2022 – 23 Pre - Budget Submission re land transport and emissions

Philip Laird, University of Wollongong, January 2022

This submission draws on research conducted at the University of Wollongong and appreciably updates a 2021-22 submission. However, the views expressed are those of a personal professional nature.

Introduction and Summary

1. As noted https://www.smh.com.au/politics/federal/australia-drives-up-debt-to-menzian-levels-with-no-end-in-sight-20211228 by one commentator "Whoever wins the election is going to have to deal with the state of the budget and the level of debt. I'm not saying we need an austerity budget, but small reductions in spending – maybe a quarter of a per cent of GDP – will certainly improve the situation."

One way to help dealing with this situation is taxation reform. Another way is more user pays in land transport.

2. The need for investment in both roads and rail track continues. This is at a time that Australia with a population that now exceeds 25.7 million has both an infrastructure deficit and need to respond to climate change. On the other hand, the Australian Government remains under fiscal constraint.

As reported by the Sydney Morning Herald on 5 September 2019, Reserve Bank governor Dr Philip Lowe called for a major spending program on infrastructure including rail, bridges and roads across Australia. He was quoted as saying: "Right at the moment there is limited capacity to do more mega projects in Sydney and Melbourne but there is capacity elsewhere in the country to do significant projects, and also capacity to do a series of smaller projects…"

This call for more investment in infrastructure has been supported by many other qualified commentators.

It is submitted that Australia needs some action like that taken by New Zealand government in December 2019 in its Half Yearly Economic and Fiscal update with an extra $NZ12 billion over four years on a range of measures, to include more on roads and heavy rail, and $NZ200m on "public estate decarbonisation".

This submission will note and advocate:

A. Urban rail patronage increased significantly during the 2010s, and despite the extensive rail upgrades in major capital cities, more investment is needed in these cities along with regional rail in NSW.

B. Road investment needs to be better targeted, and road pricing reform is now long overdue.

C. Along with Inland Rail, more investment is needed in mainline rail track to improve the efficiency and competitiveness of rail freight.

D. Corridor protection for new lines is required.

E. The federal budget needs to have provisions to assist in the "decarbonisation" of transport.

A. Urban rail

3. The 2019 National Infrastructure Audit of Infrastructure Australia highlighted the need for Australia to respond to a growing population with increasing road congestion.

Australia's population and there is a rail infrastructure deficit in Sydney, Melbourne and Brisbane as well as parts of regional Australia.

Infrastructure Australia's modelling estimates that road congestion and public transport crowding cost the Australian economy $19.0 billion in 2016. Without continued infrastructure investment in our major cities, this report suggests this cost will more than double by 2031 to reach $39.8 billion.

The BITRE *Yearbook 2021 Australian Infrastructure Statistics, Statistical Report,* notes, inter alia (Table 5.3i Total passenger kilometres travelled by capital city – Australian capital cities) that in 2018-19, there were 14.46 billion passenger km (bpkm) travelled by heavy rail; also in 2003-04, there were 9.14 bpkm travelled; an increase of about 58 per cent over 15 years. This increase far exceeds population growth.

The 2021 BITRE Infrastructure Statistics Yearbook (Table 5.3i again) notes that the passenger use (cars etc) for all capital cities going from 145.9 bpkm to 165.6 btkm over this time – a growth of some 13.5pc.

The BITRE *Yearbook 2021* gives data for 2019-20 and 2020-21 showing a COVID-19 reduction in heavy rail in capital cities, and also passenger car kilometres falling in urban areas.

3.1 Between the 2011 and the 2016 Census, Greater Sydney's population (including Gosford) grew to 4.82m with a 10 per cent growth. During these five years, rail patronage on the Sydney and intercity network increased from about 304m to 367m with a stronger growth of some 15 per cent.

In the 12 months to end of April 2019, the combined Sydney and intercity patronage continued to grow to over 401m.

The busiest station Town Hall had 68m passengers passing through the station gates (plus some transferring trains) – up a hefty 23 per cent from 2015-16.

As noted Sydney Morning Herald for 8 January 2020 *Pressure points pile up for rail network "*Decades-old trains, passenger crowding, forecasts of a $1.3 billion maintenance backlog and a surge in demand for services will heap pressure on Sydney's already stretched rail network as the city balloons to 6 million people over the next decade."

3.2 Between the 2011 and the 2016 Census, the population of Greater Melbourne grew to 4.48 million – 12 per cent growth. During these five years, rail patronage on the Melbourne metro increased by 16 per cent. The numbers of people using Melbourne's trains continues to increase. In 2017-18, there were 240m journeys, up a lot from the 130m in the year 2000. As The Age noted in 2018, train delays on some busy lines are increasing, and that "Despite Victoria paying billions of dollars to private operators over the past two decades in a bid to improve reliability, an ageing train network plagued by signal and equipment faults is straining under the weight of demand."

Both cities have recently completed major rail projects – with Sydney gaining a new North West metro in 2019, whilst Melbourne had a substantial (and ongoing) level crossing programme under way with a "new" 8km line to Mernda opening in 2018.

Further major rail projects are now underway in both cities underway to increase capacity. However, even when the Sydney Metro Stage 2 and Melbourne's Metro tunnel is completed, more work will be needed to address both past under-investment and population growth in these two cities.

4. The growth of light rail in Australia to a record 7.49 billion passenger km travelled in 2018-19 is of note (BITRE 2021 as above). This includes the Gold Coast with patronage far exceeding expectations when Stage 1 was opened in July 2014 and Stage 2 was opened in early 2018. The BITRE 2021 Yearbook notes in 2003-04, light rail had a passenger task of 9.14 btkm. The increase to 2018-19 was about 57 per cent - that again far exceeds population growth.

5. Regional New South Wales has a large rail infrastructure deficit and this will require significant funding to remedy. In 2012, it was noted[1] "As Newcastle and Wollongong grow in size and importance to the NSW economy, they need faster and more efficient links to Sydney."

In 2004, Prof Ian Gray[2] commented on regional passenger trains in New South Wales, and found appreciable scope for improvement, noting, inter alia, a lack of investment in New South Wales contrasted with *"Queensland, Victoria and Western Australia where governments have developed track and equipment to take advantage of late 20th century technologies…[and] straightening the track is essential to increasing train speeds."*

In December 2018, the NSW Government announced its intention to investigate the upgrading of the main railway tracks from Sydney to Newcastle. Wollongong, Canberra Goulburn and Orange/Parkes, or, the construction of dedicated high speed track on these four corridors.

It is of note that at the October 2020 Aust. Fin. Review National Infrastructure Summit (and again at the 2021 AFR Infrastructure Summit) that the CEO of Snowy Hydro and the first CEO of Infrastructure NSW, Mr Paul Broad, not only questioned extensive investment in big city CBD infrastructure but also (*AFR* 15 Oct 2020 "Infrastructure regional renassiance") was scathing in his criticism of TfNSW of running a train service between Sydney and Newcastle at a speed slower than which prevailed in the 1951. Mr Broad made a call for getting a train "faster than Puffing Billy" to go between these two cities. As Mr Broad said, the trains do not have to be superfast, if you could cut the time in half with asset sweating you would change the lifestyle and dynamics (of NSW regional cities).

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[1] Transport for NSW 2012, as noted by the 2012 State Infrastructure Strategy of NSW; Infrastructure NSW.

[2] *A future for regional passenger trains in New South Wales,* Local Government and Shires Associations of NSW, and Charles Sturt University

Wollongong station is some 83km from Central. The current average speed of about 55 km per hour for the fastest Wollongong - Central trains is too slow. Perth Mandurah and Geelong Melbourne trains average 85 km per hour. Reversion of a section south of Waterfall from a 1915 alignment to the 19th century alignment with modest grade and curve easing would reduce distance and save over 7 minutes of transit time. A related issue for South Coast rail operations is completion of the 35 km Maldon Dombarton rail line.

At the April 2021 Sydney Morning Herald Infrastructure Summit held in Sydney, the Sydney Canberra railway was noted as a ***"National Disgrace".***

A Sydney Canberra Higher Speed Train could be developed on an incremental basis with options as follows:

Stage 1 A new improved alignment between Goulburn and Yass with a spur line from Yass to North Canberra.

Stage 2 Track upgrades from Mittagong to Goulburn and for a Wentworth route between Menangle and Mittagong that could tie in with the Maldon Dombarton line.

Stage 3 Further upgrades to Campbelltown to Sydney.

Where possible, new construction should be to Higher Speed Rail (HSR) standards of trains operating at least 250 km/hr.

A Sydney Canberra Higher Speed Train operating by 2025 at speeds up to 200 km/h on deviations and taking less than two and a half hours is quite feasible. This could be followed by more new HSR track and faster trains to get down to the former 1998 Speedrail target of 84 minutes.

There is considerable scope for track straightening between Lithgow and Orange, mainly by following original disused alignments, as recommended by the Orange Rail Action Group (ORAG) since 2014.

Federal funding was advanced in 2018 towards a business case for an upgrade of some regional NSW lines. Hopefully some federal funds can be allocated in 2022 to start an upgrade.

There is a case for some federal funds for regional rail in NSW comparable to that already advanced/ committed to Victoria of about $2 billion.

B. Road investment and road pricing

6. The clear evidence from both Australia and overseas is that road congestion cannot be eased simply by building more roads.

It is of note that some Australian road investment has been called into question by the International Monetary Fund (IMF) as noted by the Australian Financial Review (AFR)[3] that Australia should be spending more on infrastructure, but this should be on rail, airports and seaports rather than roads; also Australia is spending only about half of the 0.4 per cent of GDP it should to each of rail and ports."

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[3] AFR 21 February 2018 "*IMF says Australia has overspent on roads*" and *AFR* 21 February 2018 *"IMF finds $112b shortfall in infrastructure"*

It is suggested that current high outlays in roads by government approaching $30 billion per year could well be reviewed.[4] This level of expenditure was described by consultants to Infrastructure Australia in a 2014 report *Spend more, waste more* as a *"road spend [that] can only be described as hideously inefficient."*

Thus, projects such as Sydney's WestConnex that has now blown out to about $17 billion and duplication by 2020 of the Pacific Highway (taken to task by Infrastructure NSW in its 2012 report[5]) may in future years be regarded as suboptimal investment. In particular, Stage 3 of WestConnex, the F6 extension, and now the Western Harbour Tunnel have attracted much opposition and the City of Sydney and other affected Councils have proposed alternative options.

The efforts made from the 2017 to the 2021 federal budgets to have a more balanced investment in rail and road are noted with appreciation. This includes funding for an Inland Railway and for preliminary studies for Faster Rail to provide improved links between large capital cities and nearby regional cities.

However, a concern remains with the sheer amount of government money that is allocated to road projects, despite the lack of true user pays pricing for road use.

The situation of federal outlays between Brisbane and Cairns for land transport that results in billions to the Bruce Highway and little to rail[6] is also in need of review.

7. In 2009, the Henry Tax Review noted that *"Current road tax arrangements will not meet Australia's future transport challenges."*

The Henry Tax Review made several pertinent recommendations for road pricing reform. These included

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[4] Bureau of Infrastructure Transport and Regional Economics (BITRE) *Key Australian infrastructure statistics 2021* notes, inter alia, in TableT3.1d (p4* Road – related expenditure, by all government, for 2019-20, an outlay of $29,702 million.

[5] In 2012, Infrastructure NSW [p143] noted that due to the relatively low traffic volumes on the remaining sections, the economic merit of their reconstruction is much lower at 0.8 (Benefit Cost Ratio) than that of the Highway as a whole; also "…*given competing priorities for NSW and Commonwealth Government funds, the high cost and relatively limited benefits of these remaining sections raises questions … appropriate scope of works and priority for those sections with relatively light traffic."*

There is a long overdue grade separation project at the foot of the Mt Ousley Highway in Wollongong which has at least three times the annual average daily traffic (over 53,000 including some 7960 trucks) than does 'remaining sections' of the Pacific Highway. Provision of federal funding in 2021 to remedy this is appreciated.

[6] Australian Government funding for the Bruce highway now stands at $10 billion whilst the Queensland Government has committed over $2 billion of funding with no federal funds north of Nambour.

In May 2016 in the Courier Mail in Brisbane, an Engineers Australia Queensland infrastructure spokesman noted that huge numbers of trucks would be funnelled on to the Bruce Highway unless $2.5 billion was invested in the railway.

Recommendation 61: Governments should analyse the potential network-wide benefits and costs of introducing variable congestion pricing on existing tolled roads (or lanes), and consider extending existing technology across heavily congested parts of the road network. Beyond that, new technologies may further enable wider application of road pricing if proven cost-effective. In general, congestion charges should apply to all registered vehicles using congested roads. The use of revenues should be transparent to the community and subject to further institutional reform.
Recommendation 62: The Council of Australian Governments (COAG) should accelerate the development of mass-distance-location pricing for heavy vehicles, to ensure that heavy vehicles pay for their specific marginal road-wear costs. …
Recommendation 64: On routes where road freight is in direct competition with rail that is required to recover its capital costs, heavy vehicles should face an additional charge on a comparable basis, where this improves the efficient allocation of freight between transport modes.

8. The need for reform in road pricing is attracting increasing attention in recent years. By way of example, although not a major focus of the 2015 Competition Policy Review, road pricing was considered. In part, the review noted in part that ***"… roads are the least reformed of all infrastructure sectors, with institutional arrangements around funding and provision remaining much the same as they were 20 years ago."***

In 2018, a collection of essays in a publication from ANU called ROAD PRICING AND PROVISION - CHANGED TRAFFIC CONDITIONS AHEAD is of note- see https://press-files.anu.edu.au/downloads/press/n4353/pdf/book.pdf

The increasing use of electric vehicles is a cogent reason for road pricing reform. This writer has a comment piece published in January 2021 by the Conversation that may be found at https://theconversation.com/distance-based-road-charges-will-improve-traffic-and-if-done-right-wont-slow-australias-switch-to-electric-cars-

9. In 2019, and in 2020 the Grattan Institute argued in a report that charging motorists for driving in and out of the CBD during peak hours would cut traffic by 40 per cent and increase road speeds by up to 20 per cent.

It is of note that the option of a future congestion charge, as used in Singapore, London and Stockholm, has been explored by the New Zealand Government and the city of Auckland.

The initiative of Infrastructure Victoria in its revised 30-year strategy in proposing an electronic congestion charging system for Melbourne is of note.

Congestion pricing should at least be considered, and an options paper should be published by the Australian Government.

Another option is for Productivity Commission to hold an inquiry or to release a research paper.

10. In this regard, the Productivity Commission, Research paper on Public transport pricing released in December 2021 is helpful.

It is agreed that there is a need to improve cost recovery of urban rail operations from train fares. Here, some but not all of the large subsidies to urban rail operations could be better redirected to the necessary rail infrastructure to meet the needs of a growing population.

However, as demonstrated by the rise of rail fares in Brisbane a few years ago with a decline in patronage, increasing rail fares is not easy.

The need for improved road pricing as well as better cost recovery in public transport was recognised in a NSW 2002 Government report on Sustainable Transport.

11. The 2020 NSW Review of Federal Financial Relations Final Report addresses road pricing and notes in part: **Congestion: when building more roads fails** Building more transport infrastructure has only provided temporary relief. While additional roads improve travel times initially, more people then choose to drive to take advantage of the better speeds, rapidly eroding any benefits of the new infrastructure and congestion returns. … **A simple distance-based charge can be … easily implemented. …**

It goes on to recommend, inter alia, that: *The NSW Government should work with the Board of Treasurers, state transport departments and the Commonwealth to phase in a nationally compatible and fair road user charging scheme that better reflects the social costs of road use, including wear-and-tear, pollution and congestion. Revenue should be hypothecated to expenditure on roads and other transport infrastructure. Electric vehicles could be used as a pilot, with new user charges to replace some existing charges.*

12. Fuel excise is now being indexed on an annual basis. However, there was a long period between 2001 and 2014 when it was not been indexed, and was stuck at 38.143 cents per litre. The loss of Commonwealth revenue from freezing fuel excise indexation was estimated in Treasury Budget Paper #2 (May 2001) at $150 million for 2001-02.

As noted in this writers pre-budget submission for 2021-22, the combined forgone petrol and diesel excise during 2011-12 alone is estimated at about $4.4 billion.

Fuel excise is currently 42.7 cents per litre (as of August 2021) but this is some 20 per cent less in real terms than what it was in the year 2000.

Along with consideration of congestion pricing there is a case for fuel excise in Australia to be increased by 10 cents per litre to allow for lower annual registration fees for cars; and, to fund ongoing calls for more money to be spent on roads, and alternatives to roads including rail, urban public transport and cycleways.

There is also a good case for scrapping the diesel rebate.

13. New Zealand has increased its petrol excise by appreciably more than 10 cents a litre since March 2002, and is currently 77.284 cents cents per litre allocated to the National Land Transport Fund (plus GST). Annual registration fees for cars in New Zealand are much lower than in NSW and other states. This includes 6 cents per litre applied to motor accident compensation and in Auckland, a further 10 cents per litre is levied for regional transport. This allows for much lower fixed annual charges for cars in NZ than Australia (by way of example, for a car with a one tonne tare mass, about

$NZ109 in NZ and about $650 than registration and third-party insurance premiums in Australia).

14. Mass distance location charges for heavy trucks in Australia are long overdue. As the 2015 Harper Review into Competition Policy found that as well as *"Roads are the least reformed of infrastructure sectors"* (as noted above) … (emphasis added) ***Lack of suitable road pricing models leads to inefficient investment decisions and creates distortion on the choices users make between different modes, particularly between rail and road freight.***

Meantime, road user charges (rebatted diesel excise for heavy trucks) set in 2016-17 at a modest 25.8 cents per litre were frozen until 2021-22 by the Transport and Infrastructure Council. It is now just 26.4 cents per litre. This low road user charge for trucks is much less the 42.7 cents per litre on petrol and diesel for cars, despite the fact that a six axle articulated truck with a modest gross vehicle mass of 38 tonnes causes 10,000 times the road pavement wear and tear than a mid sized car does.

15. As per this writers 2021-21 prebudget submission, if one accepts that the current New Zealand charges for heavy trucks are user pays, then the operation of six axle semitrailers and the nine axle B-Doubles on public roads (with details below) are in receipt of an annual hidden subsidy of about $2 billion per year.

This amounts to a hidden subsidy about 1 cent per net tonne kilometre. This does not include externalities such as road crash risk, emissions and urban road congestion.

16. It is now 16 years (yes, sixteen years) since 2006 when the Productivity Commission issued a report on road and rail access pricing that found the National Transport Commission (NTC) charges to be ***"conservative"*** and made recommendations that CoAG take up road pricing.

In 2017, the Department of Infrastructure and Regional Development undertook a public consultation process to seek public and industry views on options for independent price regulation of heavy vehicle charges. This included the option of ACCC being the regulator. The progress apparently made in 2018 and in 2019 to this outcome, at least in the public domain, is simply not good enough.

It is noted that in 2019, after consultation, a National Freight and Supply Chain Strategy was released. The issue of road pricing was effectively set aside despite it being raised in many submissions.

Instead, the National Freight and Supply Chain Strategy (NFSCS Figure 2.2 - Projected freight growth by mode in Australia) suggests the domestic freight task (in tonne kms) increasing by 35 per cent from 2018 to 2040, with a hefty growth in road freight. Here, the ABS SMVU estimated the 1017-18 road freight task at about 215 billion tonne kms (btkm), and the NFSCS projects about 400 btkm.

It is submitted that Australia simply cannot afford such an increase in road freight.

17. It is further submitted that the Australian government should be taking more interest in increasing rail's share of containers moving to and from the major ports.

As noted in 2021 by the ACCC in its *Container stevedoring monitoring report 2020-21* the throughput at the Australian ports has grown significantly over the past two decades. Currently, most freight is carried by trucks. Over the past decade, on average, only around 10% to 12% of the containers entering or leaving the Australian container ports were transported by rail. If the split between market share of rail and trucks continues into 2030, this may double the number of trucks required. This could lead to more congestion on metropolitan roads.

The present road congestion and other impacts including air pollution adversely affecting health of large trucks (some as long as 36 metre long (A-Double trucks)) is of particular concern in Melbourne (see https://theconversation.com/instead-of-putting-more-massive-trucks-on-our-roads-we-need-to-invest-in-our-rail-network-172491) where recently, only 6.1 % of the containers (measured in twenty foot equivalent units) accessed the Port of Melbourne by Rail.

18. It is hard to see why Australian charges for heavy vehicles in aggregate, and annual charges for semitrailers and B-Doubles hauling heavy loads long distances each year, should be about one third of the respective New Zealand charges.

The result is to put more 'loads on roads' and to make rail freight, sea freight, pipelines and conveyor belts financially unattractive for moving most types of freight.

19. External costs of articulated truck movements including road crash risk, emissions, and road congestion but excluding unrecovered road system costs are broadly estimated at over one cent per net tonne km in non-urban areas and over two cents per net tonne km in urban areas.

These costs, which far exceed the external costs of rail freight, were addressed by a 2012 report by the NSW IPART on grain transport. In aggregate, they amount to at least $2 billion per annum. This is in addition to the demonstrable under-recovery of road system costs of about $2 billion per annum from the operators, and their clients, of B-Doubles and long distance heavily laden semitrailers.

C. Upgrading mainline rail track and inland rail

20. Along with Inland Rail, more investment is needed in upgrading existing mainline track. Reference has already been made to the Queensland North Coast line.

In 2001, a detailed track audit was commissioned by the Australian Rail Track Corporation or ARTC. This included the Melbourne Sydney railway and various ways to speed up freight and passenger trains by what may be called "renovating" the existing track to fairly fast train standards.

The upgrading of the Melbourne Sydney rail track by the ARTC by 2008 did not include any track straightening. The work instead included, long overdue CTC signalling (some 42 years after it was installed between Auckland in Wellington in New Zealand in 1966), replacing wooden sleepers by concrete ones, and the replacement of old bridges.

The tracks linking Australia's three largest cities (Melbourne Sydney and Brisbane) were noted as *"Inadequate for current and future needs"* by Len Harper

(2008). This was on behalf the Chartered Institute of Logistics and Transport. Mr Harper was a former chief of the NSW State Rail Authority.

The ARTC track audit confirmed that if just 200 kilometres of new track was built in various locations between Campbelltown and Cootamundra, it would replace 260 kilometres of track with 'steam age' alignment.

The benefits would be substantial. Firstly, it would allow a Melbourne Sydney freight train to reduce an excessive 13 hour transit time to 11 hours. It would also appreciably reduce fuel use and hence emissions.

Secondly, straighter track with tilt trains (as used overseas, and in Queensland) could allow the time of 11 hours for the current XPT service between Melbourne and Sydney to be cut to as much six or even five hours.

As a result of many factors, including the total reconstruction by 2013 of the Hume Highway allowing for B-Doubles and other large trucks, and leaving the Melbourne - Sydney with its steam age alignment, rails share of containerised freight moving on this corridor has dropped to as low as one (1) per cent. As a result, the Hume Highway is like a giant *"conveyor belt"* [7] where over 3000 B Doubles and semitrailers move up and down the Hume Highway each day (and night).

In addition, there is considerable scope for improvement in the Maitland to Brisbane line, on top of the work done by the ARTC in recent years. A case study of a major deviation between Hexham and Stroud Road was noted in a 2007[8] report. Here, the construction of 67 km of new track would replace a substandard 91 km section to halve transit times and reduce fuel use by 40 per cent.

21. In December 2021, the Australian Government gave its response to a Senate Rural and Regional Affairs and Transport References Committee report on Inland Rail. The report had 26 recommendations and took the view that construction and completion of an Inland Railway linking Melbourne to Brisbane is in the national interest.

There are two other considerations. Firstly, the new railway should be constructed towards modern engineering standards as used by Class I railroads in Canada and the United States. This is opposed to the existing Melbourne Sydney Brisbane railway with its steam age alignments and severe speed - weight restrictions; some of which should be rectified in the section between Albury and Illaboo (near Junee).

Secondly, the decision to have costly dual gauge track in the section between Border and Border South Western Queensland, when viable alternatives are available, is in need of urgent review.

22. Attention is also needed to residual gauge standardisation in Victoria where present arrangements impact adversely on moving freight on rail.

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[7] Pacific National, 2019, https://pacificnational.com.au/australias-major-highway-now-a-conveyor-belt-for-big-trucks

[8] House of Representatives Standing Committee on Transport (2007) *The Great Freight Task: Is Australia's transport network up to the challenge?* page 116.

D. Rail corridors

23. In December 2016, the House of Representatives Standing Committee on Infrastructure, Transport and Cities released its report *Harnessing Value, Delivering Infrastructure.* The Committee noted, in part [p151] *"Corridor preservation, especially for major projects such as HSR is very important. The ability to protect corridors ensures that transport infrastructure will follow the optimum route. Failure to protect corridors will mean compromises in planning and significant increases in cost."*

It is not just for HSR, but also rail freight and medium speed passenger rail that corridor protection is needed.

Infrastructure Australia in its July 2017 report *Corridor Protection: Planning and investing for the long term* urged Australian governments to take urgent action in the next five years to protect vital infrastructure corridors, to avoid cost overruns, delays and community disruption when delivering new infrastructure.

This writer would go further and submits that urgent corridor protection should now be accelerated with federal funding, in a manner similar to the long standing federal funding of advanced planning of certain highway projects (such as the Pacific Highway in NSW). Alternatively, federal budget sanctions could be used against State Governments who fail to do the right thing.

E. Emissions

24. A major input into road vehicle use is that of liquid fuel. In the 12 months ended 30 June 2020, from ABS SMVU data, registered motor vehicles in Australia consumed an estimated 33.02 billion litres of fuel. By way of contrast, rail used in 2010 less than one billion litres of diesel for a smaller passenger task but a larger freight task than road.[9] Rail also uses electricity, produced mostly from domestic coal, then with an oil equivalent of about 1.2 billion litres that year.

25. In 2019, transport accounted for about 19 per cent of all of Australia's emissions, and having increased some 64 per cent since 1990, was the fastest growing sector. More information is given in https://theconversation.com/transport-is-letting-australia-down-in-the-race-to-cut-emissions

For a given intercity freight task, rail uses one third of the energy, and so produces on third of the emissions than trucks do[10].

Accordingly, getting more freight on rail, with fewer loads on roads, would reduce emissions. Further benefits include those of safer and less congested roads.

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[9] Australasian Railway Association Australian Rail Industry Report 2010.

[10] Rail Futures Institute, 2017, https://www.railfutures.org.au/2017/07/submission-to-inquiry-into-national-freight-and-supply-chain-priorities/

In addition, an intercity passenger moving by rail would produce less emissions than flying. So again, it makes good sense to make more use of rail, and less of air, for moving people on intercity journeys.

26. Regarding oil vulnerability, the writer's 2021 pre budget submission noted that over the past decade, Australia has increased its fuel imports to 75 per cent of requirements with increasing amounts of refined oil products. This submission proposed two solutions which would better serve Australia's national interest.

The first solution was improved policy settings to encourage more people and freight to move by the appreciably more energy efficient mode of rail transport as opposed to road transport. This will require more investment in rail track and real changes to road pricing for both cars and trucks. It would also reduce transport emissions.

The second solution is to build inland fuel storages in regional Australia. They would be large enough to hold at least 90 days (or more) supply for the surrounding area. These terminals would be supplied from the ports and refineries by block trains. The fuel would then be delivered, as required, to the end user by road transport. The terminals would be ideally constructed at least 10km from major built up areas.

27. The main point, however, is that the Australian Government should be making more effort to reduce emissions from domestic transport. This will require both more investment in rail, and attention to road pricing.

In May 2021 the International Energy Agency in a definitve report *Net Zero by 2050* noted that along with an increased use of electric vehicles *"Rail transport is the most energy-efficient and least carbon-intensive way to move people and second only to shipping for carrying goods."*

In addition, in order to get to Net Zero Emissions, the IEA notes that *"aviation growth will need to be constrained by comprehensive government policies that promote a shift towards rail."*

28. During 2021, there was sustained and increasing international attention, including at COP26 in Glasgow, to the need to reduce emissions before 2030.

Given transport is letting Australia down in its efforts to reduce emissions, Australian Government in 2022 would do well to introduce a program, with support in the Budget, to assist in the decarbonisation of transport.

As noted on page 1, the New Zealand Government provided budget funding for "public estate decarbonisation". This measure, and other New Zealand measures including recently increased funding for rail, and long standing mass distance charging for heavy trucks, if introduced in Australia would assist in the decarbonisation of transport.

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January 2022