users would find it difficult to understand how planning decisions result in changes in the level of heavy vehicle charges.

By way of contrast, expenditure accountability is a key regulatory feature in other network infrastructure businesses such as those providing electricity, water and telecommunications services. In these regulatory regimes, capital and operational costs are reviewed ex-ante, ex-post or both and there are direct links between future expenditure plans and the costs recovered from users. This approach can deliver significant efficiency benefits for governments and road users alike. User groups can significantly improve outcomes in network utility industries. Among other things, user groups can assist an independent regulator in scrutinising regulated businesses’ costs and provide feedback on the value, or relative value, of different services provided by the regulated business.

The lack of independent verification of costs and ability for users to input into the investment decisions that ultimately determine charges are problems that are beyond the scope of this review.
to address. However, these problems could be addressed within a broader move towards economic regulation of road networks similar to those applied to other infrastructure networks.

Finally, heavy vehicle operators have no avenue to appeal, challenge or seek an independent review of heavy vehicle charges. This lack of transparency and opportunity has the potential to undermine perceptions of fairness.
3 Options explored

We identified nine options to advance the PAYGO methodology. Table 1 provides an overview of these options. Our discussion paper provides further detailed descriptions of each option, including their likely benefits and risks (NTC, 2016, pp. 17-31).

Table 1. Overview of options explored

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1: Forward Looking Cost Base - ‘life cycle’ approach using forward looking costs</td>
<td>A forward looking cost base (FLCB) uses the value and depreciation of existing and new assets in combination with future operating costs to establish a forward looking revenue requirement. All assets receive a rate of return in each year and are depreciated over their economic lives; operating expenditure is funded in the year that it is incurred.</td>
</tr>
<tr>
<td>Option 2: Revised cost base - using forecast budgets of financial costs</td>
<td>The revised cost base is based on future investment needs and operating expenditure as opposed to historic costs.</td>
</tr>
<tr>
<td>Option 3: Ring-fencing heavy vehicle charges revenue</td>
<td>Ring-fencing heavy vehicle charges involves governments identifying all revenue collected through heavy vehicle charges and committing to dedicate this revenue to fund heavy vehicle-related road expenditure.</td>
</tr>
<tr>
<td>Option 4: Introduce an ‘unders and overs’ account</td>
<td>Introducing an ‘unders and overs’ account would correct under- and over-recovery over time where revenue and expenditure do not align.</td>
</tr>
<tr>
<td>Option 5: Turn heavy vehicle charges into a tax</td>
<td>This option would involve abandoning the current PAYGO methodology and the cost recovery approach. Registration charges and the RUC could be treated as a tax and indexed as currently happens for fuel excise for light vehicles.</td>
</tr>
<tr>
<td>Option 6: Continue freezing revenues</td>
<td>This option effectively maintains the status quo (beyond the initial two years that Ministers have committed to) until the cost base increased to the frozen revenue levels.</td>
</tr>
<tr>
<td>Option 7: Re-examine the heavy vehicle cost base allocators</td>
<td>Under this option the underlying assumptions of the cost allocation matrix would be tested again, which may result in a change to the way in which costs are split between heavy and light vehicles.</td>
</tr>
<tr>
<td>Option 8: Re-examine the amount of local government expenditure excluded from the PAYGO cost base</td>
<td>This option would involve a re-examination of the amount of local government expenditure excluded from the PAYGO cost base.</td>
</tr>
<tr>
<td>Option 9: Change the heavy vehicle charge-setting process: independent price regulation</td>
<td>This option would involve an independent agency having the power to set heavy vehicle charges. The independent price regulator’s decisions would be subject to review by a separate independent body appointed by the Council.</td>
</tr>
</tbody>
</table>
4 Consultation summary

4.1 Consultation process

On 1 June 2016, we released a discussion paper identifying nine options that sought to address the key issues identified in the PAYGO system. During the 8-week consultation period, we facilitated discussion workshops with government and industry stakeholders as well as having a number of face-to-face meetings with additional stakeholders. The consultation period ended on 27 July 2016.

We received 16 formal submissions to the discussion paper from individuals, industry organisations, consultants and government agencies. We considered each submission in developing our assessments and recommendations contained in this report.

Appendix B provides a list of submitters and a summary of their submissions against each option and other considerations as identified in the discussion paper.

4.2 Overview

Most submitters that provided comment on the problem definition agreed that the discussion paper had appropriately captured the problems with the current PAYGO system. However, a number of submissions suggested that there are additional problems such as:

- the possibility that the allocation of costs between light and heavy vehicles may not be accurate
- the political nature of decision-making and its processes, for example the reluctance of governments to adhere to cost recovery principles and a lack of an appeal mechanism
- a lack of independent oversight and auditing of expenditure
- cross-subsidisation and investment transparency
- potential risk to the sustainability of road user charge revenue in light of improvements in the fuel efficiency of heavy vehicle engines.

Many of the submissions received acknowledged problems with the existing PAYGO system and were supportive about the need for change. However, there was no consensus view on how and when change should occur. We received a range of supportive and opposing views on each option presented in the discussion paper without any clear division by stakeholder groups (i.e. support and opposition were not divided along government–industry lines).

Key concerns expressed in submissions related to practical feasibility, the potential costs of developing and operating some options, and the inability to assess likely outcomes that would occur under each option at this stage. In addition, a number of submissions were also concerned about how the options to improve the PAYGO system aligned with the objectives and processes of the HVRR project.

Several submissions provided qualified or in principle support for a move towards a FLCB using a life cycle approach (option 1). Other submissions did not support this option, or at least not through the current process of improving PAYGO.

Stakeholders acknowledged that a revised cost base using forecast budgets of financial costs (option 2) would overcome the two-year lag present in the current ‘backward looking’ approach, but also acknowledged significant uncertainties around the availability and quality of expenditure forecasts. The Victorian Government, Transport for New South Wales and D’Artagnan Consulting explicitly stated that this option is inferior to the life cycle costs approach (option 1) (Victorian Government, 2016) (TfNSW, 2016) (D’Artagnan Consulting, 2016).

There was little support for ring-fencing of heavy vehicle charges revenues (option 3) on their own, but there was far greater support if all registration and fuel-based revenues from both heavy and light vehicles were to be ring-fenced. Stakeholders largely agreed that the likely benefits from ring-fencing revenues would be limited under a partial market approach.
Stakeholders generally supported an ‘unders and overs’ account (option 4) in the context of a FLCB.

There was no stakeholder support for turning charges into a tax (option 5), or for continuing freezing revenues (option 6) for the long-term. Some stakeholders, however, indicated that they viewed maintaining the status quo (i.e. continuing freezing revenues) as acceptable in the short term while pursuing bolder road reform.

A number of submissions supported the re-examination of the heavy vehicle cost allocators (option 7) as part of a FLCB process (option 1). However, the Victorian Government strongly supported a re-examination of the heavy vehicle cost allocators, independent of the other options, as the primary imperative for advancing the PAYGO system (Victorian Government, 2016).

Generally, stakeholders acknowledged that it would also be appropriate to re-examine the local government expenditure share estimates (option 8) however there were concerns that the review would involve costly and time-consuming research. Some stakeholders suggested that this should be considered as a separate research project.

Submissions from industry groups were overwhelmingly in support of a move to independent regulation of prices (option 9) to address the inherent conflict of governments both setting charges and collecting the revenue from those charges. Many also stressed the importance of independent price regulation as part of a move to a FLCB approach and some discussed the broadening of that role to the regulation of efficiency and prudency of road investment and maintenance. Of the three jurisdictions that provided formal submissions to the discussion paper, only NSW was supportive.
5 Assessment of options

5.1 Summary of MCA assessment

We developed and undertook a multi-criteria analysis (MCA) of the options presented in the discussion paper. We considered these assessment outputs along with stakeholder feedback in making recommendations on which options should be investigated further.

The MCA is a high-level assessment framework to assess the merits of each option. We assessed each option against assessment criteria and applied a rating framework to judge whether the option would be likely to improve outcomes relative to the existing PAYGO framework. We did not weight the criteria or devise an overall assessment score as part of this assessment. Instead, we made overall assessments considering each criterion and other practical issues.

Should the Council agree to progress any options for further investigation, further development of these assessments may be necessary.

We have included the complete MCA in Appendix C.

5.1.1 Assessment criteria and rating framework

We initially proposed the assessment criteria used for this analysis as decision criteria in the discussion paper. During consultation, we received a number of responses relating to the decision criteria. Most submissions were supportive of the criteria but in some instances, sought additional clarity and suggested various amendments. We subsequently revised the criteria and provided additionally detailed descriptions, where appropriate, considering stakeholder feedback obtained during consultation. The MCA criteria and descriptions are set out in Table 2.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability and predictability</td>
<td>Each option will be assessed for its likely impact on the stability and predictability of charges to heavy vehicle operators and revenue to jurisdictions</td>
</tr>
<tr>
<td>Transparency and simplicity</td>
<td>Each option’s anticipated impact on the transparency of the price setting process will be assessed as well as the accessibility of the process for stakeholders</td>
</tr>
<tr>
<td>Administrative efficiency</td>
<td>The impact on the administrative costs of each option will be assessed, including on jurisdictions, industry and the NTC</td>
</tr>
<tr>
<td>Achieving cost recovery</td>
<td>Each option will be assessed on how well it recovers the cost of heavy vehicle road investment and maintenance over time</td>
</tr>
<tr>
<td>Compatibility with future reform</td>
<td>Each option will be assessed for its compatibility with the broader direction of reform of road investment, management and pricing. Primarily, this will consider the direction of the Heavy Vehicle Road Reform project as well as broader reform approaches</td>
</tr>
</tbody>
</table>

For each option, the criteria were rated on their likely potential impact (compared with the current approach) using the rating framework described in Table 3.
We also considered other practical elements including the degree of uncertainty, further work required and other implementation challenges before making an overall assessment for each option. The overall assessments consider both the assessments against criteria and any identified implementation and uncertainty considerations.

5.1.2 Assessment outcomes

Our assessment outcomes are summarised in Table 4.
<table>
<thead>
<tr>
<th>4. Unders and overs</th>
<th>+/-</th>
<th>+/-</th>
<th>+/-</th>
<th>+</th>
<th>+/-</th>
<th>Only likely to be worthwhile if incorporated into a FLCB approach (options 1), where some type of true-up approach is probably necessary.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Turn into Tax</td>
<td>+/-</td>
<td>-</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>This option would be simple, easy to administer and provide certainty. However, it would involve a fundamental departure from current pricing principles.</td>
</tr>
<tr>
<td>6. Continue revenue freeze</td>
<td>+/-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>This option would be easier to administer as business as usual. However, it remains inconsistent with cost recovery principles.</td>
</tr>
<tr>
<td>7. Review cost allocation</td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td>Based on previous experience, it is unclear what the results of a review would be. In the first instance, a review of existing research could be conducted as an input into a FLCB approach.</td>
</tr>
<tr>
<td>8. Re-examine excluded local government expenditure</td>
<td></td>
<td>+</td>
<td>+/-</td>
<td>+</td>
<td>+/-</td>
<td>Based on previous experience, it is unclear what the results of a review would be. It would be best considered as a long-term project to be commenced once preferred options have been implemented.</td>
</tr>
<tr>
<td>9. Independent Price Setting</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>Could create a more holistic and consumer focused decision-making process with a decision maker accountable to all affected stakeholders. Implementation may require legislative change.</td>
</tr>
</tbody>
</table>
6 Preferred options for further investigation

6.1 Summary of preferred options

Based on the views of submitters and our assessment of the options against selection criteria, our preferred options were to:

- create and evaluate a prototype forward looking cost base (FLCB) using the life-cycle approach (option 1) in 2016-17 and 2017-18. A FLCB prototype developed in collaboration with jurisdictions, could be used to produce indicative shadow charges for 2018-19 and beyond
- proceed with a re-examination of the cost base allocators (option 7) in 2016-17 to inform a possible change in the PAYGO methodology as well as being used as an input to a new FLCB prototype
- develop a detailed proposal for introducing independent price setting (option 9), providing advice to the Council in November 2017
- assess any recommendations resulting from the work above against the current PAYGO methodology based on historic costs.

We propose no further development at this time of:

- using forecast budgets of financial costs (option 2)
- ring-fencing revenues (option 3) unless as part of future reform package as benefits are limited if applied in a partial market context
- turning heavy vehicle charges into a tax (option 5)
- continuing freezing revenues (option 6)
- re-examining the amount of local government expenditure excluded from the PAYGO cost base (option 8).

We note that continuing freezing revenues (option 6) is the default, or fall-back, option if no alternative options are agreed upon for implementation.

Table 5 outlines a summary of our recommended approach to each option.

Table 5. Summary of recommended approach for options

<table>
<thead>
<tr>
<th>Option</th>
<th>Recommended approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1: Forward Looking Cost Base - ‘life cycle’ approach using forward looking costs</td>
<td>Develop a working prototype FLCB using a life-cycle approach in collaboration with jurisdictional road agencies. A FLCB could be used to produce indicative shadow charges from 2018-19. Provide further advice to the Council in November 2017.</td>
</tr>
<tr>
<td>Option 2: Revised cost base - using forecast budgets of financial costs</td>
<td>Do not develop further.</td>
</tr>
<tr>
<td>Option 3: Ring-fencing heavy vehicle charges revenue</td>
<td>Do not develop further. Consider as part of future reform package as benefits limited if applied in a partial market context.</td>
</tr>
<tr>
<td>Option 4: Introduce an ‘unders and overs’ account</td>
<td>Explore as part of the development of option 1.</td>
</tr>
<tr>
<td>Option 5: Turn heavy vehicle charges into a tax</td>
<td>Do not develop further.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>Option 6: Continue freezing revenues</td>
<td>Do not develop further.</td>
</tr>
<tr>
<td>Option 7: Re-examine the heavy vehicle cost base allocators</td>
<td>Undertake review of existing primary research as an input into the FLCB work. Provide further advice to the Council in November 2017.</td>
</tr>
<tr>
<td>Option 8: Re-examine the amount of local government expenditure excluded from the PAYGO cost base</td>
<td>Do not develop further.</td>
</tr>
<tr>
<td>Option 9: Change the heavy vehicle charge setting process: independent price regulation</td>
<td>Develop further and incorporate independent review mechanism. Provide further advice to the Council in November 2017.</td>
</tr>
</tbody>
</table>

### 6.2 Progressing preferred options

#### 6.2.1 Option 1: Forward looking cost base – ‘life cycle’ approach using forward looking costs

A FLCB has the potential to contribute significantly towards enhancing the stability and predictability of the cost base and heavy vehicle charges. By funding assets over their economic life, rather than immediately in the year that they are constructed, a life-cycle approach can help to smooth the cost base or revenue requirement over time if the asset expenditure is lumpy and/or cyclical. It also has the advantage of ensuring that the cost base reflects the economic costs of operating the road network, enhancing equity between users at different times.

Improved predictability of revenue outcomes can also facilitate good long-term asset management approaches. The approach also allows the setting of a ‘smoothed’ price path to recover a given amount of revenue over several years, which can facilitate stability and predictability, especially during any transitional phases.

As charges are set to recover the cost base they can take into account any under- or over-recovery in subsequent regulatory periods. As such, we propose investigating the use of an ‘unders and overs’ account, similar to that described in option 4, as part of the development of this option.

A FLCB using life-cycle costs would be a new regime for road users and agencies and as such, changes and impacts would need to be clearly explained to build stakeholder support. However, it is a common regulatory regime for network utilities, and a number of previous inquiries have discussed this as a possible solution for roads.

A FLCB using life-cycle costs supports the objectives and direction of the HVRR project and broader road reform. In fact, the HVRR project has identified establishing a FLCB as part of the next phase of the project. We note that a FLCB would also be a necessary part of any broader full market reform.

A working prototype FLCB, based primarily on existing data, could be developed in close collaboration with jurisdictions. Although some upfront work would be required, the annual work requirement is unlikely to be much more difficult to administer in the long term than the existing PAYGO regime with marginal increases in information requirements. Preliminary scoping suggests a minimalist approach could be feasible without significant additional administrative costs.

We propose to collaborate with jurisdictions to create a prototype FLCB using a life cycle approach in 2016-17 and 2017-18 as part of the HVRR project. This cost base would be used for information and evaluation purposes only. Issues raised in submissions, such as practical feasibility (for example the alignment of accounting standards), the likely costs of implementation and operation (including the effort required within agencies), and the likely impact on heavy vehicle charges can be explored in detail as part of this process. This process would also identify any practical implementation issues.

If the development process and evaluation demonstrates that the ‘life cycle’ approach is feasible and implementation and operational costs are likely to be reasonable, then the model could be
used to calculate non-binding shadow charges. Shadow charges would be presented to the Council to allow it and other stakeholders to evaluate the performance of the FLCB, and to assess it against the outcomes produced under the current methodology.

If it can be established that it is practically feasible and that it would produce stable and reliable outcomes, a FLCB could be implemented either as part of the HVRR project or as part of a wider full-market reform program.

6.2.2 Option 7: Re-examine the cost base allocators

The cost base allocators are a central part of the PAYGO methodology and would also be a necessary component of any future heavy vehicle charging system, such as a FLCB.

A re-examination of the cost base allocators has not been undertaken for some time. The proposed review is timely to ensure that PAYGO is transparent and credible. Insights from this work could inform cost allocation between light and heavy vehicles under the existing PAYGO methodology or under a FLCB approach.

The review would need to include identification and analysis of the existing empirical research on the causes of road wear to establish plausible cost allocators and allocation ranges for PAYGO expenditure categories and proposed asset classes for a FLCB (to support the progression of option 1).

If the review finds that allocation parameters need to be changed, there may also be potential to improve the overall efficiency and accuracy of the cost-recovery process.

If the Council supports the proposed work, a review of the cost base allocators could be undertaken in 2016-17. The results of this work could be implemented as a change to the PAYGO methodology as well as being used as an input to a new FLCB prototype.

6.2.3 Option 9: Change the heavy vehicle charge setting process: independent price regulation

In December 2015, the Council of Australian Governments (COAG) and the Council agreed to identify steps to transition to independent pricing regulation by 2017-18 (Transport and Infrastructure Council, 2016). Independent price setting is also consistent with the recommendations of the Australian Competition Policy Review (the Harper Review) relating to road transport: ‘Governments should introduce cost-reflective road pricing with the aid of new technologies, with pricing subject to independent oversight and revenues used for road construction, maintenance and safety’ (Harper, et al., 2015, p. 38).

The Harper Review also stated that through independent regulation, ‘separating the interests of providers from those of funders and regulators encourages accountability, innovation and a level playing field between public and other providers’ (Harper, et al., 2015, pp. 31-32).

We believe that changing the price setting process to include an independent price setting function could play a major role in enhancing the transparency, predictability and stability of the heavy vehicle charge setting process as well as helping to achieve cost recovery goals. As such, we propose further development of this option with the inclusion of an independent review mechanism.

We envisage that the Council would provide strategic policy directions and other specific guidance to the independent price regulator that supports stability and predictability, for example the directions may require that an independent regulator set prices that are consistent with pricing principles, or take other particular considerations into account. This approach would also include a well-designed independent review process carried out by a separate and independent review body.

Within the boundaries set by the Council, the independent price regulator’s decisions would be binding. An established independent price setting function could allow governments to focus on more strategic policies and with a reduced focus on operations. An independent price regulator would be required to undertake consultation and provide reasons for their decisions.

The proposed work will need to consider the identities of the independent price regulator and the independent review body, and to their respective terms of reference. It should also explore the triggers for an independent review, and the review process.
Independent price setting can be a useful step towards full economic regulation as would be possible under a wider reform program. However, in the interim an independent price setting function could be designed which avoids some of the complexity and cost associated with full economic regulation.

We believe that an independent price setting function could be considered for implementation from 2018-19 onwards if existing mechanisms and institutions are used.

### 6.2.4 Possible implementation pathways

Table 6 presents a feasible path to implement the preferred options.

**Table 6. Possible implementation pathways**

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<tbody>
<tr>
<td><strong>Option 1:</strong></td>
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<td></td>
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</tr>
<tr>
<td>Forward Looking Cost Base - ‘life cycle’ approach using forward looking costs</td>
<td>Develop and test options in collaboration with jurisdictions</td>
<td>Evaluate performance – calculate non-binding shadow charges and subject preferred option to RIS process if outcomes promising</td>
<td>Implement approved changes</td>
<td></td>
<td></td>
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<tr>
<td><strong>Option 7:</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-examine cost base allocators</td>
<td>Evaluate need for change</td>
<td>Incorporate into FLCB design</td>
<td>Test recommended cost allocation process through calculation of non-binding shadow charges under option 1</td>
<td>Implement approved changes as part of the FLCB approach</td>
<td></td>
<td></td>
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<tr>
<td><strong>Option 9:</strong></td>
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</tr>
<tr>
<td>Independent Pricing</td>
<td>Develop options under HVRR</td>
<td>Conduct RIS (if required) and provide final advice to Council in November 2017</td>
<td>Implement approved changes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7 Progressing preferred options as part of the Heavy Vehicle Road Reform project

The preferred options to improve PAYGO and the indicative order of implementation are consistent with the high-level reform path of the Heavy Vehicle Road Reform (HVRR) project. This reform path includes a forward-looking cost base (FLCB) and a more independent charge setting process being considered as part of the next phase of reform.

Given the strong similarities between the recommendations in this policy paper and the HVRR process, we recommended to the Council that the options should be progressed through the HVRR project.

In line with the recommendations above, we propose a collaborative development of a FLCB prototype using the ‘life cycle’ approach (option 1), and an exploration of how an ‘unders and overs’ account (option 4) could be incorporated into this approach. The NTC will lead the technical policy work in this area and provide advice to governments on the feasibility of this approach, in line with the Council’s 4 November 2016 Communiqué.

If the development of a FLCB using a life-cycle approach proves to be feasible, then the approach could be run in parallel with the current methodology to create non-binding ‘shadow charges’. These shadow charges would enable comparisons of expected charging impacts and revenue outcomes that would occur if this option was adopted against those expected under the existing system. We expect that initial ‘shadow charges’ could be prepared for the 2018-19 charging period.

Additionally, the NTC will conduct a review of existing primary research on heavy vehicle cost base allocators (option 7) and provide advice to governments on the review’s findings. Outcomes from this research are an essential input to the FLCB prototype and could also be incorporated into possible changes to the PAYGO methodology from 2018-19 (if necessary).

Independent price regulation of heavy vehicle charges (option 9) will be progressed by the Commonwealth Government, working with states and territories, in accordance with the Council’s November 2016 Communiqué.

Even though work is progressing under the HVRR project, heavy vehicle charges will continue to be set under the PAYGO methodology until the Council decides to implement an alternative mechanism for setting heavy vehicle charges. The timing of this is still uncertain.
8 Next steps

We will work with the Commonwealth, state, territory and local governments to provide advice to the Council by November 2017 on:

1. a prototype working model for a FLCB using the ‘life cycle’ approach (option 1), to underpin future heavy vehicle charge calculations

2. a review of the heavy vehicle cost base allocators (option 7) to be included in the prototype working model for a FLCB.

The Commonwealth Department of Infrastructure and Regional Development will progress the development of a framework for independent price regulation of heavy vehicle charges under HVRR project (option 9).
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Appendix A: Background on PAYGO

Overview

The National Transport Commission’s ongoing responsibilities

The National Transport Commission (NTC) has ongoing responsibilities for recommending heavy vehicle charges to the Transport and Infrastructure Council. These charges are intended to apply nationally, and are set to fully recover the share of road construction and maintenance costs that can be allocated to heavy vehicles.

Charges apply to heavy vehicles

All heavy vehicles in Australia are charged an annual registration fee and a road user charge (RUC) levied on each litre of diesel fuel. These charges are determined according to a charging framework known as the pay-as-you-go (PAYGO) methodology. The primary objective of PAYGO is to deliver a nationally consistent set of heavy vehicle charges that efficiently recover the cost of providing and maintaining the road network.

Heavy vehicle charges recover the capital and operational costs of building and maintaining the Australian road network allocated to heavy vehicles. These charges consist of:

- the RUC levied on fuel used by heavy vehicles, administered and collected by the Australian Government
- registration charges for heavy vehicles administered and collected by state and territory governments.

Legislative framework

In relation to the RUC, the Fuel Tax Act 2006 requires that the Commonwealth Minister for Transport determine the amount of RUC paid by heavy vehicle operators. The Fuel Tax Act 2006 obliges the Transport Minister to consult before increasing the rate of the RUC. This must be in the form of public consultation for at least 60 days on a document that contains the proposed increased rate of RUC, and any information that was relied on in determining the proposed increased rate.

The Fuel Tax Act 2006 then requires the Minister to consider any comments received, within the period specified by the Transport Minister, from the public in relation to the proposed increased rate.

In relation to the registration charge, the National Transport Commission Act 2003 and the Inter-Governmental Agreement on Regulatory and Operational Reform in Road, Rail and Intermodal Transport provide the authority for the NTC to recommend registration charges for heavy vehicles to the Council.

The Council periodically determines the process to calculate charges that are to be applied to heavy vehicles. The process, known as a determination, combines the requirements of developing the RUC and the registration charges into a single consistent process that also calculates the amount that charges must be adjusted each year to maintain cost recovery, known as PAYGO.

Section 52 of the National Transport Commission Act 2003 (the Act) provides that the Governor-General may make regulations, not inconsistent with the Act, prescribing all matters required or permitted by the Act to be prescribed or necessary or convenient to be prescribed for carrying out or giving effect to the Act.

The Heavy Vehicle Charges Model Law contains the schedules of heavy vehicle registration charges agreed by the Council. The Model Law also describes the methodology for calculating an annual adjustment for charges in subsequent years. The charges have legislative force once the Model Law is adopted by states and territories.
Options for improving the accuracy and stability of the PAYGO heavy vehicle charges methodology – Policy paper November 2016

Original PAYGO objectives

PAYGO was originally set up to provide a nationally consistent approach to heavy vehicle charges. Before PAYGO, individual state and territory governments would set their own charges. The basis for these charges varied significantly. In some states, charges varied with the gross mass of vehicles while in others they were based on tare mass or on a combination of vehicle characteristics (including engine bore diameter).

Despite all operators having access to all roads in Australia, an operator's competitive position often depended on their garaging address rather than on the underlying efficiency of the business.

The first national heavy vehicle charges aimed to apply, for the first time, uniform charges to the same vehicle type regardless of the jurisdiction in which it was registered.

The brief given to the then National Road Transport Commission (NRTC) under the Heavy Vehicle Agreement defined five charging principles that required the NRTC to set charges:

- to fully recover distributed road costs while minimising over-recovery from any vehicle class, thereby achieving full recovery of all road costs
- adopting a common methodology
- to determine and collect charges in a way that achieves a reasonable balance between administrative simplicity, efficiency and equity in the charging structure
- to improve pricing, leading to a better allocation of resources, with investment decisions on equipment and infrastructure being based on more relevant demand signals
- to minimise the incentive for operators to ‘shop around’ for lower charges and undermine the integrity of the national charging system.

In analysing the possible options for improvement to PAYGO, the NTC has considered these pricing principles in some detail.

The pricing principles

The current pricing principles were designed to guide the NTC towards an outcome that efficiently recovers the cost of providing road infrastructure for heavy vehicles. In addition, the principles also take into account issues of relevant public interest, such as fairness and equity.

The pricing principles, which govern the NTC’s recommendations on heavy vehicle charges to the Commonwealth, state and territory governments originate from the Australian Transport Council (a predecessor of the Transport and Infrastructure Council) and the Council of Australian Governments (COAG). The 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 (for example impact on regional and remote communities/access)
- the need to have regard to other pricing applications such as light vehicle charges, tolling and congestion.”

At the COAG meeting on 10 February 2006, COAG agreed to a Productivity Commission inquiry to review road and rail freight infrastructure pricing to optimise efficiency and productivity in the freight transport task and maximise net benefits to the community.

Following the Productivity Commission’s inquiry into road and rail infrastructure pricing (PC, 2006), COAG made a further direction:
‘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).

**How PAYGO works**

Each year, jurisdictions provide the NTC with a completed road expenditure template which covers all road construction and maintenance costs (light and heavy vehicles). A cost base is then established with the heavy vehicle portion recovered via heavy vehicle charges. Figure 3 provides an overview of the existing PAYGO system.

**Figure 3. Overview of the current PAYGO system**

![Figure 3](image)

Figure 4 illustrates how the NTC processes this information and makes recommendations to the Council. The NTC’s charge recommendations are non-binding.
Calculating the cost base

Under PAYGO both capital and operating expenditure are recovered in the year they are incurred (subject to averaging).

The cost base is calculated by taking a 7-year average of the historic financial costs of providing roads. The system was designed to recover the financial cost of roads on the assumption that the financial cost was a reasonable approximation of the economic cost.

The key difference between financial and economics costs is that under a financial cost recovery approach, capital costs are recovered in the period in which the expenditure takes place. Under economic cost recovery, capital costs are depreciated and recovered over the life of the asset.

The assumption that the financial cost is equal to the economic cost was based on the following criteria being met:

- the network is neither expanding nor contracting, nor is the pavement or bridge condition changing significantly
- network-wide expenditure does not fluctuate markedly over time
- traffic growth is relatively steady.

From 2005-06 to 2009-10, none of these criteria held. The rapid increase in infrastructure spending (see Figure 5), expansion of the network^3, and change in the fleet^4 have all led to a significant divergence between the financial cost as calculated by PAYGO, and the annualised economic cost that would prevail under a ‘life cycle’ approach. This has led to increased volatility in the underlying cost base (and charges) over the past 10 years.

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^2 An exponential moving average is currently used to apply greater weights to the most recent years.

^3 BITRE’s 2012 yearbook shows that the road network increased from 810,641 km in 2004 to 823,217 km in 2011 (BITRE, 2012).

^4 Heavy vehicle registration data provided to the NTC by jurisdictions shows that the powered unit fleet (excluding plant based special purpose vehicles) increased from 411,420 to 481,902 between June 2005 and June 2011.
Figure 5. Total nominal road expenditure 2005-06 to 2014-15 ($ millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>LV expenditure (Sm)</th>
<th>HV expenditure (Sm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005/2006</td>
<td>5,846.9</td>
<td>1,735.7</td>
</tr>
<tr>
<td>2006/2007</td>
<td>6,774.7</td>
<td>2,218.5</td>
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<tr>
<td>2007/2008</td>
<td>8,386.8</td>
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<tr>
<td>2008/2009</td>
<td>9,887.8</td>
<td>2,930.6</td>
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<td>2009/2010</td>
<td>10,124.2</td>
<td>2,842.0</td>
</tr>
<tr>
<td>2010/2011</td>
<td>9,951.5</td>
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<tr>
<td>2013/2014</td>
<td>10,187.2</td>
<td>3,229.3</td>
</tr>
<tr>
<td>2014/2015</td>
<td>9,924.4</td>
<td>3,002.3</td>
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</tbody>
</table>
Appendix B: Summary of submissions

List of submitters

We received submissions from:

- Australian Livestock and Rural Transporters Association (ALRTA)
- Australian Logistics Council (ALC)
- Australian Trucking Association (ATA)
- Bus Industry Confederation (BIC)
- Cement Concrete and Aggregates Australia (CCAA)
- D’Artagnan Consulting
- Freight on Rail Group (FoRG)
- Gas Energy Australia (GEA)
- National Road Transport Association (NatRoad)
- Rod Hannifey
- Transport for New South Wales (TfNSW)
- Truck Industry Council (TIC)
- Victorian Farmers Federation (VFF)
- Victorian Government (Vic Govt)
- Western Australian Government (WA Govt)
- Western Australian Local Government Association (WALGA).


Feedback on the problem definition

In the discussion paper we asked stakeholders for feedback on how we had defined the problem to be addressed. Most submitters that provided comment on this agreed that the discussion paper had appropriately captured the problems with the current PAYGO system. However, a number of submissions suggested that there were additional problems. The Victorian Government’s submission stated that the problem definition ignored the possibility that the allocation of costs between light and heavy vehicles may not be accurate (Victorian Government, 2016). Both GEA and the ALRTA identified the decision-making process as problems with the current system (GEA, 2016) (ALRTA, 2016). The ALRTA also cited the political nature of the decision-making process, the reluctance of governments to adhere to cost recovery principles and the lack of an appeal mechanism as the key problems (ALRTA, 2016). In addition, both the ATA and ALRTA stated that the lack of independent oversight and auditing of expenditure contributed to the current system’s problems (ATA, 2016) (ALRTA, 2016).

The Western Australian Government’s submission identified cross-subsidisation and investment transparency as problems inherent to PAYGO, while recognising that these issues were beyond the scope of the current review process (WA Government, 2016). The Freight on Rail Group’s submission similarly recognised these issues as well as highlighting the potential risk to the sustainability of RUC revenue in light of improvements in the fuel efficiency of heavy vehicle engines (FoRG, 2016).
Stakeholder views on options

Option 1 – Forward Looking Cost Base – ‘life cycle’ approach using forward looking costs

Several submissions provided qualified or in principle support for a move towards a life cycle approach using a forward looking cost base (FLCB) (option 1). Other submissions did not support this option, or at least not through the current process of improving PAYGO.

The main concerns were about insufficient detail and the uncertainty of expected outcomes. These included:

- the impact on charges and revenue (including modelling of these)
- the scope of the changes including the degree of economic regulation, the length of regulatory periods and the detail and robustness of forecast expenditure
- challenges of applying it within the current model of road funding and management
- the potential increase in administrative burden on jurisdictions under such a scheme.

There was also significant concern about whether the development of a life cycle costs approach under PAYGO would duplicate efforts or confuse the direction of the HVRR project and those ambitions for broader road reform.

A small number of stakeholders suggested that the FLCB (life cycle approach) should be developed within the HVRR project rather than as a reform of PAYGO.

Option 2 – Revised cost base - using forecast budgets of financial costs

This option had a range of responses with some stakeholders supporting it, others opposed and others, still, either ambivalent or supporting a hybrid version of it.

Stakeholder submissions acknowledged that a FLCB using forecasted expenditures would overcome the two year lag present in the current ‘backward looking’ approach, but significant uncertainties around the availability and quality of forecasts were also acknowledged.

The Victorian Government, Transport for New South Wales and D’Artagnan Consulting explicitly stated that this option is inferior to the life cycle costs approach (option 1) (Victorian Government, 2016) (TfNSW, 2016) (D’Artagnan Consulting, 2016).

The Western Australian Government’s submission recognised that this option ‘may have some advantages as an interim measure to support broader reform, though ultimately these advantages may be outweighed by the increased volatility implied by the proposal’ (WA Government, 2016).

The ATA suggested an alternative to the forecasted expenditure approach that retains the current PAYGO framework but adds an expenditure estimate for the current year and forecast of the next year (instead of two years of past expenditure) to overcome the two year lag between expenditure and charges (ATA, 2016).

Option 3 – Ring-fencing revenues

Stakeholders provided variable levels of support for ring-fencing revenues (option 3). A number of submissions expressed a qualified level of support, or conditional support only if all registration and fuel-based revenues from both heavy and light vehicles were ring-fenced.

Some expressed support for this option, noting benefits such as:

- linking revenue and expenditure to facilitate more efficient investment, use and operation of the road network and alignment with the HVRR objectives (GEA, 2016)
- improving funding certainty for road agencies and trust by industry (TfNSW, 2016)
- increasing the transparency of road funding and helping to separate long term infrastructure decisions from budgetary and electoral cycles (ATA, 2016)
providing an essential first step toward regulating road funding and pricing under the building block model because the funds could be subject to economic as well as price regulation (ATA, 2016).

However, much stakeholder feedback suggested that these benefits would be limited under a partial market approach. The Freight on Rail Group stated, ‘if ring-fencing of heavy vehicle charges were to be introduced in the absence of institutional reform, this could have the potential to reduce the effectiveness of ring-fencing (FoRG, 2016)’. Additionally, the ALC noted that, ‘the benefits of ‘ring fencing’ (a form of hypothecation) will only be fully realised if applied to both heavy and light vehicle revenues, and that it would be difficult to demonstrate that upgrading a bridge to allow access to heavy vehicles only occurred because of ‘ring-fencing’ (ALC, 2016). The ATA also noted that, ‘the discussion paper argues that the full benefits of ring fencing would only be fully realised if it applied to both heavy and light vehicle revenues. The ATA agrees. Ring fenced heavy vehicle revenue would amount to only 19 per cent of governments’ expenditure on roads. Expenditure from the heavy vehicle funds would disappear into the overall budgetary process’ (ATA, 2016).

**Option 4 – Unders and overs account**

Stakeholders generally supported option 4 in the context of a FLCB:

- The introduction of an ‘unders and overs’ account (option 4) is also worthy of further consideration, particularly if it forms part of a system that is based on a forward looking cost base approach (ALC, 2016)
- It is not possible to be 100 per cent accurate in either forward or backward looking charging models. Therefore, ALRTA supports this proposal for all combinations of options (ALRTA, 2016)
- The establishment of an ‘unders and overs’ account would be most appropriate as part of a broader reform process that would see the introduction of a forward looking cost base (WALGA, 2016)
- [An unders and overs account] should be introduced in parallel with a forward looking cost base (D’Artagnan Consulting, 2016).

Some stakeholders also recognised that ‘unders and overs accounts or carry forward mechanisms are a well-established feature of economic regulation,’ (ATA, 2016) and that such measures have ‘typically been included with a ‘life cycle’ approach to forward looking costs’ (TFNSW, 2016).

The Western Australian Government’s submission also noted that ‘the introduction of an overs and unders account would increase the perceived fairness of the system’ and that ‘further details are required about the proposed methodology and the potential impacts on road users and governments’ (WA Government, 2016).

As noted in the discussion paper, applied on its own, an unders and overs account could cause added volatility in charges and revenues. The Victorian Government’s submission emphasised this, noting that while it may address one of identified PAYGO issues (i.e. addressing cost recovery), it may be detrimental overall if not balanced: ‘in the absence of measures to reduce volatility, this option will be detrimental, and would only address the issue of cost recovery’ (Victorian Government, 2016).

Transport for New South Wales noted that ‘a forward looking cost base, based on economic costs, is expected to be more stable than the current arrangements and, thus, any volatility from an ‘unders and overs’ account should be minimal’ (TFNSW, 2016).

**Option 5 – Turning charges into a tax**

There was no stakeholder support for turning charges into a tax (option 5). A number of submitters noted that such an approach would be contrary to the objectives and direction of the HVRR project and broader COAG objectives of moving towards cost-reflective road user pricing:

- The idea takes road charging further away from reforms recommended by the Henry Review, the Harper Competition Review, the Productivity Commission reports on public infrastructure and the work being done by HVRR (ALC, 2016)
[the option is] inconsistent with broader government policy, given the Australian Government’s plan to work through COAG to develop steps to transition to independent heavy vehicle price regulation by 2017-18 (ATA, 2016).

Some recognised that the option may address some of the current PAYGO limitations in the short term, and it could be more simple to administer, however there was also recognition that the risks associated with this option would likely outweigh any benefits:

- while reasonable to expect that expenditure and revenue would be initially in some form of balance based on the PAYGO approach, they would quickly drift apart resulting in significant and unaccountable under- or over- recovery. This would result in reduced certainty, confidence and trust in the fairness of the cost recovery mechanism (TfNSW, 2016).
- A taxation option would offer a simpler method of calculating prices, reduce price fluctuations and bring heavy vehicle pricing under the same method that is applied to light vehicles. This method would also provide government with a more stable revenue source to make road management and investment decisions. However, moving away from the principle of setting prices on cost recovery principles is generally considered to be a retrograde step (Victorian Government, 2016).
- Finally, the ALRTA argued that, ‘arguably, governments have already chosen this path by refusing to adhere to PAYGO cost recovery principles [by freezing revenues]’ (ALRTA, 2016).

**Option 6 – Continue freezing revenues**

There was no stakeholder support for maintaining frozen revenues (i.e. the status quo) for the long-term, but some stakeholders indicated that they viewed the option as acceptable in the short term while bolder road reform is pursued. This absence of long-term support for this option may in some degree demonstrate stakeholder appetite for changing the current heavy vehicle charging arrangement.

- If governments elect to move to a forward looking cost base, based on economic costs, it may be expedient to maintain revenues at current levels while this major reform is implemented. However, this option should only be considered as an interim step as part of a larger reform package, and is not considered economically efficient (TfNSW, 2016)
- While freezing revenues does not represent the ideal application of the pricing principles, the option may be appropriate as an interim measure while governments develop a broader reform agenda. As a stepping-stone to broader reform, adopting this approach would limit the quantum of change that government and industries are exposed to (WA Government, 2016).
- NatRoad would also, in line with the ATA, support the continuation of the current freeze on revenue (option 6) as an interim measure if the direct implementation of the 2014 heavy vehicle charges determination is not reconsidered (NatRoad, 2016).

The key benefit of maintaining freeze revenues in the short-term is in providing certainty of revenues for governments and relative certainty of charges for industry which helps planning and investment decision-making.

- This approach would allow our members a small window for better business planning and budgeting in the short-term. It may also in fact contribute to business survival of a number of our members and others in the road freight and associated industries (NatRoad, 2016).

Three heavy vehicle industry representative groups expressed a strong first preference for maintaining the existing PAYGO system but allowing for the direct implementation approach, rather than freeze revenues (ATA, 2016) (NatRoad, 2016) (ALRTA, 2016).

Some argued that freeze revenues could continue with the inclusion of a true-up mechanism such as an overs and unders account or similar.

- If the option to freeze revenue option is adopted, it could be considered in conjunction with the implementation of an overs and unders account in order to comply with COAG pricing principles (WA Government, 2016).
Option 7 – Re-examine the heavy vehicle cost allocators

The option for re-examining the heavy vehicle cost allocators (option 7) received variable levels of support. Those that did support the option generally supported it if it was undertaken as part of a FLCB process (option 1).

The Victorian Government’s submission strongly supported a re-examination of the heavy vehicle cost allocators, independent of the other options, as the primary method for advancing the PAYGO system. It argued that the existing cost allocators need updating:

- to reflect changes in the network and vehicle fleet, with some of the allocators not having been reviewed for over 20 years
- because domestic and international research and practice indicate that the PAYGO allocators need reviewing
- to improve the integrity of the PAYGO system and prospective reform (Victorian Government, 2016).

The Western Australian Government, GEA and D’Artagnan Consulting acknowledged that re-examining the cost allocation was essential if a FLCB was developed (WA Government, 2016) (GEA, 2016) (D’Artagnan Consulting, 2016), however the Western Australia government also noted that this option would provide little value in the context of the existing PAYGO model (WA Government, 2016).

The ALRTA acknowledged the importance of periodically reviewing PAYGO inputs but noted that, ‘the time required to properly conduct this particular review will exceed the time available for the proposed PAYGO review. Any such review should be scheduled as a necessary, but entirely separate, process’ (ALRTA, 2016). The ATA expressed a similar view in its submission: ‘due to cost and time involved this option is best be considered as a research project to support a possible 2019 determination (ATA, 2016). Meanwhile, the Freight on Rail Group suggested that, ‘this option should be left to the HVRR process’ (FoRG, 2016).

Transport for New South Wales was less supportive, noting that, ‘reviewing the cost allocators could be both an expensive and time-consuming exercise with potentially inconclusive results. It is considered unlikely to contribute to providing improved stability of revenues for governments or to enhancing the stability of charges over time’ (TfNSW, 2016).

Option 8 – Re-examine the amount of local government expenditure excluded from the PAYGO cost base

The option to re-examine the amount of local government expenditure excluded from the PAYGO cost base (option 8) also received a mixed level of support. The ALC and WALGA noted that the current local government expenditure share estimates dated back to the 1990s and so it is appropriate to re-examine them (ALC, 2016) (WALGA, 2016). The Western Australian Government supported the re-examination ‘provided the review can be completed in a timely manner, at a reasonable cost, and is likely to make conclusive recommendations’ (WA Government, 2016), while D’Artagnan Consulting supported the re-examination in the context of a move to FLCB (D’Artagnan Consulting, 2016).

WALGA further noted that ‘while undertaking this option is worthwhile it will not fundamentally address the concerns with volatility or stability of revenue, and should be considered as part of a broader suite of reforms’ (WALGA, 2016). The Freight on Rail Group similarly suggested that the review ‘should be undertaken as part of the HVRR Project’ (FoRG, 2016).

The ATA, ALRTA and Transport for NSW cautioned that the review would involve disincentives such as ‘costly and time consuming research’ and it ‘could best be considered as a research project to support a possible 2019 determination’ (ATA, 2016) (ALRTA, 2016) (TfNSW, 2016).

Option 9 – Change the heavy vehicle charge setting process: independent price regulation

Submissions from industry groups were overwhelmingly in support of a move to independent regulation of prices. Of the three jurisdictions that provided formal submissions to the discussion paper, only NSW was supportive.
The common reason provided by industry bodies in favour of independent price regulation was the inherent conflict of governments both setting charges and collecting the revenue from those charges. Many also stressed the importance of independent price regulation as part of a move to a FLCB approach and discussed the broadening of that role to regulation of efficiency and prudence of road investment and maintenance.

Two state governments, Western Australia and Victoria, did not support the move to independent price setting. For Western Australia, the primary justification for opposition is that the ministers have to factor in broader concerns, such as equity, and so should retain discretion on price setting to ensure charges are ‘fair and appropriate’ (WA Government, 2016). For Victoria, independent pricing could not be supported until there was a ‘much higher level of confidence in the refined PAYGO system’, particularly that the allocation of costs to heavy vehicles is accurate (Victorian Government, 2016).

Several submissions put forward views about the identity of the independent regulator. The ATA and D’Artagnan Consulting supported a role for the NTC, at least in the initial stages of any reform (ATA, 2016) (D’Artagnan Consulting, 2016). However, the ALC, ALRTA and the Freight on Rail Group suggested that the NTC would not be suitable and instead proposed alternative regulators such as the ACCC or a potential future Access and Pricing regulator (as cited in the Harper review) (ALC, 2016) (ALRTA, 2016) (FoRG, 2016).

**Preferred combination of options**

Submitters had mixed views on a preferred combination of options. Several submissions sought minimal change through the current process. The ATA submitted that industry’s preferred option is the ‘direct implementation’ of charges from the PAYGO model (ATA, 2016). The ALRTA supported this view, adding that there are ‘extreme risks’ in moving away from the current system and that some of the problems identified in the discussion paper would be corrected if the changes proposed in the 2014 determination were implemented and allowed to flow through a full 7 year averaging cycle (ALRTA, 2016). The Western Australian Government shared a similar view, and stated that any larger scale reforms must be progressed through the HVRR project (WA Government, 2016). The Victorian Government advocated a revision to the cost allocation approach as a required change, stating that there is insufficient information presented in the discussion paper to comment on what combination of options may be best (Victorian Government, 2016).

The ATA proposed an additional option of a revised 7-year period of expenditure data for calculating the cost base. The calculations would use the five previous years of actual expenditure data, an estimate of expenditure for the current year, and a forecast of expenditure for the following year (the year for which charges are being set) (ATA, 2016). NatRoad and the ALRTA also supported this proposal (NatRoad, 2016) with the ALRTA also suggesting that the weights used in the Exponential Moving Average process may need to be revised to prevent too much weight being given to the estimated and forecast data points (ALRTA, 2016, p. 8). An alternative means of accounting for the two-year lag between expenditure being incurred and charges being set was proposed by the ALRTA: this would involve some form of indexing of the cost base as calculated under the current method (for example applying two years of CPI changes to the cost base) (ALRTA, 2016).

Other submitters advocated more wide-ranging reforms, and generally viewed the ‘life cycle’ approach (option 1), ring-fencing (option 3) and independent price regulation (option 9) to be compatible. GEA supported these three options along with an ‘unders and overs’ account (option 4) (GEA, 2016). TfNSW supported options 1, 3 and 9, but stated that further work was needed to assess the relative costs and benefits of combining these options with options 4, 7 and 8 (TfNSW, 2016). D’Artagnan Consulting advocated options 1, 3, 4, 7 and 9 on the basis that these would support the objectives of the HVRR project (D’Artagnan Consulting, 2016). Although NatRoad supported independent price regulation and ring-fencing, it preferred these to be combined with a FLCB using forecast budgets (option 2) (NatRoad, 2016).

**Other issues or concerns**

A key concern raised by submitters was the interaction between the current process reviewing PAYGO and the HVRR project. The ALC, the Freight on Rail Group and the government submissions from Victoria and Western Australia all supported broader reform—including some of
the options proposed in the discussion paper—being progressed through the HVRR process (ALC, 2016) (FoRG, 2016) (Victorian Government, 2016) (WA Government, 2016). The CCAA expressed its concern about the 'perceived lack of a coherent approach between both projects', which, in its view, could result in the projects undermining each other (CCAA, 2016). Relatedly, Transport for NSW expressed concern that the discussion paper proposes options (namely, options 5 and 6) that appear to be incompatible with HVRR, and added that any reforms proposed should not inhibit the potential for full market reform in the future (TfNSW, 2016). The Truck Industry Council shared similar views (TIC, 2016).

A number of submissions questioned the scope of the review. WALGA suggested that a wider review, focusing on the broader investment and charging process, was needed in order to improve road provision (WALGA, 2016). The Truck Industry Council submitted that the road user charge should decrease for heavy vehicles that meet specific safety and engine exhaust emission standards in order to promote safety and environmental outcomes (TIC, 2016). The Western Australian Government suggested that the NTC should seek to improve local government expenditure reporting in the future (WA Government, 2016). CCAA expressed its concern about the ‘prolonged over-recovery from heavy vehicles in an effort to protect Government revenue’, as well as the underlying motivations for the review, given the Council’s request for the NTC to ‘better balance’ heavy vehicle charges and government revenues (CCAA, 2016).

ALC stated that, given the flaws in the current PAYGO system, the current system should only act as an interim solution until there is an independent regulator in 2017-18 (ALC, 2016). The ATA submitted a number of proposed changes to the current determination process:

- Heavy vehicle charges determinations should occur every five years in order to avoid the current uncertainty about the determination cycle and allow sufficient time to conduct new research and incorporate its findings.
- The NTC should be able to determine a smoothed price path for heavy vehicle charges, and the pricing principles should be amended to allow this if necessary.
- Regular audits should be conducted of expenditure submitted by governments.
- The expenditure template used by the NTC should be revised in order to align with the investment plans released by the Council for key freight routes (ATA, 2016).

Several submissions discussed issues relating to the charging regime. The ATA submitted that trucking businesses require relatively stable charges, and tended to have a limited ability to pass on increases in costs to customers. It also disputed statements in the discussion paper that heavy vehicle charges are a relatively small proportion of operating costs. To partially address these problems, the ATA suggested that heavy vehicle operators should be able to pay registration charges on a monthly basis (via direct debit), and that the requirement for registration labels should be removed for heavy vehicles (ATA, 2016). The Truck Industry Council stated that it supported a future direct user charging system for heavy vehicles based on mass, distance and location (TIC, 2016).

Another concern raised in multiple submissions was the lack of detail available in the discussion paper regarding options, their risks and practical concerns. Transport for NSW stated that further detail on risks and revenue implications was needed in order to allow for a robust assessment and comparison of the options (TfNSW, 2016). CCAA’s concern was that the discussion paper provided ‘insufficient analysis of the options…making it difficult for stakeholders to provide an informed response to the questions posed’ (CCAA, 2016).
Appendix C: Multi-Criteria Analysis

Introduction

Purpose and scope

The purpose of the multi criteria analysis (MCA) is to carry out a preliminary assessment of the nine options described in our discussion paper, published in June 2016.

The scope is limited to a qualitative assessment that draws on the research conducted by the NTC into the options as embodied in the Discussion Paper. It uses a set of criteria to assess these options that has been revised to reflect stakeholder feedback to the criteria presented in the Discussion paper. It is anticipated that this assessment will be extended at the Regulatory Impact Statement (RIS) stage, if required.

Background

In the Discussion Paper, we assessed the issues with the current PAYGO regime in calculating and recommending heavy vehicle charges. We identified five key problems of the current PAYGO system, which have been refined after considering stakeholder submissions. These limitations are defined as:

- **Volatility in the cost base and heavy vehicle charges and, concurrently, persistent mismatches between actual revenue and the cost base** – The volatility and mismatches have led to problems, with both industry and governments not fully accepting NTC charging recommendations in the past.

- **Revenue uncertainty for governments and no direct link between expenditure and revenue** – Revenue should be sufficient to meet future investment and maintenance needs. However, because charges are set based on historic costs and averaged across jurisdictions, revenues are not directly linked to future road investment needs. This can lead to a shortfall, or excess, in government revenues.

- **Lack of predictability and stability** – The outcomes achieved under PAYGO lack sufficient predictability and stability, which hampers planning and decision-making by governments and heavy vehicle operators.

- **The charge setting process** – The NTC makes what is effectively a recommendation on national charges. This recommendation is not technically binding on jurisdictions, which has led to non-implementation of national charges and concessions being offered across jurisdictions. This undermines the national nature of charges. An appropriate governance framework to provide guidance on when and how a new determination is triggered is also lacking. These features impact on the resilience of the current system.

- **Lack of independent verification, user input or appeal mechanism** – There is no independent oversight or verification mechanisms, for example for reviewing or scrutinising the expenditures and allocations of costs included in the heavy vehicle cost base. Heavy vehicle users are consulted with but do not have direct input into expenditures that ultimately are recovered through heavy vehicle charges. Additionally, heavy vehicle operators have no avenue to appeal, challenge or seek an independent review of heavy vehicle charges. This lack of transparency and opportunity has the potential to undermine perceptions of fairness.

The discussion paper presented nine options to address these problems:

- Option 1: Forward Looking Cost Base - ‘life cycle’ approach using forward looking costs
- Option 2: Revised cost base - using forecast budgets of financial costs
- Option 3: Ring-fencing heavy vehicle charges revenue
- Option 4: Introduce an ‘unders and overs’ account
- Option 5: Turn heavy vehicle charges into a tax
- Option 6: Continue freezing revenues
• Option 7: Re-examine the heavy vehicle cost base allocators
• Option 8: Re-examine the amount of local government expenditure excluded from the PAYGO cost base
• Option 9: Change the heavy vehicle charge setting process: independent price regulation.

To assist in assessing each of these options below, the NTC rated each option against the following criteria derived from the problem definition:
• Stability of revenue for government
• Stability of charges for industry
• Transparency and simplicity (understood by stakeholders)
• Predictability and stability of outcomes over time (allow governments and industry to plan ahead)
• Efficient administration (governments, NTC)
• Achieving cost recovery in aggregate from heavy vehicles
• Compatibility with future reform (HVRR and light vehicle reform).

Multi criteria analysis

Multi-criteria analyses are decision-making analytical frameworks that are applicable where costs and benefits cannot be adequately quantified using a consistent measure (usually monetary).

An orthodox multi-criteria analysis establishes a set of ‘weights’ for each identified criteria and scores each option against these weights. The sum of these weighted scores establishes a preferred option. Such an approach requires a robust and credible process in both the determination of weights for each criteria and the scoring of each option against these criteria.

There is a range of less formal approaches that involve the assessment of options against multiple criteria without determining weights for each criteria or providing scores for each option against each criteria. These approaches generally adopt some ordinal measure of two (for example yes/no, high/low), three (for example traffic lights) or more and score each option against each criteria accordingly. These approaches facilitate decision-making by presenting options against criteria in a structured way without selecting a preferred option internally within the framework.

In this discussion paper the latter approach is adopted. Should there be a future Regulation Impact Statement (RIS), a full multi-criteria analysis may need to conducted where weights and scores are developed for each criteria and option.

Developing the methodology

Discussion Paper Responses

In the discussion paper, after introducing the criteria against which the options would be assessed, Question 3 asked: Do you agree with the assessment criteria? Should the options be assessed against any other criteria?

Of the 16 formal submissions, ten provided responses to the questions relating to selection criteria. In summary, these responses included:
• A number supporting or largely supporting the criteria suggested by the NTC
• None that made a case that comprehensively rejected the NTC’s proposed criteria
• Some that requested minor wording or conceptual changes to certain criteria
• A number that either explicitly or implicitly supported the weighting of certain criteria over others
• A number suggesting there were limitations or gaps in the criteria, for instance being ‘too administrative’ in focus, or otherwise made suggestions to include other criteria.
Suggested additions to the criteria included:

- Capturing broader considerations of economic efficiency (including productivity and resource allocation), equity (including intergenerational and cross subsidy), public health and safety
- Incorporating stakeholder acceptance, trust and understanding

Although not raised in a formal submission, a discussion during the telepresence with jurisdictions on 15 June 2016 highlighted that there were three criteria relating to ‘stability’.

These responses are presented in the detailed appendix to the policy paper.

**Revised assessment criteria**

The NTC has considered these responses and, where warranted, reflected these in the development of the criteria set, and how they are described and scored. Based on specific feedback, we have collapsed three of the criteria into one ‘stability and predictability’ criterion.

Some feedback on the criteria set, including suggested additions, is considered beyond the explicit scope of this review. Other feedback has been incorporated in the further detail set out for each criteria and in the process for how each is assessed. The criteria are used in this MCA are set out in the table below:

**Table 7. Multi criteria analysis assessment criteria**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability and Predictability</td>
<td>Each option will be considered on its likely impact on the stability and predictability of charges to heavy vehicle operators and revenue to jurisdictions.</td>
</tr>
<tr>
<td>Transparency and Simplicity</td>
<td>Each option’s anticipated impact on the transparency of the price setting process will be assessed as well as the accessibility of the process for stakeholders</td>
</tr>
<tr>
<td>Administrative Efficiency</td>
<td>The impact on the costs of administering each option will be assessed, including on jurisdictions, industry and the NTC.</td>
</tr>
<tr>
<td>Achieving Cost Recovery</td>
<td>Each option will be assessed on how well it recovers the heavy vehicle share of the costs of road investment and maintenance over time</td>
</tr>
<tr>
<td>Compatibility with Future Reform</td>
<td>Each option will be considered with the broader direction of reform of road investment, management and pricing. Primarily, this will consider the direction of the Heavy Vehicle Road Reform project as well as broader reform approaches.</td>
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</tbody>
</table>
Assessment Framework

The options are assessed against each criterion using a traffic light type framework as depicted in Table 8.

Table 8. Multi-criteria analysis ratings framework

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial Improvement (++)</td>
<td>The option represents a substantial improvement compared to the current approach</td>
</tr>
<tr>
<td>Marginal Improvement (+)</td>
<td>The option represents a marginal improvement compared to the current approach</td>
</tr>
<tr>
<td>Uncertain (+/-)</td>
<td>The option either has an uncertain impact compared to the current approach</td>
</tr>
<tr>
<td>Neutral (=)</td>
<td>The option has no impact against this criterion</td>
</tr>
<tr>
<td>Negative (-)</td>
<td>The option represents a worse outcome compared to the current approach</td>
</tr>
</tbody>
</table>

We also considered other practical elements including the degree of uncertainty, further work required and other implementation challenges before making an overall assessment for each option. The overall assessments consider both the assessments against criteria and any identified implementation and uncertainty considerations.
### Option 1 – Forward Looking Cost Base – life cycle approach using forward looking costs

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Summary Preliminary Assessment</th>
<th>Uncertainty and Further Work</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| Stability and Predictability | Revenues and charges are likely to be more predictable and more stable than PAYGO as capital costs are recovered over their economic life. It would also be possible to set a ‘smoothed’ price path to recover a given amount of revenue over several years. A life cycle approach to forward looking costs is expected to provide predictable revenue outcomes that facilitate good long-term asset management approaches. | This development of a life cycle approach requires significant work, primarily in collaboration with jurisdictions, including:  
- Establishing a common set of asset categories  
- Developing an approach to translating jurisdiction’s asset registers into a common set of categories  
- Translation of the cost allocation matrix into the asset categories  
- Establishing agreed methodologies to calculate values and parameters within the building blocks  
- Establishing the form and process of additional information provision by the jurisdictions, including operating expenditure forecasts. | By funding assets over their economic life, rather than immediately in the year that they are constructed, a FLCB can help to smooth the cost base/revenue requirement over time if the asset expenditure is lumpy and/or cyclical. It is also supportive of broader road reform and in line with the HVRR project. Preliminary scoping suggests a minimalist approach is feasible without significant additional administrative costs. |
| Transparency and simplicity | Transparency is likely to remain the same or improve as compared with the PAYGO system. Cost scrutiny mechanisms can also be considered and are common elements of other regulated pricing regimes.  
This is a new regime for road users and agencies and as such, changes and impacts would need to be clearly explained to build stakeholder support. However, it is a common regulatory regime for network utilities, and has been discussed as a possible solution for roads in a number of previous inquiries. |                                                                                                                                                                                                 |                                                                                                                                               |
| Efficient administration | Although some upfront work for the NTC will be required, the annual work requirement is unlikely to be much more difficult to administer in the long term than existing PAYGO regime with marginal increases in information requirements. |                                                                                                                                                                                                 |                                                                                                                                               |
| Achieving Cost Recovery | Charges set to recover cost base, and can take into account any under- or over- recovery in subsequent regulatory periods. Recovers capital costs as they are consumed rather than at point of expenditure. |                                                                                                                                                                                                 |                                                                                                                                               |
| Compatibility with future reform | Life cycle approach using FLCB has been identified by the HVRR project as a priority next step. Further investigation of applying a FLCB life cycle approach to PAYGO will provide a strong practical evidence base to support broader road reform. |                                                                                                                                                                                                 |                                                                                                                                               |
Option 2 – Revised cost base – using forecast budgets of financial costs

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Summary Preliminary Assessment</th>
<th>Uncertainty and Further Work</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability and Predictability</td>
<td>Revenues are likely to be marginally more predictable in the short run compared with the current PAYGO system because charges are set to recover forward looking costs. However, increased uncertainty is anticipated due to the reliance on forecasted expenditures which become increasingly unreliable in the forward years. Arguably charges would be more stable under the current PAYGO system as they are ‘smoothed’ via a 7-year averaging mechanism. It is unlikely that a similar level of smoothing could be achieved when relying on forecasted expenditure (which would be unavailable, or unreliable for a similar period)</td>
<td>To be effective, this option requires the provision of reliable capital expenditure forecasts and a true-up mechanism (for example an unders and overs account) to correct inaccuracies in forecasts versus actual expenditures. Consideration could be given to amending the current PAYGO methodology to incorporate a year of forecasts as suggested by the ATA in its submission.</td>
<td>Against the assessed criteria, this option is inferior to option 1. Using forecasts to will overcome the ‘2 year lag’ problem of the current PAYGO methodology but it will add uncertainty in determining the cost base and charges, not address the volatility of network investment or appropriately recover the costs over the life of the asset.</td>
</tr>
<tr>
<td>Transparency and simplicity</td>
<td>Transparency and simplicity would likely be similar to that under the current system. Credible approaches to developing forecasts and responding to their inaccuracies ex-post would need to be developed (for example incorporating an unders and overs account).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficient administration</td>
<td>Dependent on the availability, sufficiency and reliability of expenditure forecasts. If reliable forecasts are available, there would be very little change to administrative requirements for governments.</td>
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</tr>
<tr>
<td>Achieving Cost Recovery</td>
<td>Charges would continue to be set to recover the allocated heavy vehicle cost base with a marginal improvement due to overcoming the 2-year lag.</td>
<td></td>
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</tr>
<tr>
<td>Compatibility with future reform</td>
<td>While using forward-looking costs is an improvement, failing to adopt economic life cycle costs is not consistent with the HVRR project’s aims.</td>
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</tbody>
</table>
Option 3 – Ring-fencing heavy vehicle charges revenue

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Summary Preliminary Assessment</th>
<th>Uncertainty and Further Work</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability and Predictability</td>
<td>Overall impact on stability and predictability depends on the pricing regime (for example, whether it is backward looking or forward looking). Ring-fencing could improve predictability somewhat for road agencies by removing funding from the budget process. This could facilitate taking a longer-term approach to planning, which may lead to more stable, enduring outcomes over time.</td>
<td>Ring-fencing would create a direct and transparent link between expenditure and revenue. This enhances transparency and the perceived fairness of charges. Road agencies would have at least some revenue certainty over a regulatory period. While desirable in the long term, this option is unlikely to achieve all of its potential benefits in a partial market context. This is because the majority of road funding would still need to come from sources other than the ring-fenced revenue fund.</td>
<td></td>
</tr>
<tr>
<td>Transparency and simplicity</td>
<td>Somewhat dependent on the detail although essentially all revenue is generated by the applicable pricing regime would be directed towards road funding. This could provide greater transparency from industry’s perspective.</td>
<td>In the first instance, establish how RUC revenue can be ring-fenced and distributed to the jurisdictions. Progress towards a full market (that is, ring-fence revenue raised from light vehicles)</td>
<td></td>
</tr>
<tr>
<td>Efficient administration</td>
<td>Perhaps some improvement from a road agency’s perspective, given that this option could facilitate the removal of road funding from the budget process. However, benefits likely to be very limited without full market application.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achieving Cost Recovery</td>
<td>No direct impact: option affects what is done with the revenue raised from charges. Achieving cost recovery would depend on the pricing regime used to determine charges.</td>
<td></td>
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<tr>
<td>Compatibility with future reform</td>
<td>Hypothecation of revenues to road investment and maintenance is an important element of long term reform; however, it is not in the identified next phase of HVRR.</td>
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</tbody>
</table>
### Option 4 – Introduce an ‘unders and overs’ account

<table>
<thead>
<tr>
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<th>Uncertainty and Further Work</th>
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</thead>
<tbody>
<tr>
<td>Stability and Predictability</td>
<td>Stability and Predictability&lt;br&gt; +/-&lt;br&gt;From a funding perspective, this option could potentially improve predictability since over the medium to long term revenue would reflect any cumulative differences between revenue and the approved cost base in each year. For HV operators, may potentially increase or decrease stability of charges, depending on whether changes in charges due to the unders and overs account offset or exacerbate changes in charges that are due to the underlying cost base. (for example if under-recovering, could require increase in charges not only to get to cost base, but also to compensate for any previous under-recovery).</td>
<td>+/-. The methodology for implementation would need to be determined. The opening balance (if any) would also need to be determined.</td>
<td>An unders and overs account (or true-up) is only likely to be worthwhile if a FLCB (options 1 or 2) were introduced, where some type of true-up approach is probably necessary. The existing PAYGO methodology is designed to equate expenditure with revenue in any given year. However, this is generally not achieved in practice due to lags in data availability and the averaging of expenditure and usage data overall multiple years (as a means of reducing volatility).</td>
</tr>
<tr>
<td>Transparency and simplicity</td>
<td>Transparency and simplicity&lt;br&gt; +/-&lt;br&gt;Would depend on the devised unders and overs methodology and the pricing regime that it operated alongside.</td>
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<tr>
<td>Efficient administration</td>
<td>Efficient administration&lt;br&gt; +/-&lt;br&gt;Unlikely to have a significant impact, although somewhat dependent on the devised methodology.</td>
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<tr>
<td>Achieving Cost Recovery</td>
<td>Achieving Cost Recovery&lt;br&gt; +&lt;br&gt;Could potentially make cost recovery more accurate over the medium term by taking into account differences between actual revenue and allowed revenue from the pricing model.</td>
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<tr>
<td>Compatibility with future reform</td>
<td>Compatibility with future reform&lt;br&gt; +/-&lt;br&gt;Potentially compatible with future road reform as a component of a FLCB based on life cycle costs approach.</td>
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</table>
**Option 5 – Turn heavy vehicle charge into a tax**

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</thead>
<tbody>
<tr>
<td>Stability and Predictability</td>
<td>Potentially predictable, depending on specifics of regime adopted. May not be seen as fair and</td>
<td>No further worked required.</td>
<td>This option would be simple, easy to administer and provide certainty. However, it would involve a fundamental departure from current pricing principles. It is also risky in that it could lead to significant over- or under-recovery over time if road expenditure increases at a different rate to the indexation.</td>
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<td></td>
<td>transparent and subject to changes based on short-term considerations, which could undermine</td>
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<td></td>
<td>the predictability and stability of outcomes over time.</td>
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<tr>
<td>Transparency and simplicity</td>
<td>Reduced transparency from funding perspective: heavy vehicle charges would no longer be seeking</td>
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<tr>
<td></td>
<td>to recover allocated heavy vehicle costs.</td>
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<tr>
<td>Efficient administration</td>
<td>Yes. System would be very easy to administer.</td>
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<tr>
<td>Achieving Cost Recovery</td>
<td>Would no longer attempt to recovery costs into the future.</td>
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<tr>
<td>Compatibility with future</td>
<td>No, it represents a move in the opposite direction of future reform.</td>
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<td>reform</td>
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### Option 6 – Continue freezing revenues

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</thead>
<tbody>
<tr>
<td>Stability and Predictability</td>
<td>+/-Dependent on growth in vehicle fleet and usage. Difficult to predict how long a freeze would be in place.</td>
<td>No further work. This option would represent business as usual and could be adopted as a ‘fall-back’ if, others options are not feasible.</td>
<td>This option would be easier to administer as business as usual however remains inconsistent with cost recovery principles.</td>
</tr>
<tr>
<td>Transparency and simplicity</td>
<td>-Reduced transparency from funding perspective: heavy vehicle charges would no longer be seeking to recover allocated heavy vehicle costs.</td>
<td>No further work. This option would represent business as usual and could be adopted as a ‘fall-back’ if, others options are not feasible.</td>
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<tr>
<td>Efficient administration</td>
<td>+Yes, system would be relatively easy to administer.</td>
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<tr>
<td>Achieving Cost Recovery</td>
<td>-No, would represent a continuation of over recovery of costs.</td>
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<tr>
<td>Compatibility with future reform</td>
<td>-No, (unless being implemented as an interim step while further reform is being progressed).</td>
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</table>
**Option 7 – Re-examine the heavy vehicle cost base allocators**

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</thead>
<tbody>
<tr>
<td>Stability and Predictability</td>
<td>Likely unchanged from status quo once any changes from review are implemented.</td>
<td>Review of the PAYGO cost allocation matrix based on existing empirical research to establish plausible cost allocators and allocation ranges for PAYGO expenditure categories and proposed asset classes for a FLCB.</td>
<td>Based on previous experience, it is unclear what the results of a review would be. In the first instance, a review of existing research could be conducted.</td>
</tr>
<tr>
<td>Transparency and simplicity</td>
<td>A re-examination would enhance the transparency of the allocators by the very nature of the exercise. This should result in greater confidence and acceptability. Although any changes need to be explained clearly.</td>
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<tr>
<td>Efficient administration</td>
<td>Not likely to materially impact administrative efficiency</td>
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</tr>
<tr>
<td>Achieving Cost Recovery</td>
<td>Potentially improved if up-to-date, robust research finds that allocation parameters need to be changed.</td>
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<td></td>
</tr>
<tr>
<td>Compatibility with future reform</td>
<td>Yes.</td>
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</table>
Option 8 – Re-examine the amount of local government expenditure excluded from the PAYGO cost base

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</thead>
<tbody>
<tr>
<td>Stability and predictability</td>
<td>Likely unchanged from status quo once any changes from review are implemented.</td>
<td></td>
<td>A review of the treatment of local government expenditure would be a substantial project.</td>
</tr>
<tr>
<td>Transparency and simplicity</td>
<td>A re-examination would enhance the transparency of the allocators by the very nature of the exercise. This should result in greater confidence and acceptability. Although any changes need to be explained clearly.</td>
<td>Based on previous experience, it is unclear what the results of a review would be. It would be best considered as a long-term project to be commenced once preferred options have been implemented.</td>
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</tr>
<tr>
<td>Efficient administration</td>
<td>Depending on the review, could result in additional information requirements and process changes.</td>
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</tr>
<tr>
<td>Achieving cost recovery</td>
<td>Potentially improved if up-to-date, robust research finds that allocation parameters need to be changed</td>
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</tr>
<tr>
<td>Compatibility with future reform</td>
<td>Depending on the review</td>
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### Option 9 – Change the heavy vehicle charge setting process: independent price regulation

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<tbody>
<tr>
<td>Stability and Predictability</td>
<td>+ Yes, as long as process and guidelines were well designed.</td>
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<tr>
<td>Transparency and simplicity</td>
<td>++ Yes. Regulator’s decisions would be binding and would be made based on pricing principles, although any changes would need to be explained clearly.</td>
<td></td>
<td>Could create a more holistic and consumer focused decision-making process with a decision maker accountable to all affected stakeholders. Implementation may require legislative change.</td>
</tr>
<tr>
<td>Efficient administration</td>
<td>+ Potential improvement for governments (although some additional work initially to develop amendments to legislation). Little change for NTC/independent regulator (still required to undertake consultation and provide reasons for decision, similar to current Regulation Impact Statement process).</td>
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</tr>
<tr>
<td>Achieving Cost Recovery</td>
<td>+ Yes. Independent regulator would be required to set prices that are consistent with pricing principles.</td>
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<td></td>
</tr>
<tr>
<td>Compatibility with future reform</td>
<td>++ Yes.</td>
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</tbody>
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