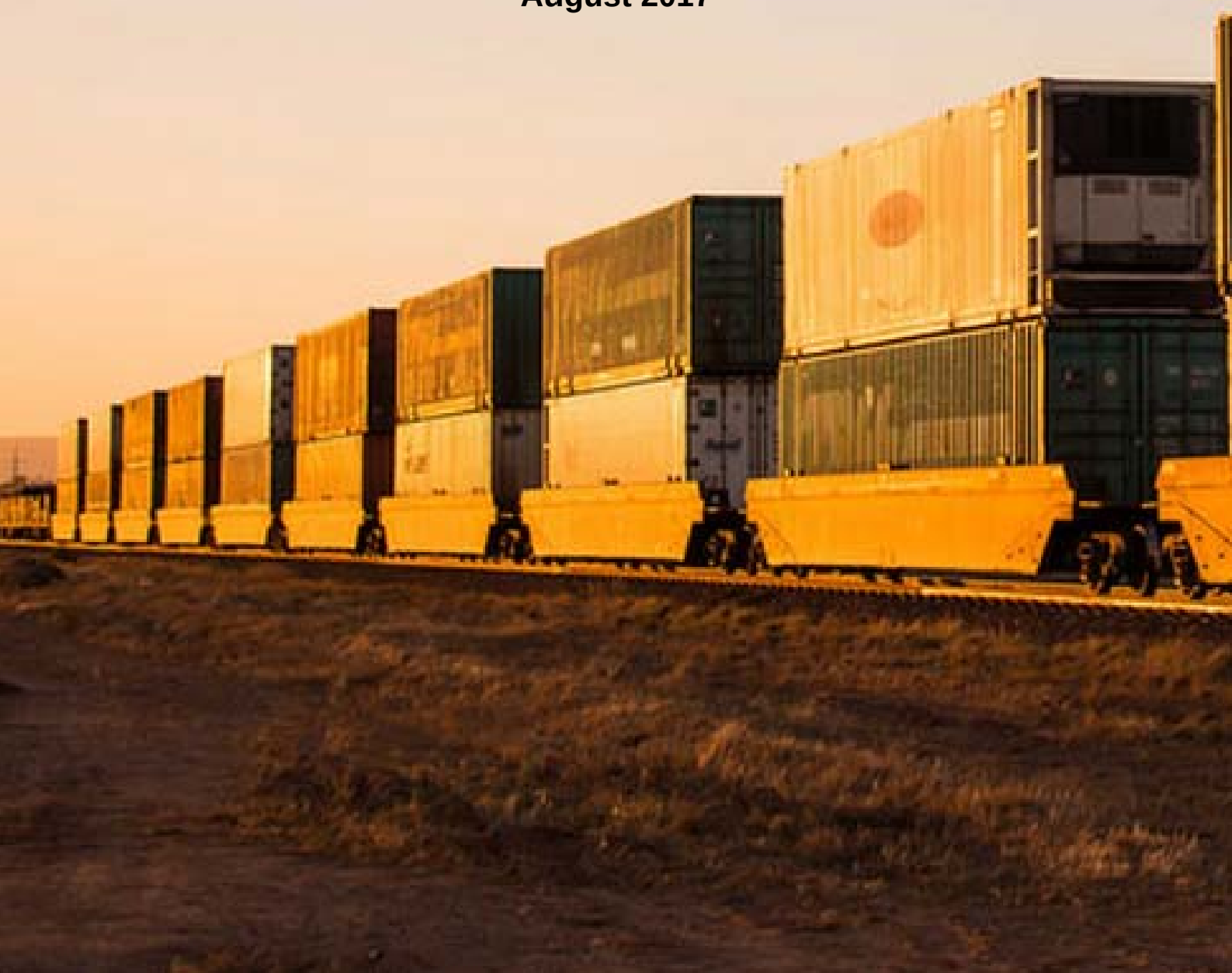
FREIGHT ON RAIL GROUP

Submission to

Inquiry into the National Freight and Supply Chain Priorities

August 2017



This document has been prepared by the Freight on Rail Group (the Group). The Group is a rail freight focussed industry group established to engage with Government and key stakeholders on major public policy issues. It consists of the seven major rail freight businesses in Australia:

Aurizon
Aurizon has rail and road-based freight and infrastructure operations across Australia. Aurizon operates above-rail freight services from Cairns through to Perth, and manages the Central Queensland Coal Network made up of approximately 2,670km of heavy haul rail infrastructure.

Australian Rail Track Corporation (ARTC)
ARTC has responsibility for the management of over 8,500 route kilometres of standard gauge interstate track across Australia. ARTC also manages the Hunter Valley coal rail network, and other regional rail links.

Arc Infrastructure
Arc Infrastructure (formerly Brookfield Rail) manages and operates a 5,500 kilometre open access, multi-user rail freight network extending throughout the southern half of Western Australia, providing access for intermodal, iron ore, grain, alumina and various other bulk commodities.

Genesee & Wyoming
G&W is a global vertically integrated rail freight company with a large Australian presence in SA, NT, Victoria and NSW. G&W owns nearly 5,000 kilometres of track in SA and NT, including the 2,200-km Tarcoola-to-Darwin railway.

Pacific National
Pacific National is one of the largest providers of rail freight services in Australia, providing intermodal, coal and bulk rail haulage services throughout Australia.

Qube
Qube is Australia's largest integrated provider of import and export logistics services. It offers a broad range of logistics services with a national footprint and a primary focus on markets involved in international trade in both the bulk and container markets.

SCT Logistics
SCT is a national, multi-modal transport and logistics company. It operates its own intermodal rail services from the eastern States to Perth, while also providing bulk rail haulage services. It has facilities in Brisbane, Sydney, Parkes, Melbourne, Adelaide and Perth.

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Background

The Freight on Rail Group (FORG) is a rail freight industry group established in August 2015 to engage with Government and key stakeholders on major public policy issues relevant to freight on rail. FORG represents seven of Australia's major rail freight operating companies and network rail organisations. The members are Arc Infrastructure, Aurizon, Australian Rail Track Corporation (ARTC), Genesee & Wyoming Australia (GWA), Pacific National, Qube Holdings and SCT Logistics.

FORG's objective is to contribute to a policy and regulatory environment that enables the ongoing development and operation of an efficient, integrated and sustainable freight transport sector, including an innovative and high performing rail freight industry. FORG works to address the challenges and opportunities facing the freight transport sector as a whole, with a particular focus on rail freight and its customers and stakeholders.

FORG is committed to engaging constructively with Governments, as well as industry and key stakeholders, to ensure policy and regulatory settings enable the industry to deliver positive economic and commercial outcomes for all freight customers.

Submission Summary

FORG welcomes the Government's decision to develop a National Freight and Supply Chain Strategy (NFSCS) and appreciates the opportunity to provide input into the Inquiry stage of the process.

FORG's submission addresses each of the issues raised by the Inquiry into National Freight and Supply Chain Priorities Discussion Paper. Key issues in relation to the NFSCS that FORG would seek to emphasise are as follows:

Government objectives for the freight sector

The discussion paper only talks in general terms about the objectives of Government in regard to freight and supply chains and doesn't appear to invite any discussion of this issue. The Terms of Reference for the Inquiry cite a broad purpose of improving freight and supply chain efficiency and capacity. However, as discussed in a number of sections of this Submission, the lack of clarity around objectives and clear alignment of Government policy with Government objectives is a significant impediment to freight and supply chain efficiency. To provide depth of understanding and a context for decision making it is important for Government to articulate its objectives, with sufficient definition and clarity that they can be meaningfully applied and measured.

This should in-turn flow into an assessment of whether existing policies and institutional structures are working harmoniously with Government's objectives. Arguably this is currently not the case with, among other things, Government policies regularly failing to take an holistic approach that ensures modal neutrality in the pursuit of transport efficiency.

Clarity of objectives and a coherent and aligned policy environment that supports freight and supply chain outcomes, is a fundamental building block for a successful Strategy and at this stage appears to be a major gap in the Inquiry process. **FORG would support efficiency[1], safety and sustainability as the three key objectives.**

Infrastructure pricing and investment

The rail industry has strongly advocated for heavy vehicle pricing and investment reform and this process is now gaining significant momentum. However, the extent to which the rail industry's competitiveness against road improves is highly dependent on the detail of the reform. FORG believes that one of the key objectives of Government should be efficiency in its true economic sense, and that this should be the test that is applied to heavy vehicle pricing reform. An alternative

[1] Efficiency should be taken to refer to economic efficiency, covering both productive and allocative efficiency.

Government objective such as minimising the cost of freight transport would as an objective in isolation potentially lead to poor policy decisions that would not maximise the contribution of the freight and logistics industry to the wellbeing of the community.

This issue of Government objectives and road pricing reform is also important in the context of ongoing investment in the rail network. There are many examples where Governments have invested in the rail network, at times in an ad hoc manner, and where further investment is likely to be needed into the future. However, as discussed in the Submission, there is little or no certainty that further Government funding will be forthcoming, making it difficult for the industry to plan and invest itself. Governments should be working toward creating a framework where there is confidence that economically justified projects will be able to be funded.

There may also be situations such as on the grain branchline rail network where Governments wish to see investment for social reasons. In this case it is still highly desirable that Government provide a framework that allows for the rail industry and its stakeholders to have certainty and predictability of Government funding that enables the provision and maintenance of the infrastructure.

Technological disruption in the freight sector

Technological disruption is a significant issue and one that FORG expects will receive considerable focus in the NFSCS.

Road vehicle automation currently has strong momentum and a high public profile. It is important to emphasise that the rail freight industry is also pursuing significant technological advancement. The forthcoming technological changes have the potential to transform the freight and supply chain industry.

At this stage of technological development there is considerable uncertainty around pathways, timeframes and ultimate results. FORG considers that it is important in this context that Governments focus on being enablers of change through providing supportive regulatory and policy settings rather than necessarily predicting or pre-empting market outcomes.

Moving freight in and through urban areas

Urban areas present a particular challenge for rail. Freight, and rail freight in particular, has been neglected in much of the urban planning undertaken over the past 40 years, with the unfortunate consequence that there are limited sites that are suitable for new intermodal terminals. Freight precincts have also tended to become increasingly fragmented throughout cities, and with cities growing significantly in their geographic extent, it is becoming harder for rail to efficiently service a city from a single terminal location, which is a challenge for rail efficiency and competitiveness.

A broad awareness of the desirability of separating freight and passenger services has also developed over recent years, but there are significant challenges in identifying and reserving new freight corridors, or even securing the space within existing shared rail corridors for a dedicated freight track.

The importance of long-term planning and corridor preservation has been a developing theme of infrastructure policy, in particular the impact on freight corridors from urban encroachment and the need for greater corridor protection through land use planning controls. While many issues can be resolved through market mechanisms, land-use planning is necessarily a role of Government and FORG strongly supports greater Government focus on planning of urban areas and corridor preservation / acquisition to support freight and logistics efficiency.

Consistent with improved efficiency, specific priorities for planning should be to work with industry to identify freight hubs, and to improve links between the infrastructure for different transport modes, including addressing first and last mile impediments and facilitating the development of intermodal terminals.

Summary Recommendations

1. A key function of the National Freight and Supply Chain Strategy (NFSC) should be as a mechanism by which Government defines its objectives for the freight sector and builds a consensus with the State and Territories around those objectives. FORG would support efficiency, safety and sustainability as the three key objectives.

2. The NFSCS should state a clear commitment to achieving a market based logistics sector with land transport market reform, and in particular heavy vehicle charging reform, as a core strategy. This should also provide a framework for ensuring that desirable investments in capacity or efficiency enhancing projects proceed when they are economically justified, including on shared freight and passenger networks, with the framework explicitly enabling commercial investment by the private sector.

3. Land-use planning is a fundamental activity of Government. The NFSCS should acknowledge the need for freight efficiency to be given greater focus in the urban planning process and set out a roadmap for how this can be achieved.

4. The NFSCS should be used as a vehicle to develop a consistent national approach to grain logistics including, if appropriate, a framework for meeting social objectives that may require Government infrastructure investment funding and / or subsidies. This could be in the form of a National Grain Transport Strategy.

5. Governments should commit to ensuring that all policy settings and regulation relating to freight transport and supply chain infrastructure and operations are based on competitive neutrality between the different freight transport modes, and that they provide a framework that allows the freight industry to innovate and adopt technological advances without Government pre-empting market outcomes.

6. Government should consider how it can facilitate the generation of ‘big data’ on logistics and how it could be used to improve decision making, including through an open data approach.

7. Governments should critically review whether current policies are adequate to achieve community aspirations in terms of safety and environmental outcomes from freight activities and consider potential alternative policies.

8. The NFSCS should set out a framework for how Governments will identify and ensure the preservation of new freight corridors, and facilitate the development of intermodal terminals and associated logistics precincts. Priorities for the rail sector are:
    - Inland Rail (in progress),
    - Western Sydney Freight Line and terminals including road access,
    - Enhancement of the Port of Brisbane rail connection,
    - Northern Brisbane Freight line,
    - Western Intermodal Freight Terminal and Northern Intermodal Freight Terminal sites in Melbourne and associated rail and road connections,
    - A road connection to Bromelton, and
    - A Perth intermodal terminal network.

What is Moving Where, Why and How?

What infrastructure is used in your supply chain and how well does it perform?

What changes would you like to see to make your supply chain work better?

What data gaps are you aware of in relation to Australia's freight and supply chains?

Rail is now estimated to move more than 50% of the Australian freight task as measured on a tonne kilometre basis. The key rail supply chains are:

- Coal, predominantly coking coal in central Queensland and thermal coal in the Hunter Valley.
- Iron ore, predominantly in the Pilbara, with other smaller flows elsewhere in WA and some small volumes in SA.
- Intercapital general freight between each of the mainland capitals (except Canberra) and along the Queensland coast, including steel traffic which is extensively integrated with intercapital freight, and extends to Newcastle, Whyalla and Westernport as well as the mainland capitals.
- Bulk agricultural products across much of the national rail network.
- Import / export containers both from regional areas to ports, and within cities.
- Miscellaneous bulk freight, particularly on the Mt Isa line, south of Sydney and around Perth.

The following sections discuss each of these supply chains in turn to answer the questions around the infrastructure used, how well it performs and changes that would assist it to work better.

Coal

Australia's coal networks are almost entirely export driven. Australia is the world's second largest coal export nation, servicing predominantly key trading partners in Asia, together with India. Coal provides substantial economic returns to Australia.

The coal supply chains can be usefully categorised into five groups:

- The Central Queensland Coal Network is leased and managed by Aurizon and consists of the Newlands, Goonyella, Blackwater and Moura systems servicing a higher proportion of metallurgical coal mines than thermal coal mines. This network is built and maintained to high standards with highly efficient axle load and train length capability. Access is regulated through an Undertaking to the Queensland Competition Authority. There is a long history of investment to meet the needs of coal customers.

- The Surat / Clarence – Moreton coal basin is accessed by the Queensland Rail (QR) western system. This network carries relatively small volumes of thermal coal, although there are significant deposits. Axle loads and train length are very restricted impeding operational efficiency. The line is also regulated through an Undertaking to the Queensland Competition Authority. Inland Rail will be a substitute for a significant proportion of the existing rail corridor, though further investment would be required for the two existing mines to take full advantage of the Inland Rail capability.

- The Hunter Valley network in NSW is leased and managed by ARTC and carries mainly thermal coal. Track standards are high. The network is regulated through an Undertaking to the ACCC. As with the Central Queensland network there is a long history of effective investment in the network that has supported significant growth in volumes and increased operational efficiency.
- The Southern and Western (NSW) network mostly feeds coal to Port Kembla, though there have been increasing volumes moving to Newcastle. It carries a mix of thermal and coking coal and is relatively fragmented. Coal from the Western coal field uses the Sydney Trains

network for most of its journey but also crosses the Country Regional Network managed for NSW by John Holland Rail, and the ARTC managed Metropolitan Freight Network. Coal from Tahmoor uses the ARTC network to Port Kembla via Moss Vale, while there are also some shorter distance coal movements around Wollongong that mostly use the Sydney Trains network. Train configurations are moderately efficient. A lack of growth prospects for this coal region has meant that there has been little investment in capacity or productivity in recent decades.

- Relatively small volumes of bulk coal are currently transported from Collie in the south west of Western Australia to Worsley Alumina Refinery and the Cockburn Cement Plant in Kwinana via the South West Main narrow gauge network. Volumes have decreased significantly over the past decade as a number of domestic coal users have closed operations (eg Iluka Mineral Sands Refinery, Geraldton and Verve Power Station, Kwinana). Previously small volumes of export coal were transported from Collie to Kwinana. There are still plans by local producers to re-establish coal exports through either Kwinana or Bunbury ports, which will require investment in both rail and port infrastructure to create the required capacity.

In general, the rail industry and its coal producer customers consider the coal supply chains to function extremely effectively. While there are challenges around Access Undertakings, this partly relates to the fact that they have significant impacts on the effective price paid by customers and as such create commercial tensions. Issues relating to Access Undertakings have not been addressed in this submission.

It is important to emphasise that the major coal systems work very effectively because they have the scale and institutional structures to function on a purely commercial basis. There are strong incentives on all participants to make the system work as efficiently as possible, and the revenue streams necessary to support desirable investment.

Importantly, there is limited Government involvement in the coal supply chain beyond the economic regulation function[2]. In other words, Government policies have created a framework that allows the market to function effectively, and as a result, the supply chain is highly successful.

Iron Ore

Iron Ore supply chains can be usefully broken into two groups:

- The overwhelming share of iron ore volumes are carried on the vertically integrated railways of the Pilbara owned by BHP, Rio Tinto and Fortescue. These rail operations are considered to be among the most efficient in the world. They have expanded dramatically over the past decade.

- There are a number of smaller operations, primarily on the Arc Infrastructure network in WA, but also around the Whyalla steelworks in SA and from central Australia on the ARTC / GWA network. These operations are on open access networks other than the very short hauls around Whyalla. They are relatively efficient with axle loads and train lengths that are appropriate to the task and associated mine lives. There is a degree of economic regulation on the relevant networks but this is generally more light handed than in the coal sector given the significantly smaller volumes, that the rail networks are not generally at or near the regulated revenue ceiling, and in some cases a single iron ore customer dominates traffic.

As with coal, the key feature of the iron ore supply chains is that they are commercially successful and as a result function effectively with little Government involvement.

[2] While ARTC, QR and NSW Trains are all Government entities, coal operations on their networks are managed commercially and Government involvement largely arises as a by-product of other policy objectives.

Long-distance General Freight

The majority of the long-distance general freight task relates to movement between the five mainland State capitals. There are also significant flows from Adelaide to Darwin and Brisbane to North Queensland. Significant steel volumes also move between the manufacturing centres of Whyalla, Newcastle, Port Kembla and Westernport, and the five State capitals.

Data on road freight movements in this market is poor, but analysis of the available data suggests that road and rail each have around 46% - 48% of this market on a tonne kilometre basis, with the balance carried by sea from the eastern States to Perth. Road dominates the short haul corridors while rail dominates the long haul corridors to Perth and Darwin.

Most of the interstate standard gauge rail network is managed by ARTC. Other asset managers are:

- Arc Infrastructure on the east west corridor between Kalgoorlie and Perth.
- Sydney Trains on the north south corridor between Sydney and Newcastle.
- GWA on the line from Tarcoola to Darwin.

Queensland Rail manage the narrow gauge line from Brisbane to Cairns, except for Gladstone – Rockhampton, which is managed by Aurizon.

A small number of interstate trains also use the western line in NSW which is controlled by Sydney Trains from Sydney to Lithgow and John Holland Rail as a contractor for Transport for NSW Lithgow to Parkes.

Following the consolidation of most of the interstate network under ARTC control a significant program of upgrading was undertaken to bring it up to a consistent high standard. The Arc Infrastructure, GWA and Sydney Trains networks were already at relatively high standards.

All standard gauge corridors now allow for 21 tonne axle loads at 110 / 115 km/h, though there are sometimes localised speed constraints, particularly on the Sydney Trains network. This speed and axle load configuration is well suited to the general freight task with only marginal benefits available from higher axle loads. There is no significant market demand for higher track speeds, though there is always benefit to be gained from reducing overall transit time.

The key corridors for bulk steel movement – Whyalla to Newcastle and Sydney to Melbourne – have been upgraded to 25 tonne axle load at 80 km/h, which delivers a more cost effective operation for this very dense freight.

Train lengths have been standardised at 1800 m on the interstate network, except for Sydney – Brisbane, which due to the high cost of extending crossing loops on the North Coast and length constraints in the Sydney Trains region has been limited to 1500 m. Train lengths are limited to 670 m on the Queensland North Coast.

Container heights remain a challenge. Double stacking is available west of Adelaide and Parkes. In the eastern states though, permissible heights vary and represent a constraint on the use of the most efficient container configurations.

Track condition across the network is generally good. The entire network is concrete sleepered and has a minimum of 47 kg/m rail. Capacity across the network is generally good for current freight volumes, though inevitably there will be a need for ongoing capacity enhancement as volumes grow.

Intermodal terminals are a key issue in this market and are discussed in more detail in later sections.

The key performance issue for the intercapital market is that despite operating among the fastest and most efficient long-distance domestic intermodal trains in the world, with intense competition between operators, and low track access fees, rail still struggles to compete with road in markets with a haul distance of less than 2000 km.

Despite Governments consistently advocating for a shift of freight from road to rail, other policies often act against this outcome. The primary problem in this regard has been the structure of the provision of and charging for access to roads for heavy vehicles. Road investments are often driven by political considerations rather than in response to objectively determined investment needs. Current heavy vehicle charges are determined through an administrative process that has a semblance of economic principle but which in practice is deeply flawed and can be subject to political influence. Governments continue to grant the heavy vehicle industry increases in vehicle length and weight without any corresponding adjustments to their road access charges. This has left rail at a significant disadvantage.

The rail industry has strongly and persistently argued for market based reform of road charging and investment, particularly since the release of the Productivity Commission report into Road-Rail Competitive Neutrality in 2006. While it is acknowledged that Governments are now firming in their commitment to reform, progress has been slow and the current timeframe for meaningful change remains lengthy. Recent documents suggest that despite statements that the intention is to build on Australia's existing highly effective economic regulation system, there is still a tendency to treat roads as different to other asset classes and public utilities.

To be clear, Government policies today act in direct conflict with Government's professed desire to increase rail's share of the intercapital freight market. Fundamentally, this is because Governments have chosen to directly make decisions around road projects and charges rather than creating an environment where these pricing and investment decisions are based on market signals. The development of the NFSCS gives Government the opportunity to make a clear statement that it wants the freight industry to operate in a market environment where prices are set efficiently. Alternatively, if this is not the objective of Government, it is an opportunity to articulate its objectives in wanting to distort market based outcomes, and to explain how future processes will ensure better outcomes for the community.

Bulk Agriculture

Grain, both domestic and export, is the major agricultural product moved in bulk on the Australian rail network. Large volumes are moved in WA and NSW with smaller volumes in Victoria, SA and Queensland. Sugar also moves by rail in Queensland and NSW and there is still a flow of livestock by rail in Queensland. Woodchips are moved by rail in WA, and flour in NSW.

An extensive network of rail branch lines is maintained across the country with the primary purpose of facilitating grain movements. These movements generally cascade onto the mainline rail network, most of which has a primary role in servicing other markets. Grain volumes also originate on the mainline network.

Since the deregulation of the bulk export grain market in Australia, an expanded and more competitive international bulk grain market has developed. For Western Australia in particular, where on average around 90% of the annual grain harvest is exported, a requirement has emerged to transport the majority of the annual harvest within the first six months in order to capture pricing benefits before northern hemisphere grain volumes hit the international market. This supply chain adjustment to meet supply and demand opportunities within a global context places significant pressures on regional transport networks that were designed and constructed for traditional volumes and operations.

The capability of the mainline network is rarely the limiting factor for grain train configuration. Axle loads and train lengths are generally constrained by the capability of the branch line network with wagon size and train length generally optimised to these limits to allow full flexibility in their deployment. Train length is also limited by loop lengths at up-country silos and/or receival roads at export port terminals.

Much of the network that is dedicated to grain is in sub-optimal condition, severely limiting train length, axle load and speed. Track access charges on the grain network are highly constrained by the

need to remain competitive with road. Given the low volumes and low charges the lines at best only recover their short-term costs. This means that they are dependent on Government subsidised investment for cyclic capital renewals and any upgrading initiatives, and in some cases even meeting routine maintenance costs.

The grain network suffers from the many of the same problems as described in relation to intercapital freight. Governments clearly want to retain grain branch lines but rail is only marginally competitive with road, and the lines are not commercially sustainable.

While Government, both State and Federal, have in the past and continue to provide financial support, this is often ad hoc and is generally provided with no clear medium to long term plan, leaving track owners, rail operators, grain handlers, producers and other stakeholders without any certainty or context for business decision making.

There have been suggestions that under a reformed heavy vehicle charging regime Government will provide a subsidy for rural roads through an explicit CSO payment. These roads are likely to include those that directly compete with grain branch lines. While it may be too early in the heavy vehicle pricing reform process to be able to predict whether and to what extent rural roads are to be subsidised, it would be ideal for the NFSCS to clearly articulate what Governments' objectives are for the grain freight supply chain. The current policy appears to be to underprice both road and rail access, leaving both sectors unable to adequately maintain and upgrade the infrastructure, and without funding certainty to allow maintenance regimes to be optimised. This is far from ideal, either for the rail industry or for the local Governments that have responsibility for maintaining many of the roads. Governments may wish to subsidise both the road and rail industries for social policy reasons. FORG does not hold a position on such subsidies. Irrespective of the Governments objectives though, the current lack of an holistic approach will not deliver efficient or effective outcomes for either the industry or the community.

It should also be emphasised that while to a large extent the grain branch lines are a matter for State Governments, the Federal Government has become increasingly involved in funding upgrades and to the extent that road pricing reform is a national initiative it has inevitable direct impacts on rural roads. Hence it is desirable that this issue be addressed in a national context.

At least two networks, the Eyre Peninsular narrow gauge rail network operated by GWA in South Australia and the dedicated grain Tier 1 and 2 narrow gauge lines in Western Australia operated by Arc Infrastructure, are facing an upcoming need for cyclic infrastructure renewals This also presents an opportunity for potential upgrade to improve these freight supply chains.

Ideally, the Commonwealth and States would agree to a nationally consistent set of principles that could be used to guide decisions around rail freight line upgrades or closures, and provide some funding certainty to support this important national freight supply chain. This could be in the form of a National Grain Transport Strategy.

Import / Export (IMEX) Containers

The shipping container business can be usefully split into two clear categories; export containers from regional areas predominantly carrying agricultural produce, and; import and export containers being shifted between the port and distribution warehouses within cities.

Rail is competitive for regional export movements with the exception of South West Queensland / North West NSW to the Port of Brisbane where the constraints of the existing rail network make rail uncompetitive. Inland Rail will remedy these constraints.

Cross-metro rail shuttles servicing the IMEX market have been relatively successful in Sydney, though the current market share remains small. While shuttles currently, or in the past, operated in Melbourne, Adelaide and Perth, these services have struggled commercially in these cities requiring in some cases state government subsidies to achieve market share against the extremely competitive road transport sector.

FORG believes that the BITRE report 'Why Short Haul Rail Services Succeed' provides a comprehensive discussion of the issues and opportunities in these supply chains. In Sydney and Melbourne the environment is conducive to rail being able to capture a significant share of the cross-metropolitan container market and industry is taking the initiative in these cities.

It is important to emphasise again though that in general current Government policies do not provide an ideal environment for rail to be successful, despite the expressed Government support for rail to carry a larger share of the container traffic into and out of the port.

The key underlying problem remains road pricing for heavy vehicles. In this urban environment, the road industry suffers from serious congestion as there is no direct relationship between demand for truck movements and the provision of appropriate roads, charged for at an appropriate rate. As a consequence, under current policies there are negative impacts for the freight sector as a whole, but FORG emphasises that the lack of a cost-reflective pricing framework for roads results in the large negative impacts for the rail freight industry.

Miscellaneous Bulk Freight

Rail also carries various other miscellaneous bulk commodities. This includes bauxite, mineral concentrates, mineral sands, aggregates, limestone, cement, alumina and acid and these movements are spread across the nationally significant rail network.

It is difficult to generalise about the competitiveness of rail for these traffics and the quality of their supply chains. This is generally determined by their volumes, the distance they need to travel and the convenience of their origins and destinations to the mainline rail network. Clearly there are also various bulk supply chains where despite relatively attractive volumes, rail isn't able to achieve a competitive service and price offering.

In many cases though these bulk supply chains are also struggling with the problems of modal competitiveness and sustainability. As an example, one of the key corridors for bulk freight is the Mt Isa line. This line generates good tonnages, and is believed to approximately break-even on long-term costs. However, the line has been gradually deteriorating with a growing burden of temporary speed restrictions, while access charges have been increasing, eroding rail competitiveness. This line is managed by Queensland Rail on behalf of the Queensland Government and once again demonstrates the challenges that the rail freight sector faces through the lack of certainty of commitment by Governments to achieving clear policy outcomes.

Importance of addressing the efficiency of existing infrastructure

The overview of rail freight infrastructure outlined above highlights the need for policy settings that address the need to continuously improve existing infrastructure, particularly where there are opportunities for greater efficiency.

In an environment where road pricing and investment was based on an economically efficient foundation, much of the desirable investment would be able to proceed through normal commercial processes.

However, two issues remain. First, the current rate of progress suggests that this environment could still be a significant number of years away. Second, the framework as envisaged does not deal with the significant externalities, both positive and negative, associated with freight transport. Putting in place a mechanism that prices externalities is generally regarded as the most efficient way to deal with this problem, but any such scheme is realistically only likely to be developed in parallel with or following the road sector market reform process.

FORG suggests that in the meantime the infrastructure priorities of the Federal and State Governments should include a focus on identifying and investing in improvements to existing infrastructure. As Infrastructure Australia has identified, giving a higher priority to investments that

address bottlenecks and pinch points on existing freight networks would deliver significant and lasting benefits. FORG supports the following recommendation from Infrastructure Australia's 'Australian Infrastructure Plan':

"Recommendation 3.5: All governments should establish targeted investment programs focused on removing first and last mile constraints across the national freight network. These investments should be informed by the findings of the recommended National Freight and Supply Chain Strategy."

However, FORG also suggests that the recommendation extend to improvements to existing infrastructure that extend beyond first and last mile constraints, e.g. where speed or capacity restrictions apply to some sections of a freight corridor and have a negative impact on the overall efficiency of the corridor.

Heavy Vehicle Pricing and Investment Reform

The discussion around supply chains has repeatedly touched on the importance of heavy vehicle pricing and investment reform as a dominant element in supporting the improvement in the functioning of those key supply chains. This section provides a consolidated discussion of FORG's views on this issue.

The Transport and Infrastructure Council has previously stated that under the current PAYGO arrangements:

"Road network and heavy vehicle industry productivity has plateaued or in some cases already fallen due to a disconnection between road funding and charging"[3].

Importantly, the different pricing frameworks that apply to heavy vehicles compared to rail freight operators carrying intermodal and general freight impedes the efficiency of the land freight transport network.

FORG supports the commitment of the Federal and State Governments, through a decision of the Council of Australian Governments (COAG), to the acceleration of the Heavy Vehicle Road Reform (HVRR).

A proposed set of high level principles that should guide the acceleration of this reform agenda is provided at attachment A. FORG suggests that these principles include:

- Promoting improved productivity and enabling greater efficiency in the provision and use of freight transport infrastructure; and
- Enabling a consistent pricing and investment framework for both road and rail freight and, therefore, a more efficient land freight supply chain utilising both road and rail infrastructure networks.

The next steps for heavy vehicle pricing and investment reform should include:

- the introduction of the independent economic regulation of heavy vehicle charges by a recognised independent economic regulator, preferably the ACCC;
- the development and implementation of a new cost-reflective pricing framework for heavy vehicles that is consistent with pricing frameworks for rail and other infrastructure industries;
- direct user charging that properly reflects road use by each vehicle; and
- investment reform linking revenue to investment plans and more transparent arrangements for ensuring that infrastructure standards are provided.

[3] Transport and Infrastructure Council, 'Heavy Vehicle Road Reform – What We Are Doing and Why We are Doing It', May 2015

Data Gaps

This section of the Discussion Paper also sought comment on data gaps. The critical data gap in understanding supply chains is the lack of detailed and robust data on road freight movements on an origin / destination basis. This data is available for rail and sea and through the CSIRO 'Transit' modelling project is now available for many road based agricultural supply chains.

The 2014 ABS road freight movement survey provides the most useful data and allows some insight into the changing structure of road freight movements, and the relative competiveness of modes. However, it suffers from small sample sizes and hence has high relative standard error rates as soon as any attempt is made to analyse road movements at any level of granularity.

Given the scale of investment in infrastructure being made by Governments it would be reasonable to think that those investments would be informed by a good understanding of road freight flows, updated on a regular basis. However, it is understood that ABS / BITRE are not in position to repeat the survey. While there are other data sources being considered, there is at this time no clear path forward.

There are some potential medium term solutions to this, which are touched on in the Technology section of this submission.

A second data shortcoming relates to the availability of broad modal pricing data. The ABS currently produces road and rail freight indexes in Table 21, Output of the Transport, postal and warehousing industries, of the catalogue series 6427.0, Producer Price Indexes. The data sources for these indexes do not allow for any meaningful comparison between the price relativity of contestable freight services between road and rail transport. This is because the road freight index is sampled mainly from intercapital city road transport, whereas the rail freight index combines two different categories of freight, including samples from both containerised freight and bulk freight with the index largely influenced by movements in bulk rail freight prices. It would allow for a more meaningful comparison of changes in rail and road's relative competitiveness in particular freight services for the ABS to separately report:

- A bulk rail freight index; and
- A containerised rail freight index.

Competitiveness in the Australian Freight Sector

In your view, is Australia's freight system internationally competitive?

What are the key indicators which tell us this?

How important is freight movement to your business competitiveness?

Are regulatory factors affecting productivity for your business? How could this be improved?

FORG believes that meaningful quantification of the international competitiveness of Australia's freight system is difficult and hence FORG does not hold a position on this question.

The key issue for assessing performance internationally is that any quantitative metric can be misleading due to differences in the wealth, economic structure, physical geography, human geography and political frameworks of different countries. For instance, attempts to compare the performance of Australian railways with those of North America, which in theory should be a good geographical comparator, immediately highlight that fuel and wage costs in Australia are significantly higher, due to differences in taxation and wage setting systems. The competitiveness of intermodal freight is difficult to compare as B-doubles are not permitted in the United States. Railways in North America are vertically integrated where there are a number in Australia, including the interstate network, that are vertically separated, which creates issues in making comparisons. In addition, the physical and demographic geography of North America and its overall population both mean that it achieves economies of scale in rail operations that are simply not available in Australia.

If, alternatively, an attempt is made to compare countries using input measures, such as number of employees for a given freight task, the comparison may be meaningless as in this case substitution of capital for labour should accelerate as a country's general wealth and productivity increases. Alternatively it may be because of the nature of the freight task – it is meaningless to compare the efficiency of hauling iron ore in the Pilbara to efficiency of delivering parcels in Mumbai even though they both generate tonne kilometres and both require inputs of capital, labour and consumables.

Given these challenges, comparisons shouldn't simply be about the cost of a movement or the labour productivity of a movement. The question should be what does the community want out of its freight transport system and do the structures and policies in place support the achievement of those goals.

This suggests that any international comparison should perhaps be more akin to international benchmarking exercises that measure, often with some subjectivity, the performance of a country against a basket of desirable characteristics, or through a survey.

The World Bank produces a Logistics Performance Index (LPI) which is of this nature. Australia ranked 19th in the 2016 edition. However, this index is primarily oriented toward international freight and domestic movement of international freight. Whether it is meaningful to infer similar competitiveness of the broader freight and logistics industry from this measure is unknown.

To be able to holistically measure 'competitiveness' though, it is first necessary to define what it actually means. Does it simply mean lowest cost? By some measures, costs could be significantly lower if reduced safety were acceptable. For instance, driving hours could be deregulated or vehicle performance standards abolished. Presumably these would not be considered desirable initiatives as they would reduce the community's overall wellbeing.

Hence a critical role for the National Freight and Supply Chain Strategy should be to define what it is that Governments are seeking to achieve from the supply chain and as far as possible construct a means by which it can be holistically assessed.

This is discussed further under the 'National Performance Monitoring' section. Whether it is then possible or practical to benchmark this internationally would need to be carefully considered.

Urban growth and port corridor pressures

What are the key issues for freight in Australia's major cities?

How can Australia's urban networks better prioritise passenger and freight services in the most effective manner possible?

How are cities and supply chains being impacted by changing consumer behaviours such as online shopping? What are the critical last mile issues you face in urban areas?

Do you face, or expect in the future to face, problems moving your freight through Australian air, land or sea ports? How can Australia's maritime channels be appropriately maintained and able to accommodate bigger ships? How are other countries dealing with the landside implications related to distributing cargo from bigger ships?

FORG's interest in port corridor pressures relates primarily to the rail corridors accessing the port, the future location of IMEX terminals and the interface between the rail network and the stevedores. This has considerable overlap with urban pressures more generally and for simplicity these two issues, which were separated in the Discussion Paper, are combined in this Submission.

While there is some commonality of issues between cities, many of the challenges are best discussed on a port by port or city by city basis. Accordingly this section looks firstly at issues with urban growth and ports generically before discussing each of the ports / cities individually.

Land-use / Transport Planning

Both Government and the rail freight industry could arguably have performed better in recent decades in terms of long-term land use and transport planning to support the efficient movement of freight by rail.

The ideal environment for rail to be competitive is for an urban environment where:

- Land-use planning identifies suitable locations for the agglomeration of major freight generating industries and makes provision for rail freight infrastructure in the land-use plan.
- Industry that generates significant volumes of freight are encouraged by the planning process to locate in those areas.
- Activities that do not generate significant volumes of freight are discouraged from locating in those areas.

It should also be noted that this approach also minimises road freight within the city as business to business freight movements can be consolidated within a freight precinct, minimising truck trips through residential areas.

Inevitably there will be a degree of dispersion of industry as industrial activity generally tends to gravitate toward lower value land on the outskirts of the city, with traditional industrial areas redeveloped into residential or commercial areas. However, this could still be managed in a relatively efficient way with sufficient planning of residential development to avoid it surrounding industrial precincts. Yet, to varying degrees, Australian cities have developed with an industrial geography that is almost the opposite of this ideal structure. Sydney in particular has 15 distinct major freight activity precincts spread across much of the urban area and interspersed with residential development.

While planners must deal with many competing pressures and there are sometimes legitimate reasons for fragmenting industrial regions, there is also a good case that freight transport efficiency has been undervalued among the high level objectives of urban planning.

At the same time the rail industry went through a long-period where it lost focus on planning for future intermodal terminals. This was arguably understandable given that for some decades the interstate intermodal business was making substantial and continuing losses. Following commercialisation and privatisation the focus shifted to making maximum use of existing assets and using terminals to differentiate services. There was also uncertainty around ownership and third party access to terminals. As a result, the intermodal network still largely operates out of the terminals that were built in the 1970s, mostly within then existing goods yards rather than as greenfields projects with efficient connectivity to rail and road freight networks.

Given that the rail freight industry is now relatively healthy, albeit on tight margins, there has been a growing recognition of the desirability of transitioning to new intermodal terminals that are designed for modern operations and located with current and future land-use planning in mind. In particular, there has been a growing appreciation of the benefits of integrated logistics precincts, where intermodal terminals can be accessed by freight without the need to travel across the public road network. There has also been a significant increase in understanding of the benefits of agglomeration, with this now being a consideration in economic appraisals. This will ideally flow through to the broader land-use planning process.

Better protection of freight transport corridors and precincts from encroachment by incompatible land uses, particularly residential, is a longstanding request of Governments by industry. A sustainable balance between industry efficiency and community amenity is necessary to protect the interests of each. This recognition is increasingly supported, with influential bodies such as Infrastructure Australia recently not only arguing the general case for corridor protection, but also presenting the business case for that to occur. FORG members maintain that Government land use planning policy still fails to adequately take account of the need to protect freight corridors and terminal precincts and underestimates the resulting potential for conflict between industry and the community. Supply chain efficiency is often at risk in these circumstances.

Urban development has a very long-term horizon and it will take possibly a generation of good planning to correct some of the shortcomings of the last 50 years of development. However, it is critical that Governments take the initiative now to improve these processes.

Road Investment

Rail is highly dependent on road for pick-up and delivery (PUD) of urban freight. On short-haul corridors the terminal plus PUD cost is over 50% of the door to door cost of rail freight. Anecdotally, the past ten years have seen rail linehaul costs falling while PUD costs have increased substantially. Given the problems with the industrial geography of cities and the increasing remoteness of intermodal terminals from freight generators, rail is becoming even more dependent on the efficiency of the urban road system. At the same time, because freight generators are moving to the periphery of cities they remain relatively efficiently connected to the national highway system. As a result, road freight is becoming increasingly competitive for intercapital movement at the same time as costs increase rapidly for moving freight within cities.

Arguably this situation is a direct consequence of the explicit policy of past Federal Governments to prioritise investment in the national highway system over investment in urban roads.

This has significantly improved truck competitiveness against rail on the line haul task, and contributed to the major problems with urban congestion which has pushed-up pick-up and delivery costs for rail.

Accordingly, FORG supports the development of improved road networks within cities, subject to them being appropriately charged for. It also supports planning to ensure that intermodal terminals are connected as directly as possible into urban motorway networks.

Rail / port interfaces

Existing rail / port interfaces across Australia are a mixture of ‘on-dock’ facilities and common user terminals. On-dock in this context refers to a configuration whereby the interface is within the stevedore facility and containers can be handled by intra-terminal vehicles without needing to access the public road network. Common user terminals by their nature tend to require a movement across a public road.

Experience has shown that on-dock facilities have a significant cost advantage over a common user terminal approach. The industry consensus is that on-dock facilities should be strongly preferred subject to appropriate measures to ensure equitable access.

Summary of urban growth and port corridor pressures across Australia

Brisbane	
Land-use planning	Land-use planning in the Brisbane region has been relatively good. The decision to create the Heavy and Noxious Industry Zone around Bromelton provided certainty of the long-term location for consolidation of such activities in a region well served by rail and with a plan for improved road connections. At the same time, there are now a number of pockets of major freight generating activities across Brisbane, which as it spreads geographically will make it increasingly difficult for rail to service efficiently. FORG would in particular suggest that major freight generators be discouraged from locating north of the Brisbane River.
Separation of freight and passenger	Interstate services access Brisbane from the south on a fully dedicated freight track. While there are proposals to develop a passenger line in the corridor, the expectation is that any project will preserve the separation of freight and passenger. Intrastate freight services from the west currently share the Ipswich line with

	passenger services, but this will become separated with the construction of the Southern Freight Rail Bypass as part of Inland Rail. Services to the port are currently a mix of integrated and separated. The future of this corridor is currently somewhat uncertain due to the potential impact of both Inland Rail and Cross-River Rail. Ideally the corridor would become fully separated, but this is likely to be a medium term project. While the original Cross River Rail concept supported separation of freight and passenger from the south, the current proposal does not achieve any further progress in this direction. Freight services to the north are fully integrated with passenger. Separation would be a major undertaking, requiring a Northern Brisbane Freight Line which would need to extend at least as far as Caboolture. There are major challenges with getting across the Brisbane River. This would be a long-term project but as with all projects requiring a new corridor, early planning and corridor reservation will facilitate development at minimum cost in the long term.
Intermodal terminals	The current Acacia Ridge intermodal terminal is reasonably well located, but the continuing growth of the city is expected to gradually constrain it. Industry is expected to progressively shift from the immediate Acacia Ridge region to other freight precincts on lower value land. This may gradually erode the attractiveness of Acacia Ridge as the primary interstate terminal, though it could have a long-term role as an IMEX terminal. The decision of SCT to establish a terminal at Bromelton will boost development of this region. There is a very good opportunity for high quality terminals with an integrated freight precinct to develop at Bromelton, though it is expected that this will be a medium term process. Ebenezer also has potential once Inland Rail is built, though the extent of earthworks required at the identified potential intermodal sites may act against this. It is also not clear that the Ebenezer / Ipswich area will attract sufficient industrial development to warrant a terminal in the foreseeable future though this could be encouraged through the land-use planning process.
Port / rail interface	The port / rail intermodal interface at the Port of Brisbane is via the Brisbane Multimodal Terminal (BMT). This requires transfer of containers across the public road network significantly increasing costs. Ideally each stevedore should have ‘on-dock’ rail facilities particularly in the event that there is a desire to operate cross-metropolitan container shuttles. At this stage there hasn’t been investigation into the feasibility of achieving ‘on-dock’ rail access.
Sydney	
Land-use planning	Sydney has possibly the worst urban form of all the major cities in terms of providing the opportunity for rail to efficiently service major freight generating activities. There are approximately 15 separate major industrial zones across the city. Much of the planned future industrial land release is in the ‘employment lands’ in western Sydney and with the decision to proceed with the adjacent Western Sydney Airport there is some prospect that in the long term there will be consolidation of logistics activities in this area. However, at this stage there is no concrete plan for a rail corridor or terminals integrated into the employment lands, even though planning has been sporadically proceeding for over a decade.
Separation of freight and passenger	Sydney has limited separation of freight and passenger services. The Metropolitan Freight Network has provided separation in the inner area of Sydney for around 100 years and this is now integrated with the interstate network from the south by way of the Southern Sydney Freight line.

	Options to further separate freight and passenger are limited though. The Illawarra line could be separated by construction of the Maldon – Dombarton line but economic analysis has repeatedly concluded that this is not justified in the foreseeable future. Diversion of freight via the existing Moss Vale – Unanderra line is likely to be a better economic solution. Some separation could be achieved to the west in conjunction with gaining rail access to the employment lands through the Western Sydney Freight Line. Beyond the limit of the suburban network at Emu Plains there is no plausible solution for separation. Separation of freight and passenger to the north is very challenging given the terrain and density of passenger operations. A separate freight track to beyond Hornsby or the limit of suburban operations at Berowra may be possible in the long term. Separation between Berowra and Newcastle is unlikely to be viable even in the long term unless somehow integrated into a future Sydney – Brisbane high speed rail line. Past investment in this corridor has focussed on freeing up capacity for freight on the shared tracks and further works to this end have previously been identified as the Northern Sydney Freight Works project stage 2.
Intermodal terminals	The original Sydney intermodal terminal at Chullora is inefficiently sized and as industry has drifted west in search of cheaper land it has become increasingly remote from the major sources of freight. The Enfield terminal developed by NSW Ports is being used for both interstate and cross-metropolitan container shuttles. It is quite well located for IMEX freight and could in particular play a useful role in hubbing of regional trains. Its use as an interstate terminal is largely opportunistic rather than because it is well located. The Moorebank development is better located in terms of the shifting industrial geography and the development of integrated warehousing has the potential to deliver significant efficiencies. It is expected to be highly effective for IMEX services and offer a better option for interstate services than do the existing terminals. In the medium term it is critical that rail be able to efficiently serve the employment lands / Badgerys Creek / Eastern Creek area and FORG strongly supports proceeding with corridor reservation for the Western Sydney Freight Line and terminals as a matter of priority. In the shorter term Pacific National is progressing a terminal site at St Mary's which will be primarily focussed on cross-metro shuttles and will give rail freight an increased presence in this part of Sydney.
Port / rail interface	The port / rail interface at Port Botany is relatively effective in that all stevedores have on-dock rail facilities. However, both the Patrick and DP World facilities have various configuration issues that make rail less competitive than it could be. The strength of rail in the Sydney market though is driving commercial solutions to these challenges and there is reasonable optimism that the issues will be progressively addressed. There are also a range of coordination issues at the interface. Although there has been intensive attention given to these challenges in recent years, there is as yet no clear pathway to solving them, largely because there are inherent tensions that are difficult to resolve. At the same time, the challenges are not yet constraining growth and there is sufficient focus and commitment that it is expected that sufficient reform will be achieved to ensure that rail is able to function effectively going forward.
Melbourne	
Land-use planning	Melbourne's urban form is reasonably well structured for efficient access to

	the rail network with the dominant freight generating areas in west and north Melbourne having good access to the rail network. The south east industrial area is, however, very poorly connected, with the only potential rail access being on broad gauge and via the CBD. Achieving a dedicated standard gauge freight track to this area is likely to be prohibitively expensive. It would therefore arguably be desirable for Government to discourage major freight generators from locating in the south east. Government adoption of the recommendation of the recent report by Infrastructure Victoria that a future second port be at Bay West, would further strengthen the efficiency of the industrial geography. The alternative Hastings option for a second port would create major challenges for rail freight efficiency.
Separation of freight and passenger	Both the port and interstate terminals are connected to the interstate network with dedicated freight lines, while some of the broad gauge freight task is also able to access the port with minimal need to use shared passenger lines. The greatest challenge is the south-east and La Trobe valley, which compete for access on the passenger intensive Dandenong line and have essentially no prospect of ever being able to get access to a dedicated freight line.
Intermodal terminals	The existing interstate intermodal terminals at Dynon are reasonably well geographically positioned, but as the city grows this locational advantage is diminishing. At the same time, they are not well configured for assembling the 1800 m interstate trains that now dominate, and there is no prospect of gaining access for double stacked trains. There is also no capacity for the development of integrated warehousing around the terminal precinct. As such, it would be highly desirable to develop a new terminal and logistics precinct to coincide with the opening of Inland Rail. There is generally an industry preference for this to be the WIFT site at Truganinna, but it is also be desirable to preserve the NIFT site at Beverage as well. It would also be desirable to see the growth of import-export container shuttles in Melbourne. The existing Somerton terminal is well positioned for this purpose and there is potential for multiple terminals to service this trade in the Altona area. Any development of WIFT, or NIFT, should also have provision for IMEX operations as well as interstate.
Port / rail interface	IMEX operations at PoM have for some decades been managed through a common user terminal at Appleton Dock. DP World has recently reopened their terminal at West Swanson Dock, though this also requires trucks to operate across the public road network, constraining their efficiency. There is an emerging pathway forward for both Patrick and DP World to have genuine on-dock facilities in the short to medium term. Infrastructure Victoria has recommended that maximum use be made of the existing Port of Melbourne precinct before a second port is developed. This is likely to involve substantial enhancement of the Webb Dock area and potentially relocation of much of the international trade to this part of the port. There is currently no rail access to Webb Dock, though parts of a former rail connection remain. It is important that affordable rail options to service a growing Webb Dock are identified and preserved so that effective rail access can be provided at the appropriate time.
Adelaide	
Land-use planning	Adelaide's industrial areas have traditionally been clustered in two areas, one north and one south of the city. With the structural changes in manufacturing, and particularly the close-down of car manufacturing, the south of the city appears to be in relative decline compared to the north. With the intermodal terminals and port located to the north and north-west, this helps to consolidate the major logistics centre of the city, which supports rail efficiency

	and competitiveness.
Separation of freight and passenger	There is complete separation of freight and passenger operations in Adelaide.
Intermodal terminals	Adelaide is relatively well served by efficient intermodal terminals and there is reasonable scope for new terminals to be developed to the north of Adelaide. Length constraints at Port Flat and height constraints for trains accessing Dry Creek yard, both used by Aurizon for its east west services, have created some difficulties for efficient operations but have a pathway to resolution. There is no standard gauge access to the southern region of Adelaide and hence no opportunity to develop an IMEX terminal to service industry in this area, though as noted above this is declining as an industrial and logistics region in favour of the north of the city. With Adelaide projected to grow relatively slowly compared to the other mainland State capitals there is no apparent pressure on terminal facilities.
Port / rail interface	Rail facilities at the Port of Adelaide are relatively good. There is some on-dock rail access to the Flinders Port stevedoring facility and adequate land to allow the port/rail interface to evolve as demand and opportunities require.
Perth	
Land-use planning	Land-use planning in metro Perth has been relatively good. The 1955 Stephenson-Hepburn Plan provided a clear land-use planning framework for which major infrastructure corridors, industrial and commercial zones were clearly established. In 2016 as Perth's population surpassed 2 million and with estimated growth to over 3.5 million by around 2050, the Perth & Peel Transport Plan was released by state government. It provides a long term plan for transport infrastructure and more efficient use of the transport network for passenger and freight movements. Transport corridor protection from urban encroachment is an emerging issue, with government and industry stakeholders actively working together to ensure appropriate land-use planning development control mechanisms are implemented.
Separation of freight and passenger	There is predominantly complete separation of freight and passenger rail operations in metro Perth. However, current state government plans to expand the passenger rail network (Metronet) requires the use of current dedicated rail freight corridors. Whilst separation of freight and passenger rail lines is proposed, the inclusion of passenger lines with accompanying stations, inevitably constrains the flexibility and future growth of these corridors for freight related activities.
Intermodal terminals	Current Interstate Rail Freight Intermodal Terminals are located in the Kewdale / Forrestfield area and have seen recent significant private investment to update and create additional future capacity to serve this market for the foreseeable future. The only import/export container port related intermodal terminal is located at Forrestfield in the central/eastern corridor, but is constrained in its ability to expand due to its colocation on an existing major grain inland terminal site. Key industry and government stakeholders are working on developing a clear network plan of required intermodal terminals to support an expanded import/export containerised rail task and a growing Perth population into the northern and southern metro corridors.
Port / rail interface	The port-rail interface at Fremantle Port is through the common-user North Quay Rail Terminal, which adjoins both Stevedores. Federal and state governments have invested significantly in related infrastructure over the last 10 years to support this open access, multi-user terminal. Current interface inefficiencies between the rail terminal and both stevedore's wharf operations

result in double handling costs that constrains rail market share growth and requires ongoing state government subsidy to support containers on rail. Rail container volumes have stalled at around 15% over the past 10 years.

However, with the new state government decision to abandon the Roe Hwy Stages 8 & 9 heavy haul road upgrade to the port and a clear desire to manage truck impacts through greater support for & use of rail for transporting containers to and from North Quay, industry and government stakeholders are working on developing a clear strategy to increase rail container share to a minimum of 30% total port throughput via a range of measures.

In addition, the proposed future development of additional port terminal facilities in the Fremantle Port Outer Harbour (Kwinana) to meet the needs of a growing Perth & Peel population, and supporting an export-based local economy, will require complimentary investment in mainline freight rail and key feeder road infrastructure to service this precinct. Significant investment will also be required to re-engineer current freight rail and road infrastructure to meet the operational needs of modern port terminals for at least the next fifty years.

End-to-End Supply Chain Integration and Regulation

How effective is your supply chain at transitioning your freight between modes and across boundaries? What regulations do you have to deal with in your supply chains?

How could any of them be simplified? Are empty containers a problem for you?

The rail freight industry confronts two major challenges in regard to end-to-end supply chains:

- Terminals and Pick-up and delivery (PUD) in urban areas.
- Consistency and integration across network owner and regulator boundaries.

The issues of urban terminals, urban congestion and fragmented land-use are covered in detail in the previous section. In short, the critical issue for rail in the intercapital general freight market is that urban terminals are sub-optimal. Many are inefficiently configured and poorly located relative to current major freight generators, which together with the growing problem of urban congestion is causing significant increases in cost for pick-up and delivery. While linehaul rail efficiency has been increasing, this is being offset by the declining efficiency of the last mile task.

The challenge around boundaries has many aspects. Significant steps forward have been made over the past two decades through the establishment of ARTC to consolidate the interstate network, the establishment of the National Rail Safety Regulator, interstate gauge standardisation and increased separation of freight and passenger services. Nonetheless, substantial challenges remain, particularly in the form of a multiplicity of interface and consistency issues each of which on its own can be small, but which in aggregate create inefficiencies.

Some examples of this issue include:

- The slow progress of harmonisation through the Consolidated Safeworking Rules.
- Individual State initiatives in regard to environmental emissions regulations including the mechanisms for regulation and the limits that are applied.
- Differences in the nature of rail access regimes between multiple State and Commonwealth access regimes.
- Differences between network owners in their terms of access, including pricing and processes for rollingstock approval.
- Coordination of pathing across track owners.

Another element of regulation that creates challenges for the industry is the environmental and planning approvals process. To contribute to enabling private sector investment that complements or improves existing freight and supply chain infrastructure, or involves the development of new infrastructure, the priorities of governments should address approval processes which can have the effect of deterring investment. Important steps that could be taken by governments include further action to reduce the timeframes and costs associated with project and environmental approval processes in ways that allow environmental outcomes to be achieved.

Looking to the future, a key emerging issue is the implementation of communications based safeworking systems, which will create a critical need for interoperability. The unfortunate history of the break of gauge across Australian railways is well known and serves as a salutary lesson in the serious long-term consequences of fragmented decision making in a networked environment. As individual track owners make increasing use of highly integrated systems for safeworking, train control and operation it will be critical that adequate attention is paid to the need for interoperability across the network.

The other key regulatory issue is consistency between road and rail. Although road and rail compete, and their ability to compete is impacted by the way they are regulated, there appears to be little effort by Government to apply consistent regulatory policies to them. Arguably, regulation is pursued by Government without a proper appreciation of the context in which the regulation is being made. This is seen across Government, including in safety, environmental and economic regulation.

For example, permissible truck configurations are determined through regulation. There is a long history of granting increases in truck weight and capacity, partly under an arguably unsubstantiated pretext that this increases safety by reducing truck numbers. However, it has also had the demonstrable effect of shifting freight off rail and onto road, leading to an overall increase in safety risk. Governments appear to accept a level of safety risk with road freight that would be intolerable in most industries, including the rail industry, and do not appear inclined to look at freight transport safety holistically.

Unfortunately, there is no simple solution to all or any of these problems.

Although there are areas where regulation should be more consistent, there should not be a one size fits all approach to regulation. In other words, regulation should be fit for purpose and should be guided by clear objectives. New regulatory proposals should be subject to an assessment of the benefits and costs and other relevant evidence relating to impacts.

A potential framework for moving forward could be increased cooperation and coordination in an environment of good will and shared objectives. In this context, the NFSCS can play a useful role to the extent that it articulates clear objectives for Government policy, clarity around how those objectives can be realised in practice, performance monitoring of Government progress toward achieving its objectives and shared commitment across Federal, State and Territory Governments in all of these areas.

The Air Freight Market

Are our airports appropriately integrated into surrounding freight networks?

Are there any international examples of where airports are used more effectively in freight networks?

Can Australia be making greater use of air freight?

FORG does not have any comments specifically on the air freight market.

It is noted that from time to time there are proposals to provide connections between the freight rail network and airports. FORG does not believe that there is a market for combined rail freight and air freight movements. However, there are good land use planning reasons for placing industry and logistics zones near airports and as comprehensively discussed in this submission it is desirable that such precincts include road / rail intermodal terminals with a connection to the national rail network.

Changing Technology

What emerging technological trends do you think will impact on your supply chain?

When are these impacts likely to be felt and how does Australia's freight infrastructure need to be adapted to make best use of likely changes?

Do you feel you can make use of the technology you need?

Self-driving vehicles, including autonomous trucks, have generated extensive interest in recent years and a large number of market leading technology and vehicle manufacturing companies are engaged in an intense effort to deliver on the promise of vehicle automation.

There are a range of opinions about the technological, legal, regulatory and safety challenges that need to be overcome, leading to considerable debate about the timing of self-driving road vehicles. However, there seems little dispute that the technology will arrive and considerable support for the view that road freight will be an early adopter. While the details of what an autonomous heavy vehicle industry will look like still remain unclear, there is little doubt that it will lead to reductions in cost and improvements in safety.

At the same time there has been little focus on the development and potential utilisation of advanced technology in rail freight. This is largely because existing signalling systems do not lend themselves to automation and signalling system development over the past decade has been dominated by the implementation of positive train control (PTC) in the US and ETCS in Europe. PTC in its current form does not readily support train automation while train automation has been a secondary consideration for ETCS. The advancements in artificial intelligence that are driving vehicle automation aren't typically directly transferrable to a railway environment.

However, the Advanced Train Management System (ATMS) being developed by ARTC and the ETCS systems being installed on a number of networks around Australia, will provide a solid foundation for train automation. Furthermore, network owners ARTC, Aurizon and Arc Infrastructure are all currently working on the development / procurement of modernised train management systems that will optimise train operations and network capacity.

These systems provide the building blocks for a transformational change in the nature of rail freight operations. Given the technological and execution challenges of these systems, the rail freight industry has not had a focus beyond delivery of the base level capability of the technologies. However, given that there is now an increasing level of confidence in deployment of these systems in a live environment within the next two years, it is becoming appropriate to map-out what a future technologically enabled national rail freight system might look like.

In the first instance this would involve train automation to remove the system variation caused by different driving techniques. By significantly reducing variation and having better tools through dynamic pathing to adapt and optimise the system to account for variation that can't be eliminated there will be significant improvements in average train speed and network capacity, as well as savings in fuel and maintenance costs.

The advent of new technology and greater automation in trains will in turn be likely to create opportunities for a reconceptualisation of what represents an efficient train. While the future direction is inherently uncertain, the obvious potential is for different configurations, including shorter trains, which could optimise the service offering in some market segments.

This may particularly be the case in the general freight market where rail could be in a position to offer much better service frequency and to operate out of smaller intermodal facilities. Smaller trains may also allow rail to be competitive for freight flows that don't have the volume to support a rail service with current train cost structures, such as freight flows in regional areas.

Recognising the key role that technology systems are expected to play in the future of freight and supply chain infrastructure and operations, it will be important that the development and introduction

of different systems contributes to, and does not impede, the integration of the freight and logistics network. Furthermore, technology needs to be utilised in ways that will contribute to improving the productivity and competitiveness of freight operators using different parts of the network, e.g. long-haul interstate freight operations.

To this end FORG proposes that there should be a standards-based approach utilised to guide the development and implementation of technology systems. A standards-based approach should be consistent with the following principles:

- That there be seamless interoperability between networks and systems and that this be achieved without the duplication of equipment and supporting systems for train operators;
- That the introduction of new technology provides net economic benefits for train operators, with the net benefits to take account of network interface costs; and
- That new technology systems prioritise safety and contribute to improving the safe operation of freight trains and related services.

An important component of any modern train safeworking and control system is the availability of reliable communications. A successful and cost effective standard must achieve safety and efficiency specifications in a whole of system approach. The most cost-effective communications method is to leverage existing 3G and 4G (and in the future 5G) communications combined with other options such as discrete network and satellite, as well as specific Service Level Agreements (SLAs) agreed upon with service providers to guarantee specific system performance.

A partnership with the Federal Government is required for the development and implementation phases of a national standard and to boost supporting 3G/4G coverage, reduce blackspots, and ensure sufficient capacity in dense areas and sufficient redundancy and overlap to mitigate failure of a communications base station.

Government support, including investment support, may be needed to facilitate some aspects the widespread roll-out of the communications based safeworking systems, reflecting their broader benefits and significant fixed costs that may be difficult to support commercially.

It is also likely that there will be increasing automation of systems in the broader freight supply chain. GPS tracking is already widespread and will presumably become ubiquitous when heavy vehicle charging moves to a mass – distance – location basis. Uber's development of a freight app to replicate the success of its ride-sharing app has had a relatively high profile, but there are already other companies that are offering web-based freight brokerage. The development of the EPCIS international standard for freight tracking systems offers the potential for system standardisation that could underpin scale and network efficiencies while providing much greater visibility and integration across the supply chain.

Innovations of this nature tend to offer incremental improvements in supply chain efficiency rather than the transformational changes that automation will drive. However, what may be more important is that they are the platforms that will generate the 'big data' that has the potential to offer previously impossible insights into how supply chains function and where there may be opportunities for improvement.

A key issue for Government will be how this data should be approached. Some of the data sets may be of considerable benefit to policymakers. Open access to data may also in itself improve competition in the market, driving further efficiency. Yet potentially all of the data will either be owner by the private sector or protected by confidentiality commitments.

The transformation of both the road and rail freight industries is likely to be so wide-ranging that it is difficult to be prescriptive as to what future supply chains will look like. What will be important is to make sure that institutional structures and Government policies allow the market to respond, adapt and evolve in efficient ways to exploit the potential of the new technologies.

Capacity Forecasting

Any data or insights you are willing to contribute to assist in capacity forecasting assessment would be appreciated.

The discussion paper notes that the Terms of Reference for the Inquiry include a requirement to assess the capacity of key ports, airports and intermodals to meet freight demand over the next 20 years.

FORG finds it surprising that the inquiry is not also considering the capacity issues in regard to freight on the road and rail networks and considers this to be a significant omission.

FORG is happy to provide DIRD with detailed modelling of demand and capacity across the nationally significant rail network. An overview of these forecasts together with proposals for capacity enhancement across the network are set out in the FORG National Rail Freight Infrastructure Strategy.

Implicit in the demand forecasts are also estimates of container throughput. However, given that intermodal terminal throughput is dependent on the volumes of individual operators it is not possible to forecast throughput for individual terminals without effectively projecting market share by operator. Given the nature of FORG it is not considered appropriate that this submission deal with this issue.

As already discussed extensively, FORG considers that there are major challenges in regard to terminals, particularly in Melbourne, Sydney and Brisbane. However, these issues are not limited to questions of capacity. While terminal capacity is a valid issue to consider, there are often ways to generate incremental increases in throughput through investment in equipment. The bigger issues relate to the shortcomings of the existing terminals, or more so, the opportunities from development of new terminals to lower supply chain costs while also increasing urban amenity.

Key Drivers of Change for Use in Scenario Planning

The Inquiry welcomes views on what factors and key drivers of change should be considered in the scenario planning analysis. The Inquiry is also keen to identify key functional elements of supply chains through case studies demonstrating how Australia's freight system is working on the ground, including case studies about things working well, as well as examples of the problems and where improvements can be made. Identification of potential future trends in supply chains would be valuable.

The following section outlines the items that FORG considers will be major variables that depending on how they evolve have the potential to lead to significantly different outcomes for freight and supply chains and hence would be useful considerations in scenario development.

Structure of the Australian Economy

Over the past ten years there have been significant structural shifts in the economy with the two key issues from a freight perspective being the growth in mining and the decline in manufacturing.

The growth in mining output has seen rail freight volumes surge with most of the growth coming from iron ore in the Pilbara and coal in central Queensland and the Hunter Valley. At the same time long distance general freight volumes have been stagnant, with modelling suggesting that this is directly linked to the absolute decline in Australia's manufacturing output which was heavily impacted by the high Australian dollar and the global financial crisis.

The rapid growth in cities and the substitution of imports for local manufacturing has seen freight transport volumes through container ports and within cities growing very strongly.

A key issue for any future volume forecasts is therefore what will be the trend in these areas. Key variables will be:

- World demand for steel, which drives iron ore and coking coal volumes.
- The pace of decarbonisation of electricity generation, together with the international competitiveness of Australian thermal coal, which drives thermal coal volumes.
- The Australian dollar exchange rate, which determines the viability of Australian manufacturing, and the response of the manufacturing sector to changes in its price competitiveness. This issue is a key driver of both interstate intermodal demand and import container demand.
- Demographic changes, which drive both total demand for transport and the geographic basis of demand.

Technology

The technology outlook has already been discussed above. As noted, there is considerable uncertainty about what technological change might mean for the competitiveness of road and rail.

It is also important to emphasise though that transport costs are likely to come down significantly as a result of technological innovation. This in turn is likely to result in increased demand for freight transport due to increased consumption and due to goods being able to be competitively sourced from further away from the point of consumption.

Heavy Vehicle Pricing and Investment Reform

A heavy vehicle charging regime based on good application of economic principles is likely to result in both an increase in the total amount of revenue being recovered by heavy vehicles and a change in the relativity of cost between heavy vehicle groups.

This is likely to:

- Make rail more competitive in some sectors than under current charging regimes, leading to higher rail market share than would otherwise be the case.
- Materially change the relative cost of different types of freight movements, which may impact demand, though most likely only at the margins.

Parallel reform of road investment frameworks should also lead to better targeting of investment while cost reflective price signalling should drive an overall improvement of the road freight transport system. In this context there is also likely to be a pick-up in the pace of road freight productivity in the medium term.

Rail Access Charging

Rail access prices for most non-bulk freight are set at significantly below the regulatory ceiling. Current access charges ensure that rail is competitive and largely keep road and rail market share stable.

The significant changes to cost structures that are likely to occur as a result of technological change and reform of heavy vehicle charging will inevitably lead to instability in road / rail competitiveness, which is likely to flow through to potential changes in market share. In this environment rail network managers could choose to pursue a range of different policies. These could aim to increase their margins, encourage more freight on to rail, or continue to hold competitiveness stable. They may also wish to pursue different strategies for different parts of the network.

Scenario analysis may therefore wish to consider a range of strategic responses by track owners to changes in the external environment rather than assume that current access charges will remain largely constant.

A National Freight Performance Network

The Inquiry is particularly interested in views on the potential need for a national freight performance framework and the likely key indicators.

FORG agrees with the principle that KPIs are required to be able to monitor the achievement of progress toward defined objectives. Each organisation maintains KPIs for the performance of its own business and some KPIs that relate to the functioning of the rail network as a whole are reported in the BITRE publication Trainline.

FORG's understanding of the purpose of a National Freight and Supply Chain Strategy though is for it to provide an overarching direction to improve the logistics industry as a whole. Given this, performance indicators should be designed to measure performance at this level.

As discussed extensively in this document, FORG considers that it would be highly desirable for the NFSCS to set out the objectives of Government with regard to freight with sufficient definition and clarity that they can be meaningfully applied. KPIs should flow from this and be used to measure and monitor the performance of Government in achieving the objectives.

FORG would argue that the key objective for Government should be that freight's contribution to the wellbeing of the Australian community is maximised and that this is achieved through a freight system that is efficient, safe and sustainable.

In this context, efficient should mean economic efficiency in terms of achieving both productive and allocative efficiency. This implies that the movement of freight should face the full cost that it imposes on the community and that both the total demand for freight and the choice of mode should be determined by the market based on efficient costs. Investment in both capacity and enhancement to improve productivity should occur as soon as those investments become economically justified. Strategic land-use planning should be undertaken with a view to minimising the economic costs of freight transport. Regulation should only be adopted where there is demonstrable market failure and the benefit of Government intervention demonstrably outweighs the costs.

Safety as an objective is fairly self-evident. Freight transport safety should be considered holistically rather than on the mode specific basis that tends to be the current focus and which leads to perverse outcomes such as 'more-productive' trucks, which are agued to be safer, shifting freight off rail onto road and as a result increasing the overall safety risk.

Sustainability has two distinct but complementary elements. First, the economic foundation needs to be sustainable. This means that infrastructure needs to generate sufficient revenue to ensure it is renewable and that the costs of investment, including risk, can be recovered. Second, the impact on the environment needs to be sustainable. This directly includes resource depletion, but also has to have regard to the impact of transport on the community and the ability of the sector to maintain its social licence.

It is not immediately apparent though that there are quantitative KPIs that can meaningfully measure performance against these objectives. Macro-level indicators of freight cost or output are susceptible to misinterpretation due to the large number of independent variables while partial indicators can also be misleading as they by definition don't give an holistic view of performance against the high level objectives.

An alternative approach would be to focus on the fact that the key measure for Government should be that it has clarity of its objectives and that its policies are demonstrably coherent and aligned with those objectives. This would suggest perhaps that once Governments agree on their objectives in regard to freight through the NFSCS, that there be an audit of Government policies to assess whether the policies are aligned to the objectives, and, importantly, whether the policies are sufficient to achieve the desired outcomes.

Conclusion

Once again, FORG appreciates the opportunity to provide input to the development of the NFSCS and looks forward to further engagement with Government as the project proceeds.

This submission has discussed a wide range of issues. However, the central theme that runs through it is that while rail already carries a majority of the Australian freight task, FORG believes that it could capture more of the task and improve freight outcomes for the community but that the industry is being held back by a lack of clarity, consistency and execution of Government policy.

The NFSCS offers Governments the opportunity to provide clarity around the outcomes that they are looking for from the freight transport system and a framework for reforming institutions and policies to achieve those outcomes.

Foremost among the policy levers is that FORG believes the interests of the community will be best served by ensuring that heavy vehicles pay an appropriate amount toward the cost of road use.

Beyond this it also believes that Government has a critical role to play in land-use / transport planning and ensuring that future rail corridors and intermodal terminal sites are identified and reserved.

A list of specific recommendations for Government action are included at the start of this document.

Attachment A - Heavy vehicle charging and investment reform principles

To guide the implementation of heavy vehicle charging and investment reforms, it is proposed that the following principles be adopted:

- The reform initiatives should cover both Demand (pricing reform) and Supply (infrastructure provision/investment).
- The reforms should apply to major freight routes managed by Governments (national highways and state arterial roads).
- Pricing reform should involve sending clear price signals to heavy vehicle users of road infrastructure based on the introduction of direct charges that fully reflect the actual costs of road infrastructure access and use by each heavy vehicle that is to be subject to direct charging.
    - Proposed prices for access to the road freight network should be based on:
        - A building block regulatory pricing model (including a Regulated Asset Base) and subject to approval by economic regulatory arrangements agreed by Governments.
        - A direct mass, distance and location (MDL) charging system.
- Infrastructure provision (Investment) reform should require the development of road infrastructure plans and service standards that are consistent with commercial principles, and responsive to the current and future requirements of heavy vehicle users, including links to intermodal facilities, ports, airport and other significant freight infrastructure.

o This more commercially oriented infrastructure planning by road agencies should include the opportunity for heavy vehicle road users to propose infrastructure or service upgrades and to negotiate the level of investment and costs that road agencies could seek to recover for the upgrades.

- All revenue from access and user charges should go directly to State Government infrastructure providers with all funds that are directed to investment to be invested in transport infrastructure in the same infrastructure class as from where the revenue was generated.
- State Government road infrastructure agencies/providers should be accountable for their performance in delivering infrastructure plans, including the provision of infrastructure service standards.
- Pricing reform based on direct user charging, and investment reform based on transparent infrastructure planning and provision, should be integrated from the commencement of the implementation process. This will promote the maximum productivity benefits from infrastructure investment by providers who will have an incentive to improve their performance in providing infrastructure and related services for the benefit of freight customers.

These principles should be the key reference point for all aspects of implementation of heavy vehicle charging and investment reform.


RAIL
CROSSING
WAY
STOP
LOOK
FOR
TRAINS