



CELEBRATING
OUR CENTENARY

Road Pricing

Transport Australia Society Discussion Paper

March 2019



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Purpose

This document has been produced by the Transport Australia society of Engineers Australia as a discussion paper on the topic of road pricing. It does not represent a formal position of Engineers Australia, but is intended to inform discussion on the potential role of road pricing in managing travel demand and addressing revenue challenges, recognising implementation and social equity considerations.

Background

Road pricing has a long history within Australia, with the Sydney-Parramatta road funded through a toll in 1811.¹ While subsequent toll roads have seen increasing private sector involvement, the model for pricing roads in Australia has remained essentially unchanged. Road pricing has traditionally been seen in Australia as a means by which to fund the construction and operation of new road links.

In 2016 Infrastructure Australia released the Australian Infrastructure Plan which declared the current approach for charging for road use “unfair, unsustainable and inefficient”.²

The current lack of coordinated pricing on Australian roads has been described as inefficient as drivers ‘do not receive signals to use the network’ in the most cost effective way.² This demand management aspect of road pricing is absent from Australia and has the potential to defer the need to invest in new road infrastructure.

Revenue from fuel excise is dependent on the fuel efficiency of vehicles and is particularly vulnerable to the introduction of electric vehicles. Fuel excise is projected to raise \$19.6 billion in 2018-19 representing 4.45 per cent of total Commonwealth revenue including GST.³ The Parliamentary Budget Office notes that revenue from fuel excise has declined from 1.6 per cent of GDP in 2001-02 to 1.0 per cent in 2016-17.⁴ This result is the combined effect of the freeze on indexation of fuel excise from 2001 to 2014 coupled with an increase in the fuel efficiency of vehicles.

Although there has been limited take-up of electric vehicles in Australia with only 2,284 electric vehicles (EVs) sold nation-wide in 2017, intergovernmental efforts are being taken to increase demand for EVs.⁵ In January 2019 a bipartisan Senate Committee called for government action to accelerate electric vehicle uptake in Australia.⁶ Any significant increase to EV ownership will have the impact of reducing fuel excise revenue necessitating a change in policy.

Australian Context

There are currently 16 toll roads operating in Australia, with Transurban the majority owner in 13 of these roads. Two additional facilities in Westconnex in Sydney and the West Gate Tunnel in Melbourne are currently being delivered with Transurban holding the tolling concession for each.

Infrastructure Australia’s 2016 Plan recommended a public inquiry into the existing funding framework and to develop a reform pathway for road user pricing.² This inquiry was shelved in October 2018 despite prominent calls for the introduction of road charging from former Treasury Secretary Ken Henry, Productivity Commission Chairman Peter Harris, and Infrastructure Association of Queensland chief executive Steve Abson throughout 2018.^{7, 8}

A 2018 survey of motorists by EastLink in Victoria with assistance from the Australian Road Research Board found that 40 per cent of motorists felt fuel tax should be replaced by a per-kilometre road use charge

¹ BITRE, 2016. Toll Roads in Australia, Information sheet 81, Department of Infrastructure and Regional Development

² Infrastructure Australia, 2016. Australian Infrastructure Plan: Priorities and reforms for our nation’s future

³ Treasury, 2018. Budget Paper 1

⁴ Parliamentary Budget Office, 2018. Trends affecting the sustainability of Commonwealth taxes

⁵ Electric Vehicle Council, 2018. ‘The state of electric vehicles in Australia’

⁶ Parliament of Australia, 2019. Select Committee on Electric Vehicles

⁷ Tillett, A. 2018. ‘Deputy PM Michael McCormack shelve inquiry into road pricing’, 5 October 2018, AFR

⁸ Marszalek, J. 2018, ‘Congestion charge, tolls axed in Queensland road infrastructure plan’, 13 February 2018, Courier Mail

compared with 37 per cent who did not.⁹ This compares with a reported 60 per cent who prefer a user pays system following participation in a trial of the system by Transurban in 2016.¹⁰

Road Pricing Models

A number of alternate road pricing models have been implemented globally. These models are designed to achieve different and occasionally competing objectives, and present unique opportunities and challenges.

Congestion / cordon pricing: Cordon charges place a price on motorists entering a specified area, typically a CBD or key activity centre. This model has been implemented in major cities such as London, Stockholm and Singapore.

Corridor specific: Corridor specific pricing applies a charge to drive along a specified section of road to manage road demand. An example of this is high-occupancy toll (HOT) lanes where vehicles with multiple passengers are exempt from pricing, while other vehicles can pay a charge to access the lanes to avoid congestion.

Network wide: A network wide scheme charges road users for the distance that they drive across the entire road network. This model has been implemented as a trial in the state of Oregon in the USA for commuters, while Switzerland implements a distance based heavy vehicle charge¹¹. Conceptually this model presents the most promising framework to manage the complex and interdependent policy objectives through the use of mechanisms such as variable pricing.

Facility pricing: Facility pricing is the only road pricing model that has been implemented within Australia. This 'traditional' tolling model is established to help fund the construction and / or operation of specific sections of motorway. This model has been implemented on a number of roads in Brisbane, Melbourne and Sydney.

There are a number of sub-options and flexibility within each of the above pricing models in how and when road users are charged, for example point pricing at gantries, or distance-based pricing, along with variable pricing at different times of day.

Key Considerations

There are four main considerations in developing road pricing policy; revenue, transport outcomes, social equity and implementation. These aspects are strongly interdependent and it is difficult to optimise one without trade-offs from another.

Revenue: The introduction of a road pricing scheme would introduce a new government revenue source, whether it is through the collection of tolls or distance-based charges, or through the sale of pricing concession.

Key considerations for government are whether the scheme should be designed to introduce an additional, stable revenue stream, or whether it should be revenue neutral to enable the removal of more inefficient or unsustainable taxes such as motor vehicle registration at state level, or fuel excise at federal level.

If the scheme is not revenue neutral then another important consideration is whether revenue will be hypothecated for a specific purpose such as investment in road or public transport infrastructure, or whether it will be consolidated revenue.

Transport outcomes: The pricing of road space has the potential to manage travel demand to optimise the movement of people in congested spaces. Traditional toll roads optimise traffic flow on a single link, introducing potentially distorted incentives for drivers by encouraging the use of alternative routes which are less suited to high traffic volumes.

⁹ EastLink, 2018. Media Release: 'EastLink's 2018 Annual Victorian Self-Driving Car Survey'

¹⁰ Transurban, 2016. Melbourne Road Usage Study

¹¹ Federal Customs Administration, 2019. 'Lump-sum heavy vehicle charge (PSVA) for Swiss vehicles'

Alternative approaches to road pricing, such as network wide pricing or cordon charges are better suited to effectively managing traffic demand and improving the flow of traffic. This has the potential to defer the need for significant investments in road infrastructure that are often aimed at providing increased road capacity to meet peak period demand. Road pricing can offset the effect of induced travel demand, which sees additional car trips made to take advantage of new road space resulting in reduced time savings.

Road pricing also has the potential to act as a new policy lever through which governments can guide preferred future travel outcomes. With automated vehicle technology on the horizon, road pricing has a potential role in shaping the use of driverless vehicles based on factors such as empty running, time of travel and route selection.

Social equity: One of the challenges of road pricing is that depending on the model adopted it can disproportionately impact outer-urban and regional commuters who are more car dependent, travel further and have less access to public or active transport alternatives. Road pricing can also be seen to advantage higher income earners as they are more able to pay for convenient travel options.

It should be noted that the status quo is not itself equitable, with licencing and vehicle registration fees typically being flat fees that do not differentiate by income. Owners of newer, more fuel-efficient vehicles pay less fuel excise than other road users, and electric vehicle owners avoid the need to pay fuel excise all together.

The challenge of addressing social equity concerns is not unique to road pricing, and although it is an important consideration it should not necessarily be optimised in isolation of the broader taxation and welfare system.

Implementation: The existing network of toll roads across Brisbane, Sydney and Melbourne present a challenge to implementing cordon or network road pricing within these cities. This existing toll network and the long-term concession agreements that are in place set constraints to policy development. Although this does not prevent a more comprehensive road pricing model from being developed it will require careful negotiation with current operators.

The level of administration effort required to implement road pricing depends upon the complexity of the scheme that is proposed. More detailed pricing initiatives such as including pricing discrimination will require a greater administrative task and budget.

The largest barrier to implementation of more comprehensive road pricing in Australia, particularly in cities that do not currently have road tolls is the lack of social licence. Toll roads in Australia have traditionally been justified as funding new infrastructure that would not otherwise be built, and the transition to charging for use of existing roads will be challenging.

As the surveys by EastLink and Transurban indicate public perception can be shifted based on personal experience, and greater understanding of the existing inequities such as electric vehicle owners avoiding paying fuel excise.^{9,10} Deployment of emerging technologies such as automated vehicles and mobility as a service are also likely to make pricing of road travel more acceptable to the public, akin to surge pricing by ride share operators.

Recommendations

1. Federal and state governments should proactively undertake planning for road pricing in advance of the widespread deployment of emerging technologies such as electric and automated vehicles as these are likely to act as an opportunity for change.
2. Any proposed road pricing initiative should have clearly defined objectives to clarify its purpose, whether it to introduce a sustainable revenue stream, manage traffic demand or a combination of the two.
3. The development of network pricing schemes should be coordinated through COAG's Transport and Infrastructure Council.

