Queensland Government submission to the Productivity Commission

Review of Economic Costs of Freight Infrastructure and Efficient Approaches to Transport Pricing

May 2006

Queensland Government
Department of the Premier and Cabinet
PO Box 15185 CITY EAST QLD 4002
Ph: +61 7 3224 2111 • Fax: +61 7 3229 2900

QUEENSLAND GOVERNMENT
PRODUCTIVITY COMMISSION SUBMISSION

1 Executive Summary

The Queensland Government is pleased to submit this response to the Productivity Commission (PC) Inquiry into Road and Rail Freight Infrastructure Pricing. The state hopes that the PC's review will provide valuable input to the development of a short, medium and long term vision for land transport infrastructure pricing. It is essential for governments to develop a set of agreed national transport objectives, which can be supported by a vision for where transport pricing needs to be over the next ten to twenty years with the aim of achieving appropriate and publicly acceptable national freight transport pricing arrangements.

There are significant policy and institutional issues to be overcome before this vision can be achieved. These challenges include developing a set of nationally agreed transport and freight objectives, determining and agreeing the benefits of an appropriate, nationally consistent pricing regime, devising the necessary administrative support mechanisms, reforming current charging arrangements and addressing privacy issues.

Given the limited time for the Inquiry, it is the Queensland Government's intention to raise key issues where the Commission's Inquiry can add most value. The state is also willing to provide further detail via supplementary submissions and meetings as requested by the PC.

This submission will focus on the following key areas:

- Freight and pricing in the Queensland context
- The need to determine key transport objectives prior to selection of a charging model
- The key elements of a successful, publicly acceptable pricing model including the need for a system wide approach to pricing and investment
- Areas where Queensland believes the PC can add most value through this Inquiry
- The need to link pricing and investment, and
- The need for the PC to recognise the impacts on rural and regional communities.

The PC should recommend to the Council of Australian Governments (COAG) that there is a need to gain agreement across jurisdictions, industry and the public for a national set of transport and freight policy objectives. The PC should focus on developing the most appropriate suite of measures to implement that policy choice - pricing will more than likely form a major part of those measures. Pricing objectives must line up with broader transport objectives.

Public and industry acceptance of transport pricing is necessary to successfully implement a national transport infrastructure user charge. The experience of infrastructure pricing reform in other countries will be highly useful, and key points are included for consideration.

Any discussion on road/rail pricing reform must also recognise that Australia’s rail infrastructure providers and state road agencies are in the business of providing transport infrastructure to meet the freight and passenger transport needs of the community. Governments have complex objectives, and will always want to provide infrastructure to meet social, as well as economic needs.

One of the key tasks for transport agencies and governments is to connect regional and remote communities to essential services to support economic development and social cohesion. Any transport pricing regime would be expected to support a mix of social and economic outcomes to achieve an equitable result for regional Australia. The costs and benefits of any pricing regime on rural and remote communities would also need to be assessed

In summary, Queensland believes sufficient work has been completed to determine the extent and increase in the freight task and another freight study is not necessary. Queensland is the most decentralised state in Australia with a vast road and rail network, and having an efficient freight system is vital. While the challenges are clear, the direction for reform needs to be better identified.

The development of nationally agreed objectives for the transport network as a whole and freight transport are a vital first step in the process of reforming land freight transport, with a view to improving user charging. Desirable national objectives go well beyond major projects on a narrowly defined national network and can reasonably include efficiency, access and safety across the wider system.

The state supports a national approach to cost recovery charges because cost recovery principles for the freight industry are vital to enabling ongoing investment and productivity improvements. However, the Australian Government should not increase heavy vehicle charges without a commitment to return funding to the freight network. The failure by the Australian Government to commit to re-investing increased fuel excise charges into freight infrastructure under the Third Heavy Vehicle Determination was a major obstacle to reform.

As well as the National Highway, extra funding could include critical infrastructure on key north-south freight routes through Central Queensland such as the Gregory Development Road, Carnarvon Development Road and Leichhardt Highway, and that would enable Queensland to safely allow higher mass limit access to those routes. However, this does nothing on the Brisbane to Cairns or the Townsville to Mt Isa critical freight corridors.

AusLink provided $1.8 billion for rail from 2004-05 to 2008-09, but ignored Queensland. The only project to potentially benefit Queensland from allocated rail funds is a proportion of the AusLink funds allocated to upgrading communications links between Casino and Acacia Ridge on the standard gauge line. Funds for this initiative are allocated to New South Wales. Queensland's share, from the border to Acacia Ridge, of this rail funding is potentially around $7 million or about 0.4% of national rail funding over the five-year period. A further $25 million has since been promised towards an overpass of Beaudesert Road which will improve safety and traffic flows and increase efficiencies at the Acacia Ridge rail terminal.

Despite increasing levels of Queensland government funding for transport infrastructure, there is a pressing need to secure additional funding for additional capacity, road maintenance and bridge strengthening and new strategic links for freight transport, for all three spheres of government.

There is a need to ensure that any pricing model is accepted by the community, is administratively efficient, is equitable to all areas of the community, and is linked back to appropriate infrastructure investment.

2 Introduction

The operating environment for transport in Queensland is changing rapidly, driven by factors such as population growth, developing domestic and international markets and increased demand (for both freight and passenger movements). Queensland is the fastest growing and most decentralised state in Australia.

Exports of goods and services comprise about one quarter of Queensland's Gross State Product. Non-service exports, predominantly from mining, agriculture and manufacturing, currently contribute 80% of that amount (Queensland Treasury n.d., p. 11), creating a significant long-haul, heavy, bulk-freight task in the state. Exports from rural and remote areas rely heavily on the road and rail networks for efficient access to ports and for services to their communities. Seven major bulk-handling sea ports in Queensland provide access to international and Australian ports.

Queensland's population grew to 4 million people by December 2005 and is projected to grow to 5.3 million people by 2026, potentially reaching 7.7 million by 2051 (Queensland Treasury 2003a, p. 2). Most of the state's growth will be concentrated in South East Queensland.

At 12 per cent, the proportion of Queenslanders aged over 65 has remained stable for some time (OESR 2003a, p 1). However, this group is projected to comprise 27.7% of the population in 2051 (OESR 2003b, p. 1). As Queensland's population ages over the next 20 years, there will be significant implications for transport demand, travel patterns and the types of transport provided. Improved communication, better signage, disability-friendly infrastructure and more off-peak public transport may be required.

The growth in heavy vehicle freight combined with an aging population of road users will increase the focus on providing and maintaining safer infrastructure for all users. The transport network needs to be viewed holistically to ensure all users are appropriately catered for.

The road and rail funding issues facing us are not unique to Queensland or Australia. The increased challenge in maintenance and rehabilitation work, and the increased capacity requirements faced by road and rail networks around the world are driving institutional and operational reforms. However, what is unique to Australia, and more so for Queensland, is the extent of the problem given our relatively small population base and its wide distribution and growth. The distance from major overseas markets emphasises the importance of an efficient and cost effective freight transport system.

The freight transport system does not operate in a vacuum, and freight vehicles are only one component of an extremely complex transport task. The transport system must cope with the increasing demand for passenger and freight movements. Inefficient movement of traffic and congestion on any mode can reduce economic competitiveness and liveability in urban and regional areas. A key challenge is to manage this increasing demand in the most efficient and sustainable way possible.

2.1 Challenges for Queensland

Queensland's economy is becoming more diverse with an increasing number of global and domestic supply chains. The traditionally strong primary industry sector has been complemented by strong growth in the services and manufacturing sectors. The movement of both freight and people on Queensland's transport system provides challenges to improve efficiency and provide sufficient capacity in the face of potentially competing needs. Most freight within and between adjacent urban areas in Queensland is carried on roads.

The freight task is forecast to double in Queensland by 2020 (BTRE 2003, p5), with the task expected to more than double in rural areas and for interstate road freight. The challenge is to maintain total system efficiency in the face of greatly increased transport demand, especially by heavy freight vehicles, passenger vehicles, cyclists and pedestrians and to provide and encourage better modal choices. These challenges are shared at the national level.

Queensland's size and diversity, along with its weather — cyclones and flooding at one end of the spectrum to a crippling lack of water during drought at the other — brings with it its own problems. The transport portfolio provides roads, rail and ports for far-flung communities in the north, rural dwellers, mining, tourism and other industry sectors.

Queensland has a vast road network with almost 177,000 km of public roads including the largest state-controlled road network of all Australian states, extending for 34,000km, representing 19% of the total state network. Although state controlled roads represent a relatively small proportion of the total road network, they carry almost 80 per cent of the traffic. All of Queensland's roads carry mixed traffic - both passenger and freight movements.

The national network comprises some 4,183km of national highways, for which the Australian Government has full-funding responsibility, and some 857km of other state-controlled roads - Pacific Motorway (NSW border - Mt Gravatt-Capalaba Road – Gateway Motorway intersection); Port of Brisbane Motorway; Townsville/ Thuringowa Ring Road; Flinders Highway (Cloncurry - Port of Townsville); and a connection to the Gladstone Port. These are all state controlled roads that now form part of the AusLink National Land Transport Network.

Queensland's 9,440 km rail network occupies some 40,000 ha of rail corridor land. 1,877 km of the network is electrified to date. All rail corridor land in Queensland is owned by the state and leased to accredited railway managers such as QR, apart from the Weipa bauxite railway, the sugar cane rail system and three balloon loops (at Box Flat, Laleham Mine and Queensland Alumina Limited near Gladstone) totalling some 35 route km. While much of Queensland's rail network is used exclusively for freight movements (including the Newland System coal network and the Goonyella System), key components of the network, including the western line, the north coast line, and the metro network are shared with passenger rail movements.

Competition in rail is increasing with the market polarisation around two major national freight competitors. Queensland has an open regime that facilitates competition, driving efficiency improvements on some major routes. The following example depicts the role and performance of transport links in a decentralised state.

The Brisbane to Cairns Corridor

The corridor is the main transport link between Brisbane and north Queensland. Decentralisation is a key demographic characteristic of the corridor.

The corridor between Brisbane and Cairns is approximately 1700 km long. The Bruce Highway covers 1640 km in length with a rail link running roughly parallel for its entire length.

It is the main north-south route providing the passenger and freight backbone to support communities and industries along the corridor. It supports a population of approximately 2.3 million including six large urban regional centres each with a population of 30,000 or more. The corridor's population is also forecast to grow at 1.4% p.a over the next twenty years. The corridor provides a local role supporting residential and industrial growth. Strong population and economic growth around regional centres has placed increasing demands on the corridor's efficiency, safety and reliability.

The corridor supports world class export coal, sugar, minerals and processed minerals as well as a significant part of Australia's east coast domestic and international tourism. Eleven sea ports and seven airports in the corridor support this activity. Two of the corridors coal ports, Gladstone and Hay Point, are among the largest in the world. Road and rail transport activity is expected to grow strongly at around 2.5-3.0% per year throughout the corridor.

Due to inadequate Commonwealth funding over time, Queensland has the worst national highway system (NHS) in Australia. This has been acknowledged by the former Deputy Prime Minister and Minister for Transport and Regional Services, the Honourable John Anderson, MP and his department. That is, Queensland has the greatest needs, both in terms of existing network deficiencies and the increasing traffic demands of rapid population growth and industry expansion. National highways in Queensland are: rougher; more congested; less safe; and carry a higher share of total traffic (due to their export focus) than national highways in other states.

The Australian Automobile Association's AUSRAP Report (2005) provides safety ratings for Australian roads. In this report, Queensland's national highways are clearly illustrated as having one of the worst safety risk road sections in Australia. The years of deficient Australian Government funding is clearly the key contributor to this result.

The AAA Executive Director, Lauchlan McIntosh, publicly commented that the AusRAP report "..shows that road authorities are aware of the need to upgrade road infrastructure, but obviously need more funds to continue this work".

Queensland has significantly increased its expenditure across the transport system over a substantial period. In 2005-06 to 2009-10 Roads Implementation Program (RIP) launched in November 2005 provides $2.5 billion more for the state's roads, an increase of 31 percent on the previous RIP. The current RIP is made up of $8.8 billion in state funding and $1.7 billion from the federal government under its AusLink plan. In the recent federal budget, the Australian Government has allocated an additional $313 million compared with previous AusLink advice and subsequent announcements.

AusLink provides $1.8 billion from 2004-05 to 2008-09 for rail nationally, but ignores Queensland. The only project to potentially benefit Queensland from allocated rail funds is a proportion of the AusLink funds allocated to upgrading communications links between Casino and Acacia Ridge on the standard gauge line. Funds for this initiative are allocated to New South Wales. Queensland's share, from the border to Acacia Ridge, of this rail funding is potentially around $7 million or about 0.4% of national rail funding over the five-year period. A further $25 million has since been promised towards an overpass of Beaudesert Road which will improve safety and traffic flows and increase efficiencies at the Acacia Ridge rail terminal. However, this does nothing on the Brisbane to Cairns or the Townsville to Mt Isa critical freight corridors. The forecast Queensland Government commitment for rail and public transport over the same five year period is $2.95 billion.

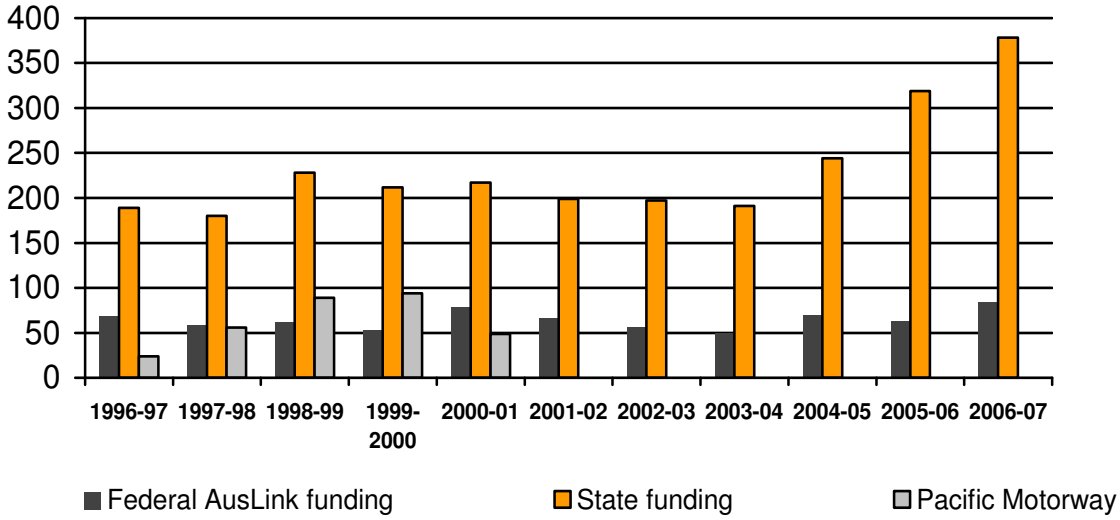


Figure 1: Federal and State road funding comparison – Queensland 1996-97 to 2006-07 (real per capita)

Note 1: 1996-97 to 2004-05 reflects actual funding; 2005-06 and 2006-07 reflect firm RIP allocations.

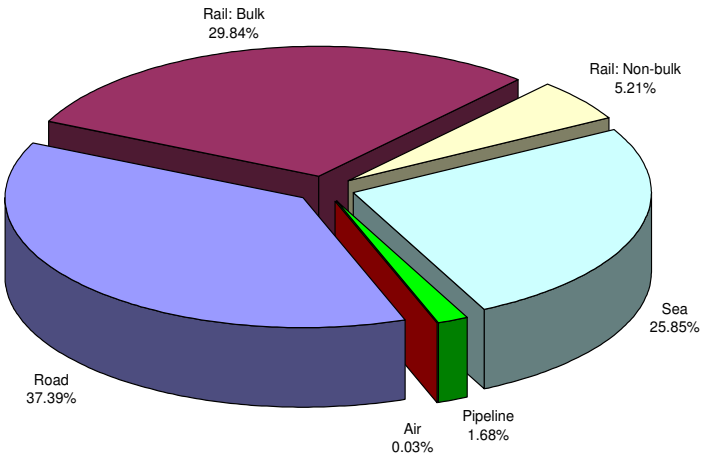
Note 2: Actual funding has been adjusted for the effects of inflation and population growth.

Note 3: Reflects actual Commonwealth payments 1996-97 to 2004-05, Centenary of Federation (CoF) and budget and forward estimates allocations in 2005-06 and 2006-07.

2.1.1 Building an effective freight network

Effective links between all transport modes are an important element of an integrated logistics system. Intermodal interchanges and supply chain management technologies will become increasingly important for moving goods. The challenge is to promote more efficient transport connections within and between modes, to increase the economic competitiveness of industry and support economic growth.

Figure 2: Queensland domestic freight task 2002 (tonne km) (Rail shown as bulk and non-bulk)



Bulk includes briquettes, minerals and quarry, grains (including rice), bulk fertiliser, petroleum, iron and steel, cement and gypsum.
Non-bulk includes all other commodity groups including containers and cargo carried by forwarding agents.
Source: Apelbaum Consulting Group Pty Ltd for QT/MR 2004b, p. 9

Queensland recognises that higher mass limit (HML) vehicles have the potential to lower transport costs and increase economic and freight efficiency, though only once appropriate investment in the road infrastructure has occurred. Queensland continues to discuss with the Australian Government further extensions of higher mass limits to a broader strategic network in the state with a suitable tagging and tracking regime, enforcement of vehicle performance requirements, and a requirement for additional federal funding. Despite AusLink highlighting the priority of HML routes, there is no significant federal funding to specifically assist with HML roll-out in Queensland.

B-doubles carry more payload than a conventional semi-trailer. A B-double can carry up to 160% of the payload of what a conventional semi-trailer can. Therefore, the payload of two B-doubles is equivalent to operating three semi-trailers. Operating B-doubles as an alternative to conventional semi-trailers reduces the number of heavy vehicle trips and heavy vehicle traffic volumes required to undertake the same freight task.

B-double combinations are also speed limited to 100 km/h and have safety features above conventional heavy freight vehicles such as Anti–Lock Braking Systems and spray suppression mudguards.

2.1.2 Managing bulk freight

The bulk-freight task in Queensland is mainly export-oriented. Seven major trading ports each tend to cater for a single bulk commodity (for example, coal, grains, sugar) with six other multi-commodity ports catering to a range of general, liquid and dry bulk cargoes. While mineral exports rely mainly on rail transport, other exports from rural and remote areas of Queensland rely heavily on the road network for efficient access to ports.

Bulk freight movements in Queensland are typically long-haul operations suitable for transport by rail. A clear challenge is to ensure that the rail and port network has the physical capacity to handle the strong growth in bulk freight, especially the current growing international demand for coal. The relative pricing of transport modes for bulk freight is a significant issue. The challenge is to ensure that where rail transport is the most appropriate mode, it is price-competitive with other modes, especially road transport, and ensure that the pricing of each mode reflects the full costs of using that mode.

Large volumes of bulk freight movements can impact on roads and tracks and the amenity of adjoining communities. The most efficient access routes for freight vehicles may have other impacts on local communities, such as increased noise and air pollution. The challenge is to move bulk freight by the mode and the route that best balances efficiency with broader transport impacts.

Similarly, where there is no modal choice in freight movement, the potential distributional impacts of pricing reform would need to be taken into consideration.

Table 1: Domestic freight task by mode, Queensland and rest of Australia: 2002

	Tonne km (million)	Tonne km (million) per head of population (million)		
	Queensland – Tonne km (million)	Queensland	Rest of Australia	% difference between Queensland and Rest of Australia
Road	44,244	11,935	7,869	52%
Rail	41,590	11,219	7,004	60%
Sea	30,672	8,274	5,093	62%
Air	37	10	10	-1%
Total	116,543	31,974	21,128	51%

Source: Apelbaum Consulting Group Pty Ltd for QT/MR (2004a p. 13 and Apelbaum Consulting Group Pty Ltd 2004b p. 15)

2.1.3 Managing non-bulk and urban freight

Non-bulk freight in Queensland, including some agricultural, wholesale, retail and manufactured products, is carried mainly by rail and road with a small component by air or coastal shipping. Heavy road-freight vehicles carry the larger proportion. The non-bulk freight task, especially intra-urban freight, is the fastest-growing component of Queensland's freight task. Larger road-freight vehicles increase the demand for stronger roads, adequate passing opportunities, improved weight enforcement, and faster terminal handling and management systems. They also impact on the amenity of Queensland communities.

In addition to this heavy non-bulk freight task, Queensland also has the highest rate of light commercial freight transport per capita in Australia. Freight in urban areas is almost entirely road-based with the majority light commercial freight transport. (ABS 2000 Cat. no. 9208.0, p. 12). Travel time reliability is a critical aspect of the urban freight task, particularly for just-in-time deliveries.

Key challenges for non-bulk and light commercial freight are to better manage traffic on major freight routes and to manage the efficient transfer of freight between modes, maximizing use of existing infrastructure and avoiding or deferring major infrastructure upgrades in densely populated urban centres. Other challenges include managing noise and amenity issues associated with freight traffic in urban areas and the safety and congestion issues that arise from the growing mix of heavy vehicles and other traffic on our roads.

These challenges are primary considerations for public acceptance of a national charging regime. The recent Australian Road Research Board (the ARRB Group)/Austroads report Review of Recent Developments in Road Pricing, Including Freight (2005) highlights the importance of public acceptance for any charging model to be successfully implemented. The report cites the following points as key issues for public acceptance:

- Credibility of the charging and enforcement technology;
- Equity; and
- A close relationship between pricing and investment.

While international experience, technology, research and theory have progressively improved and could be adopted, public acceptance remains a fundamental requirement of any charging regime.

Traffic volumes are growing at a fast rate driven by population growth and strong economic development. Although some state-controlled roads and bridges are ageing and are vulnerable to damage, the majority of the network can cope with heavily loaded vehicles up to the current approved limits. Bureau of Transport and Regional Economics (BTRE) research indicates that while passenger traffic is related to – but grows faster than population growth, freight is related to and grows faster than GDP.

Queensland continues to experience high levels of population growth. Between 2000 and 2030 Queensland's population is expected to increase by 40 percent to 5.3 million people - making it Australia's second most populated state after New South Wales. This strong population growth is driving the domestic economy with Queensland experiencing a surge in both private and public sector investment, along with continued growth in consumer spending. Economic growth in Queensland has exceeded growth in the rest of Australia in almost every year of the past decade.

It is therefore essential that adequate modelling be conducted to assess the likely impacts of any proposed pricing reforms.

The challenge is in providing and maintaining road networks that will carry growing traffic volumes, a new mix of vehicles, and increased axle loads while protecting community amenity. Rail networks have similar challenges of being maintained and upgraded to meet user expectations. Intermodal terminals and ports also face changing vehicle and cargo handling technologies and systems.

Freight forecasts in the AusLink White Paper 2004

In the White Paper, the BTRE forecasts that "the freight task in Queensland will more than double over the next 20 years to 2025. Different growth rates of bulk and non-bulk freight have significant implications for transport infrastructure planning and investments for the respective land transport modes.

Domestic non-urban bulk freight is expected to grow at 2.2 per cent per annum between 2000 and 2020 to 375 billion tonne-kilometres. This part of the transport task is heavily geared towards rail and coastal shipping. Much of this is carried on private or purpose built intrastate rail lines. Despite this, road's share of the bulk market is expected to grow with road traffic doubling to approximately 84 billion tonne-kilometres by 2020.

Domestic non-bulk freight is expected to grow at 3.4 per cent per annum between 2000 and 2020 to 255 billion tonne-kilometres. It can be expected to double between 2000 and 2022.

The increase in freight traffic will result in increased road wear and will present significant challenges in terms of the costs of road construction and maintenance—that is, roads will need to be built to a greater depth and width and to a higher quality. The increase in traffic will also necessitate more efficient use of existing and new transport infrastructure. It will also:

- add to congestion
- create a need for improved traffic management
- increase pressure on infrastructure capacity
- affect the environment".

To meet these national freight challenges there appears to be a need to shift from a regulatory environment based around prescriptive rules and asset preservation, to one which facilitates greater utilisation of transport infrastructure assets on a sustainable basis. Increasing the productivity of freight vehicles, and the freight network will be necessary to support the growing freight task. There is a need to ensure that any proposal to move away from regulatory control in the absence of clear policy direction and measures does not simply shift costs to the owners of the infrastructure.

The real challenge however is to manage this transition, one which will be borne by the jurisdictions as both owners and regulators of the infrastructure. The major work involved is the identification and assessment of vulnerable infrastructure - bridges, culverts and regional roads for example, as well as assessing and managing the secondary effects of the transition in regulatory policy. Until jurisdictions fully understand what this policy shift means for community amenity, road safety and the economy, it will be difficult to commit to a program of reform that will so radically change the way the heavy vehicle industry interfaces with our communities, industry and indeed other modes.

A balance of economically efficient and socially supportive transport will be a key factor in meeting these challenges. Implementation of non-complementary policy measures can lead to negative unintended consequences as described in the following example.

Example of consequences of policy choices

During the 1990s, deregulation of certain industries undertaken as a result of the National Competition Policy (NCP) reform process agreed by COAG caused flow on effects and unintended impacts to the transport sector, local governments and communities in some regional areas. An example of this nation-wide approach to deregulation is the sugar industry, and the impact upon the Wide Bay Burnett region in Queensland.

Before deregulation growers in designated catchment areas needed to transport their harvest to a specified mill. To facilitate this, rail infrastructure, rail heads and access roads were built to standards that could cater for heavy loads and move produce safely within the region. After deregulation, mills were able to contract growers in other parts of the region. Growers who would once have transported cane by rail to a nearby mill are now often trucking heavy loads of cane to distant mills based on contractual arrangements. Some of the cane railway network has become redundant with the closure of the Fairymead Mill, forcing cane onto the road network.

Communities in this region are impacted by an increase in heavy vehicle traffic including increased noise, dust and pollution. State and local governments have therefore focused investment on upgrading and maintaining the road network.

Whilst, these considerations need to be weighed against the broader benefits of competition enhancements and efficiency improvements for industry, existing transport pricing regimes allow little flexibility to address the unintended consequences within the transport system.

3 Key transport policy objectives to manage the freight task

Any discussion on road/rail pricing reform must recognise that Australia's rail infrastructure providers and state road agencies are in the business of providing transport infrastructure to meet the freight and passenger transport needs of the community. Governments have complex objectives, and will always provide infrastructure to meet social, as well as economic needs. In short, the challenge is to match pricing and complementary intervention methods to policy objectives.

Broad transport objectives are a critical method for setting direction and measuring the impact of government initiatives for developing national consistency and for guiding investment priorities. Freight is a vital part of Australia's growing economy and Queensland has recognised the need to develop specific government objectives to meet the challenges of an increasing freight transport task and managing the impacts of this on the community.

The PC should recommend to COAG that there is a need for COAG to gain agreement across jurisdictions, industry and the public for a national set of transport and freight policy objectives. The aim should be to develop an appropriate suite of measures to implement that policy choice. Pricing will more than likely form a major part of those measures, but has its limitations. Pricing objectives must line up with broader transport objectives.

Pricing itself is not a panacea, as some freight is simply not contestable between road and rail and pricing may not encourage desirable route choices within modes. Obviously rail does not service all origins and destinations and is clearly not as pervasive as roads. Therefore pricing will only influence mode choice in those areas of the market which are truly contestable.

During the development of the Commonwealth's AusLink White Paper, a set of objectives was developed focusing on the major challenges facing the national land transport system. While AusLink acknowledged the increasing freight task it failed to suggest a system wide solution to the freight task and was narrowly focused on bulk freight and did not address the interaction of freight and other uses of the transport system. AusLink fell short of achieving a comprehensive nationally agreed set of freight transport objectives.

In the Queensland submission to the AusLink Green Paper, the state sought that AusLink be based on a set of national objectives agreed by all Australian governments and other major stakeholders. It should include desired national outcomes, relating to efficiency, transport safety and security, equity of access, community amenity, fiscal responsibility, economic development and ecological sustainability.

Any future process to develop a set of national freight objectives must consider the entire transport network.

When attempting to find the most appropriate pricing model, the question has to be, how does it address the higher level objectives? The PC has been asked to determine the most efficient and transparent road/rail freight charging regime without the guidance of a full suite of agreed national freight objectives. The current situation reflects attempts to address discrete elements of the freight task, rather than seeking to achieve higher level policy outcomes on a system-wide basis.

Queensland identifies a range of objectives for the transport system, and designs criteria to prioritise investments and indicators to measure the system's performance. These objectives include:

- improving transport system efficiency, reduce user costs and increase productivity of transport;
- minimising the impact on demand from imperfect pricing; and
- ensuring that timely, efficient and competitive transport sources are provided for facilitating development of established and emerging industries which will allow these industries to compete in local, national and international markets.

Each jurisdiction will have specific transport objectives which could be used to develop a national set of objectives. These objectives, in turn, would form the building blocks for intervention strategies such as transport user pricing. As indicated earlier national outcomes, objectives and benefits go beyond an arbitrarily determined national AusLink network.

The following international example is provided for information only, but clearly demonstrates the use of pricing models to achieve higher order transport objectives.

Example of international road pricing models and objectives

- Switzerland introduced a heavy vehicle distance-based charge, the Swiss Heavy Vehicle Fee (HVF), on 1 January 2001 as a deterrent to Switzerland being used as a major international heavy vehicle thoroughfare and to address community and government concerns relating to the environment, lifestyle and amenity. Road types are priced homogeneously, however, the charges vary according to vehicle weight, vehicle emissions standard and kilometres travelled, and consider externalities. The system operates using Global Positioning System (GPS) communicating with On-Board Units (OBU), which are connected to the vehicle's tachometer and verified using the GPS system. In 2005, the Swiss HVF entered into the second stage, increasing the fee per kilometre and tonne. Installation of OBUs is voluntary for foreign registered vehicles, presenting the problem of heavy vehicle owners registering their vehicles in other countries. This regime costs approximately 5-7% of toll revenue to run.

[1] Review of Recent Developments in Road Pricing, Including Freight, ARRB/Austroads report (2005)

Although it is beyond the scope of the PC's review, deciding on the objectives sought by any charging regime is an essential first step in any decision to undertake infrastructure pricing. In Queensland the objectives of a pricing regime need to match the existing freight objectives and the other complementary government objectives and any other agreed national objectives.

National organisations, representative of all levels of government, could be tasked to develop a comprehensive set of national freight objectives based on the well-researched national freight challenges (and existing state freight objectives). The objectives should be developed in consultation with industry, peak bodies, expert research groups such as BTRE and ARRB Group and the public, and then agreed by members of the Australian Transport Council (ATC) and/or COAG. Development of these freight objectives must form part of broader transport (and whole of government) objectives rather than being developed in isolation.

4 Considerations for a successful pricing regime

Transport pricing has existed in part in one form or another for centuries and can be used as a primary instrument for achieving transport objectives, or to complement a suite of other options, as discussed in the previous section. The effectiveness of user charging as a tool will depend on a number of factors including public acceptance and the use of other measures to achieve the objective.

Public and industry acceptance of transport pricing will be an important factor in successfully implementing national transport pricing reform. The experience of infrastructure pricing reform in other countries is that, if transport planners, agencies and elected officials are to gain public acceptance of infrastructure pricing, they must ensure that:

- the objectives of the transport pricing scheme meet broader public concerns;
- transport pricing measures are perceived as very effective solutions - any new system is reliable, equitable, simple and user-friendly;
- clear alternatives are provided, in terms of modal and route/time choices;
- any regulatory regimes governing pricing are efficient and promote investment certainty;
- administration and collection costs are low; and

- revenue collected improves the transport system.

In 2004, the UK Government released a national transport strategy titled *The Future of Transport - a network for 2030,* which publicly advocates the result they seek in 2030. Decisions they make today are underpinned by the clearly articulated policy direction and objectives as detailed below, and this is intended to assist with public acceptance.

UK Government setting directions and informing the public

The strategy is built around three key themes –

1. Sustained investment over the long term
2. Improvements in transport management and
3. Planning ahead.

The Government's key aims for the freight industry are to facilitate the continuing development of a competitive and efficient freight sector, while reducing the impact that moving freight has on congestion and the environment. They identify the need for reliable routes for moving goods to consumers and businesses; proportionate regulation and enforcement which protects society without stifling business; and a continuing partnership with industry to exploit the potential for more efficient logistics. Where Government helps fund more sustainable transport practices, they will ensure best value for money. They intend to start assessing modal shift programmes alongside other options, such as encouraging more efficient road-based operations.

The strategy states that they will lead the debate on road pricing and work with stakeholders to establish how and when pricing might provide the reliability and standards road users want. The UK government will work to ensure that the choices faced, together with their full costs and benefits, are well understood. They are committed to sharing decision-making with regional and local stakeholders, and to ensure that regional and local planning is based on a shared view of priorities, deliverability and affordability. At all levels of Government – national, local or regional – they will ensure that transport decisions are taken alongside decisions on liveability, sustainable communities and other policy areas.

(Department for Transport 2004, *The Future for Transport: a network for 2030*. London, Department for Transport)

Although the key focus of the Inquiry and this submission is transport infrastructure pricing, Queensland believes that complementary objectives and measures should be considered in the design of a national charging model. This will ensure the pricing regime is complementary with existing initiatives to improve the efficiency of the transport system, in this instance, particularly the freight system.

There are a range of government activities which impact on or support freight transport. Government investment strategies and land use planning are areas that can particularly impact on the efficiency of freight transport.

The following issues should be considered during the development of a future national pricing regime:

4.1 System-wide approach to pricing and investment

Pricing and investment cannot be considered in isolation – ideally a transparent, efficient, competitively neutral pricing regime will help to determine where road and rail investment is required to sustain the freight task, and other objectives such as those relating to accessibility, passenger transport, walking, cycling, and the use of transport corridors by utilities.

The PC Inquiry Issues paper commented on the inadequacy of the Pay-As-You-Go (PAYGO) methodology for investment decisions. PAYGO is a cost allocation method established to recover costs i.e. dollars already spent. It provides a revenue stream, but is not linked to investment. Queensland (like other road authorities) does not use the PAYGO methodology to guide infrastructure investment.

Queensland, along with other states, territories, the Australian Government and local governments all act consistently with, and is progressively implementing the ATC endorsed National Guidelines for Transport System Management in Australia which outline a multi-modal system-wide approach to appraisal and prioritisation across the National Land Transport System. The Guidelines will guide the AusLink approach to investment decision making based on investment in the most effective transport solutions rather than modes.

Queensland makes investment decisions based on:

- making the best use of limited funds and resources for capital investment, and taking into account the true costs of transport choices, including whole-of-life costs and externalities;
- using whole-of-life costs when deciding investment priorities;
- investing in maintenance at the optimum time to maximise whole-of-life performance of the capital asset and minimise whole-of-life costs, and
- reviewing the real whole-of-life costs of providing transport infrastructure and services and use equitable and transparent pricing models.

4.2 Support for Rural and Regional Communities

A key challenge for the PC Inquiry is to review and investigate transport pricing reform in terms of the impact of the regime on users and operators and specific locations. COAG asked the PC inquiry to "recognise transport operators and users, and remote and rural communities will need sufficient time for transition and adjustment to pricing arrangements". From a Queensland perspective, it is not purely about allowing time for transition arrangements; the review also needs to consider the impact on consumer prices in rural and remote areas.

4.2.1 Geographic spread

Queensland's geography and settlement pattern (relatively small population and widely dispersed industry and communities) generates a higher-than-average demand for travel, with correspondingly higher costs. Providing infrastructure and services in regional and remote Queensland, where weather conditions, including drought, severe heat and flooding can be extreme is a challenge. Another challenge for Queensland is to balance investment in rural and regional Queensland with meeting the growth in South East Queensland and coastal areas.

Queensland's size also provides safety challenges for transport planners and providers, particularly in road safety. Queensland has a high proportion of its population outside its capital city, which contributes to people and goods moving longer distances. Both distance and narrow roads add to the safety risk.

Queensland has a vast road network with almost 177,000 km of public roads including the largest state-controlled road network of all Australian states, extending for 34,000km. Queensland's road transport network has nearly 100,000km of unsealed roads with around 500 ageing timber bridges in the state controlled network (and many more on local government roads) and long sections of sealed network with inadequate width serving export generating areas. Much of the road transport network comprises narrow roads and road sections with low flood immunity. More than one-third of Queensland travel is on sub-standard surfaces. This is despite the Queensland Government consistently investing much more per capita than other states.

As with the road network, Queensland's rail network suffers from a range of problems which ultimately impact on trade. Issues such as flooding, poor alignment, insufficient track axle loads for heavy freight, short passing loops and various speed restrictions limit the ability of the rail network to provide an efficient conduit for exports through those ports services by rail. The coal network is an example of Queensland government investment to ensure a modern, purpose built and highly efficient network. This is demonstrated by its ability to haul significant increases in tonnage, year after year, and meet the sudden and unanticipated massive growth in coal exports.

The lack of modal choice in significant areas of Queensland, coupled with long distances increases the potential vulnerability of Queensland's regions to pricing reform. This is especially relevant to the issue of mass-distance and location charging raised in the PC's Issues Paper.

4.2.2 Economic and Industry development

Transport plays a key role in supporting regional growth and is a significant employer in many areas. One challenge is to balance transport investment and community sustainability. The timely provision of transport infrastructure and services is required to support economic development. This challenge translates to a pricing regime which needs to avoid a negative impact on remote communities.

To survive, succeed and grow in the global environment, regional economies must be able to connect with the rest of the country and the world, and produce goods efficiently. A large percentage of Queensland's regional economy is based on the sale of agricultural and mining commodities generally moved by road and rail through ports. Efficient and accessible linkages across the transport and distribution network are vital to the growing domestic economy and maintaining international competitiveness.

The extent and spread of mineral resources and other primary industries across the state has created a significant long-haul, heavy bulk-freight task in Queensland. This requires an efficient and effective rail-freight service. Port networks are also important especially in bulk-freight and export tasks.

However, while direct accessibility to ports is an important issue, an equally important issue is the capacity of the regional land transport network to support regional transport needs. Adequate road and rail transport links are essential for regional economies. This is not simply to support the significant volume of freight that moves within regions, between regions, or to and from ports – but also to meet the transport needs of the residents of the towns and communities that are essential to support the growing domestic economy and export generating activities. While export activities contribute to the vitality of regional towns and communities, the towns and communities also contribute to the vitality of the export activity itself.

The high volume and relatively low cost of some farm products, for example grain, means that freight costs have a major impact on a farmer's profitability and competitiveness in international markets. Just-in-time requirements also pose special challenges for industries in regional Queensland.

In Refocusing Road Reform (1994), John Cox argues that high road transport pricing in rural areas relative to urban areas could have significant effects on economic and population growth in these areas. Cox (1994) states that "Transport is a more significant proportion of agricultural costs than in other industries and overcharging of transport will reduce the farmgate price paid for agricultural products (and/or mining products), as most of these go to urban areas or ports for exporting".

Having an efficient transport network to enable the movement of bulk commodities between regional areas and the ports is not enough to achieve a strong export oriented economy. Regional connectivity is not simply a matter of ensuring that there is a link between economic activity and its distribution point. There must be a network of interconnected links, which meet the manifold needs of diverse communities – a transport network that provides strong links within regional communities, between regional communities and with the whole of the state and indeed with the rest of Australia.

4.2.3 Providing access

Citizens and industries in rural and remote areas require reasonable access to other rural areas, and to coastal and urban centres. Providing access presents challenges because of the high costs associated with both delivering and maintaining the necessary infrastructure and services. Financial assistance is often necessary to support passenger transport services. In some rural and remote areas, the Queensland Government subsidises general rail freight services in an effort to ensure there is a viable alternative to road freight transport year round.

The transport system also has to withstand and support responses to natural disasters and emergencies, which often affect regional and remote communities. Ensuring adequate access for Queenslanders will remain a key objective of the transport network in Queensland.

One of the key tasks for transport agencies and governments is to connect regional and remote communities to essential services to support economic development and social cohesion. Therefore, any change in the transport pricing regime in Queensland should support these objectives, which seek a mix of social and economic outcomes.

Each of Queensland's regions contributes differently to the overall economic success and liveability of the state, and to the national economy. Transport providers must be responsive, supporting both traditional and emerging industries and communities across the state. They also need to be proactive when significant development opportunities arise. Road is the primary transport mode in most regional and remote areas, with air travel also providing a vital link particularly in time of emergencies and flooding.

The cost for consumable products such as fuel and food in regional areas and the cost of transporting goods to market will need to be assessed to determine whether any proposed pricing methodologies will have the potential for rural and remote communities to benefit or to suffer increases in prices within or between modes. This should be a key consideration for the PC Inquiry.

4.2.4 Queensland Government meeting these rural and regional challenges

As outlined above, the Queensland government has consistently invested in maintaining the extensive rail network. Queensland state road expenditure exceeds revenue raised through vehicle registrations. This is in stark contrast to the approximate net overall deficit between excise revenue raised in Queensland through fuel excise to the Australian Government, and Commonwealth roads grants distributed back to the State and local governments.

Queensland Main Roads budget provides some $1.579 billion for regional roads works in 2005-06. . A comparison of revenue collected and expenditure by the Queensland and federal governments can be found in Table 2.

Many of Queensland's older bridges have become obsolete due to substantial changes in road use. These bridges were constructed well before the introduction of today's heavy vehicles with higher axle loads and larger freight efficient vehicles such as road trains and B-doubles. Bridges designed 50 and 60 years ago were built to the conditions of the time. As the Queensland economy grows, these structures will limit Queensland's future freight efficiency improvements.

In August 2005, the Queensland government announced funding for the Regional Bridge Renewal Program of $350 million over five years, which will replace road bridges least able to accommodate the truck loads of the future and the highest priority bridges which are ageing and obsolete. The Regional Bridge Renewal Program will deliver improved safety earlier, and will boost regional employment, not only through the works to be undertaken but through delivering better road freight efficiency.

The Queensland government will spend an estimated $40 million on bridge repairs and replacement throughout the network this year alone, with further funding for the Program to be finalised in the coming state budget. As discussed previously, despite AusLink acknowledging the priority of HML the federal government funding fell far short of what is required for HML roll-out.

4.3 Getting pricing right within and across modes

As discussed earlier, pricing is only one component of achieving overall transport objectives, including transparent pricing across road and rail freight transport. To what degree price is a determinant of user behaviour or the market depends on a variety of factors.

First, the percentage of road use charges to overall operating costs influences the level of freight rates. Price is likely to only have a measurable effect on mode choice if charges are already a significant proportion of total costs. If road use charges are relatively insignificant, there is a stronger possibility that (a) increases in charges would be absorbed by the operator; or (b) decreases would see freight rates relatively unaffected. Estimates by the BTRE (2003) suggest profitability is around 7%[1], while industry purports margins as thin as 3%[2]. While the ratio of road use charges to overall operating costs varies between long and short haul operations, current road use charges appear to be below 10% including the fuel-based charge.

Secondly, as in any market, there are differing forces that motivate purchasing decisions by consumers. The transport industry is no different, as is evident in studies by BIS Shrapnel (2004)[3] and Starrs (2005)[4]. The flexibility of road freight, combined with its ability to handle small shipment sizes, means that the level of service can often outweigh price in customer choice.

Ideally, any transport pricing model would achieve better transparency, first within and secondly between road and rail charges to promote more efficient and effective transport use. However, there are different access regimes and institutional arrangements for each mode. Rail is a controlled access network with relatively high barriers to entry, and operates with some requirement for return on investment. Road has historically been accessible to all including those who make no access or use payments. This is reflected in the nature of all state road infrastructure providers as government agencies. Therefore road pricing is aimed at maintaining the network standard, not return on investment.

The above rail/road access for each mode is also quite different. Rail access is currently priced and 'rationed' to meet the needs of passenger and freight transport, with all beneficiaries contributing in some manner. Rail provides access to passenger transport, non-bulk freight and bulk freight and generally a Community Service Obligation payment applies. Road is regarded by many as the default transport option, having relatively low barriers to entry. Many users of the road system and road corridors (including utilities such as electricity and water providers) pay nothing directly for the use of the road network.

The goal of greater transparency in pricing should theoretically account for these differences, while accepting the externality costs and 'benefits' that are associated with each mode.

4.3.1 Current Road Pricing Regime

4.3.1.1 Background

Much of the pressure on current road funding stems from the mechanisms by which road funding is collected and distributed and the weak link between investment and charges.

The current approach to road pricing involves a fixed fee (registration) differentiated by vehicle class, and a proxy road use fee (a component of fuel excise) differentiated by vehicle use (freight transport or private).

There are some obvious downfalls in this charging regime including arguments over what is a "tax" and what is a "charge". For example, heavy vehicle users pay 34.453 cents per litre of which 20 cents per litre is considered to be a charge. Broadly speaking a charge is a transaction for use, while a tax is an additional charge on a transaction. However, what compounds the situation is that there is no direct re-investment of revenue to the roads agencies responsible for the networks, notwithstanding that it is described as a 'charge'. Therefore, most road agencies do not have a direct customer-provider relationship with the users of the road network and there is a tenuous link between demand and supply.

4.3.1.2 Road Freight Access Pricing

The first part of the current charging regime comprises the fixed registration fees. The Heavy Vehicle Determinations progressed by the NTC have seen an incrementalist approach to road-pricing policy, with the gradual introduction of cost recovery principles based on vehicle type and averages of mass and pavement damage using the PAYGO methodology.

The current pricing principles agreed by the Australian Transport Council are that "*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 (e.g. impact on regional and remote communities/access)*
- *the need to have regard to other pricing applications such as light vehicle charges, tolling and congestion.*

These principles allow for the inclusion of variable mass distance charges and externality charges relating to noise and air emissions where:

- *there are clear net economic gains;*
- *the extent of effort is recognised; and*
- *transparency and more accurate pricing within the road mode are ensured*."

A summary of the vehicle registration revenue collected in Queensland and state roads expenditure is provided in Table 2.

The 'PAYGO' approach uses statistical measures (averages) of road use to recover maintenance costs associated with pavement damage (which is most sensitive to load), and other maintenance such as replacing signs and guidepost, and vegetation control for each class of vehicle . The charges are set to recover the maintenance costs incurred by agencies that the road transport industry causes to roads and bridges. These are the costs that can reasonably be attributed to heavy vehicles based on carrying capacity. However, as the method used by the NTC is based on weighted averages, charging distortions will always occur particularly as they are not related to use on actual roads.

The resulting distortions may be a shift in the actual cost per user away from heavily loaded road users towards lighter loaded road users. Some vehicles will pay less than their fair share. Likewise some will pay more. This distortion occurs across vehicle classes as well as within classes. For example, a B-double carrying half the load of a fully loaded B-double pays the same registration fee and much more than half the fuel charge, even though the road-wear it causes to the road is considerably less.

The real issue is that these charges don't reflect actual damage as they apply to classes of vehicles and don't take into account classes of roads. **For example, a heavy vehicle on a new road, built for the purpose of carrying heavy freight causes much less damage than the same vehicle on a low cost road.**

The second component of current road user charging is the Commonwealth's fuel excise, which is the largest source of income collected from road users.

The Commonwealth Government's 2006-07 Budget Papers, show a total estimated revenue from petrol and diesel excise as $14.65 billion[5]. This equates to petrol and diesel excise collections of approximately $732 per capita, Australia wide. An indication of the estimated contribution that Queenslanders will make to this Commonwealth tax is approximately $2.93 billion in 2006-07.

Total estimated expenditure by the Commonwealth Government on roads in Australia is $2.22 billion for 2005-06. This represents a return to roads of 16.1% of total petrol and diesel fuel excise revenue collected by the Commonwealth. Total payments for 2005-06 by the Commonwealth to Queensland for local and state government controlled roads, are estimated to be $416 million which is approximately 18.7% of AusLink roads funding for the year. This equates to a per capita investment by the Commonwealth Government on Queensland roads of approximately $104 for 2005-06.

This represents an approximate net overall deficit between excise revenue raised in Queensland and Commonwealth roads grants distributed back to the State and local governments of $570 per capita.

AusLink funding to Queensland represents about 22% of Queensland's total road funding and far less than the $6.6 billion the state government will spend over the same period on road construction, maintenance and support for local government infrastructure. In addition, Queensland will spend around $2.95 billion on rail and public transport over the same period. That's a total of $9.6 billion that the Queensland government has committed to roads, rail and public transport infrastructure.

Unlike the federal government's treatment of fuel excise, on average Queensland spends 40% more than it collects from motor vehicle registration revenue, on state-funded road works, with much more expenditure proposed after 2005/06.

	Collected in Queensland 2005/06	2005/06 Expenditure in Queensland on local and state-controlled roads
Federal	Estimated $2.67 billion (Petrol and Diesel Excise)	Estimated $415.7 million
State (Qld)	Estimated $793 million (Registration)	Estimated $1.253 billion

Table 2: Estimated Federal and State charges and expenditure in Queensland 2005-06

The Commonwealth Departments of Finance and Administration and Transport and Regional Services have stated that fuel excise is principally a revenue-raising tool. This point was reiterated throughout the 2001 Federal Fuel Tax Inquiry. Swann Consultants (1994, quoted in Cox, 1994) considered that half of the total $2.4b then paid by the freight industry in fees and excise charges were better described as taxes. Swann modelled what a $1.2b reduction in these diesel taxes would have to the Australian economy, finding significant benefits including a $600m increase in Gross Domestic Product (GDP). However if existing tax levels were maintained, and the $1.2b was invested in roads, Swann estimated there would be an increase of $6.7b in GDP, a $3.6b increase in exports, a drop in Consumer Price Index of over 1% and 9,250 new jobs created.

There are some obvious downfalls in the current charging mechanisms, primarily as they are established to recover average costs per vehicle. The effectiveness of an average-based charge in ensuring that roads are supplied and demanded efficiently is virtually nonexistent and becomes more obscure the more fuel-efficient vehicles become. The current fuel charge component is a poor proxy to reflect investment choices or pavement wear caused by heavy vehicles. This is because mass is closely related to fuel consumption, but is exponentially related to pavement structural damage, as shown in the figure below. Additionally, with increased engine efficiency consumption could drop with increases in load.

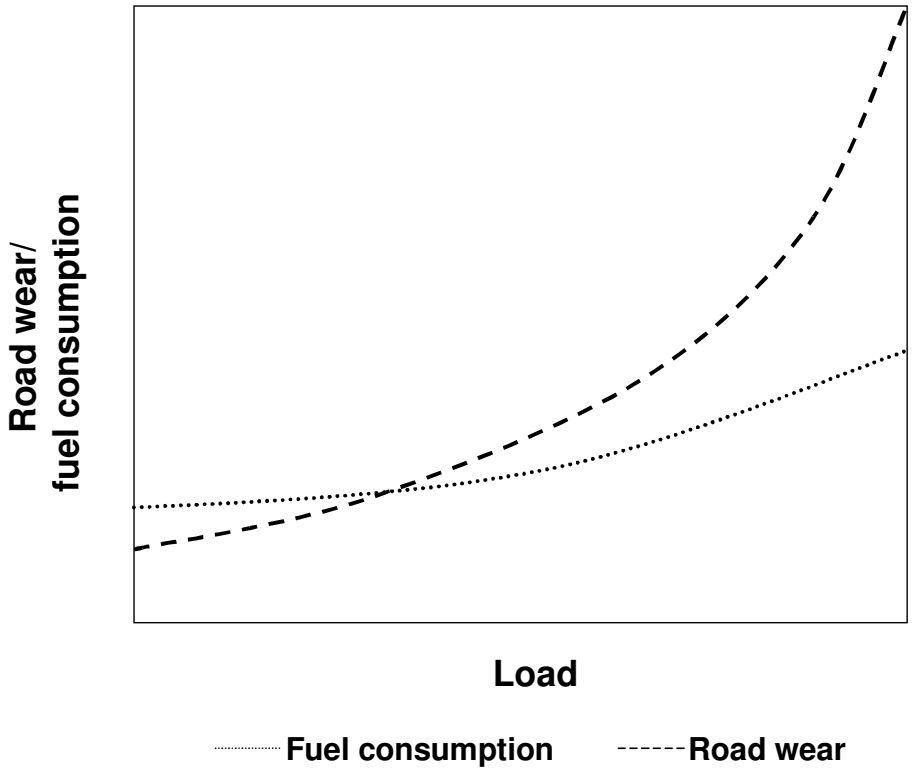


Figure 4: Relationship Between Load, Fuel Consumption and Road Wear (NTC, 2003)

As discussed earlier, the fuel charge has been used in the past internationally due to its ease of administration, revenue predictability and perceived equity (the more one drives the more tax one pays). Despite these obvious strengths, as a flat rate it does not consider that more fuel efficient vehicles may pay less than the road damage caused, location, time of use, or the type, quality or location of the road.

The objective that the current road user charging arrangements are meeting is primarily revenue collection for the Australian government, with a component for asset maintenance cost recovery.

As described above, a relatively small component of the revenue raised from road user charges is returned to road agencies for infrastructure investment, so this does not appear to be a key, higher order objective of the current regime.

The recent outcome of the Third Determination clearly illustrates that a change in pricing policy needs to meet multiple stakeholder objectives. The calculation of charges is a complex exercise, and adoption impacts on a wide range of stakeholders in different ways. Similarly, starting a more sophisticated charging regime across the entire transport system may be technically difficult and, without careful management, disruptive to business operations and contracts.

The state supports a national approach to cost recovery charges because cost recovery principles for the freight industry are vital to enabling ongoing investment and productivity improvements. However, the Australian Government should not increase heavy vehicle charges without a commitment to return funding to the freight network (which extends beyond the narrowly defined national AusLink network). As well as the National Highway, extra funding could include critical infrastructure on key north-south freight routes through Central Queensland such as the Gregory Development Road, Carnarvon Development Road and Leichhardt Highway, and that would allow Queensland to raise mass limits for those routes. There is a pressing need to secure a funding source for road maintenance and bridge strengthening and new strategic links for freight transport, for all three spheres of government.

Whole of Life asset costing considerations are reflected in investment decisions by road authorities but are not incorporated in the pricing of the use of road transport assets. The inclusion of the true cost of providing assets would significantly improve the ability of transport asset providers to maintain suitable capacity and condition for current and forecast requirements.

4.3.2 Current Rail Pricing Regime

4.3.2.1 Background

The development and operation of railways by Australian State governments has progressed in a similar manner as was adopted with public utilities. Railway operation and services were provided by the States on the basis that governments had a responsibility to provide a 'social service' to the public and the community.

In the early 1990's, significant reforms (driven by the costs to the States to provide rail services and the advent of NCP) were undertaken in the rail industry and it operations in Australia.

These reforms included the widespread outsourcing of many railway activities, such as infrastructure maintenance. This was done to encourage efficient provision of maintenance through competitive tendering for services. In some cases, entire rail operations have been contracted out or privatised. Another of the major reforms has been to introduce regulations to require access arrangements to rail infrastructure by third-party train operators.

Before the introduction of these regulations, access charges did not exist because the track use was an internal transaction within the railway company-the company maintaining the infrastructure had exclusive use of the tracks for its own trains.

Rail operators are able to seek access to rail facilities through private arrangements, and through formal mechanisms. These include the provisions under the National Access Regime (NAR) contained in *Part IIIA of the Trade Practices Act 1974* and provisions under State regimes.

4.3.2.2 Rail Network Access Pricing

The main issue with the current rail pricing regime is whether charges for access to infrastructure reflect the cost to the infrastructure owner / manager of its use.

Rail infrastructure damage and maintenance depends mainly on:

- the type of track,
- train weight; and
- distance travelled.

Rail operators pay a two-part charge. The first element is a fixed component known as the flag fall and is, in effect, a charge for occupying capacity on the network regardless of the size of the train. The second charge is a mass distance charge based on the gross tonnage of the train multiplied by the distance travelled.

The access charges introduced by rail infrastructure owners and managers differ across jurisdictions and are complicated. The NSW access regime, for example, has separate pricing principles for 'general usage' and coal freight. General usage access prices are negotiated between 'floor' and 'ceiling' prices. In the case of coal freight, on some routes the access price is negotiated as for general usage while on others, the access price is an adjusted ceiling price.

In Queensland, access arrangements are managed by the Queensland Rail Network Access Group (NAG). Access charges vary depending on the operations, there is a set price for a nominated haul on those sections of the network that are more likely to attract competition. The set price is called a 'reference tariff'. Reference tariffs for the Queensland narrow gauge network are developed with industry and approved by the Queensland Competition Authority (QCA). They provide rail operators with certainty about the costs involved on specific lines.

4.3.2.3 Rail Cost Recovery

As noted in the PC's issues paper, there is potential for rail to fully cost recover, however actual charges are often below allowed levels based on the common methodology for calculating capital costs in rail (the Depreciated Optimised Replacement Cost - or DORC methodology).

DORC is:-

- a calculation based on the gross replacement cost of modern equivalent network assets, adjusted for over-design, over-capacity and redundant assets, less an appropriate allowance for depreciation. It measures the minimum cost of replicating the network system in the most efficient way possible, given its service requirements and the age of the existing assets; and
- in common use and is endorsed by both COAG and the QCA for valuing assets.

DORC is also widely used for valuing assets for the purposes of determining prices, including for utilities such as electricity assets.

4.3.3 Pricing principles

In achieving transparent pricing between rail and road transport infrastructure use, it appears necessary to use similar pricing inputs for each mode. Obviously the values attached to these pricing inputs might vary between modes and between vehicles, but could reflect the same range of impacts.

Similarly, both negative, and positive externalities should be considered Similarly, if mass and distance charging are used as the basis for road pricing, similar factors should be included in rail pricing structures.

Most Australian and international charging regimes currently include pricing based on vehicle characteristics and use. Examples of vehicle characteristic pricing variables include vehicle type, maximum gross vehicle weight, number of and maximum loading of axles, and engine emission class. The registration component of the current pricing regime recovers average freight road user costs through the NTC's PAYGO methodology, as discussed above. Similarly, vehicle use is normally based on kilometres travelled, through fuel excise, or by on-board measures such as tachographs.

Mass and distance charging provide better links between actual use (such as road or track damage) and charges. Pricing based on vehicle characteristics does not take into account congestion costs and other externalities unrelated to vehicle characteristics.

Imperfect charging regimes for mass and distance are already in existence. The fixed registration component of the current road charging regime for freight vehicles is based on average road maintenance cost recovery by vehicle class, which could be seen as a mass component. Better linking the actual mass of the vehicle to road damage (in particular) for cost recovery purposes requires a network management system to either influence the type and quality of roads/rail lines higher mass vehicles can access, or to accurately assess the damage done to particular routes.

Distance charging regimes relate the price of a particular journey to the distance the vehicle travels on the public network. Rail access charges include a direct distance component. The fuel excise component of the current road charging regime could be seen as an imperfect form of use/distance charging as it increases with the distance travelled (though it is also related to mass, and reduced by vehicle fuel efficiency). There can be perverse links between investment decisions and user charges. For example a major capital project is justified on the savings to users, but reduces the revenue collected through fuel excise.

There is a need to take care of any unintended consequences e.g. whether a distance based charging component may adversely affect remote northern and western Queensland communities accessing markets in the south east or southern states.

Mass and distance are usually linked to reflect the actual cost to the network of a particular vehicle over a length of average road or track. A direct mass-distance charging regime is already in place for rail in Queensland. In addition, various mass concession arrangements are currently in place in Queensland for road transport. Incremental charging for vehicles seeking carry loads over and above the current legal higher mass limit is currently being investigated, as outlined below. Large sections of the road network in Queensland (especially local roads) are not built to withstand very heavy freight vehicles. Mass charging linked to network access allows greater productivity on key routes while protecting lower standard routes.

The economic incentives offered by application of efficient pricing methodologies and the achievement of cross-modal neutrality should be balanced with complementary policy interventions to meet community and industry needs.

5 The Way Forward

If an improved pricing regime linked to agreed objectives was agreed by Ministers, reform is likely to be necessary within each mode. As suggested above, a phased approach to improving land transport pricing, focusing action within each mode would be appropriate.

Gradual phase-in of a new charging regime needs to be based on a clear long term objective allowing for community acceptance, adequate modelling and testing before widespread application and is consistent with international practice. For example, the European Council of Ministers has recently approved amendments that broaden the 1999 Eurovignette Directive. While the original Directive limited tolls and user charges to vehicles over 12 tonnes using motorways, the amendment allows Member States to levy user charges on all other roads, as well as allowing the inclusion of external costs.

Any proposal for the introduction of a national pricing system in Australia should consider the acceptance of the community and affected industries, as well as new advancements in technology. An evolutionary approach based on a clear long term result but allowing for increasing acceptance of efficient and transparent transport pricing may allow the progressive introduction of one or more pricing models to meet all of the key objectives agreed by governments. This approach could also allow for governments to review current pricing arrangements with a view to introducing more transparent pricing for road and rail users.

Implementation of any possible pricing reform would need to be carefully planned and monitored to ameliorate negative impacts. As outlined above, community acceptance, and modelling would be critical prior to the implementation of any pricing reforms.

The following issues are potential problems which could be direct or unintended results of implementing a pricing regime without full consideration of the impacts.

- Failing to adequately link pricing with transport investment strategies.
- Pricing without adequate consideration for impacts on other transport modes such as air and sea freight, access to ports, and land use planning. Anticipated benefits of transport efficiency may not be realised if other structural failures have not been considered. Also pricing that radically alters investment decisions within a mode can have similar unintended consequences.
- A significant, sudden shift within a mode or between modes may render existing fleets unviable and negatively impact the transport industry.
- Pricing and policies that do not allow application of improved technology over time.
- A significant, sudden shift within a mode or between modes may have community equity implications, with a potential to disadvantage some communities. Regional communities would be particularly vulnerable to sudden changes in transport patterns.
- Pricing reform that results in adverse distributional effects, such as reduced prices on contestable corridors and increased prices on routes with low contestability.
- If an Australian pricing regime resulted in net increases in freight transport costs, there may be a negative impact on international competitiveness if other nations do not implement similar regimes.
- Implementing pricing without adequately testing enforcement/compliance regimes for tracking vehicles and loads.
- Selecting a pricing model based on technological efficiency at the expense of administrative simplicity and efficiency.
- A high level of public and industry acceptance is essential for successful implementation.
- Any future national charging regime needs to be simple and cost effective in the collection and disbursement of funds collected. One estimate from Germany suggests that their current road charging model may cost up to 24% of the revenue collected to administer and manage.[6] Improving efficiency by reducing the running costs of any charging scheme is essential, and may be partially achievable through improvements in technology.
- Pricing without adequate consideration of complementary measures such as land use patterns and existing distribution locations supporting particular modes. Pricing is only one mechanism for addressing increasing freight demand, amongst others such as improvements in productivity (such as through Performance Based Standards), infrastructure investment (for example such as time-sensitive rail freight capacity) and natural or government-influenced demand management and improved land use (such as through more closely locating production with target markets).

6 Conclusion

Queensland acknowledges that the state gains substantial benefits from, but is not immune to the impacts of the growing freight task. The sustained growth in population and the economy relative to other states puts Queensland in a unique position, exposed to a greater range and severity of impacts than the norm.

The predicted challenge of a rapidly growing freight task will need to be addressed through a variety of measures. Improving efficiency in transport user charging and linkages between charges and infrastructure investment are likely to form a significant part of this reform process.

The development of nationally agreed freight objectives covering the whole system, not just the national network, are a vital first step in the process of reforming land freight transport, with a view to improving user charging. The pricing model, administrative systems, and technology used to administer the scheme need to be modelled to gauge impacts, and should be matched to the broader government objectives, including efficiency of the charging system itself.

The critical aspect (even more so than different charging models) is that there is a grave imbalance in user charging (through federal fuel excise) and what is spent on transport infrastructure. If federal transport expenditure was remotely close to what was collected (even under the current road use regime with its inherent inefficiencies), instead of only returning 16%, the freight task would be safer and much more efficient.

Queensland recommends that the Productivity Commission should consider the challenges raised in this submission, and particularly seek and provide information on:

- a set of objectives agreed by transport Ministers to guide the development and implementation of a new national pricing model;
- the impacts of the various pricing options for road and rail infrastructure on consumers and producers in regional and remote Queensland;
- the impacts of the pricing options for road and rail infrastructure on Queensland's international competitiveness and exports;
- whether pricing will necessarily have a positive effect if it is not directly linked to investment decisions;
- the impacts of the pricing options for road and rail freight infrastructure on Queensland's industries including road and rail freight users, freight forwarders, small and large scale operators, infrastructure owners and general industry;
- the current and projected balance between transport infrastructure and supply;
- any institutional, regulatory, access constraints or other impediments other than pricing that impact on the efficiency or operational productivity of road and rail freight transport and related infrastructure networks and assets;
- the extent to which existing mechanisms adequately address externalities in road and rail transport sectors (i.e. current safety legislation and regulation, emissions standards, third party insurance premiums etc). It would be appropriate to compare transport infrastructure to other sectors of the economy (such as electricity generation) in relation to charging for externalities; and
- possible sequencing of the proposed reforms and any transitional arrangements.

Queensland will continue to take a lead role and cooperatively support national initiatives to progress pricing and other transport reforms in Australia.

List of References

Australian Automobile Association - Media Release 18 November 2005, *Australia's National Highways Rated For Safety*.

Apelbaum Consulting Group 2004a. *Australian transport facts 2002* [electronic resource: CD]. Mulgrave, Vic: Apelbaum Consulting Group.

Apelbaum Consulting Group 2004b, *Queensland transport facts 2002*. Mulgrave, Vic: Apelbaum Consulting Group.

Australian Bureau of Statistics 2000, *Survey of Motor Vehicle Use,* Cat. No. 9208.0, October. Canberra: Australian Bureau of Statistics.

Australian Automobile Association 2005, *How safe are our roads?*, Canberra: Australian Automobile Association.

Austroads 2005, *Review of recent development in road pricing, including freight: phase 1: key issues and explanations*.

BIS Shrapnel & Long, G. 2004, *Supply chain distribution in Australia 2004-2008*. 5th edn. North Sydney: BIS Shrapnel.

Bureau of Transport and Regional Economics 2003, *An overview of the Australian road freight transport industry,* Working paper no. 60, Australia. Bureau of Transport and Regional Economics, Canberra, Bureau of Transport and Regional Economics.

Cox, John B. & Meyrick, S.J. 1994, *Refocusing road reform : reform in the road transport sector must focus on optimising the annual allocation of $6 billion of public funds each year,* Melbourne, Business Council of Australia.

Department for Transport 2004, *The Future for Transport: a network for 2030*. London, Department for Transport.

Office of Economic and Statistical Research 2003a*, Queensland Population, Census 2001 Bulletin No 5 October 2003* Queensland Treasury, Brisbane.

Office of Economic and Statistical Research 2003b, *Older Queenslanders, Census 2001 Bulletin No 11 December 2003*, Queensland Treasury, Brisbane.

Queensland Treasury 2002-03 *Annual Economic Report.* Brisbane. Queensland Treasury [Table 4a: Overseas exports of Queensland goods and services]

Queensland Treasury 2003, *Population projections to 2051: Queensland Statistical Divisions.* Brisbane, Queensland Treasury

Rollins, Adrian 2006, *States block road to higher truck charges,* Australian Financial Review, Thursday 16th March, p. 7. [Statement by Steve Shearer]

Starrs, M. 2005, *Effect of Truck Charges on Rail*, Unpublished report prepared for the National Transport Commission.

List of Acronyms

ABS	Australian Bureau of Statistics
ARRB	Australian Road Research Board
ATC	Australian Transport Council
BTRE	Bureau of Transport and Regional Economics
COAG	Council of Australian Governments
CPI	Consumer Price Index
DORC	Depreciated Optimized Replacement Cost
DSRC	Dedicated Short Range Communication
EC	European Commission
GDP	Gross Domestic Product
GPS	Global Positioning System
GSM	Global Systems for Mobile Communication
HML	Higher Mass Limits
HVF	Heavy Vehicle Fee
IAP	Intelligent Access Program
LRMC	Long-Run Marginal Cost
LRUC	Lorry Road User Charge
NAG	Network Access Group
NAR	National Access Regime
NCP	National Competition Policy
NHS	National Highway System
NTC	National Transport Commission
OBU	On-Board Unit
OESR	Office of Economic and Statistical Research
PAYGO	Pay As You Go
PC	Productivity Commission
QCA	Queensland Competition Authority
RIP	Roads Implementation Program
SCR	Selective Catalytic Reduction
SRMC	Short-Run Marginal Cost
TCP	Transport Coordination Plan

[1] Bureau of Transport and Regional Economics 2003, *An overview of the Australian road freight transport industry,* Working paper no. 60, Australia. Bureau of Transport and Regional Economics, Canberra.

[2] Rollins, Adrian 2006, *States block road to higher truck charges,* Australian Financial Review, Thursday 16th March, p. 7. [Statement by Steve Shearer]

[3] BIS Shrapnel & Long, G. 2004, *Supply chain distribution in Australia 2004-2008*. 5th edn. North Sydney: BIS Shrapnel.

[4] Starrs, M. (2005) *Effect of Truck Charges on Rail*, Unpublished report prepared for the National Transport Commission

[5] 2006-07 Commonwealth Budget Paper No. 1

[6] Review of Recent Developments in Road Pricing, Including Freight, ARRB/Austroads report (2005)