

Review of rail access regimes

*Department of
Infrastructure,
Regional Development
and Cities*

*Review of rail access
regimes*

May 2018

Executive summary

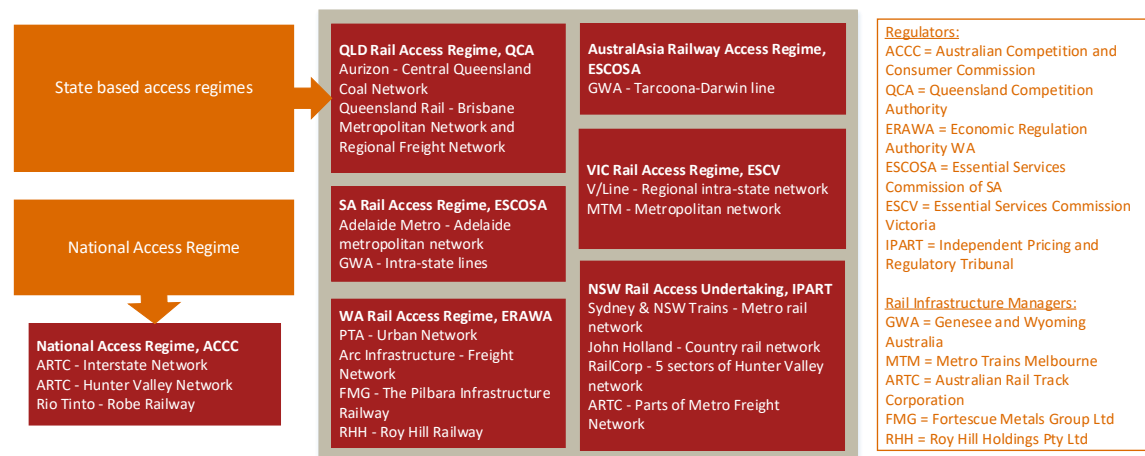
The Transport and Infrastructure Council’s National Rail Vision Work Program identifies key areas for reform with a view to increasing productivity, competitiveness and liveability across Australia. One of these areas is improving rail’s efficiency, capacity and environmental performance.¹

Interoperability is a key determinant of efficient freight movement across the multiple networks that exist in Australia. It is a function of the frictions between different legislated regulatory frameworks, infrastructure attributes, and operational conditions imposed by Rail Infrastructure Managers (RIMs).

Rail access regime regulatory requirements

The Department of Infrastructure, Regional Development and Cities (DIRDC) engaged PwC Consulting (Australia) PTY Ltd (PwC) to look at specific aspects of the current regulatory, administrative and operational processes in each jurisdiction (Rail Access Regimes). Historically and under current legislation, a National Access Regime as well as multiple State-based access regimes have emerged in Australia for rail, presented in Figure 1 below. This report provides a snapshot of these, and identifies possible reforms to improve interoperability.

Figure 1 Rail access regulation in Australia



Source: PwC analysis; NCC, Access to monopoly infrastructure in Australia, October 2011; NCC, past applications register; ACCC, Access to services registers s.44QB.

Note: The declaration of the Tasmanian Rail Network under the National Access Regime expired in October 2017 (Tasmanian Department of State Growth, 2017 review of Tasmania’s rail access framework: Discussion paper, 2017). BHP Billiton’s Goldsworthy line is also declared under the National Access Regime, but was mothballed in 2014 (BITRE, Trainline 4 and 5, 2016 and 2017).

Australian rail networks are largely publicly owned.² RIMs are either private operators leasing rail assets or Government-owned corporations or authorities. If property rights were

¹ Transport and Infrastructure Council, National rail vision and work program.

² The rail networks in the Pilbara region of WA are privately owned. There are additional issues and questions when considering third party access regulation of infrastructure that businesses are able to privately fund and build for their own use.

extended in the usual way without restriction, the infrastructure manager would set prices for its users according to prevailing demand-side and supply-side market conditions. In a competitive environment, the price that can be charged by any single supplier is constrained by the price offered by suppliers of substitutes, and will be around the economically efficient level, approximately equal to cost recovery. In the case of rail, however, the RIM holds a natural monopoly asset, and has a level of market power. If the market power can be exercised, there is a commercial opportunity for third party access prices to exceed cost recovery.

The objective of access regulation is to provide a framework for establishing price- and non-price terms for access which encourage the efficient use of the regulated facility, and do not adversely impact on competitive outcomes in any related market. The market power of a RIM might be constrained by demand-side factors such as low volume or a highly concentrated market for freight transport. In particular, rail freight cannot be seen as an isolated market, but a transportation mode option within the full freight task supply chain. In many cases, the ability of the operator to substitute other modes will provide a competitive constraint to the price of rail access.

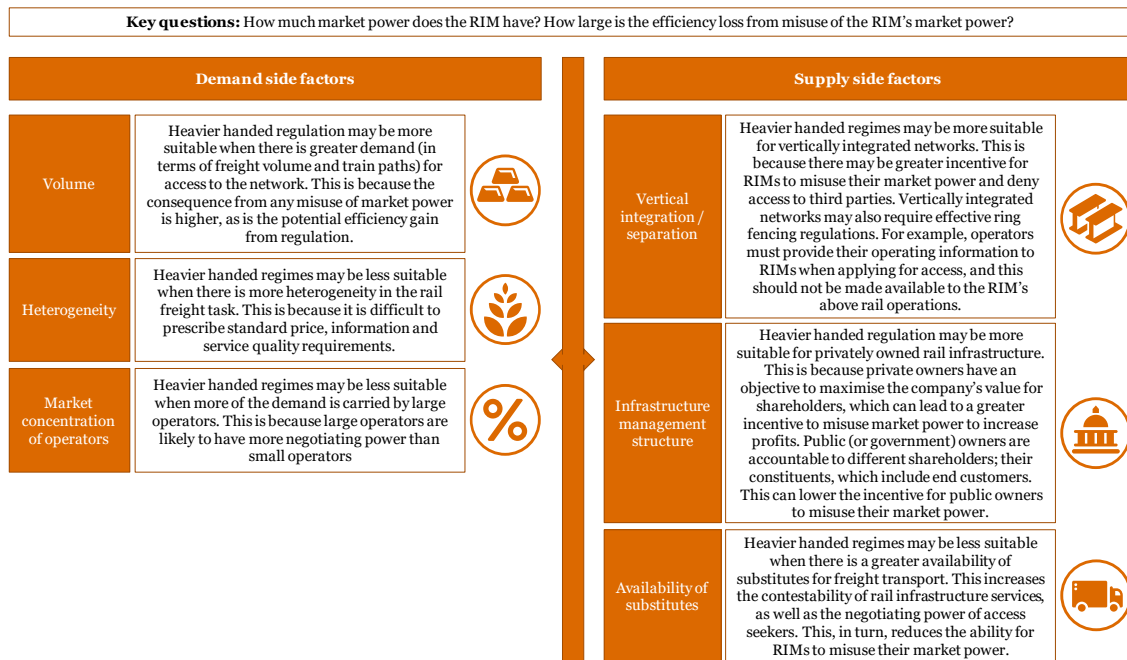
Rail access regimes range in their characteristics from light to heavy handed; a classification based on how much regulatory control the framework exerts on the terms and conditions of access (including price, information provision and service quality). Heavier handed regimes exert more control by being more prescriptive in their requirements, or by prescribing particular outcomes.

Generally, as a rail access regime moves from light to heavy handed:

- operators have more protection and certainty on the terms and conditions of access they can expect, including prices and service levels
- RIMs and operators have less flexibility to negotiate bespoke terms and conditions
- regulatory costs increase for regulators and compliance costs increase for RIMs.

Therefore, there are cost and efficiency trade-offs between light and heavy handed rail access regimes. In reviewing these regimes, we consider their effectiveness in promoting the efficient use, operation and investment in rail infrastructure, both intra- and inter-state. The intra-state effectiveness of each regime depends on the demand and supply side characteristics of the market it covers, presented in Figure 2.

Figure 2 Demand and supply factors that inform effectiveness of rail access regimes



Source: PwC analysis.

The interstate effectiveness depends on the impact on the cost of compliance for stakeholders that operate across multiple regimes. The different impacts on rail industry stakeholders (operators, RIMs and regulators) are highlighted in Figure 3.

rail freight journey, an operator may be required to comply with a range of systems, processes and technologies that differ on a RIM by RIM and line by line basis.

The operating system, process and technology requirements for the following three interstate corridors are reviewed in Figure 4.³

- **East-west corridor** — From Melbourne or Sydney, through South Australia, to Perth. Rail dominates this corridor, accounting for approximately 81 per cent of the freight in 2014.⁴
- **North-south corridor** — From Melbourne, through or around Sydney, to Brisbane or Cairns. This corridor carries much less rail freight relative to road: rail accounted for 20 per cent of freight from Melbourne to Brisbane in 2014.⁵
- **Central corridor** — From Adelaide, through Tarcoola, to Darwin. This corridor transports approximately 800,000 tonnes of intermodal, and in excess of three million tonnes of bulk, freight every year.⁶ Rail dominates this corridor, accounting for approximately 80 per cent of the freight in 2013-14.⁷

The ARTCs Interstate Network and Genesee and Wyoming Australia's (GWA)'s Tarcoola-Darwin railway line cover the majority of these corridors. However, there are points where they interface with networks managed by other RIMs, such as:

- East-west corridor — ARTC's interstate network stops at Kalgoorlie, so operators must use Arc Infrastructure's network to travel to Perth.
- North-south corridor — ARTC's interstate network stops at Acacia Ridge in Brisbane, so operators must use Queensland Rail's networks to travel to the port or to Cairns.
- To get onto ARTC's Interstate Network from Sydney or Melbourne for the east-west corridor and the north-south corridor, operators will have to use the:
 - Melbourne Metro,
 - V/Line,
 - Sydney Metro or
 - Country Regional networks.
- Central corridor—to get to GWA's Tarcoola to Darwin line from Adelaide, operators must use the ARTC's Interstate Network (in particular, the Adelaide to Tarcoola segment).

These interface points are the focus of the analysis and key differences that could cause interoperability constraints are set out in Figure 4.

³ https://bitre.gov.au/publications/2016/files/train_004.pdf p.74-78. NTC, 2016, p. 89.

⁴ Ferrier Hodgson 2014, p. 9

⁵ Ferrier Hodgson 2014, p. 9

⁶ NTC 2016, p. 67.

⁷ NTC 2016, p. 179.

Figure 4 Operator impacts of differences in operating requirements (systems, processes and technologies)

	East-west corridor	North-south corridor	Central corridor
Number of RIMs	Up to four Operators may need to negotiate up to four access agreements for journeys through this corridor.	Up to six Operators may need to negotiate up to six access agreements for journeys through this corridor.	Two or three Operators may need to negotiate two or three access agreements for journeys through this corridor.
Track gauge	Broad, narrow and standard Operators cannot use the same train on different track gauges, unless it is dual gauge. This occurs in particular when moving from the ARTC interstate network to the V/Line and/or MTM networks.	Broad, narrow and standard Operators cannot use the same train on different track gauges, unless it is dual gauge. This occurs in particular when moving from the ARTC interstate network in Acacia Ridge to the Queensland network up to Cairns.	Broad and standard Operators usually use the ARTC interstate network and the Taroocla-Darwin line, which are both standard gauge.
Speed, axle load and other restrictions	There is one segment of the ARTC network that has a lower maximum speed and axle load limit than the others. The NSW, Victorian and WA networks have a range of limits for axle load and speed, with the metro networks generally having lower speed limits. The NSW metro networks also have limits on the number of axles and gross weight. The Melbourne metro network also has train length limits. Operators are bound by the lowest weight, wagon or axle limit on the corridor. Travelling through metro networks can also increase transit time.	There is one segment of the ARTC interstate network that has a significantly lower maximum speed than the others. See left for NSW and Victorian networks. Some lines on Queensland Rail's networks have significantly lower speed and axle load limits. They also have maximum gross weights. Operators are bound by the lowest weight, wagon or axle limit on the corridor. Travelling through metro networks can also increase transit time.	There are different axle load and speed limits between Adelaide – Taroocla (ARTC), Northgate – Alice Springs and Alice Springs – Darwin (GWA). The ARTC segment also has wagon, locomotive weight and train length limits. Operators are bound by the lowest weight or wagon limit on the corridor. However, this corridor has the least variation.
Safeworking systems	These are line-specific. However, WA, SA, NSW and VIC all have TOW for the regional network. For the urban networks, WA, SA and Vic have CTC and NSW has RVD. There are not many significant differences in safeworking systems on the East-West corridor. Victoria has some safeworking systems that are onerous for operators.	These are line-specific. However, NSW and VIC have TOW for the regional network, while QLD has DTC. For the urban networks, QLD has RCS, NSW has RVD and VIC has CTC. There are some significant differences in safeworking systems on the North-South corridor.	These are line-specific. However, SA has TOW for the regional network and CTC for the urban network. There are not many interoperability issues with safeworking systems on the Central corridor.
Communications systems	UTRS* on Melbourne metro network NTCS on V/Line and Interstate network UHF/VHF radio on WA networks Operators need to install multiple systems for journeys through this corridor.	UTRS* on Melbourne metro network NTCS on V/Line, some NSW and Interstate network Metronet*, WB comms, VCS on other NSW networks Operators need to install multiple systems for journeys through this corridor.	NTCS on Interstate network Radio on Taroocla-Darwin line Operators need to install multiple systems for journeys through this corridor.
Train management and control procedures	Operators apply for access to mandatory train paths in negotiation process, but ad hoc train paths can be requested outside the access agreement (the procedure for booking these is in the access agreement). Late trains and underutilised train paths are managed in different ways. Operators are responsible for booking their train paths such that they align across different RIMs. NSW and Victorian shared freight/passenger networks have passenger priority, although Victoria's is stricter. MTM requires operators to notify their arrival 48 hours in advance, which is difficult for operators. Passenger priority also results in few train paths for operators and is particularly difficult in Sydney and Melbourne.	See left. Queensland's shared networks also have passenger priority. It is difficult to meet RIM's windows for on-time arrival, particularly on the Sydney metro network.	See left. GWA has very little public information about its train and network management principles. Many operators have not had success gaining access to this railway line, predominantly operated by the RIM, GWA.
Environmental requirements	The ARTC and NSW RIMs have an environmental management system manual and environmental licence. For all RIMs, operator must develop an environmental management plan (and/or system). These reflect state/territory environmental regulations. Operators will have to comply with specific environmental legislation in WA, SA, VIC and NSW.	See left for ARTC, NSW and Victorian networks. Queensland Rail also has an environmental management system manual. Operators must develop an emergency management plan and an interface risk management plan, which contain environmental risks. Operators will have to comply with specific environmental legislation QLD, VIC and NSW.	See left for ARTC. For the Taroocla-Darwin line, GWA has an environmental protection licence. Operators will have to comply with specific environmental legislation SA and NT.

Source: PwC analysis; Appendix B.

Notes: TOW is Train Order Working, CTC is Centralised Train Control, RVD is Rail Vehicle Detection, DTC is Direct Traffic Control, RCS is Remote Control System, UTRS is Urban Train Radio System, NTCS is National Train Communication System, and VCS is Voice Communication System.

Challenges with rail access regimes

The regulatory obstacles to improving rail's efficiency and competitiveness fall into three main areas: inefficiencies due to a lack of harmonisation, the mismatch of regulatory regime to market conditions, and the inconsistency between the regulatory treatment of road and rail.

Harmonisation

Operators are required to comply with a range of systems and technologies that differ by RIM on a line by line basis. Some operational requirements are based on the existing rail infrastructure, such as restrictions on axle loads, train height, length and speed. As operators are bound by the lowest axle load, train length and train height on their chosen train path, these factors may act to constrain the effective capacity able to be delivered. In addition, RIMs have the freedom to determine the appropriate systems and protocols given their infrastructure and network characteristics. Operators that travel through multiple networks are required to install multiple communication systems and ensure their train drivers and crew are familiar with the rules of each system.

RIMs are free to specify their own operating procedures, as long as they comply with the appropriate national safety regulation and RIM-mandated procedures and protocols have become well-established. This has led to interoperability challenges across regimes, for example:

- Train drivers and rolling-stock must be accredited in each state that they operate in

- The process and requirements for accreditation and testing of rolling-stock is different for each state
- The body which completes the safety and quality assurance is different for each RIM
- Operators are subjected to different condition monitoring and maintenance regimes across Australia
- Each RIM has a different maintenance schedule, and
- Operators have to book separate train paths with each RIM.

Whilst some procedures genuinely relate to state-specific infrastructure requirements, such as those related to specific safe-working systems, the core requirements set by each RIM are broadly comparable.

Inefficiency of regulation

A RIM's market power is impacted by demand-side factors such as total freight volume or the existence of a substitute such as road transportation. The heavy-handedness of the regulatory regime is determined by the extent to which the RIM can exercise market power to the detriment of operators.

Almost every RIM manages a diverse range of lines that have different demand-side characteristics. These can be classified as:

- **commercial lines**, which are profitable at the full economic cost
- **economic lines**, which only cover the costs of providing access to those lines, and
- **legacy lines**, which are loss making and generally subsidised by the government.

The RIMs that manage legacy and economic lines report that, due to demand-side factors, they are unable to set prices that recover capital costs. As the RIM does not have significant market power on these lines, the benefit of heavy handed regulation could be very low relative to the cost of compliance, but some regulators do not differentiate. Conversely, in some jurisdictions, there is the potential that RIMs are managing commercial lines whilst being subjected to a lighter-handed regime than may be appropriate given their market power. Moreover, some operators report practical constraints in accessing rail in jurisdictions where RIMs are vertically integrated, despite the fact that in principle, the operator and manager components are separate ring-fenced organisations.

Currently, the prescriptiveness of each regulatory regime is driven by legacy legislation and overall demand- and supply-side market factors in that particular jurisdiction. As noted above, this one size fits all approach to regulation may lead to a mismatch between regulatory control and market power of RIMs at the sub-network level.

Inconsistent treatment of road

Road freight transportation is subject to a consistent national charging system. Currently, The National Transport Commission recommends heavy vehicle charges based on the PAYGO system, which was set up to provide a nationally consistent approach to heavy

vehicle charges.⁸ This contrasts with the state based rail access regimes, where pricing principles are established by the regulator in each jurisdiction.⁹

The difference between road and rail pricing principles (along with other differences) potentially makes rail freight less competitive relative to road, particularly for short-haul trips.

Potential interventions

To address these challenges, we present a series of possible interventions and specific delivery methodologies in Section 5 and qualitatively assess their costs, net impact in getting more freight on rail and ease of implementation.

Table 1 presents a summary of the intervention categories we have identified in Section 5 to address the challenges listed above. This includes the profiles we have developed, which show differing degrees of regulatory and operational centralisation to the national level. These profiles are not the only possible scenarios that may be considered, and the “best” reform scenario may draw initiatives from all three different profiles.

Table 1 Intervention categories

Challenge	Intervention categories	Intervention profiles		
		Incremental changes to current rail access environment	Centralised guidance of rail regulation and operation	Creation of a National Rail Access Regime
Lack of Harmonisation	Rail infrastructure upgrades to ease operational restrictions	Upgrades funded through state governments.	Upgrades funded through state governments with the federal government providing some investment matching.	Upgrades funded through federal government.
	Move towards interoperable systems and technologies	Identifying areas of inconsistency with systems and technologies.	National standard of best practice systems and technologies given different rail network characteristics.	Funding and prescription of safeworking and communication systems.
	Move towards consistent rail environmental regulation	National review of environmental regulation and licencing.	Option for accreditation with a national environmental body for core requirements.	Creation of national rail environmental regulations and framework.
	Develop consistent safety and assurance accreditation processes and requirements	RISSB review of safety standards and assurance protocols across networks.	Option for accreditation with ONRSR for core requirements.	RISSB national rail safety and assurance framework, with compliance overseen by ONRSR.
	Develop centralised online information and booking service	Same across profiles		

⁸ NTC, Heavy vehicle charges – Options for improving the accuracy and stability of the PAYGO heavy vehicle charges methodology: discussion paper, June 2016, p.6-8.

⁹ We note the Heavy Vehicle Road Reform program aims, in the long term, to implement more direct user charging where appropriate. However, the contrast identified between road and rail remains, as it is about consistency of approach across jurisdictions, not the approach itself.

Challenge	Intervention	Intervention profiles		
Mismatch between regulation and RIM market power	Discretionary regulatory control based on market power of RIM	Review of network characteristics in each jurisdiction. State regulators	Targeted set of principles providing regulatory direction to state regulators, based on demand and supply for each network.	National Rail Access Regime (NRAR) to determine level of regulatory control based on supply and demand for each network.
	Increased flexibility with service offerings and structure of access charges	Review to identify the different service offerings and pricing criteria that would incentivise certain operator behaviour.	National approach to establish access pricing reform.	NRAR framework to ensure a consistent national approach to flexible / innovative service offerings and access charges.
	Simplification of the dispute resolution process	In-depth review on dispute resolution frameworks.	Creation of a streamlined dispute resolution and arbitration process.	National authority to deal with all disputes referred for arbitration.
Competitive neutrality	Improve regulatory consistency and decrease complexity	Holistic freight supply chain review.	Removal of the state-based regulations and requirements seen in other sections of this table.	NRAR will establish a national regulatory approach that is consistent with road.
	Improve consistency with pricing signals – subsidising rail	Business case for partial federal funding of state-based mode shift incentive schemes.	State-based mode shift incentives matched by the federal government.	Modifying rail access charges to optimise competition between modes.
	Improve consistency with pricing signals – harmonising road and rail charges	In-depth review on the impact of the pricing signals with road and rail freight on supply chains.	Business case for integrated reform of rail and road pricing.	Integrated tax and policy program to equalise road and rail pricing signals.

Source: PwC analysis

Conclusion

Rail access regimes around the country appear to have generally addressed monopoly power concerns. The regulatory frameworks have promoted competition and reduced the ability for RIMs to charge monopoly prices. Most issues arise in relation to the complexity and duplicity of rail access regimes and operational requirements. While the extent that these issues impact rail freight is contested, operators report that they have a role in making rail less competitive as a mode of freight transportation.

Challenges with rail access are not straight forward. It is difficult to balance the trade-off with constraining market power and ensuring unnecessary burdens are not imposed through overly prescriptive regulation. The solution requires a multifaceted approach that can target areas of inefficiency with an appropriate use of centralised power. Intervention is more likely to be effective if the responsibility of reform is with a centralised entity. However, centralised reform requires widespread stakeholder coordination and consultation, making it a costly delivery mechanism. In any case, there is scope for industry to progress reform without Government intervention.

Building a framework for reform to address the potential challenges with rail access involves a strategic response. The reform agenda should prioritise interventions that are achievable, politically viable, have a realistic timeframe and generate high net benefits. Whilst this report qualitatively assesses some possible actions, further work will be required, particularly on the quantitative side, to establish a solid case for implementation.

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1 Introduction

1.1 Objective of the report

The Department of Infrastructure, Regional Development and Cities (DIRDC) is leading the Transport and Infrastructure Council's National Rail Vision Work Program. The program seeks collaboration between governments and industry to improve productivity, competitiveness and liveability across Australia.¹⁰

The program aims to achieve this objective by identifying the key areas for reform, including:

- integrating rail with other transport modes to enhance the functionality of the transport network
- improving rail's efficiency, capacity and environmental performance
- capitalising on new technologies.

This report looks at how third-party access to rail infrastructure could be improved in each jurisdiction across Australia to increase the efficiency, productivity and competitiveness of rail freight transport.¹¹ It examines whether and how regulatory and operational costs associated with current rail access arrangements can impede the efficient use of existing rail infrastructure and lead to underutilisation of the network.

1.2 Scope of the report

Interoperability is a key determinant of efficient freight movement across multiple networks. Interoperability is a function of the regulatory framework, infrastructure attributes and operational conditions imposed by Rail Infrastructure Managers (RIMs).

In this context, DIRDC engaged PwC Consulting (Australia) PTY Ltd (PwC) to look at specific aspects of current regulatory, administrative and operational processes in each jurisdiction (rail access regimes). The scope of this report is to:

- 1 Review the different rail access regimes in Australia, specifically considering their:
 - overarching legislation and regulatory approach
 - access charges calculation methods
 - access undertaking procedures and agreements
 - processes, systems and technologies used to manage current access arrangements
 - the interaction of access regimes
 - costs to above rail operators of negotiating access undertakings and complying with different access regimes
 - dispute resolution regulation and procedures.

¹⁰ Transport and Infrastructure Council, National rail vision and work program.

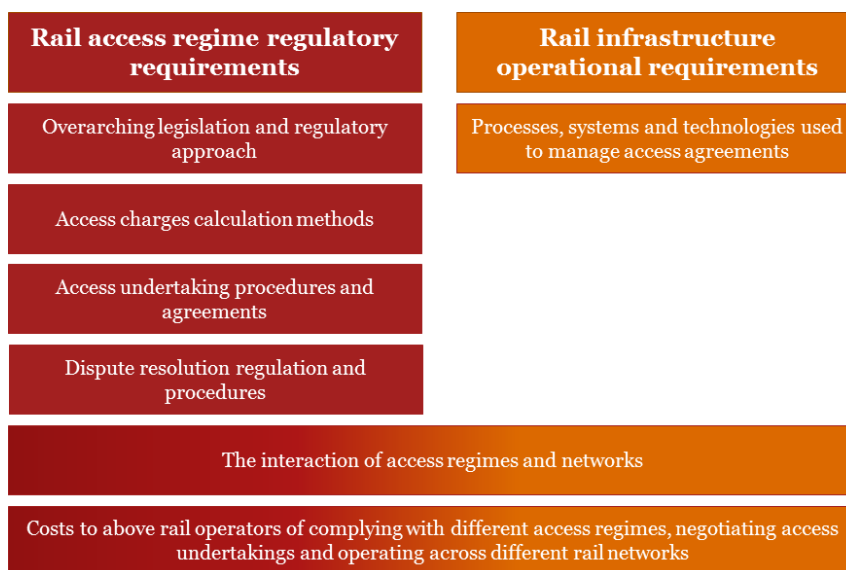
¹¹ We note this report is specific to freight rail services. We do not discuss passenger rail services, even though there are passenger rail access arrangements in Australia.

- 2 Identify areas for improving the interoperability across regimes, and qualitatively assess the net benefit of their implementation for operators and customers in Australia. The identified areas are critically evaluated to provide DIRDC with short-term, medium-term and long-term recommendations to facilitate freight on rail.

Rail access regimes establish a regulatory framework for access to rail network services for freight transportation. Historically and under current legislation, a National Access Regime as well as multiple State-based access regimes have emerged in Australia for rail. Each network also has inherent characteristics based on the rail infrastructure, and administrative requirements dependent upon the RIM. These characteristics influence the regime-specific operating requirements.

Figure 5 shows how the seven areas above are allocated between regulatory and operational requirements for each jurisdiction.

Figure 5 Regulatory and operating requirements



Source: Terms of reference, PwC analysis.

The networks and access regimes reviewed in this report are set out in Table 2 below. The following are out of the scope of this review:

- freight rail terminals covered by an access regime
- networks that are not currently in operation (for example, the Goldsworthy railway in Western Australia).

1.3 Report structure

The report is structured as follows:

- Section 2 provides background and context for rail access regulation in Australia
- Section 3 reviews the rail access regimes in Australia, in particular, the regulatory and operational requirements for each jurisdiction
- Section 4 assesses the challenges with having multiple rail access regimes in Australia
- Section 5 evaluates potential interventions to challenges with rail access regimes in Australia.

Table 2 Networks and access regimes reviewed in this report

Regulator	Rail Access Regime	Network	Rail Infrastructure Manager	State/Territory
Australian Competition and Consumer Commission	National Access Regime	Interstate Network	Australian Rail Track Corporation	National
		Hunter Valley Coal Network		New South Wales
		Tasmanian Rail Network	TasRail	Tasmania
		Goldsworthy Railway	BHP Billiton	Western Australia (Pilbara)
		Robe Railway	Rio Tinto	
Independent Pricing and Regulatory Tribunal	New South Wales Rail Access Undertaking	Metropolitan rail network	RailCorp	New South Wales
		Five sectors of Hunter Valley Coal Network		
		Country Regional Network	John Holland	
		Parts of the Sydney Metropolitan Freight Network	Australian Rail Track Corporation	
Essential Services Commission of Victoria	Victorian Rail Access Regime	Metropolitan Network	Metro Trains Melbourne	Victoria
		Regional intra-state network	V/Line	
Queensland Competition Authority	Queensland Rail Access Regime	Central Queensland Coal Network	Aurizon Network	Queensland
		Brisbane Metropolitan Network	Queensland Rail	
		Regional Freight Network		
Essential Services Commission of South Australia	South Australian Rail Access Regime	South Australian rail networks	Genesee and Wyoming Australia	South Australia
	Australasia Railway Access Regime	Tarcoola–Darwin Railway		South Australia and Northern Territory
Economic Regulation Authority of Western Australia	Western Australian Rail Access Regime	Urban Network	Public Transport Authority	Western Australia
		Freight Network	Arc Infrastructure	
		The Pilbara Infrastructure Railway	Pilbara Infrastructure Pty Ltd, subsidiary of Fortescue Metals Group Ltd	Western Australia (Pilbara)
		Roy Hill Railway	Roy Hill Holdings Pty Ltd	

Source: PwC analysis; various sources from Appendix B.

Note: We have not reviewed the Tasmanian Rail Network in detail as there are no other rail freight networks in Tasmania and no interstate rail options. In addition, the Tasmanian Government is currently developing a new rail access framework for the network, as its Declaration under the National Access Regime expired on October 2017. We have also not reviewed the Pilbara railway lines in detail, as they are privately owned, funded and operated, which raises different rail access issues and questions about whether regulation is required. Moreover, the Goldsworthy line was mothballed in 2014.

2 Background to rail access

In this section we provide background and context to freight rail access in Australia. Specifically, we explain:

- the purpose of infrastructure access regimes
- the purpose and role of rail access regulation
- the purpose and role of RIMs.

2.1 Market power and infrastructure providers

The construction and ongoing management of large scale infrastructure presents significant challenges to Government. Rail networks, like many other infrastructure assets, exhibit economies of scale such that typically it is most efficient for one network to cater for all demand. Single networks ¹² exist in most rail markets, although there are exceptions to this. For instance, separate private railways have been constructed and continue to be maintained in Western Australia, often with tracks running in parallel to terminal locations.

Australian rail lines are largely publicly owned. RIMs are either private operators leasing rail assets or Government-owned corporations or authorities. If property rights were extended in the usual way without restriction, the infrastructure manager would set prices for its users according to prevailing demand-side and supply-side market conditions. In a competitive environment, the price that can be charged by any single supplier is constrained by the price offered by suppliers of substitutes, and will be around the economically efficient level, approximately equal to cost recovery. In the case of rail, however, the RIM holds a natural monopoly asset, and has a level of market power. If the market power can be exercised, there is a commercial opportunity for third party access prices to exceed cost recovery.

The challenge to the Government is in balancing the interests of the infrastructure manager in running a commercially sustainable business against those of potential customers who may be disadvantaged as a result of the RIM's market power. This challenge is even more pronounced when the RIM also operates in the "above rail" market in the provision of train services (vertically integrated). In this case, an unregulated RIM could provide itself with access on more favourable terms than its above rail competitors, impacting on competition in a related (downstream) market.

The object of a regulatory regime is to provide a framework for establishing price- and non-price terms for access which encourage the efficient use of the regulated facility, and do not adversely impact on competitive outcomes in any related market. Even though a RIM controls a monopoly asset, its market power might be constrained by demand-side factors such as low volume or a highly concentrated market for freight transport. In particular, rail freight cannot be seen as an isolated market, but a transportation mode option within the full

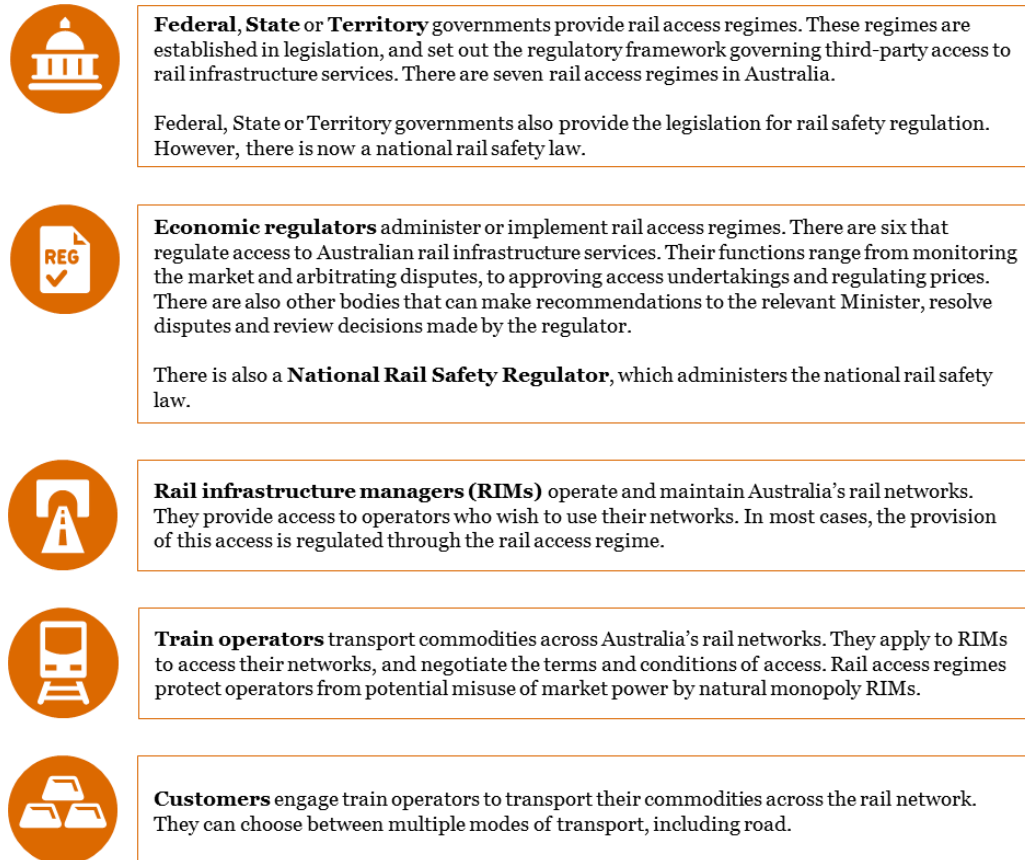
¹² A single "network" in this context may still involve multiple physical rail lines, with some rail segments having duplicated or triplicated rail tracks, to facilitate bi-directional movement of trains and rolling-stock. Even single-track segments may include shorter duplicated track sections, or "passing loops".

freight task supply chain. In many cases, the ability of the operator to substitute other modes will provide a competitive constraint to the price of rail access.

2.1.1 Rail network industry structure

The key stakeholders in the Australian rail network industry are RIMs, operators, customers, regulators and governments.¹³ These stakeholders and their roles are explained in Figure 6. Some networks, such as those in South Australia, are vertically integrated, where the RIM is also an operator on its own network.¹⁴

Figure 6 Rail network industry structure



Source: PwC analysis

¹³ We note that services are often categorised in the literature as above rail or below rail. Above rail services are provided by operators, who use the rail infrastructure. Below rail services are provided by RIMs, who control access to and manage the rail infrastructure.

¹⁴ https://bitre.gov.au/publications/2016/files/train_004.pdf p.132

2.2 Rail access regulation

The overarching legislative framework for access to essential infrastructure services in Australia is the National Access Regime. It has two objectives:

- to promote the economically efficient operation, use, and investment in the infrastructure by which services are provided, thereby promoting effective competition in upstream and downstream markets
- to provide a framework and guiding principles to encourage a consistent approach to access regulation in each industry.¹⁵

Under the National Access Regime, States are able to develop individual access regimes appropriate for the infrastructure and market conditions under their jurisdiction. There is also provision for infrastructure to be regulated directly at the federal level, but currently only three networks are regulated this way.¹⁶ The National Access Regime also plays a backstop role for infrastructure services that are not covered by State-based arrangements.¹⁷

2.2.1 Role of rail access regimes

State-based access regimes and the National Access Regime have the same overarching objective of ensuring third-party access to essential infrastructure and restricting the exercise of market power. There are many similarities across the regimes on how access is governed and how pricing is constrained.

Access

Rail access regimes provide the framework for ensuring third-party access to rail infrastructure. In line with the overarching objective of access regimes, rail access regimes observe a negotiate–arbitrate regulatory approach which specifies the following requirements:

- RIMs must negotiate in good faith with access seekers
- RIMs must not engage in conduct for the purpose of hindering access to that service, and
- Where the RIM and access seeker cannot agree on terms and conditions for access to the service, they have the option to appoint an independent body to resolve the dispute.

State-based regimes and the National Access Regime both use the threat of access regulation to prompt service providers and access seekers to commercially negotiate.

Regulators also have a role in facilitating the promulgation of a RIM's general terms and conditions of access. Regulators require RIMs to publish or submit documents to the operator relating to terms and conditions of access. This publication of information allows operators to make informed decisions when applying for and negotiating access.

¹⁵ Competition and Consumer Act 2010, Section 44AA

¹⁶ These networks are the Australian Rail Track Corporation (ARTC) interstate network and Hunter Valley Coal Network (through voluntary access undertakings), and Rio Tinto's Robe Railway (through declaration). BHP Billiton's Goldsworthy line is also declared, but it was mothballed in 2014 (BITRE, Trainline 5, 2017). The Tasmanian Rail Network was also declared, but it expired in October 2017 (Tasmanian Department of State Growth, 2017 Review of Tasmania's Rail Access Framework < https://www.stategrowth.tas.gov.au/policies_and_strategies/2017_review_of_tasmanias_rail_access_framework>).

¹⁷ ACCC submission to the Productivity Commission, Review of National Access Regime <http://www.pc.gov.au/inquiries/completed/access-regime/submissions/>

Pricing

The role of the rail access regime is to also ensure that the RIM does not charge monopoly prices for access to their infrastructure. Depending on the regime, access charges may be highly prescriptive, conditioned by a revenue cap, conditioned by a tight floor and ceiling price approved by the regulator, or effectively unconstrained.

- a floor price generates revenue at least sufficient to meet the marginal or incremental costs of providing access
- a ceiling price generates revenue equal to the full economic cost of the asset and includes
 - a return on investment commensurate with the regulatory and commercial risks involved, which requires an assessment of the valuation of the rail asset, and
 - a depreciation component in access charges to recover this investment

To increase efficiency with access charges, RIMs are normally allowed to use multi-part pricing based on the service they are offering. Multi-part prices are composed of multiple parts, often consisting of a flagfall and variable rate(s), which can also vary by mass, distance, volume, etc.

2.3 Rail Infrastructure Managers

RIMs must comply with the rail access regime and ensure the safe and efficient management of the rail infrastructure. In order to properly manage the infrastructure and provide access to operators, RIMs establish requirements and procedure that operators must comply with. RIMs develop their requirements and procedures based on:

- the rail access regime under which the RIM operates
- the rail safety and environmental regulation with which the RIM must comply, and
- the characteristics of the rail infrastructure.

2.3.1 Rail access regime regulatory requirements

RIMs specify a process that access seekers must undergo when applying for access to the rail infrastructure. The process includes the following steps:

1. application for rail access submitted by rail operator
2. creation of a draft access proposal by the RIM¹⁸
3. negotiation of access charges and train paths by RIM and rail operator
4. dispute resolution process (if required), and
5. execution of access agreement.

In the application submission, operators must provide information on their access requirements. This allows the RIM to be able to conduct network capacity analyses and specify access charges and train paths in the draft access proposal.

¹⁸ This includes preliminary access charges and allocation of train paths based on a capacity analysis.

Through the interpretation of the regulatory requirements, RIMs have developed different business practices providing access to rail operators. The most distinct differences involve the procedure to applying for access and the associated timeframe.

2.3.2 Operational requirements

RIMs are responsible for the safety of operators' railway operations. The Office of the National Rail Safety Regulator (ONRSR) oversees rail safety regulatory compliance by RIMs and operators, and the Rail Industry Safety and Standards Board (RISSB) develops and manages non-binding national rail industry standards. RIMs must comply with the rail safety regulations and standards in their jurisdiction, which ensures:

- the provision and maintenance of rail infrastructure is safe
- the systems and procedures for the scheduling, control and monitoring of railway operations are established and maintained properly, and
- the communications systems and procedures are established and maintained properly.¹⁹

RIMs are also required to ensure operators comply with environmental regulation and other environmental requirements specific to their jurisdiction. These requirements are governed by the different Environmental Protection Agencies across Australia.

To do this, each RIM must interpret the relevant safety and environmental regulation and impose the appropriate requirements on operators. RIMs are free to specify their own operating procedure and protocol, so long as they comply with the appropriate regulation. RIMs have a responsibility to publish documents that clearly communicates their requirements. RIMs publish information that includes:

- train operating conditions, that describe route standards and restrictions on locomotive operation
- minimum operating standards that the operator's rolling stock must comply with when on the network
- network rules and procedures that operators must adhere to when on the track, which includes safe-working systems, signalling and work on track protocol
- operations protocol involving the day-to-day management of the interfaces between RIMs and operator and includes train planning, programming and control services
- emergency management protocol, and
- environmental requirements.

Many of these requirements are determined by the rail infrastructure. Safeworking and communication systems implemented on the system are influenced by network characteristics and legacy signalling infrastructure. The RIM must specify track speed, axle load, train length and train hauling loads that is appropriate given the track quality and characteristics. It is important to note that rail characteristics are impacted by the amount of investment that the RIM chooses to outlay to maintain or upgrade the network.

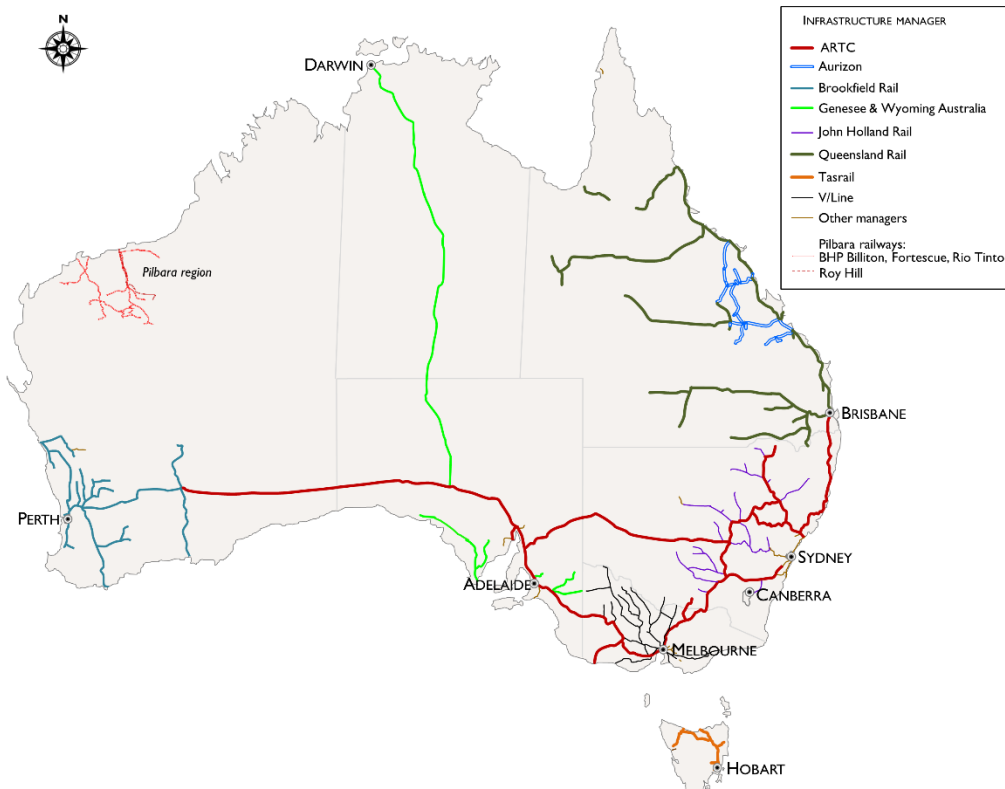
¹⁹ Rail Safety National Law (NSW), Section 52

As rail networks across Australia differ in terms of rail infrastructure and operating requirements, operators may be required to function across and comply with a range of systems, processes and technologies that differ by RIM on a line by line basis.

3 Rail access regimes

There are twelve RIMs operating different rail networks across Australia, with each covered by either a State-based or the National Rail Access Regime. This means that above-rail operators may have to negotiate access through multiple regimes and regulators for a single trip. The rail networks that each RIM manages can be observed in Figure 7.

Figure 7 Australian railways, by rail infrastructure manager, 2016

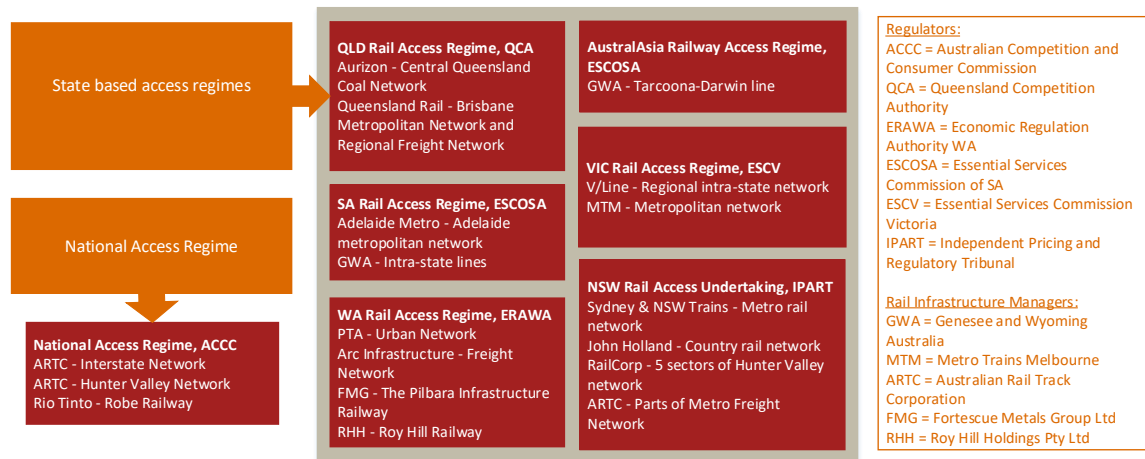


Note: Brookfield Rail are now known as Arc Infrastructure. The lines shown here are the railways that were open for traffic as at July 2016. The BHP Goldsworthy line in the Pilbara is shown on the map but it was mothballed in 2014.

Source: BITRE, Trainline 5, 2017, p.126.

Historically and under current legislation, a National Access Regime as well as multiple State-based access regimes have emerged in Australia for rail. This has led to a complex regulatory landscape, summarised in Figure 8.

Figure 8 Rail access regulation in Australia



Source: PwC analysis; NCC, Access to monopoly infrastructure in Australia, October 2011; NCC, past applications register; ACCC, Access to services registers s.44QB.

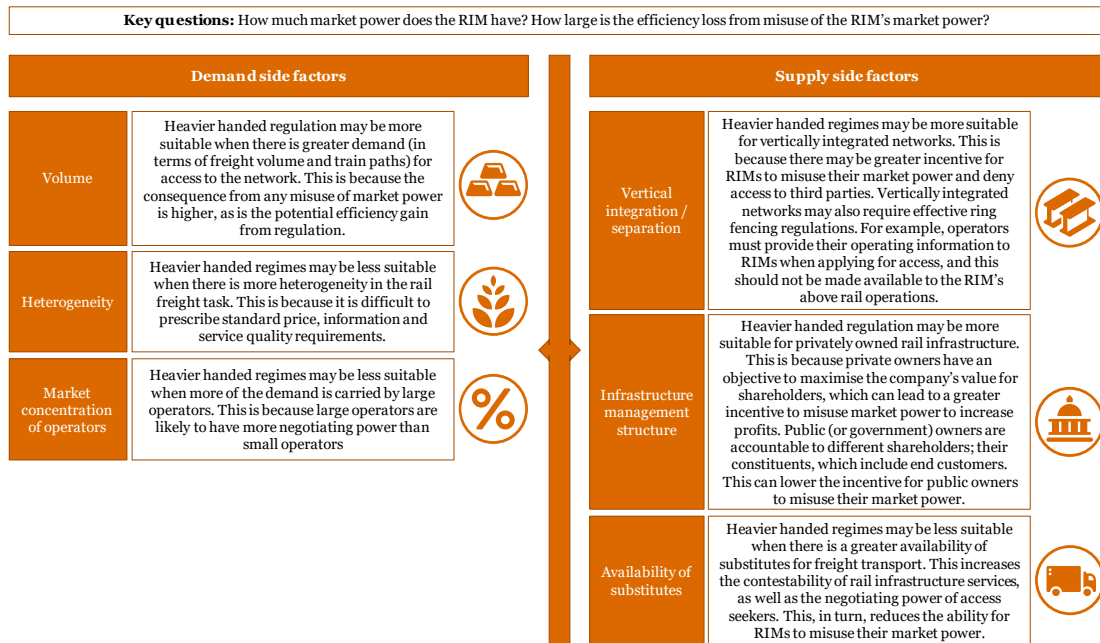
Note: The declaration of the Tasmanian Rail Network under the National Access Regime expired in October 2017 (Tasmanian Department of State Growth, 2017 review of Tasmania’s rail access framework: Discussion paper, 2017). BHP Billiton’s Goldsworthy line is also declared under the National Access Regime, but was mothballed in 2014 (BITRE, Trainline 4 and 5, 2016 and 2017).

These rail access regimes range in their characteristics from light to heavy handed; a classification based on how much regulatory control the framework exerts on the terms and conditions of access (including price, information provision and service quality). Heavier handed regimes exert more control by being more prescriptive in their requirements, or by prescribing particular outcomes. Generally, as a rail access regime moves from light to heavy handed:

- operators have more protection and certainty on the terms and conditions of access they can expect, including prices and service levels
- RIMs and operators have less flexibility to negotiate bespoke terms and conditions, and
- regulatory costs increase for regulators and compliance costs increase for RIMs.

Thus, there are cost and efficiency trade-offs between light, moderate and heavy handed rail access regimes. In reviewing these regimes, we consider their effectiveness in promoting the efficient use, operation and investment in rail infrastructure, both intra- and inter-state. The intra-state effectiveness of each regime depends on the demand and supply side characteristics of the market it covers, summarised in Figure 9. The interstate effectiveness depends on the impact on the cost of compliance for stakeholders that operate across multiple regimes. We discuss recommendations for these in Section 5.

Figure 9 Demand and supply factors that inform effectiveness of rail access regimes









Source: PwC analysis.

Importantly, these two concepts do not have to align. For example, there may be components of individual access regimes that are necessary for their particular market, but make it more difficult for train operators to travel across them. Further, each rail access regime covers one or more RIMs, each of which has its own process for third party access. This would remain the case regardless of how many rail access regimes are in place.

Figure 10 and Figure 11 categorise the regimes as light, moderate or heavy handed based on the regulatory approach taken.²⁰ The demand and supply side characteristics of each regime are set out in Figure 10. The different impacts on rail industry stakeholders (operators, RIMs and regulators) are then highlighted in Figure 11.

²⁰ This is a relative assessment made within the context of rail access regulation. There are lighter and heavier forms of regulation in other industries.

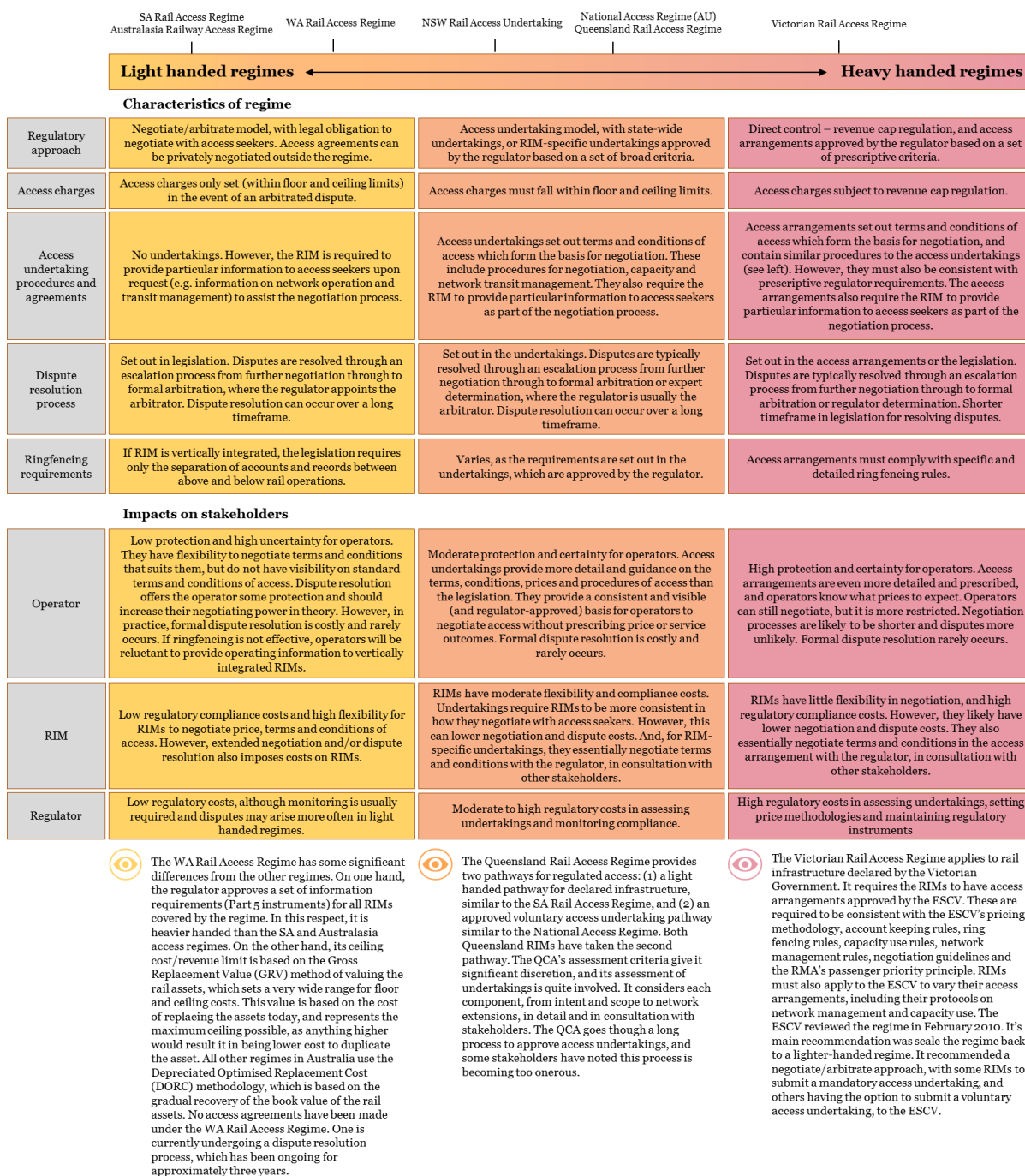
Figure 10 Review of demand and supply factors for each jurisdiction

	Light handed regimes				Heavy handed regimes			
	Tasmania	South Australia	Tarcoola-Darwin	Western Australia	New South Wales	Queensland	ARTC Interstate and HVCN	Victoria
Demand side factors	 Total freight task (road and rail): • 3.7 billion tonne-kilometres	Total freight task: • 29.8 billion tonne-kilometres	Total intermodal freight task: • 984 tonne-kilometres Bulk rail freight: • 2.74 million tonne-kilometres	Total freight task: • 36.4 billion tonne-kilometres excluding Pilbara region	Total freight task: • 78.2 billion tonne-kilometres	Total freight task: • 115.4 billion tonne-kilometres • including 54.1 billion tonne-kilometres moved on CQCN	Total non-coal freight task: • 56 billion gross tonne-kilometres Total coal freight task: • 154.8 million net tonnes moved on HVCN	Total freight task: • 55.7 billion tonne-kilometres
	 Homogenous freight: • intermodal • mining and forestry resources	Homogenous freight: • grain • mining resources	Homogeneous freight: • intermodal • iron ore	Heterogeneous freight: • coal • alumina • bauxite • grain • intermodal	Heterogeneous freight: • 72 different commodities • coal • grain	Heterogeneous freight: • intermodal • bulk minerals, • acid • fertiliser • mining inputs • rural commodities • coal	Homogeneous freight: • intermodal • coal	Heterogeneous freight: • agricultural commodities • bulk commodities • grain • mineral sands • crushed rock
	 Main operators: • TasRail only	Main operators: • GWA • Qube	Main operators: • GWA	Main operators: • Pacific National • Aurizon • SCT Logistics	Main operators: • Pacific National • Aurizon • SCT Logistics • Qube	Main operators: • Pacific National • Aurizon • SCT Logistics	Main operators: • Pacific National • Aurizon • SCT Logistics • Qube	Main operators: • Pacific National • Aurizon • SCT Logistics • Qube • GWA
Supply side factors	 Vertically integrated	Vertically integrated	Vertically integrated	Vertically separated	Vertically separated	Vertically integrated	Vertically separated	Vertically integrated
	 Management: • TasRail - Government	Management: • GWA - Private • Adelaide Metro - Government	Management: • GWA - Private	Management: • Arc Infrastructure - Private • PTA - Government	Management: • John Holland - Private • RailCorp, Sydney & NSW Trains - Government	Management: • Aurizon - Private • QR - Government	Management: • ARTC - Government	Management: • V/Line, MTM - Government
	 Road accounted for 89% and rail accounted for 11%.	Road accounted for 61% and rail accounted for 39%.	Road accounted for 20% and rail accounted for 80%.	Road accounted for 15% and rail accounted for 85%. However, most of this is in the Pilbara region.	Road accounted for 57% and rail accounted for 43%.	Road accounted for 44% and rail accounted for 56%.	On the East-West corridor, rail is dominant over road for non-bulk commodity transport. The opposite is true on the North-South corridor.	Road accounted for 90% and rail accounted for 10%.

Note: Freight volumes are for 2013-14. The Queensland Rail network in Queensland is not vertically integrated; as an operator, Queensland Rail run passenger trains only.

Source: PwC analysis; NTC, Who moves what where, 2016; BITRE, Trainline 4, 2016; ARA, Australia's Rail Industry, 2014.

Figure 11 Differences in rail access regimes



Source: PwC analysis; various sources from Appendix B.

Note: For light handed regimes, if access agreements are negotiated privately outside the regime, the protections of the regime do not apply.

The National Access Regime includes options for a voluntary access undertaking (AU) pathway and a declaration pathway. The National Access Regime declaration pathway is not included in the table because the Pilbara region railways declared under this regime are privately owned and operated (the Goldsworthy line also mothballed in 2014) – as such, there are different issues to consider. In addition, the Tasmanian Rail Network does not interface with other rail networks, its declaration expired in October 2017, and the state government is currently developing a new access framework. However, the declaration pathway is a negotiate/arbitrate model, without information or ring-fencing requirements. It is arguably the lightest handed regulatory approach.

Each access regime sets out the track sections covered under the regime. These include dual gauge track sections. For example, third parties seeking access to QR's dual gauge lines are subject to the Queensland Rail Access Regime (QR, information pack standard and dual gauge system, 2002).

3.1 Review of operating requirements

There are thirteen RIMs operating different rail networks across Australia. Each network may differ in terms of rail infrastructure and operating requirements. This means, for one rail freight journey, an operator may be required to comply with a range of systems, processes and technologies that differ on a RIM by RIM and line by line basis.

In this section, we identify the key interoperability constraints along interstate routes (or corridors). This is because:

- Interoperability constraints can also be identified along intra-state segments of the corridors.
- Interoperability constraints are likely to have the most impact along interstate corridors. Reducing these constraints may have a high marginal impact for operators using these corridors, because rail and road compete strongly for long-distance non-bulk freight.²¹

More specifically, the operating system, process and technology requirements for the following three interstate corridors are reviewed in Figure 10:²²

- **East-west corridor**—From Melbourne or Sydney, through South Australia, to Perth. Rail dominates this corridor, accounting for approximately 81 per cent of the freight in 2014.²³
- **North-south corridor**—From Melbourne, through or around Sydney, to Brisbane or Cairns. This corridor carries much less rail freight relative to road: rail accounted for 20 per cent of freight from Melbourne to Brisbane in 2014.²⁴
- **Central corridor**—From Adelaide, through Tarcoola, to Darwin. This corridor transports approximately 800,000 tonnes of intermodal, and in excess of three million tonnes of bulk, freight every year.²⁵ Rail dominates this corridor, accounting for approximately 80 per cent of the freight in 2013-14.²⁶

²¹ NTC, Who moves what where, 2016, p.15

²² BITRE, Trainline 4, 2016, p.74-78. NTC, 2016, p. 89.

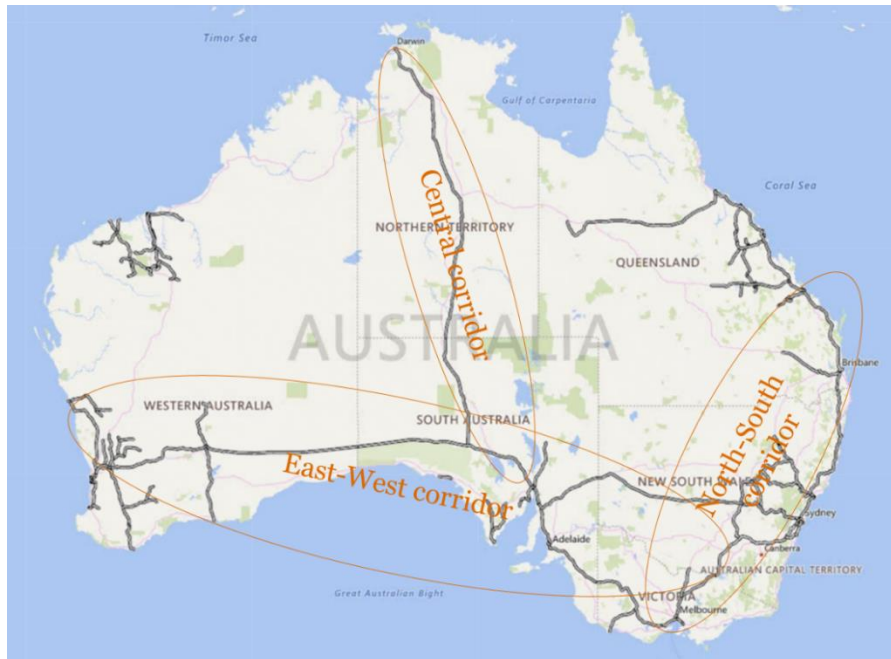
²³ Ferrier Hodgson, Transport and logistics insights, 2014, p. 9

²⁴ Ferrier Hodgson 2014, p. 9

²⁵ NTC 2016, p. 67.

²⁶ NTC 2016, p. 179.

Figure 9 Rail corridors in Australia



Source: http://transportinfrastructurecouncil.gov.au/publications/freight_route_maps.aspx and https://bitre.gov.au/publications/2016/files/train_004.pdf p.74-78. NTC, 2016, p. 89.

The ARTCs Interstate Network and Genesee and Wyoming Australia's (GWA)'s Tarcoola-Darwin railway line cover the majority of these corridors. However, there are points where they interface with networks managed by other RIMs, such as:

- East-west corridor — ARTC's interstate network stops at Kalgoorlie, so operators must use Arc Infrastructure's network to travel to Perth.
- North-south corridor — ARTC's interstate network stops at Acacia Ridge in Brisbane, so operators must use Queensland Rail's networks to travel to the port or to Cairns.
- To get onto ARTC's Interstate Network from Sydney or Melbourne for the East-west corridor and/or the North-south corridor, operators will have to use the:²⁷
 - Melbourne Metro,
 - V/Line,
 - Sydney Trains or
 - Country Regional networks.
- Central corridor—to get to GWA's Tarcoola to Darwin line from Adelaide, operators must use the ARTC's Interstate Network (in particular, the Adelaide to Tarcoola segment).

²⁷ On the East-West corridor, the V/Line network interfaces with the ARTC network where the ARTC controls some important dual gauge sections – e.g. Albion-Jacana. V/Line stated that 'Trips into the Melbourne area may require paths from more than one operator. V/Line usually coordinates these paths for freight operators'. See V/Line, Access arrangement renewal, 2012, P.3.

These interface points are the focus of the analysis and key differences that could cause interoperability constraints are set out in Figure 12. While there may be reasons for these differences, they can impose costs on operators and also RIMs (in the form of lost revenue).

Figure 12 Operator impacts of differences in operating requirements (systems, processes and technologies)

	East-west corridor	North-south corridor	Central corridor
Number of RIMs	Up to four  Operators may need to negotiate up to four access agreements for journeys through this corridor.	Up to six  Operators may need to negotiate up to six access agreements for journeys through this corridor.	Two or three  Operators may need to negotiate two or three access agreements for journeys through this corridor.
Track gauge	Broad, narrow and standard  Operators cannot use the same train on different track gauges, unless track is dual gauge. This occurs in particular when moving from the ARTC interstate network to the V/Line and/or MTM networks.	Broad, narrow and standard  Operators cannot use the same train on different track gauges, unless track is dual gauge. This occurs in particular when moving from the ARTC interstate network in Acacia Ridge to the Queensland network up to Cairns	Broad and standard  Operators usually use the ARTC interstate network and the Taroocla-Darwin line, which are both standard gauge.
Speed, axle load and other restrictions	There is one segment of the ARTC network that has a lower maximum speed and axle load limit than the others. The NSW, Victorian and WA networks have a range of limits for axle load and speed, with the metro networks generally having lower speed limits. The NSW metro networks also have limits on the number of axles and gross weight. The Melbourne metro network also has train length limits.  Operators are bound by the lowest weight, wagon or axle limit on the corridor. Travelling through metro networks can also increase transit time. In Victoria, over certain temperatures, trains cannot run.	There is one segment of the ARTC interstate network that has a significantly lower maximum speed than the others. See left for NSW and Victorian networks. Some lines on Queensland Rail's networks have significantly lower speed and axle load limits. They also have maximum gross weights.  Operators are bound by the lowest weight, wagon or axle limit on the corridor. Travelling through metro networks can also increase transit time.	There are different axle load and speed limits between Adelaide – Taroocla (ARTC), Northgate – Alice Springs and Alice Springs – Darwin (GWA). The ARTC segment also has wagon, locomotive weight and train length limits.  Operators are bound by the lowest weight or wagon limit on the corridor. However, this corridor has the least variation.
Safeworking systems	These are line-specific. However, WA, SA, NSW and VIC all have TOW for the regional network. For the urban networks, WA, SA and Vic have CTC and NSW has RVD.  There are not many significant differences in safeworking systems on the East-West corridor. V/Line has some safeworking systems that are onerous for operators.	These are line-specific. However, NSW and VIC have TOW for the regional network, while QLD has DTC. For the urban networks, QLD has RCS, NSW has RVD and VIC has CTC.  There are some significant differences in safeworking systems on the North-South corridor.	These are line-specific. However, SA has TOW for the regional network and CTC for the urban network.  There are not many interoperability issues with safeworking systems on the Central corridor.
Communications systems	UTRS* on Melbourne metro network NTCS on V/Line and Interstate network UHF/VHF radio on WA networks  Operators need to install multiple systems for journeys through this corridor.	UTRS* on Melbourne metro network NTCS on V/Line, some NSW and Interstate network Metronet*, WB comms, VCS on other NSW networks  Operators need to install multiple systems for journeys through this corridor.	NTCS on Interstate network Radio on Taroocla-Darwin line  Operators need to install multiple systems for journeys through this corridor.
Train management and control procedures	Operators apply for access to mandatory train paths in negotiation process, but ad hoc train paths can be requested outside the access agreement (the procedure for booking these is in the access agreement). Late trains and underutilised train paths are managed in different ways. Operators are responsible for booking their train paths such that they align across different RIMs. NSW and Victorian shared freight/passenger networks have passenger priority, although Victoria's is stricter.  MTM requires operators to notify their arrival 48 hours in advance, which is difficult for operators. Passenger priority also results in few train paths for operators and is particularly difficult in Sydney and Melbourne.	See left. Queensland's shared networks also have passenger priority. Operators can use the Southern Sydney Freight Line for journeys from the south, but need to access the Sydney metro network on journeys from the north and west.  It is difficult to meet RIM's windows for on-time arrival, particularly on the Sydney metro network.	See left. GWA has very little public information about its train and network management principles. This may be because the Taroocla-Darwin line is not very highly used, although this may create access issues for third party access seekers.  Several operators have not had success gaining access to this railway line, predominantly operated by the RIM, GWA.
Environmental requirements	The ARTC and NSW RIMs have an environmental management system manual and environmental licence. For all RIMs, operator must develop an environmental management plan (and/or system). Mainly, the requirements reflect state based environmental regulations.  Operators will have to comply with specific environmental legislation in WA, SA, VIC and NSW.	See left for ARTC, NSW and Victorian networks. Queensland Rail also has an environmental management system manual. Operators must develop an emergency management plan and an interface risk management plan. Mainly, the requirements reflect state based environmental regulations.  Operators will have to comply with specific environmental legislation QLD, VIC and NSW.	See left for ARTC. For the Taroocla-Darwin line, GWA has an environmental protection licence. Mainly, the requirements reflect state based environmental regulations.  Operators will have to comply with specific environmental legislation SA and NT.

Source: PwC analysis; Appendix B. Notes: TOW is Train Order Working, CTC is Centralised Train Control, RVD is Rail Vehicle Detection, DTC is Direct Traffic Control, RCS is Remote Control System, UTRS is Urban Train Radio System, NTCS is National Train Communication System, and VCS is Voice Communication System.

4 Challenges with rail access regimes

This section describes the key challenges in providing and obtaining third-party access to rail infrastructure across Australia. Building on the information in Section 3, it examines how the current rail access arrangements may impede the efficient use of existing rail infrastructure, leading to underutilisation. The findings have been tested with key industry stakeholders (Regulators, RIMs and Operators).²⁸

The key issues fall into three main areas: potential inefficiencies due to a lack of harmonisation, the possible mismatch of regulatory regime to market conditions and the inconsistency between the regulatory treatment of road and rail.

4.1 Lack of harmonisation

As stated in Section 2, differences with network characteristics, the existence of State-based legislation and RIM-mandated procedure and protocol may lead to inconsistencies with systems, processes and technologies used to manage current access arrangements. The establishment of RISSB and ONRSR has assisted in the move towards the standardisation of rail safety regulatory compliance and industry standards. This has unlocked some efficiency benefits, but operators noted in stakeholder consultations that there are still many areas where RIMs determine their own requirements.

4.1.1 Systems and technological requirements

Operators are required to comply with a range of systems and technologies that differ by RIM on a line by line basis. Some operational requirements are based on the existing rail infrastructure, such as restrictions on axle loads, train height, length and speed. As operators are bound by the lowest axle load, train length and train height on their chosen train path, they are often capacity constrained.

In addition, RIMs have the freedom to determine the appropriate systems and protocols given their infrastructure and network characteristics. Operators that travel through multiple networks are required to install multiple communication systems and ensure their train drivers and crew are familiar with the rules of each system. Stakeholders noted that these inconsistencies make traversing the national rail network complex and costly as we have noted in Section 3.1.

Harmonisation of these systems and technologies would require extensive capital investment and coordination between RIMs. As the benefit would be shared among all RIMs and most would not be able to fully recover their investment, there is little incentive for RIMs to move towards a harmonised system with consistent technologies.

4.1.2 Procedural requirements

As noted in Section 4.1.1, RIMs may specify their own operating procedures as long as they comply with the appropriate national safety regulation. Given that controlling operator behaviour is essential to the safety of their network, RIM-mandated procedure and protocol

²⁸ See Appendix C for complete list

has become well-established. This has led to interoperability constraints across regimes, for example:

- Train drivers and rolling-stock must be accredited in each state that they operate in
- The process and requirements for accreditation and testing of rolling-stock is different for each state
- The body which completes the safety and quality assurance is different for each RIM
- Operators are subjected to different condition monitoring and maintenance regimes across Australia
- Each RIM has a different maintenance schedule, and
- Operators have to book separate train paths with each RIM.

Whilst some procedures genuinely relate to state-specific infrastructure requirements, such as procedure related to specific safeworking systems, the core requirements set by each RIM are broadly comparable. The harmonisation of safety and assurance protocol has so far been prevented by the costs of implementing a consistent approach and lack of ownership and accountability for reform.

4.1.3 Environmental requirements

Stakeholders noted that there are roughly 150 different environmental regulations that operators must comply with when operating rolling-stock between Perth and Brisbane. Each rail operator is required to comply with Environmental Management Plans (EMPs) and environmental licencing at a state level and each state has its own regulatory body that ensures compliance with these plans. The criteria specified in EMPs also vary widely between the states. This means that operators have to comply with changing environmental regulation and navigate multiple different administrative and regulatory processes.

Inconsistencies with systems, processes and technologies has a significant impact on costs of compliance for rail freight operators. For example, operators report that train drivers are required to carry three sets of route guides when moving between regional and metropolitan New South Wales (NSW), and be trained to drive across all three networks. Operators must invest substantial time and capital in training their drivers and crews to comply with the different systems, processes and technologies, and ensuring that their locomotives comply with the different operational requirements.

The Cooperative Research Centre for Rail Innovation (CRC) reported that ‘the current environmental regulatory framework for the Australian rail industry is complex and burdensome’. It estimated that the annual direct cost for the Australian rail industry to comply with current environmental regulations is \$29 million per annum, with 5-10 per cent estimated to be unnecessary or avoidable regulation. The CRC considered that, in progressing regulatory reform, the rail industry should engage with environment and transport agencies at state/territory and federal levels, as well as other industries facing similar burdens.²⁹

²⁹ CRC for Rail Innovation, Costing environmental regulation in the rail industry.

4.2 *Mismatch between regulation and rail infrastructure manager market power*

As described in Section 3, a RIM's market power is impacted by demand-side factors such as total freight volume or the existence of a substitute such as road transportation. The heavy-handedness of the regulatory regime is determined by the extent to which the RIM can exercise market power, potentially to the detriment of operators.

Almost every RIM manages a diverse range of lines that have different demand-side characteristics. These can be classified as:

- **commercial lines**, which are profitable at the full economic cost
- **economic lines**, which only cover the costs of providing access to those lines, and
- **legacy lines**, which are loss making and generally subsidised by the government.

The RIMs that manage legacy and economic lines report that due to demand-side factors, they are unable to set prices that recover any capital costs. As the RIM does not have significant market power on these lines, the benefit of heavy handed regulation could be very low relative to the cost of compliance, but some regulators do not differentiate. Conversely, in some jurisdictions, there is the potential that RIMs are managing commercial lines whilst being subjected to a lighter-handed regime than would be deemed prudent given their market power. Moreover, some operators report practical constraints in accessing rail in jurisdictions where RIMs are vertically integrated, despite the fact that in principle, the operator and manager components are separate ring-fenced organisations.

Currently, the prescriptiveness of each regulatory regime is driven by legacy legislation and overall demand- and supply-side market factors in a particular jurisdiction. As noted above, this one size fits all approach to regulation may lead to a mismatch between regulatory control and market power of RIMs at the sub-network level. All regimes provide for a dispute resolution (arbitration) process in the event that operators feel that the terms of access determined by the RIM for given infrastructure are unreasonable. In principle, this should moderate the aggregated regulatory approach by providing the opportunity for review on a case by case basis. In practice, however, arbitration is complex and costly relative to the benefits of rail access to operators, and has historically been employed in only a handful of instances. Industry's perception then is that the threat of arbitration is diminished.

4.3 *Competitive neutrality*

In a competitive environment, the price that can be charged by suppliers is constrained by the price offered by suppliers of substitutes. As road is the key substitute to rail in many regions across the country,³⁰ it is important to consider the differences in regulatory and operational efficiency between these modes of transportation.

4.3.1 *Regulatory consistency*

Road freight transportation is subject to a consistent national regulatory approach, including a consistent national charging system. Currently, The National Transport Commission recommends heavy vehicle charges to the Transport and Infrastructure Council based on the

³⁰ We note BITRE's 2009 comment that 'Line-haul intercapital non-bulk freight is the primary market segment where road and rail compete, but there are other competitive market segments, such as branch line grain movements' (See BITRE, Road and rail freight competitors or complements, 2009, p.11). We also note that rail is increasingly being used for short haul tasks such as port shuttle services (<http://www.theage.com.au/victoria/portrail-shuttle-back-on-table-to-remove-3500-trucks-off-roads-20170819-xxzu7r.html>).

PAYGO system, which was set up to provide a nationally consistent approach to heavy vehicle charges.³¹ This contrasts with the state based rail access regimes, where pricing principles are established by the regulator in each jurisdiction.³²

Road freight operators also have the option to be accredited with the National Heavy Vehicle Regulator (NHVR) to comply with all state and territory legislation across Australia, whereas rail freight operators must be accredited in each state they operate in. This imposes costs that tend to reduce the desirability of rail as a mode of freight transportation compared with its key traditional competitor.

4.3.2 Pricing

Many RIMs and Operators noted a lack of consistency in government transportation policy and pricing signals. Current heavy vehicle charges include a fixed cost, which is the annual registration fee, and a variable cost, which is a road user charge levied on each litre of diesel fuel.³³ These charges aim to recover the share of road construction and maintenance costs that can be allocated to heavy vehicles.

Rail access charges, on the other hand, are based on the distance the operator is travelling, the mass the operator is carrying and the rail infrastructure being used (distance-mass-location charges). Pricing principles for rail typically allow the RIM to recover between the marginal cost and full economic cost of providing access to operators. The full economic cost allows RIMs to recover their capital costs, along with a commercial return on capital.

A key difference between the heavy vehicles and rail access charges, is the calculation of the cost base. The PAYGO system for heavy vehicles uses a historical cost base. This is a financial cost recovery approach, where capital is recovered in the period in which the expenditure occurs. Rail access charges often use a forward looking cost base. This is an economic cost recovery approach, where capital is depreciated and recovered over the life of the asset.³⁴

This is not to say the PAYGO system is preferable to rail access pricing. Indeed, a goal of the Heavy Vehicle Road Reform program is to improve the PAYGO system, as it is considered to poorly link the calculation of charges to the needs of users (including future investment needs) and the costs of infrastructure provision.³⁵

However, until changes are made, the difference between road and rail pricing principles, and the way these principles have been applied, remains. This potentially makes rail freight less competitive relative to road, and hence distorts choice between these transport modes. This is particularly true for short-haul trips per twenty-foot equivalent unit (TEU), and as heavy vehicles become more fuel efficient.

³¹ NTC, Heavy vehicle charges – Options for improving the accuracy and stability of the PAYGO heavy vehicle charges methodology: discussion paper, June 2016, p.6-8. We note the NTC's heavy vehicle charges recommendations are not binding on jurisdictions.

³² We note the Heavy Vehicle Road Reform program aims, in the long term, to implement more direct user charging where appropriate. However, the contrast identified between road and rail remains, as it is about consistency of approach across jurisdictions, not the approach itself.

³³ NTC, Heavy vehicle charges – Options for improving the accuracy and stability of the PAYGO heavy vehicle charges methodology: discussion paper, June 2016, p.5.

³⁴ NTC, Heavy vehicle charges – Options for improving the accuracy and stability of the PAYGO heavy vehicle charges methodology: discussion paper, June 2016, p.8.

³⁵ TIC, Heavy vehicle road reform – What are we doing and why are we doing it, April 2016, p.2.

4.3.3 Innovation

The inconsistency with pricing and policy signals between road and rail transportation has impacted innovation in rail transportation. As noted above, the variable cost for heavy vehicles is a fuel-based charge. This means that road freight transporters have an incentive to reduce their diesel usage per kilometre travelled. The lack of distance-mass-location charges for road transportation has also stimulated the industry to develop larger and more efficient trucks that can carry more freight, thus reducing the marginal cost per tonne of freight carried.







Conversely, it is possible that regulatory price setting in rail access regimes (and state-specific accreditation requirements) provides a disincentive for both RIMs and operators to innovate. It may limit the RIM's ability to be flexible with service offerings and construct access charges that, for example:


- incentivise rail operators to manufacture or use locomotives that are more efficient and environmentally friendly, and/or
- allow differentiated pricing (e.g. based on peak demand times) to fund network upgrades on high demand lines to support double stacking, higher axle loads and longer train lengths.


5 Evaluation of potential interventions


To address the challenges identified in Section 4, this section provides a high-level, strategic evaluation of potential interventions in the current rail access regime arrangements. To better understand the context of all the potential interventions, we have developed profiles with differing degrees of regulatory and operational centralisation to the national level. These profiles are not the only possible scenarios that may be considered, and the “best” reform scenario may draw initiatives from all three different profiles. These scenarios are ordered from high devolution, the scenario on the left hand side, to high centralisation, the scenario on right hand side. Table 3 presents these scenarios and associated interventions for tackling the three broad categories of challenges with rail access regimes noted in Section 4.


Table 3 Interventions by scenario


Challenge	Intervention	Incremental changes to current rail access environment	Centralised guidance of rail regulation and operation	Creation of a National Rail Access Regime
Lack of Harmonisation	Rail infrastructure upgrades to ease operational restrictions	Upgrades funded through state governments with the federal government providing the states with favourable loan terms and conditions if successful submitting a Business Case to the Department of Finance. 	Upgrades funded through state governments with the federal government providing an element of investment matching in return for regulatory harmonisation at the national level. 	Upgrades funded through federal government. 
	Moving towards interoperable systems and technologies	Identifying areas of inconsistency with systems and technologies and encouraging RIMs to move towards more consistent systems and technologies through seminars and meetings. 	National standard of best practice systems and technologies given different rail network characteristics. Give RIMs direction on how to upgrade their safeworking and communication systems to be more consistent across the networks, and provide seed funding to do so. 	Funding and prescription of safeworking and communication systems for Australia rail networks. 


 Low cost


 Moderate cost


 High cost


 Short term / easy to implement











 Medium term / moderately hard to implement

 Long term / complex to implement

 High net additional freight on rail

 Moderate net additional freight on rail

 Low net additional freight on rail

Challenge	Intervention	Incremental changes to current rail access environment	Centralised guidance of rail regulation and operation	Creation of a National Rail Access Regime
	Moving towards consistent rail environmental regulation	National environmental body to identify the similarities and differences between all state-based environmental regulation and licencing. The core requirements and exceptions to be published and recommendations put to RIMs and regulators in a seminar or forum. 	Rail operators will have the option to be accredited with a national environmental body for these core requirements. EPA's in each state will be responsible for ensuring operators comply with the other safety and assurance requirements by exception. 	Creation of national rail environmental regulations and framework, with compliance overseen by a National Environmental Protection Agency. No state-based regulations and licencing requirements. 
	Consistent safety and assurance accreditation processes and requirements	RISRB to identify the similarities and differences between safety standards and assurance protocol across the networks. The core requirements and exceptions to be published and recommendations put to RIMs and regulators in a seminar or forum. 	Rail operators will have the option to be accredited with ONRSR for these core requirements. RIMs will still be responsible for ensuring operators comply with the other safety and assurance requirements by exception. 	RISRB to create a national rail safety and assurance framework, with compliance overseen by ONRSR. No RIM-specific requirements. 
	Centralised online information and booking service for rail freight	This online portal will include: <ul style="list-style-type: none"> • Interconnected and consolidated rail network route guides, train operating conditions and maps, • Up to date maintenance and track possession schedules, • Train path schedules which allow for operators to book ad hoc and mandatory paths in real time. The portal will assist coordination with maintenance and train path scheduling and make it easier for operators to plan train paths.		
Mismatch between regulation and RIM market power	Discretionary regulatory control based on market power of RIM	Assessment of network characteristics to be conducted in each jurisdiction. State regulators required to report findings to national body, and demonstrate flexibility in approach to regulation of economic and legacy infrastructure. 	Targeted set of principles developed nationally specific to rail, providing state-based regimes with direction on the different levels of regulatory control based on different demand and supply characteristics of rail networks. Regimes must comply to be accredited at the national level 	National Rail Access Regime (NRAR) to distinguish between supply and demand characteristics of each network in order to determine the amount of regulatory control necessary for that rail segment. 

Challenge	Intervention	Incremental changes to current rail access environment	Centralised guidance of rail regulation and operation	Creation of a National Rail Access Regime
	More flexibility with service offerings and structure of access charges	Review to identify the different service offerings and pricing criteria that would incentivise certain operator behaviour. Work with State regulators to identify areas where flexibility could drive innovation and efficiency.	National approach to establish access pricing reform, including organisation of a regulator forum to encourage regulators to implement changes to their pricing regulatory approach.	NRAR to have a framework to ensure a consistent national approach to flexible and innovative service offerings and access charges.
	Simplification of the dispute resolution process	In-depth review on dispute resolution frameworks, including analysis on the costs involved, timeframes and previous arbitration proceedings and outcomes.	Creation of a streamlined dispute resolution and arbitration process, with a focus on simplification and reduction of timeframes.	National authority will deal with all disputes that have been referred for arbitration.
Competitive neutrality	Improve regulatory consistency and decrease complexity	Holistic freight supply chain review with a focus on the optimising efficiency and productivity.	Removal of the state-based regulations and requirements seen in other sections of this table.	NRAR will establish a national regulatory approach that is consistent with road regulation.
	Consistency with pricing signals – subsidising rail	Business case for partial federal funding of state-based mode shift incentive schemes.	State-based mode shift incentives matched dollar to dollar by the federal government.	Modifying rail access charges optimise competition between transport modes.
	Consistency with pricing signals – harmonising road and rail charges	In-depth review on the impact of the pricing signals with road and rail freight on the supply chain.	Business case for reform of rail and road pricing to be developed, with direction given to the NHVR, rail regulators and RIMs.	Integrated tax and policy program to equalise road and rail pricing signals, including mass-distance-volume charges for road freight.

Source: PwC analysis, Section 4.

Note: National regulatory bodies referred to in the table could be existing or new entities, or a transfer of responsibilities between existing entities.

5.1 Scenarios for intervention

This section goes into more detail about the scenarios in Table 3 and how the different interventions address the challenges with rail access regimes noted in Section 4. As described earlier, each scenario presents a different method and associated interventions for tackling the three broad categories of challenges.

The scenario with the most devolution generally establishes the additional information required to be able to execute the interventions in the other two scenarios. The middle scenario establishes reform interventions and the mechanism for moving towards more regulatory and operational centralisation. The most centralised scenario highlights what the intervention would look like under a National Rail Access Regime framework.

5.1.1 Incremental changes to current rail regulatory and operational environment

This scenario presents the case for minimal change to the current rail regulatory and operational environment, with no mechanism for a national governing body to mandate change. Greater harmonisation, regulatory reform and competitive neutrality is encouraged through reviews and forums, with the onus on amelioration remaining with the different RIMs and regulators.

Reviews will be beneficial in obtaining further information on the specific inconsistencies and requirements. Through the establishment of voluntary advocacy bodies and the organisation of regular meetings with important stakeholders, a coherent agenda with priorities for reform will be able to be determined. These national stakeholders groups will develop low intervention initiatives that are able to be implemented without significant costs to interest groups. Road maps can then be created and allow the government to track progression of the initiatives against the reform agenda.

By encouraging reform rather than mandating change, it is possible to build consensus and educate the appropriate stakeholders on the efficiency and financial benefits of reform measures. This delivery mechanism is also less costly to the government than interventions that require changes to regulatory arrangements. Forums will allow RIMs and regulators to share information and experiences, collaborate on potential solutions to issues and negotiate responsibilities and reforms for implementation. Incremental changes will improve efficiency with rail access and reduce costs for operators with relatively little outlay for RIMs and regulators.

Some interventions involve monetary incentives that reduce financial obstacles to harmonisation, regulatory reform and competitive neutrality. These financial incentives would be only partially funded by the federal government and would require substantial investment by other parties.

Rail has a high fixed cost structure. Stakeholders are required to be heavily invested in their current rail access arrangements which has led to rail access procedures and protocol becoming well-established. As such, it may be difficult to convince stakeholders to carry out and administer the recommended reforms without the use of an authoritative and independent third-party body. Negotiation will be difficult, with interest groups likely to hold widely differing views. Once interventions have been agreed upon, substantial coordination and planning between stakeholders would be required to ensure initiatives are enacted as discussed. This suggests that seminars and forums alone will not be overly successful in bringing about substantial reform.

This scenario is relatively easy and cost-effective to execute but, due to the obstructions in constructing and progressing reform initiatives, the expected increase to freight on rail from the interventions in this scenario is low. However, implementation is practical and achievable, and separate interventions should be considered for implementation in the context of appetite for rail access reform in Australia.

5.1.2 *Centralised guidance of rail regulation and operation*

This scenario presents moderate change to the current rail regulatory and operational environment. It proposes mechanisms for a national governing body to mandate change in the industry and provide more direction to state-specific regulators, without completely overhauling the current regulatory and operational arrangements. This is achieved through the nationalisation of safety and environmental processes and the standardisation of infrastructure requirements and regulations. RIMs would still have the latitude to ensure compliance with their specific operational requirements. State-based regulators would still ensure compliance with their rail access regime.

Already established national independent bodies would be responsible for the development of national regulatory and operational frameworks that is consistent across jurisdictions and networks. These national frameworks have two methods for implementation in this scenario:

- A national body will provide operators the option to be compliant with the responsibilities consistent across all jurisdictions, and
- A set of principles will be established but the responsibility of reform will remain with RIMs and regulators.³⁶

For the first type of intervention, the national body would ensure compliance with the core requirements of rail access and operators must ensure they are compliant with jurisdiction-specific requirements by exception. For example, in regards to safety standards and assurance protocol, operators would have to:

- Be accredited with ONRSR for all the core safety standards and accreditation requirements, and
- Ensure compliance with the RIM-specific accreditation requirements that are unique to the rail infrastructure it manages.

This would remove duplicative requirements and simplify regulatory arrangements. As operators invest less time and capital into a process that has the same outcome, this increases the efficiency of the compliance process. The costs of establishing this intervention would depend on the extent of stakeholder coordination. The formation of an independent body, or transfer of regulatory powers, could lead to substantial administrative costs. The interventions that use financial incentives require more heavy federal government investment, due to the centralised approach of the reforms.

The second type of intervention proposes the development of a national approach. The interventions would provide RIMs and regulators with principles or a framework for implementing reform. The delivery mechanism for this national rail access approach is similar to those proposed in the first scenario, with the responsibility of reform remaining with RIMs and regulators. The only difference with this scenario is the proposed use of a certification process to mandate particular reforms.

Currently, principles for certification of access regimes are flexible, and allow stakeholders to tailor access regimes to suit their jurisdictions and industries. To facilitate the reform of state-based access regimes clause 6 of the Competition Principles Agreement (CPA) may need to be modified to include the addition of rail specific principles that reduce inconsistency between rail access regimes. RIM and regulators would have to show

³⁶ As there is no mechanism for providing operators with a way to be partially compliant with RIM and state-based regulator specific requirements.

compliance with clause 6 principles in the CPA in order to have their state-based regime classified as effective. If the RIM and regulators do not implement the required changes they would be in danger of having their infrastructure declared and regulated under the national access regime.³⁷ We note that amending the CPA would involve significant legal and administrative costs to the federal government and be subjected to political scrutiny.

This scenario specifies a number of interventions with a multitude of delivery mechanisms which impacts the ease with which the scenarios can be implemented. This leads to a diverse range of costs and benefits across the spectrum of interventions. Some would lead to more freight on rail with relatively little cost or political scrutiny, other will amass significant costs without the payoff of more freight on rail. See Table 3 for a qualitative estimation of the costs and benefits and the ease of implementation for these interventions. The diversity with the interventions highlights the benefits of developing a formulaic strategic response that takes interventions from every scenario to build a framework for reform of rail access.

5.1.3 Creation of a National Rail Access Regime

This scenario presents a significant change to the current rail regulatory and operational environment through the creation of the National Rail Access Regime (NRAR). The NRAR would overhaul the entire rail access regimes regulatory environment and consist of:

- national economic regulation and legislation of rail access
- national environmental regulation, and
- national safety and assurance accreditation.

Rail access would be regulated at a national level, removing the need for state-based rail access regimes and other regulations. However, RIMs would still be responsible for managing their respective networks. The NRAR would lead to greater harmonisation, regulatory consistency and competitive neutrality through the prescription of specific reforms required for consistency across the rail networks. For example, to encourage more freight on rail, the NRAR could:

- prescribe national systems, technologies, environment and safety regulation and processes, ensuring consistency and interoperability across the rail networks
- conduct access pricing reform and discretionary regulatory control at a national level, and
- develop an overarching regulatory approach that is competitive neutral.

This scenario presents a top down approach to reform. As the NRAR would be able to more fully prescribe and establish the regulatory and operational environment, there would be fewer difficulties in implementing the interventions and maintain control of reform. As a national governing body is responsible for the interventions, less stakeholder consultation and negotiation would be necessary to conduct reform measures. This would offer scope to improve the timeliness, efficiency and impact of the reform measures.

However, for all these benefits, the NRAR must first be established. The considerable time and effort that would be involved in the development of NRAR would generate very large costs and there would have to be very large benefits to freight on rail to justify these costs. State governments may also seek to be compensated for the loss of control of “their” rail

³⁷ This may also deter forum shopping, where RIMs can choose to have their infrastructure regulated by the ACCC or the state-based regulator.

infrastructure, as rail access regulation dictates the return on capital that the infrastructure will attain. Any such costs would be all borne at the federal government level, with the benefits only impacting a small number of above rail operators.

There is also the risk that genuine state or RIM-specific requirements would be overlooked in this approach, and the high level of prescription may stifle innovation. The establishment of the NRAR would also face heavy opposition from certain interest groups and be subjected to significant political scrutiny. This makes it a very difficult scenario to implement.

5.2 Evaluation of scenarios

Rail access regimes around the country appear to have generally addressed monopoly power concerns.³⁸ The regulatory frameworks have promoted competition and reduced the ability for RIMs to charge monopoly prices. Most issues arise in relation to the complexity and duplicity of rail access regimes and operational requirements. While the extent that these issues impact rail freight is contested, operators report that they have a role in making rail less competitive as a mode of freight transportation.

Challenges with rail access are not straight forward. It is difficult to balance the trade-off with constraining market power and ensuring unnecessary burdens are not imposed through overly prescriptive regulation. The solution requires a multifaceted approach that can target areas of inefficiency with an appropriate use of centralised power. Intervention is more likely to be effective if the responsibility of reform is with a centralised entity. However, centralised reform requires widespread stakeholder coordination and consultation, making it a costly delivery mechanism.

Many improvements can be made in regards to the lack of harmonisation of systems, processes and technologies. It is possible to identify duplicate processes and requirements and create a reform agenda that prioritises actions that bring substantial benefits to operators in a timely manner. There will be pushback from entities that are losing responsibilities, so the most effective way to progress these reforms will be through a national body. A national body will be able to track progression of the centralisation of operational requirements and ensure stakeholders comply with the new approach.

To effectively address issues related to the mismatch between regulation and RIM market power, one approach is some form of centralised guidance. This could come from the construction of a national framework, the use of the certification process to mandate particular reforms or the creation of a NRAR. The creation of the NRAR and the modification of the certification process will require substantial administrative and legal costs, and undergo extensive political scrutiny. Additionally, the benefits of resolving issues related to the mismatch between regulation and RIM market power is also limited considering the potential benefits from efficiency improvements and the number of players in the rail freight industry. Ultimately, reform options for this challenge to rail access are not appealing and the likelihood of meaningful reform is small.

Reform of rail and road freight regulation and pricing should be undertaken at a national level to ensure uniformity with policy signals and incentives. Nation-wide reforms would make rail freight transportation more attractive whilst reducing the risk of immobility by jurisdiction-specific stakeholders. However, as extensive coordination and consultation is necessary, it is assumed that this process will consume significant resources, time and

³⁸ These concerns are in relation to managers of monopoly infrastructure assets (i.e. the rail infrastructure). We note some stakeholders mentioned that some rail operators are large companies who have considerable negotiating power, and access regimes that provide high levels of protection (such as extensive information requirements), or do not have effective confidentiality provisions, can push the balance too far in the direction of those operators.

capital, particularly by federal organisations. One example of national rail reform is in rail safety regulation, discussed below.

In July 2009, the Council of Australian Governments (COAG) agreed to national transport regulation reforms including the development of a national rail safety law and national rail safety regulator. In August 2011, COAG signed the Intergovernmental Agreement (IGA) on Rail Safety Regulation and Investigation Reform, establishing the Office of the National Rail Safety Regulator (ONRSR).³⁹

In January 2013, ONRSR commenced operations, implementing the provisions in the Rail Safety National Law (RSNL). South Australia, Northern Territory, Tasmania and New South Wales joined the RSNL from the outset. Victoria joined in May 2014, the Australian Capital Territory in November 2014, Western Australia in November 2015 and Queensland in July 2017.⁴⁰

The aim of the reform was to resolve a century of inconsistent regulatory practices between the states and territories that have constrained rail transport operators across jurisdictional borders. While national accreditation is in place, state specific provisions and/or accreditation bodies remain. For example, the Asset Standards Authority (ASA) in NSW issues engineering standards that NSW rail infrastructure and rollingstock must abide by.⁴¹

The best method of addressing challenges with rail access involves a strategic response that implements solutions from the different scenarios to build a framework for reform. The reform agenda should prioritise actions that are achievable, politically viable, have a realistic timeframe and generate high net benefits. Some issues would require a centralised organisation to advance reforms, others could see substantial progression through the use of reviews and information provision. The most direct way to address the challenges is through the creation of a NRAR, however, this delivery response is also the most costly, legally challenging, risky and politically difficult to implement.

³⁹ https://infrastructure.gov.au/rail/legislation/ntc_ris.aspx

⁴⁰ <http://www.onrsr.com.au/about-onrsr/faqs>, 'How was ONRSR established?'

⁴¹ <https://www.transport.nsw.gov.au/industry/standards-and-accreditation/>; <https://www.transport.nsw.gov.au/industry/standards-and-accreditation/standards/frequently-asked-questions>. Is the ASA the only standards body in Transport for NSW? And I am drafting a contract for procurement of new rolling stock. Which standards would the suppliers be required to adhere to in designing rolling stock?

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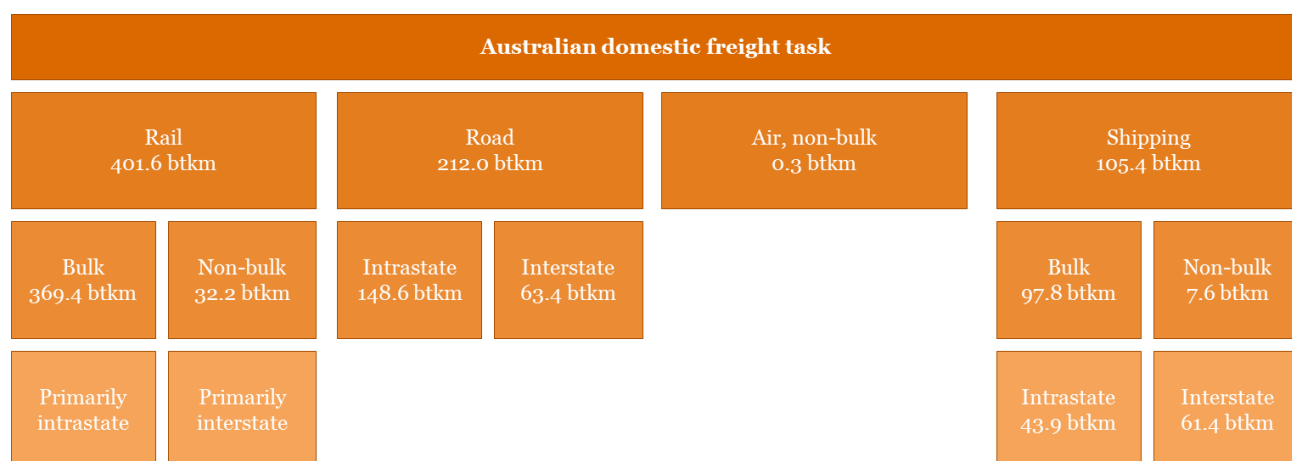
Appendix A *Background*

6 Australian rail freight task

This section looks at the competitiveness of rail in the context of the total freight task in Australia. Rail accounts for approximately 50 per cent of the Australian domestic freight task, as shown in Figure 3.⁴² The freight task is divided into the transport of bulk and non-bulk (or intermodal) freight, inter- or intra-state. Australia’s rail freight task is dominated by the intra-state transport of bulk commodities.⁴³ Improving the efficiency of intra-state rail access will potentially have the highest impact in terms of freight volume.

The interstate transport of non-bulk (or intermodal) commodities is relatively small. However, improving interoperability between access regimes is likely to have the highest impact in terms of increasing rail’s mode share in the market, as rail and road compete strongly for long-distance non-bulk freight, and rail has a competitive advantage as distance increases.⁴⁴ It is important to understand Australia’s rail freight flows to assess the materiality of the differences in rail access regimes and operating requirements identified in Section 3 of this report.

Figure 13 Australia’s domestic freight task



Source: BITRE 2016 Australian infrastructure statistics yearbook p.32

⁴² National Transport Commission Who moves what where, <https://www.ntc.gov.au/current-projects/who-moves-what-where/>. Road account for approximately 30 per cent. Also see BITRE, Yearbook 2016, p.33

⁴³ NTC 2016 paper, p. 66. Bulk freight is cargo that is transported unpackaged in large quantities, and non-bulk is freight that is transported in an intermodal container or vehicle.

⁴⁴ NTC 2016, p.15

7 *History of Australian rail networks*

The Australian rail network has varied characteristics and is managed by different RIMs. This is, in part, because it was built at different times under different owners. From 1950 to 1996, Australian Governments sought to connect the mainland state capital cities with a standard gauge railway network. This interstate network was completed in June 1995, with the finalisation of the Melbourne to Adelaide rail track. The Australian Government established the ARTC in February 1998 to manage access and infrastructure development on the interstate network. The remainder of the rail networks remain under different management, with different gauges. In 2017, early works began to deliver the Inland Rail line between Melbourne and Brisbane via regional Victoria, NSW and Queensland.⁴⁵

The 1995 Hilmer Review

As stated in Section 02.2, the overarching regulatory framework for access to essential infrastructure services in Australia is the National Access Regime. The National Access Regime was introduced through the 1995 Hilmer review of Australian competition laws (Hilmer Review). The Hilmer Review recommended vertically separating certain industries with high fixed cost infrastructure into their contestable and natural monopoly components. It then recommended a single national access regime to facilitate third party access to the infrastructure and promote competition.⁴⁶

In response to the Hilmer Review, the Council of Australian Governments (COAG) developed a package of reforms now known as the National Competition Policy. This comprised:⁴⁷

- a National Access Regime in Part IIIA of the *Trade Practices Act 1974* (now the *Competition and Consumer Act 2010*)
- two institutions to oversee the implementation of the policy: the ACCC and the National Competition Council (NCC).

The National Access Regime regulates third party access to essential infrastructure services by providing three pathways for access to infrastructure services:⁴⁸

- 1 **Declaration and negotiation/arbitration**—A party can apply to the NCC to declare an infrastructure service. The NCC makes a recommendation to the relevant minister based on assessment against certain criteria. If declaration is successful, the service provider must negotiate access with access seekers. If the service provider and access seeker cannot agree on terms and conditions for access, then the dispute can be referred for arbitration to the ACCC.

⁴⁵ <https://inlandrail.artc.com.au/programme>

⁴⁶ Competition Policy Review Final Report March 2015 p.425

⁴⁷ APH National Competition Policy

⁴⁸ http://ncc.gov.au/images/uploads/Access_to_Monopoly_Infrastructure_in_Australia.pdf p.1-4. However, an access seeker and RIM can choose to privately negotiate access to the infrastructure if they wish. See Productivity Commission Inquiry Report No. 66 National Access Regime p.51-52

- 2 **Effective access regimes**—State/Territory governments can have their own access regimes recognised as ‘effective’ and exempt service providers in their jurisdiction from the other provisions in the National Access Regime. The State/Territory government can apply to the NCC to have their access regime certified as effective. The NCC makes a recommendation to the relevant Minister based on assessment against certain criteria (including the treatment of interstate issues), and the Minister makes the final decision.
- 3 **Voluntary access undertakings**—A service provider can offer an access undertaking to the ACCC for approval, setting out the terms and conditions on which it is willing to provide access. The ACCC assesses the undertaking against certain criteria, and once approved, it is legally enforceable.

The original intent of the National Access Regime was to provide a common framework for the industry. However, jurisdiction-specific access regimes have developed over time, see Appendix B for more details.⁴⁹

The 2015 Harper Review

In the 2015 Harper (or Competition Policy) Review, the panel reviewed the National Competition Policy and the rail freight section in particular. It concluded that:⁵⁰

- The principles which underpin the National Competition Policy are sound. However, the Panel recommended a new set of competition principles to widen the focus of competition policy to encompass the many different ways in which the government can affect competition. They centre around promoting the long-term interests of consumers
- Many rail freight tasks face significant competition from road freight, which has made efficiency-enhancing reforms relatively palatable.
- Structural separation of track from above-rail operations has increased competition and innovation in the sector. However, regulators and policymakers need to recognise that on some low-volume rail routes vertical integration may be preferable.
- Policymakers should consider reducing the number of access regimes and regulators in the rail sector to the extent possible, as the complexity of different jurisdictional regimes can be costly for operators.
- For vertically integrated networks, access regimes need to have strong ring-fencing provisions and effective compliance / enforcement to promote competition in above-rail services.

The following diagram also shows the Panel’s recommendation to establish a National Access and Pricing Regulator for all regulated infrastructure services.

⁴⁹ Competition Policy Review Final Report March 2015 p.425

⁵⁰ Competition Policy Review Final Report March 2015, p. 98, 212.

Figure 14 Harper Review recommended reforms to competition institutions



Source: Competition Policy Review Final Report March 2015, infographic

Appendix B *Overview of Australian rail access regimes*

8 Rail access regimes

This section provides detail on each rail access regime, by regulator.

8.1 Australian Competition and Consumer Commission

The ACCC is one of the key regulatory bodies responsible for implementing the National Access Regime in Part IIIA of the CCA (see Section 7). The ACCC currently regulates access to the following networks, both managed by the ARTC:⁵¹

- **The Interstate Network:**

- This includes the mainline standard gauge track linking Kalgoorlie in Western Australia, Adelaide, Wolseley and Crystal Brook in South Australia, Melbourne and Wodonga in Victoria and Broken Hill, Cootamundra, Albury, Macarthur, Southern Sydney Freight Line, Moss Vale, Unanderra, Newcastle (to the Queensland border) and Parkes in NSW.⁵² Figure 15 shows a map of this network.
- It is mainly used to transport bulk and non-bulk commodities interstate. It services all the major capitals, markets, regional freight centres and import/export ports in Australia.
- Its main customers are train operators, with key operators set out in Table 4.

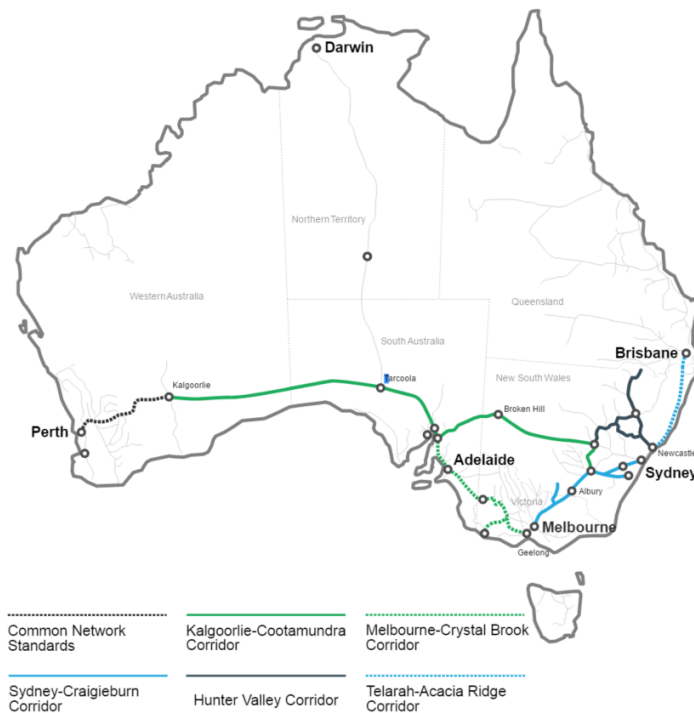
- **The Hunter Valley Coal Network (HVCN):**

- This includes lines from Newcastle ports (Port Waratah, Kooragang and Newcastle Coal Infrastructure Group) to Turravan, and Muswellbrook to Ulan. Figure 15 shows a map of this network.
- It is mainly used to transport coal from mines in the Hunter Valley to the Port of Newcastle for export. However, it is also used to transport non-coal commodities such as grain, and to transport coal from the mines to domestic customers such as power stations.
- Its main customers are coal producers in the Hunter Valley, with key producers set out in Table 4.

⁵¹ The Goldsworthy railway is declared under the National Access Regime, but it was mothballed in 2014.

⁵² <https://www.artc.com.au/customers/access/access-interstate/network-configuration/>

Figure 15 ARTC network map – Interstate Network and HVCN



Source: <https://www.artc.com.au/about/network/>

Table 4 summarises the major rail stakeholders for the National Access Regime. The list of operators is not exhaustive.

Table 4 National Access Regime: ARTC network – stakeholders

Network	Owner(s)	Rail Infrastructure Manager / lessee	Major Operators
Interstate Rail Network	NSW Government Transport for NSW (TfNSW), Australian Government	ARTC	Aurizon Genesee and Wyoming Australia Pty Ltd Pacific National QUBE Logistics (Rail) Pty Ltd SCT Logistics
Hunter Valley Coal Network	TfNSW	ARTC	Glencore Coal (NSW) Pty Ltd Idemitsu Australia Resources Pty Ltd Peabody Australia Mining Pty Ltd Whitehaven Coal Ltd Yancoal Australia Ltd

Source: <https://www.artc.com.au/about/customers/>

8.1.1 National Access Regime

The National Access Regime is the overarching regulatory regime applying to essential infrastructure services. Section 7 sets out three regulatory pathways for obtaining access, and the ACCC has responsibilities under the first (declaration) and third (access undertaking) pathways.

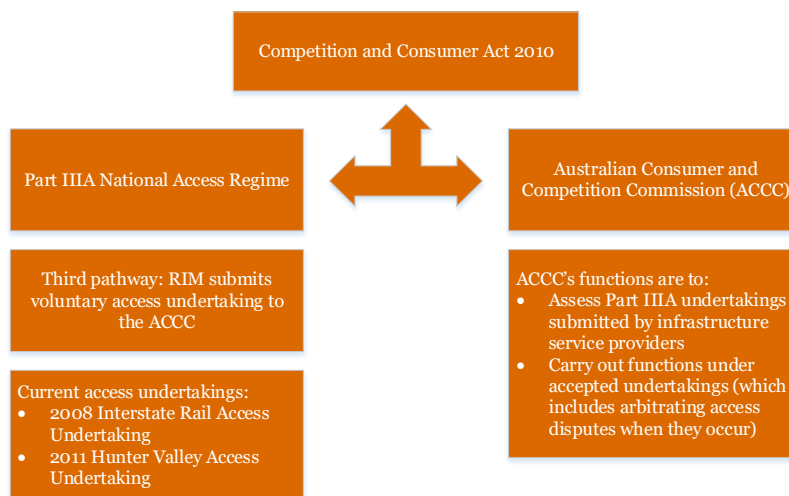
Since the only operational major freight rail network currently declared is a privately owned and operated line (Rio Tinto’s Robe Railway), this section focuses on the third pathway for

obtaining access. That is, where voluntary access undertakings are submitted to the ACCC for approval. The access undertakings regulate access to rail infrastructure by setting out the terms and conditions on which the RIM is willing to grant access to third parties.⁵³

The ACCC assesses access undertakings against a set of criteria in Part IIIA of the CCA. These criteria do not dictate a particular regulatory approach. However, they do set out pricing principles with which the access undertaking must be consistent, leading to an element of price control. The ACCC also developed a Part IIIA Access Undertaking Guideline, which provides guidance about the process for drafting and submitting an access undertaking.⁵⁴

The ACCC must make a decision on an access undertaking within 180 days from its submission date, although this can be extended under certain circumstances.⁵⁵ The ACCC must also approve variations, extensions and withdrawals of undertakings. Figure 16 sets out the third pathway of the National Access Regime and the ACCC's functions.

Figure 16 National Access Regime – third pathway



Source: <https://www.accc.gov.au/regulated-infrastructure/about-regulated-infrastructure/acccs-role-in-regulated-infrastructure/national-access-regime-under-part-iiiia>

8.1.2 Access undertakings

As set out above, the access undertakings set out the terms and conditions on which a RIM is willing to grant access to its network. This is the main instrument of which access seekers need to be aware when applying for access. The access undertakings currently in place are:

- the 2008 Interstate Rail Access Undertaking (IAU), which expires in 2018.⁵⁶ A variation was approved in 2013 to include the Southern Sydney Freight Line.⁵⁷

⁵³ Once the undertaking is accepted, the infrastructure services cannot be declared.

⁵⁴ ACCC Part IIIA access undertaking guidelines August 2016

⁵⁵ <https://www.accc.gov.au/regulated-infrastructure/about-regulated-infrastructure/acccs-role-in-regulated-infrastructure/national-access-regime-under-part-iiiia/time-limits-for-access-undertakings-disputes>

⁵⁶ <https://www.accc.gov.au/regulated-infrastructure/rail/artc-interstate-rail-access-undertaking>

⁵⁷ <https://www.accc.gov.au/regulated-infrastructure/rail/ssfl-variation-2013>

- the 2011 Hunter Valley Access Undertaking (HVAU), which was varied in 2017 and now extends to December 2021.⁵⁸

Both of these undertakings have been approved by the ACCC and set out terms and conditions for the following:

- Negotiating access
- Pricing principles for access charges
- Managing capacity
- Managing network connections and additions (the HVAU has more sections on this)
- Network transit management
- Monitoring the ARTC's performance in maintaining the network.

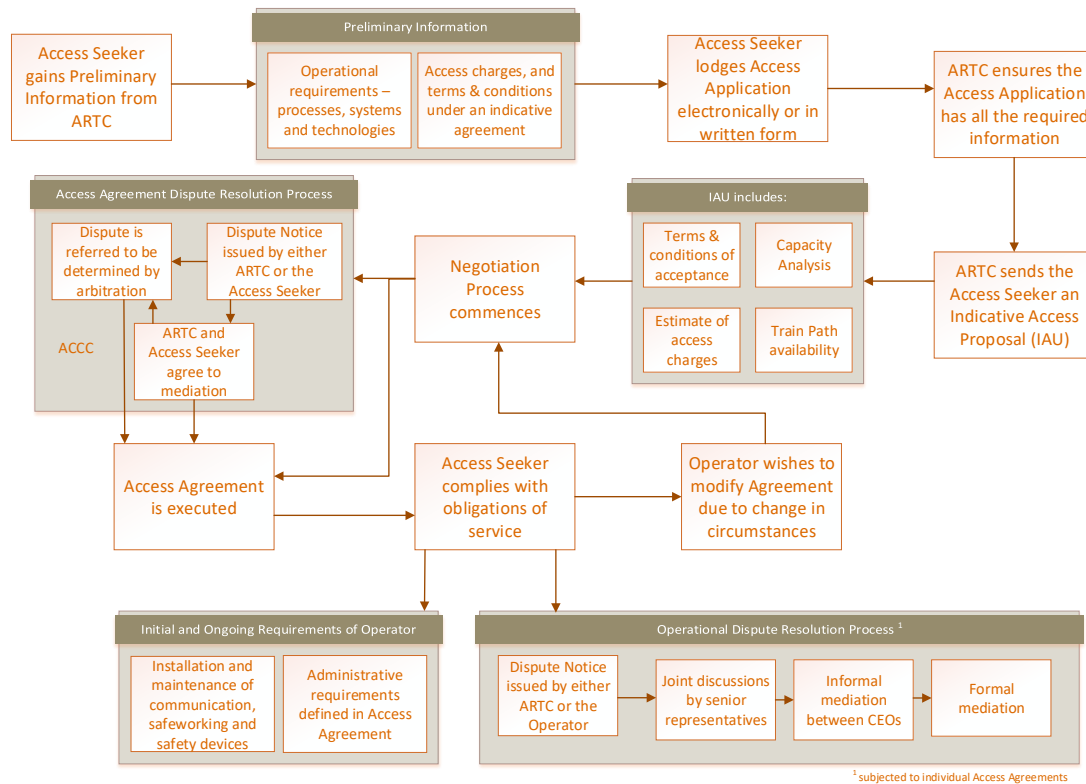
Although these categories are common to both the IAU and the HVAU, the latter has different requirements for applicants seeking coal access rights and non-coal access rights. This is, in part, because applicants for coal access rights are generally not train operators. In the remainder of this section, we will separate information for coal and non-coal access of the HVCN where appropriate.

8.1.3 Negotiating rail access

Both the IAU and HVAU set out a process for negotiating access. These have similar steps, but the HVAU has additional requirements for coal specific matters. The IAU process is summarised in Figure 17.

⁵⁸ <https://www.accc.gov.au/regulated-infrastructure/rail/artc-interstate-rail-access-undertaking>;
<https://www.accc.gov.au/regulated-infrastructure/rail/artc-hunter-valley-access-undertaking/june-2017-variation-of-the-2011-hunter-valley-access-undertaking>

Figure 17 ARTC access negotiation process for the Interstate Network



Source: ARTC, Interstate Access Undertaking, 2008.

8.1.4 Rights and obligations during rail access

Access is granted and finalised through an Access Agreement. The IAU includes an Indicative Access Agreement and the HVAU includes an Indicative Access Holder Agreement, which gives an indication of further terms and conditions.

In the HVAU, non-coal operators are subject to the same terms and conditions as those stated in the Indicative Access Agreement for the Interstate Network. This Indicative Access Agreement modified for non-coal operators to include the mandatory provisions in the HVAU and any other amendments necessary to account for the particular circumstances of the HVCN.

Table 5 sets out the indicative access agreements that apply to different applicants for each network.

Table 5 Applicable indicative access agreements for different access seekers

Network	Applicant	Indicative Access Agreement
Interstate Network	All applicants	Indicative access agreement in IAU
HVCN	Coal	Indicative Access Holder Agreement in the HVAU ⁵⁹
	Non-coal	Indicative access agreement in IAU with amendments

⁵⁹ Under the HVAU, Access Holders can only utilise Coal Access Rights through an Accredited Operator. Applicants that wish to enter an IAHA seeking Coal Access Rights must nominate an Accredited Operator or enter into an Operator Sub-Agreement. For Non-Coal Access Rights, Applicants must procure the services of an Accredited Operator

Source: ARTC Hunter Valley Access Undertaking <https://www.artc.com.au/customers/access/access-hunter-valley/access-undertaking/p.21-21>; ARTC Interstate Access Undertaking <https://www.artc.com.au/customers/access/access-interstate/>

The indicative access agreements give an indication of the powers, rights and obligations of each party for the duration of access to the network, for example:

- Track access rights
- Each party's obligations regarding control and management of access to the network
- Safety standards
- Environmental requirements.

These are summarised in Table 6.

Table 6 Obligations and requirements of each party under an Indicative Access Agreement

Topic	ARTC Requirements	Operator requirements
Track access rights	The ARTC grants the operator the use and availability of the train paths and the use of the network (for the term of the Access Agreement) subject to the ARTC's passenger priority obligations	The operator cannot access the network in any way other than is authorised by the Access Agreement The operator's rights to the train paths do not give it an exclusive right to any train path. No two trains will be allotted scheduled arrival or departure times such that there are conflicts in arrival or departure times having regard to the Safeworking Rules
Control and management of access to the network	The requirement that control of the network and management of access remains at all times with the ARTC	The Operator agrees to maintain each train in a condition which is fit for use on the network having regard to the terms of the Agreement.
Safety standards	Both the Operator and ARTC must comply with: <ul style="list-style-type: none"> • All applicable safety standards and laws dealing with safety • Safeworking Rules • Dangerous Goods Code • The Standards • Accreditation, licences and approvals required by law Qualification requirements for employees, agents and subcontractors, and drug and alcohol tests	
Environmental requirements	This includes: <ul style="list-style-type: none"> • Compliance with environmental requirements (all laws and policies) • Environmental Management Plans by the ARTC • Notification of Environmental Condition • Environmental management system manual developed by ARTC 	This includes: <ul style="list-style-type: none"> • Compliance with environmental requirements (all laws and policies) • Environmental Management Plans by the Operator • Notification by Operator of carriage of certain materials in Train Manifests • Notification by Operator of Incidents involving dangerous goods • Operator must implement and comply with the conditions of ARTC's Environmental License • Operator must implement and comply with the environmental management system manual developed by ARTC

Source: ARTC Interstate Access Undertaking SSFL Variation

Variations for Coal Freight

Coal access seekers that execute an access holder agreement with the ARTC become access holders. Before they can use the HVCN however, they need to execute an Operator Sub-Agreement, jointly with each train operator they use. This should be based on the ARTC's Indicative Operator Sub-Agreement.

Further, there are some differences in track access rights for coal producers and/or their nominated operators, based on the Indicative Access Holder Agreement. These are summarised in Table 7. The Indicative Access Holder Agreement also does not contain any provisions that are specifically dedicated to safety and the environment. However, HVAU states that the operator sub-agreement requires the operator to comply with all applicable safety standards, and the ARTC is required to develop an Environmental Licence and environmental management system manual.⁶⁰

Table 7 Obligations and requirements of each party under an Indicative Access Holder Agreement – Coal freight

Topic	ARTC Requirements	Coal Producer or operator requirements
Track access rights	<p>ARTC grants to the access holder:</p> <ul style="list-style-type: none"> • A base entitlement, which is the right to use the train paths set out in the agreed Train Path Schedules. The Access Holder's entitlement ends when it has utilised its contracted path usages for its train paths for that year. • Tolerance – the ARTC will make additional Capacity available in each month in each Pricing Zone (up to a negotiated monthly Tolerance Cap) for the purpose of providing a degree of flexibility as to the period in which they may use their annual contracted path usages. • Ad-hoc path usages requested by the operator, where path usage is available. 	<p>The Access Holder's rights to use a Path Usage must be exercised through an operator and is subject to the terms and conditions set out in this agreement, including ARTC's Passenger Priority obligations and the Availability Exceptions.</p>

Source: ARTC Hunter Valley Indicative Access Holder Agreement
<https://www.artc.com.au/customers/access/access-hunter-valley/access-undertaking/>

8.1.5 Rail access charges

Both the IAU and HVAU include pricing principles, which provide access seekers with information on how the ARTC will set access charges for its services.⁶¹ While access charges are not set in the access undertakings, they are regulated. Access charges also differ based on whether the freight is coal or non-coal.

Non-coal freight

Under the IAU and HVAU, for non-coal freight, ARTC commits to:

- Providing indicative charges to access seekers for indicative services that meet a particular set of criteria.
- Setting charges for non-indicative services with regard to a number of factors

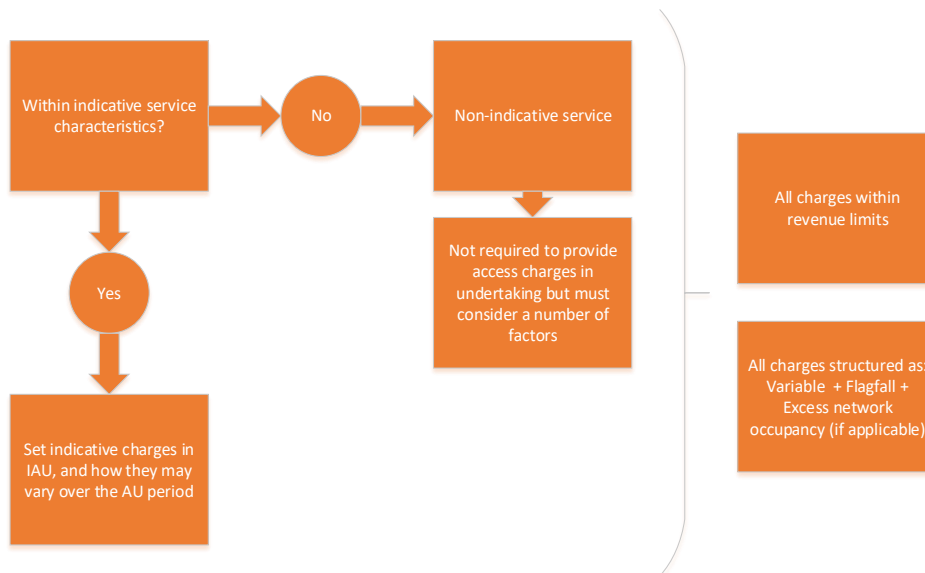
⁶⁰ HVAU, Schedule A:2.

⁶¹ ARTC Interstate Access Undertaking SSFL Variation, part 4.

- Setting charges within revenue limits
- Setting charges with a particular structure

This is summarised in Figure 18. We provide more information on indicative access charges, non-indicative access charges and revenue limits below.

Figure 18 ARTC's pricing principles for non-coal freight



Source: ARTC Interstate Access Undertaking <https://www.artc.com.au/customers/access/access-interstate/>

Indicative services

The IAU sets out indicative charges, and how they will vary over the IAU period, for indicative services with the following characteristics:⁶²

- A maximum axle load of 21 tonnes
- Maximum speed of 110km/h
- Length not exceeding 1500m length east of Adelaide, 1800m west of Adelaide or 1800m on the segments of Melbourne-Macarthur and Parkes-Cootamundra and Southern Sydney Freight Line.

Non-indicative services

The IAU requires ARTC to set charges for non-indicative services with regard to the following factors:⁶³

- Particular characteristics of the relevant service
- Commercial impact on ARTC's business

⁶² ARTC Interstate Access Undertaking SSFL Variation, p.24-26

⁶³ ARTC Interstate Access Undertaking SSFL Variation, p.20-21

- Logistical impacts on ARTC’s business
- Capital or other contributions by the applicant to ARTC’s costs
- The cost of any additional capacity.

Pricing principles

The IAU and the HVAU for non-coal freight, require ARTC set access charges such that the revenue generated for a segment or group of segments falls within floor and ceiling limits, set out in Table 8.⁶⁴

Table 8 Pricing principles for the Interstate Network and non-coal operators of the HVCN

Limit	Method
Floor	The revenue for ARTC sufficient to cover the Incremental Cost of that Segment or group of Segments. Incremental costs means the costs that could have been avoided if a Segment was removed from the network including Segment Specific Costs and Non-Segment Specific Costs relating to particular activities set out in the IAU and HVAU.
Ceiling	The revenue sufficient to cover the Economic Cost of that Segment or group of Segments. In calculating the Economic Cost for the purposes of the Ceiling Limit, the network and Associated Facilities will be: <ul style="list-style-type: none"> • valued initially using the depreciated optimised replacement cost method (DORC) of valuing assets • valuations are annually adjusted for CPI, capital expenditure and relevant depreciation
Rate of return	Equivalent to the ARTC’s weight average cost of capital. This is accepted by the ACCC after considering the ARTC’s risk.

Source ARTC Interstate Access Undertaking SSFL Variation Schedule D, p.21-23; ARTC Hunter Valley Access Undertaking <https://www.artc.com.au/customers/access/access-hunter-valley/access-undertaking/> p. 27

Structure of Charges

Under the IAU and HVAU (Non-Coal Access Rights) all charges are structured as multi-part tariffs with:

- A variable component, which is a function of distance and gross mass (\$/gtkm)
- A flagfall component, which is fixed and specific to each train service type and segment (\$/km)
- An excess network occupancy component, which is a function of time (\$/hr) sought by an access seeker for a train path on the network, which is in excess of:
 - a reasonable allowance for section run times
 - dwells for crossing and passing other trains
 - an allowance for the reasonable requirements for operational activities while the train occupies the network.

Variations for Coal Freight

Under the HVAU for coal freight, ARTC commits to:

⁶⁴ <https://www.artc.com.au/library/2013%20IAU%20-%20SSFL%20Variation%20IAU%20Schedule%20D%20-%20IAA%20100413.pdf>, p.21-23

- Providing indicative charges to access seekers for indicative services that meet a particular set of criteria.
- Setting charges within revenue limits, which are different for each Pricing Zone

ARTC will determine the Indicative Access Charges for Coal Access Rights each year along with the characteristics of an Indicative Service.⁶⁵ Indicative Services will be determined by the:

- Maximum axle load
- Maximum speed
- Train length
- Section run times.

Pricing Zones 1 and 2

Floor revenue limit is the revenue for ARTC that is sufficient to cover the **Incremental Cost** of that Segment or group of Segments.

Ceiling revenue limit is the **full economic cost** of those segments which are required for the Access Holder. The full economic cost of providing rail to coal freight services requires a regulatory valuation of assets or Regulatory Asset Base (RAB).⁶⁶ Rail segments are ascribed an initial RAB in accordance with the NSW Rail Access Undertaking. The Initial RAB is then rolled forward annually using the consumer price index.⁶⁷ This is the RAB Floor Limit.

Pricing Zone 3

In Pricing Zone 3 there is relatively lower demand for rail services due to the start-up nature of coal mines in the region. As ARTC does not expect to recover its full economic cost, **loss capitalisation** was introduced in the HVAU. Loss capitalisation enables ARTC to capitalise economic losses arising during the early life cycle of a network, and revenue shortfalls are capitalised into the asset base to allow for recovery of revenue in future years.

The RAB for segments in Pricing Zone 3 are rolled forward annually using the rate of return and the difference between the total operating expenditure incurred and the total access revenue earned by ARTC in the previous year.⁶⁸ When the RAB is equal or below the RAB Floor Limit in Pricing Zone 3, the Access revenue from Access Holders must not exceed the RAB value for the current year.

Structure of Charges

Structure of charges for Coal Access Rights under the HVAU are based on:

- A variable component, which is a function of distance and gross mass (\$/gtkm) to fully recover the costs of actual usage
- A take or pay charge that with an objective of:

⁶⁵ There may be more than one Indicative Service and Indicative Access Charge within one Pricing Zone.

⁶⁶ Some segments of the HVAU has not been ascribed a regulatory asset value and as such the method of valuing the asset is the DORC, approved by the ACCC.

⁶⁷ Plus any net additions to the capital expenditure and less depreciation.

⁶⁸ Plus any net additions to the capital expenditure.

- fully recovering the new capital component of costs (depreciation of and return on assets) over the economic life of new investments
- recover part or all of the fixed component of costs (fixed operating costs and depreciation of original assets) on the basis of forecasted or actual network usage⁶⁹

8.1.6 Operating systems and technologies

Access seekers are required to comply with the Interstate Network and HVCN’s operating systems and technologies. These mainly revolve around Safeworking systems, communications technologies and safety devices. Table 9 documents these requirements for each rail corridor on the network.

The National Train Communications System (NTCS) is the primary communications system for the ARTC controlled rail network and it is mandatory for all operators to operate their locomotives using a NTCS ICE (In-Cabin Equipment) Unit as the primary communications device.

The NTCS allows for safe travelling proximity alerting, real-time locomotive tracking, sophisticated track and wayside monitoring technology to be implemented. These situational awareness systems provide a platform for the new Advanced Train Management System.

Table 9 ARTC operating systems and technologies, by rail corridor

Area Covered	Safeworking System	Communications	Wayside Devices ⁷⁰
Kalgoorlie to Cootamundra Corridor ⁷¹	Train Order Working (TOW), Centralised Traffic Control (CTC), Goods sidings, Axle counters and signage, Automatic Block Signalling (ABS).	NTCS ⁷²	Wheel Impact Load Detector (WILD), Rail Bearing Acoustic Monitor (RailBAM), High Load Detector, Dragging Equipment Detector (DED)
Melbourne to Crystal Brook Corridor	CTC, TOW, Goods sidings, ABS (Victoria)	NTCS	WILD, RailBAM, Rail Squeal Acoustic Detector (RailSQAD), Angle of Attack (AOA)
Hunter Valley Corridor	Rail Vehicle Detection (RVD) – Uni-directional signalling, Bi-directional signalling and yard working, Single Line Bi-directional signalling, Staff and Ticket, Phoenix Train Order System (PTOS)	NTCS	DED, Hotbox Detector (HBD), WILD, RailBAM, Hot Wheel Detector (HWD),
Telarah to Acacia Ridge Corridor	RVD	NTCS	N/F

⁶⁹ The proportion of fixed component of costs that it recovered through a take or pay charge component is consistently applied to all Access Holders with Coal Access Rights within a Pricing Zone.

⁷⁰ Wayside Monitoring Systems

⁷¹ Broken Hill to Stockinbingal and Bogan Gate to Bogan Gate North has NSW train orders – Train Management and Control System (TMACS), WB Radio and Wayside devices consisting of High Load Detector, DED

⁷² Alternate communication is by mobile or satellite phones

Area Covered	Safeworking System	Communications	Wayside Devices ⁷⁰
Sydney to Craigieburn Corridor	RVD, Staff and Ticket, TOW, CTC, PTOS	NTCS ⁷³	Yes

Source: <https://www.artc.com.au/customers/operations/nib/>

8.1.7 Negotiation and compliance costs for operators

This section provides a partial indicative list of cost categories and sub-categories that are common to all operators across all regimes (and as such is not repeated in subsequent sections). It is important to note that this list is not mutually exclusive and collectively exhaustive and further work could focus on be required to accurately quantify.

Due to data limitations and gaps it was not possible to make an appropriate assessment of all the costs. Costs will be biased as not all stakeholders were able to submit costs and comment and verify other stakeholders' costs. If this report included only costs noted by a few operators that were also unverified by RIMs, the results would be highly questionable and potentially misleading. This report includes an assessment of the different challenges with rail access regimes, Section 4. These are based off qualitative evidence and supplemented by quantitative information when provided by stakeholders.

Table 10 Cost categories for rail access

Cost category	Cost sub-category
Gaining access to network	Administrative costs (for Access Proposal) ⁷⁴
	Cost of providing information
	Negotiation costs (initial and ongoing)
	Mediation costs
	Arbitration costs
	Regulatory compliance costs
Access charges	Fixed components
	Variable components
Systems, technology, equipment	Capital costs
	Maintenance costs
Maintenance, upgrades and day to day usage	Opportunity cost of lost productivity
	Coordination costs
	Lost capacity costs (operational inefficiencies)

Source: PwC analysis; stakeholder consultations.

8.1.8 Dispute resolution

The National Access Regime (in Part IIIA of the CCA), the IAU and HVAU sets out the dispute resolution processes. There are dispute resolution processes for:

- Disputes in relation to the negotiation of an Access Agreement
- Disputes in relation to an Access Agreement once executed.

⁷³ WB radio communications with Sydney Trains at Botany Yard to Enfield South

⁷⁴ Communicating with ARTC. Reading and comprehending through legal, procedural and technical documentation.

These processes are set out below. They are also summarised in the process map in Figure 17.

Disputes arising from negotiating an Access Agreement

The dispute resolution process for the Access Agreement negotiation under the IAU and the HVAU follows a negotiate/mediate/arbitrate model. The three-step approach to dispute resolution is summarised below.

Negotiation – Within five business days of a Dispute Notice being issued in writing to the other party, senior representatives from each party will meet and use reasonable endeavours acting in good faith to resolve the dispute by joint discussions.

Mediation – is subject to agreement by the parties. Informal mediation is first undertaken by the CEOs of both parties. If the dispute is not resolved, the matter will be referred to formal mediation in South Australia (Interstate Network) or NSW (HVCN).

Arbitration – is by the ACCC. In deciding a dispute, the arbitrator must take into account:

- The objectives and principles of Part IIIA of the CCA,
- ARTC's legitimate business interests and investments in the network,
- All costs ARTC incurs in providing access,
- The operational and technical requirements of the network, and
- The economically efficient operation of the network.

The ACCC must make the final determination within 180 days. ACCC decisions are final and binding. There are currently no mechanisms available to concerned parties to appeal decisions made by the ACCC to accept or reject access undertakings.⁷⁵

Disputes arising from an Access Agreement once executed

Disputes in relation to an Access Agreement once executed will be dealt with in accordance with the provisions of that Access Agreement. The Indicative Access Agreement set out in the IAU provides some guidance on this. According to the Indicative Access Agreement, the dispute resolution process will follow a negotiate/mediate model, summarised below.

Negotiation – Within five business days of a Dispute Notice being issued in writing to the other party, senior representatives from each party will meet and use reasonable endeavours acting in good faith to resolve the dispute by joint discussions.

Mediation – is subject to agreement by the parties. Informal mediation is first undertaken by the CEOs of both parties. If the dispute is not resolved, the matter will be referred to formal mediation in South Australia or NSW. After one month of formal mediation, either may terminate the mediation proceedings in writing to the other.⁷⁶

There are no provisions for informal mediation by CEOs in the HVAU. When the dispute is in relation to a rebate paid, the Dispute will be referred to an Expert for determination instead of being the subject of mediation. The determination by the expert is binding.

⁷⁵ ARTC Interstate Access Undertaking SSFL Variation Schedule D

⁷⁶ ARTC Interstate Access Undertaking SSFL Variation Schedule D

8.1.9 Interactions of access regimes

Almost all parts of the ARTC interstate rail network is covered by the ARTC IAU or the HVAU. The parts that are not are as follows:

- The intra-state rail network in Western Australia. Access to this network is regulated by the Western Australian Rail Access Regime and the state based regulator, the Economic Regulation Authority (ERAWA).
- The intra-state rail freight line connecting Brisbane and far north Queensland. Access to this network is regulated by the Queensland Rail Access Regime and the state based regulator, the Queensland Competition Authority (QCA).
- Some of the intra-state metropolitan freight network in Sydney. Access to this network is regulated by the NSW Rail Access Regime and the state based regulator the Independent Pricing and Regulatory Tribunal (IPART).

In addition, major freight routes require operators to interact with other access regimes in Victoria and South Australia.

8.2 Independent Pricing and Regulatory Tribunal

The IPART is the independent economic regulator in NSW. IPART is responsible for regulating the NSW Government entities that provides access to the rail network under the NSW Rail Access Undertaking (NSW RAU).

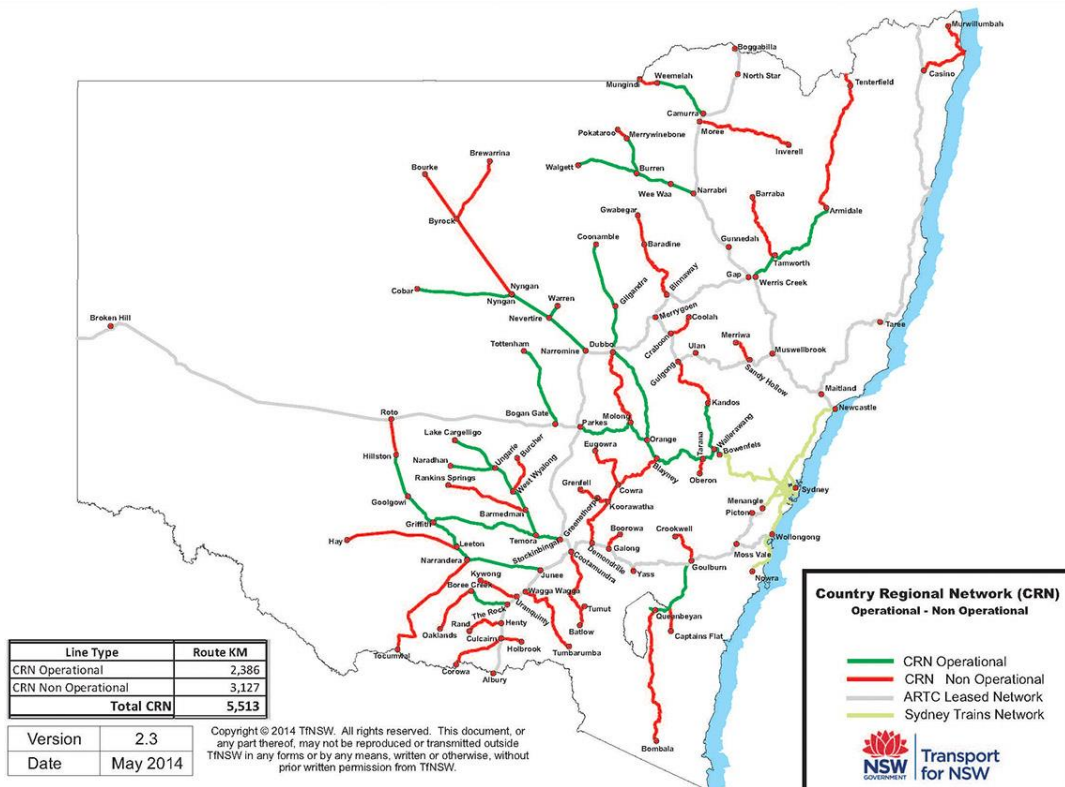
In 2004 ARTC commenced a 60 year lease of certain segments of the NSW rail network, including the operational parts of the interstate rail network, and sections of the Hunter Valley network. Up until that point, IPART was responsible for regulating access to the entire NSW rail network.

The NSW RAU governs third party access to the following parts of the NSW rail network:

- The Metropolitan Rail Network (MRN) owned and operated by RailCorp,
- The Country Regional Network (CRN) owned by TfNSW and managed by John Holland,
- The five sectors of the HVCN between Newstan Junction and Woodville Junction owned and operated by RailCorp
- Parts of the Sydney Metropolitan Freight Network (MFN) leased to, and operated by ARTC, and
- The Turravan to Boggabilla, Goobang Junction to Merrygoen, Merrygoen to Gap and Merrygoen to Ulan sectors leased to and operated by ARTC.

John Holland rail leases the CRN under a 10 year contract that expires in January 2022. An overview of the NSW rail network in below in Figure 19.

Figure 19 Network covered under IPART (excluding ARTC Leased Network)



Note: Figure 19 does not include the Sydney metropolitan rail network in detail. For division in the Sydney Rail Freight Corridor see Figure 20.

Source: TfNSW

In 2013 ARTC’s IAU was modified to include the Southern Sydney Freight Line (SSFL). The IAU defines the SSFL as the freight corridor between Macarthur and Port Botany, and as such includes the networks in Figure 20 labelled Southern Sydney Freight Line, Botany Rail Line and parts of the MFN. The remainder of the rail corridors are covered under the NSW RAU. For more information see section 8.2.8.

Figure 20 Sydney Rail Freight Corridor



Source: https://www.atsb.gov.au/publications/investigation_reports/2015/rair/ro-2015-017/

Table 11 summarises the major stakeholders for the NSW RAU. The list of operators is not exhaustive.

Table 11 NSW Rail Access Undertaking – stakeholders

Rail access regime	Owner(s)	Rail Infrastructure Manager / lessee	Major Operators
New South Wales Rail Access Undertaking	RailCorp NSW Government Transport for NSW (TfNSW)	RailCorp John Holland Rail ARTC	Aurizon Operations Pacific National Glencore Southern Shorthaul Railroad

Source: PwC analysis.

We note that ownership of rail infrastructure assets is expected to change in NSW in July 2019, through the *Transport Administrative Amendment (Transport Entities) Act 2017*.⁷⁷ The Act will establish the Transport Assets Holding Entity (TAHE), and:

- Convert RailCorp into TAHE, a state-owned corporation (SOC) to hold, manage, maintain and operate the assets vested in or owned by it; and to establish, finance, acquire, construct and develop the assets vested in or owned by it. It will also provide access to or lease those assets.
- Constitute the Residual Transport Corporation (RTC), a new entity that will own assets not suitable for TAHE ownership
- Allow TAHE to operate where permitted by its license, issued by the Minister for Transport and Infrastructure.

Establishing TAHE will allow asset owner functions and service delivery functions to be separated.

8.2.1 New South Wales Rail Access Regime (superseded)

The NSW RAR was established in 1996 to encourage competition in the provision of rail services. The NSW RAR was superseded in 2004 by the NSW RAU. The NSW RAU cited the transfer of control of parts of the Hunter Valley rail network and interstate lines to the ARTC, which are now governed by the ACCC under the National Access Regime.

The NSW RAU is based on a hybrid of negotiate/arbitrate and direct price control regulatory approaches. The NSW RAU has not been certified by the relevant Minister under the second pathway for access in the National Access Regime.

8.2.2 Access undertakings

The NSW RAU makes provisions for third party access to certain parts of the NSW Rail Network in accordance with Schedule 6AA of the *Transport Administration Act 1988*. The NSWRAU refers to the Rail Infrastructure Corporation (RIC), Rail Corporation NSW (RailCorp) and ARTC as Rail Infrastructure Owners.⁷⁸ In this report, we focus on RIMs as those who manage the network and provide access to third parties. NSW RIMs are RailCorp, ARTC and John Holland as RIMs.

The NSW RAU sets out the RIM's terms and conditions for providing access to third parties.

This includes procedures for:

- Negotiating access
- Managing capacity
- Managing network connections and additions
- Network transit management

The NSW RAU also requires IPART to undertake an annual compliance assessment to determine whether RIMs have complied with specific requirements of the Undertaking.

⁷⁷ Transport Administration Amendment (Transport Entities) Act 2017 No 12.

⁷⁸ NSW RAU, p.1.

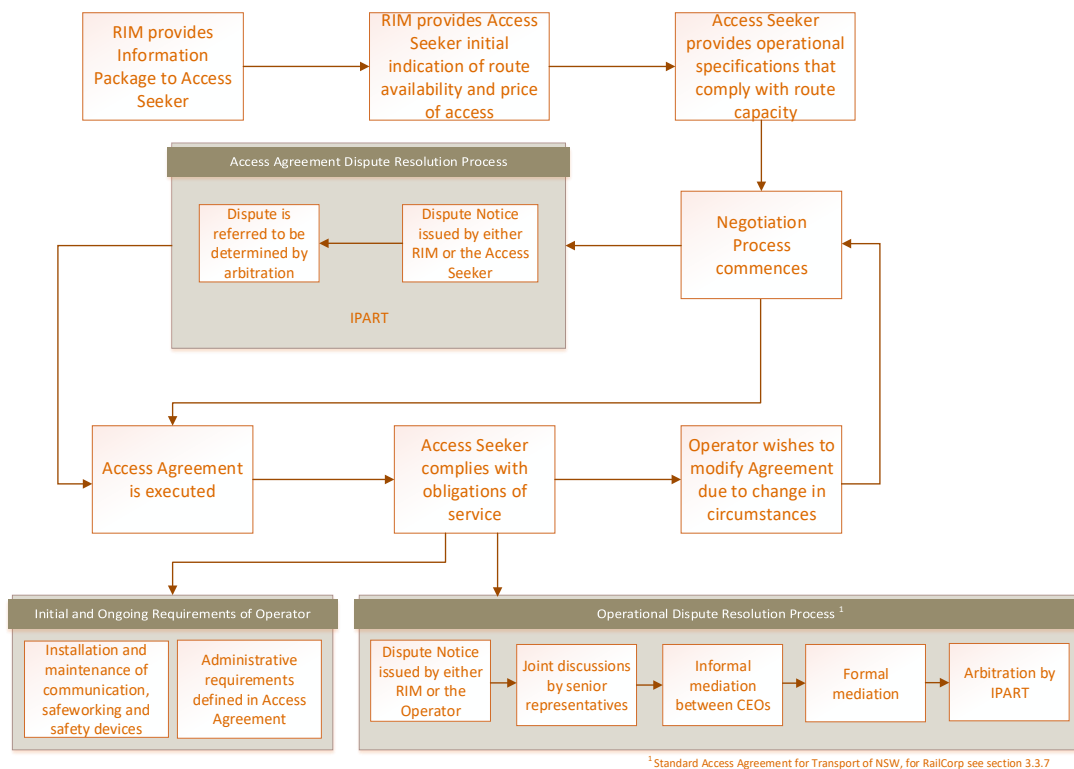
IPART follows a guideline for determining whether RIMs have complied with the rail access undertaking. This guideline provides information in relation to IPART’s annual reviews of rail infrastructure owners’ compliance with the NSW RAU. The guideline is reviewed from time to time to ensure their ongoing relevance and to reflect important industry and other developments.

The biggest component of the annual compliance assessment is determining if the RIMs have complied with the pricing principles of the NSW RAU. In particular, whether the RIM has complied with the Asset Valuation Roll Forward Principles (AVRFP) and the ceiling test. In the event that IPART determines that the RIM has not complied with the AVRFP it shall determine what Closing Regulatory Asset Base would comply with those principles. For more information on pricing principles for the NSW RAU, see Section 8.2.5.

8.2.3 Negotiating rail access

Figure 21 describes the process to gain access to a network covered under the NSW RAU.

Figure 21 Access negotiation process under NSW Rail Access Undertaking



Source: PwC analysis; NSWRAU.

The RIM must:

- Provide an information package to the access seeker prior to the access seeker lodging an Access Proposal
- Provide the access seeker an initial indication of the availability of and price for Access for the desired route
- Commence negotiations once it has received the access seekers’ Operational Specifications.

The Access Agreement must be in writing, conform to pricing principles, and set out the terms of agreement.

8.2.4 Rights and obligations during rail access

Access is granted and finalised through an Access Agreement. RailCorp and TfNSW provide a Standard Access Agreement which sets out further terms and conditions including responsibilities of the RIM and service operators. Segments of the NSW rail network managed by John Holland Rail are covered under the TfNSW's Standard Access Agreement. RIMs must notify IPART if an Access Agreement is going to be executed in the near future.⁷⁹

The standard access agreement gives an indication of the powers, rights and obligations of each party for the duration of access to the network, for example:

- Track access rights
- Each party's obligations regarding control and management of access to the network
- Safety standards
- Environmental requirements.

These are summarised in Table 12.

Table 12 Obligations and requirements of each party under a Standard Access Agreement

Topic	Railway Infrastructure Manager Requirements	Operator requirements
Track access rights	The Railway Infrastructure Manager grants the operator the use and availability of the Train Paths and the use of the network for the purpose of conducting a service (for the term of the Access Agreement). The RIM will ensure that no two trains will be allotted scheduled arrival or departure times such that there are conflicts in arrival or departure times having regard to the Safeworking Rules	The operator cannot access the network in any way other than is authorised by the Access Agreement The operator's rights to the train paths do not give it an exclusive right to any train path.
Control and management of access to the network	Control of the network and, subject to a particular Agreement, management of access to the network is with the Railway Infrastructure Manager.	The Operator agrees to maintain each train in a condition which is fit for use on the network having regard to the terms of the Agreement.
Safety standards	Both the Operator and the Railway Infrastructure Manager must comply with: <ul style="list-style-type: none"> • All applicable safety standards and laws dealing with safety • Safeworking Rules • Dangerous Goods Code • The Standards • Accreditation, licences and approvals required by law Qualification requirements for employees, agents and subcontractors, and drug and alcohol tests	
Environmental requirements	This includes: <ul style="list-style-type: none"> • Compliance with environmental requirements (all laws and policies) • Notification of Environmental Condition • Ensuring the operator receives the environmental management plan 	This includes: <ul style="list-style-type: none"> • Compliance with environmental requirements (all laws, policies and licences) • Notification of carriage of certain materials in Train Manifests • Notification of Incidents involving

⁷⁹ 1 month timeframe

Topic	Railway Infrastructure Manager Requirements	Operator requirements
		dangerous goods <ul style="list-style-type: none"> • Preparing an environmental management plan that is consistent with the Railway Infrastructure Manager's • Implementation and compliance with the environmental system manual designated by the Railway Infrastructure Manager

Source: <http://www.jhrcrn.com.au/media/2983/access-agreement-v101-genfreightgrain.pdf>

8.2.5 Rail access charges

The NSW RAU includes pricing principles, which provide the RIMs with information on how to set access charges for their services. While access charges are not set in the access undertakings, they are regulated.

Pricing principles

Under the NSW RAU, RIMs are limited by the revenue they can acquire from operators. The pricing principles that define these limitations are set out in Table 13 below.

Table 13 Pricing principles in the NSW Rail Access Undertaking

Limit	Method
Floor	Access revenue from every access seeker must at least meet the Direct Cost imposed by that access seeker. Access charges for rail segments should be that all revenue from all operators covers the incremental cost of providing the rail segments.
Ceiling	Revenue must not exceed the Full Economic Cost of the railway segments. The rail network and associated facilities will be: <ul style="list-style-type: none"> • valued initially using the DORC methodology • revalued annually by roll forward according to the AVRFP
Return on Asset	Based on the Weighted Average Cost of Capital

Source: NSWRAU

Direct costs are those which vary by usage over a 12 month period. The direct costings should include a charge for major periodic maintenance and exclude depreciation.

To calculate the full economic costs, a regulatory valuation of assets must be completed. The RAB is the capital value of the facilities and associated assets used in the provision of the NSW Rail Network, including non-sector specific assets such as train control and overheads.⁸⁰ The AVRFP are used to adjust the opening RAB and derive the closing RAB for that financial year.⁸¹

IPART ascertains whether RIMs have been complying with the AVRFP and Ceiling Test. If the RIM has not complied, IPART can make a determination that replaces the RIMs Closing RAB value. The Rate of Return to be used in the Full Economic Cost determination is also calculated by IPART.⁸²

⁸⁰ Including a rate of return on the assets and depreciation calculated using the original DORC value and the straight line depreciation method.

⁸¹ Along with any additions to the network, capital expenditure and depreciation values.

⁸² IPART, Rail Access Annual Compliance Reviews Guideline NSWRAU, March 2017

Structure of Charges

Charges for the rights of access to and use of the network is set out in the Access Agreement for each Rail Operator. General freight and grain access charges in the TfNSW Access Agreement include:

- A flagfall component, which is fixed and specific to each train service type and line section (\$/km)
- A usage component, which is a function of distance and gross mass (\$/'000 GTK)
- A line grain rate component, which is contingent on the weight of freight carried (\$/net tonne)

TfNSW also dictate the potential Incidental Charges which are applied to Rail Operator activity that occurs in conjunction with the use of the network but not directly related to the movement of Rolling Stock.

RailCorp's Access Agreement also contains Access Charges and Incidental Charges. The Access Charges include a flagfall component and are reviewed from time to time.

8.2.6 Operating systems and technologies

Access seekers are required to comply with each NSW network's operating systems and technologies. These mainly revolve around Safeworking systems, communications technologies and safety devices. Table 14 documents these requirements for each rail corridor on the network.

Sydney Trains is currently deploying the Advanced Train Control System, which is the Australian communication-based train control system created with reference to the European Train Control System. This a different technology to the satellite based Advanced Train Management System being rolled out by the ARTC.

Table 14 Operating systems and technologies, by rail corridor

Area Covered	Safeworking System	Communications	Wayside Devices ⁸³
Sydney Metropolitan	RVD – Bidirectional, Two way running Yard Working	Metronet (for CityRail suburban trains, to be replaced by Digital Train Radio System (DTRS)), NTCS and without brake-van radio system (WB) (for intercity trains).	DED, WILD, High Load Detector (HLD), Bearing Acoustic Monitor, HWD, Hot Bearing Detector, Ground Borne Noise Monitor, Pantograph Condition Monitoring System
Northern Division	RVD – Bidirectional Yard Working	Metronet (or DTRS), NTCS and WB communications	DED, HBD, HWD, Ground Borne Noise Monitor
Western Division	RVD – Bidirectional, Two way running Yard Working	Metronet (or DTRS), NTCS and WB communications	DED, HBD, HWD
Illawarra Division	RVD – Bidirectional Yard Working	Metronet (or DTRS), NTCS and WB communications	DED, HBD, HWD, Embankment Slip Detector
Country Regional	TOW, RVD, Yard Working	NTCS, Voice Communication System, WB radio	Embankment Slip Detector, HBD, DED, HLD, train

⁸³ Wayside Monitoring Systems

Area Covered	Safeworking System	Communications	Wayside Devices ⁸³
Network			weighing systems

Note: Operating systems and technologies of the Sydney MFN network is covered by ARTC, see section 8.1.6.

Source: Transport for NSW Train Operating Conditions Manual, April 2017; [http://www.jhrcrn.com.au/what-we-do/network-operations-access/network-rules-procedures-forms/Transport for NSW Signalling and Control Systems Strategy](http://www.jhrcrn.com.au/what-we-do/network-operations-access/network-rules-procedures-forms/Transport%20for%20NSW%20Signalling%20and%20Control%20Systems%20Strategy)

8.2.7 *Dispute resolution*

The NSW RAU and individual access agreements set out dispute resolution processes. There are dispute resolution processes for:

- Disputes in relation to the negotiation of an Access Agreement
- Disputes in relation to an Access Agreement once executed.

These processes are set out below. They are also summarised in the process map in Figure 21.

Disputes arising from negotiating an Access Agreement

Under the NSW RAU, disputes with access seekers follow a negotiate-arbitrate Model.⁸⁴

Negotiation – The RIM must negotiate in good faith with access seekers. The access seekers and RIM agree upon a time period the negotiation must be completed.

Arbitration – IPART is the only arbitrator of disputes arising under the NSW RAU. IPART does not have to require the RIM to provide access to the service by the access seeker.

Disputes arising from an Access Agreement once executed

RailCorp and TfNSW both have different Dispute Resolution Processes in their respective Standard Access Agreements.

RailCorp Access Agreement

The Dispute Resolution Process in the RailCorp Access Agreement follows a three step process. The table below represents the Dispute Resolution Process for disputes arising from contention in regards to Operational Procedure and Standards, including disputes surrounding:

- Operational Documents including Operating Standards for Rolling Stock
- Network Management Documents and Plans including Network Incident Framework and Environmental Management System for Environmental Compliance and Incident Management.

Table 15 RailCorp’s operational dispute resolution process

Step	Description
Notification	Either party may give a dispute notice to the other party.

⁸⁴ NSWRAU, <https://www.transport.nsw.gov.au/railcorp/access>

Step	Description
Negotiation	RailCorp and the Access Seeker must use reasonable endeavours to resolve the dispute as soon as practicable. After 10 business days, the senior managers of both parties must attempt to resolve the dispute.
Independent expert	If negotiation does not resolve the dispute, the parties may agree to appoint an independent expert to provide a report containing a recommendation on how the dispute should be resolved. The parties agree to appoint an expert, within 10 business days both parties have the option to submit an oral submission to the Expert. Within 5 business days, the independent expert must receive a brief written summary of facts to be submitted by each party. The independent expert must determine the dispute by 10 business days after receiving the summary of facts. The expert will act as an expert and not an arbitrator.

Source: NSW RAU, RailCorp Track Access Agreement, <https://www.transport.nsw.gov.au/railcorp/access>

Note: There is a point of difference when a Rail Operator issues a Notice of Dispute in relation to Rail Operator Performance. Here both parties must agree on the appointment of an Expert from the panel of experts listed in the Access Agreement within 2 business days.

Transport of NSW Access Agreement

Table 16 represents the Dispute Resolution Process for disputes arising out of the executed Access Agreement, including disputes relating to an amount being charged.

Table 16 Transport for NSW Access Agreement dispute resolution process

Step	Description
Negotiation	Within seven business days of a Dispute Notice being issued in writing to the other party, senior representatives from each party will meet and use reasonable endeavours acting in good faith to resolve the dispute by joint discussions.
Mediation	Mediation is subject to agreement by the parties. Informal mediation is first undertaken by the CEOs of both parties 21 days after the joint discussion. If the dispute is not resolved within 14 days, the matter will be referred to formal mediation in NSW. Mediation takes place in NSW with the option for the mediator to be appointed by the President of the Law Society of NSW.
Arbitration	Arbitration is by the IPART. The Dispute cannot be determined by arbitration until one month after the appointment of the mediator. The IPART's decisions are final and binding.

Source: <http://www.jhrcrn.com.au/media/2983/access-agreement-v101-genfreightgrain.pdf>

8.2.8 Interactions of access regimes

The most important interaction between the NSW RAU and other access regimes is between the NSW RAU and the National Access Regime.⁸⁵ The hot spot for interaction of access regimes is in the Sydney metropolitan area and the Hunter Valley.

Large sections of the interstate rail network, including parts of the MFN, the MRN and the metropolitan commuter line between Sydney and Newcastle, are covered by the NSW RAU, administered by IPART. Whereas the SSFL, which links Macarthur and Port Botany, is covered by the National Access Regime, administered by ACCC.⁸⁶

There are also the five sectors of the HVCN between Newstan Junction and Woodville Junction (owned and operated by RailCorp) that are covered by the NSW RAU. The rest of the HVCN is governed by the National Access Regime.

⁸⁵ On the NSW state border, there are a few non-operational Country Rail Network lines.

⁸⁶ Before the IAU was modified to include the SSFL, the NSW RAU governed the interstate rail network down to Macarthur. (See section 3.3.1.)

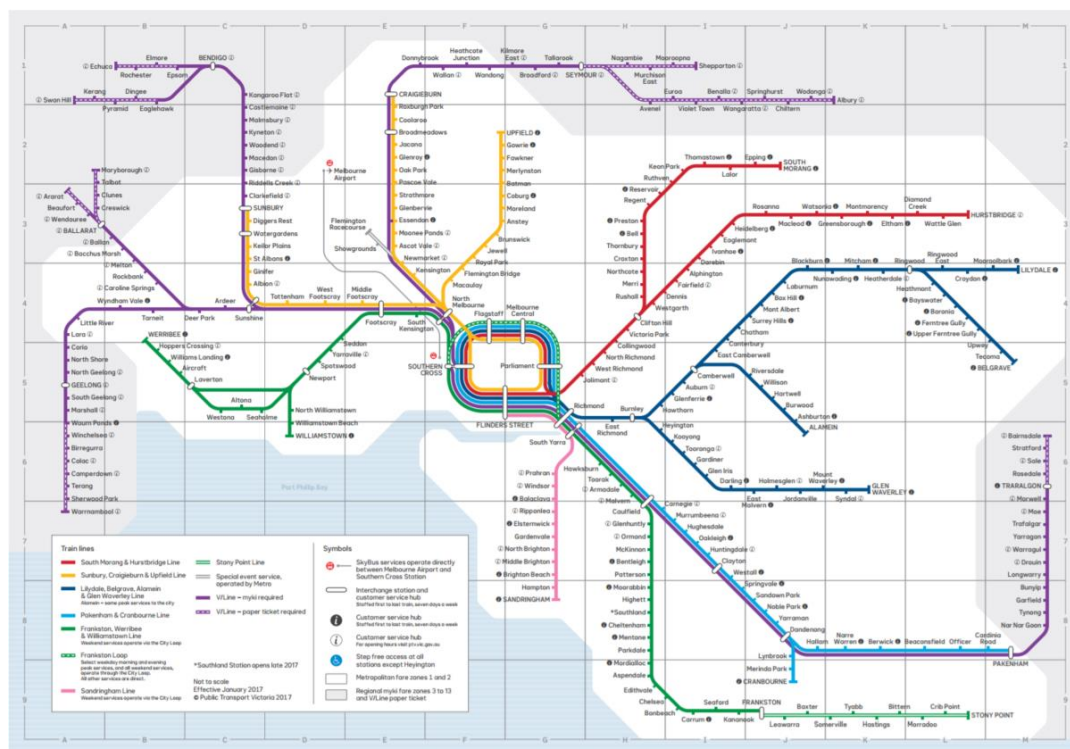
8.3 Essential Services Commission of Victoria

The Essential Services Commission of Victoria (ESC) is the key regulator responsible for implementing the Victorian Rail Access Regime (VRAR), discussed further below. It regulates third party access to the following networks under this regime (see network map at Figure 22):⁸⁷

- The regional intra-state network managed by V/Line—3,670km of broad and standard gauge track.
- The metropolitan network managed by Metro Trains Melbourne (MTM)—400km of broad gauge track.

Part of the Victorian rail network is also managed by the ARTC. Specifically, 1,023km of standard gauge interstate and regional track. However, this part of the network is regulated by the ACCC under the National Access Regime (see section 8.1.1).⁸⁸

Figure 22 Melbourne metropolitan and regional network



Source: https://static.ptv.vic.gov.au/Maps/1482457134/PTV_Train-Network-Map_2017.pdf

The main operators seeking access to these networks at June 2016, are set out in Table 17 and Figure 23. These operators are required to negotiate access with the RIMs listed above to obtain train paths.

⁸⁷ It also regulates the South Dynon terminal and the Dynon intermodal terminal. However, these are outside the scope of our report.

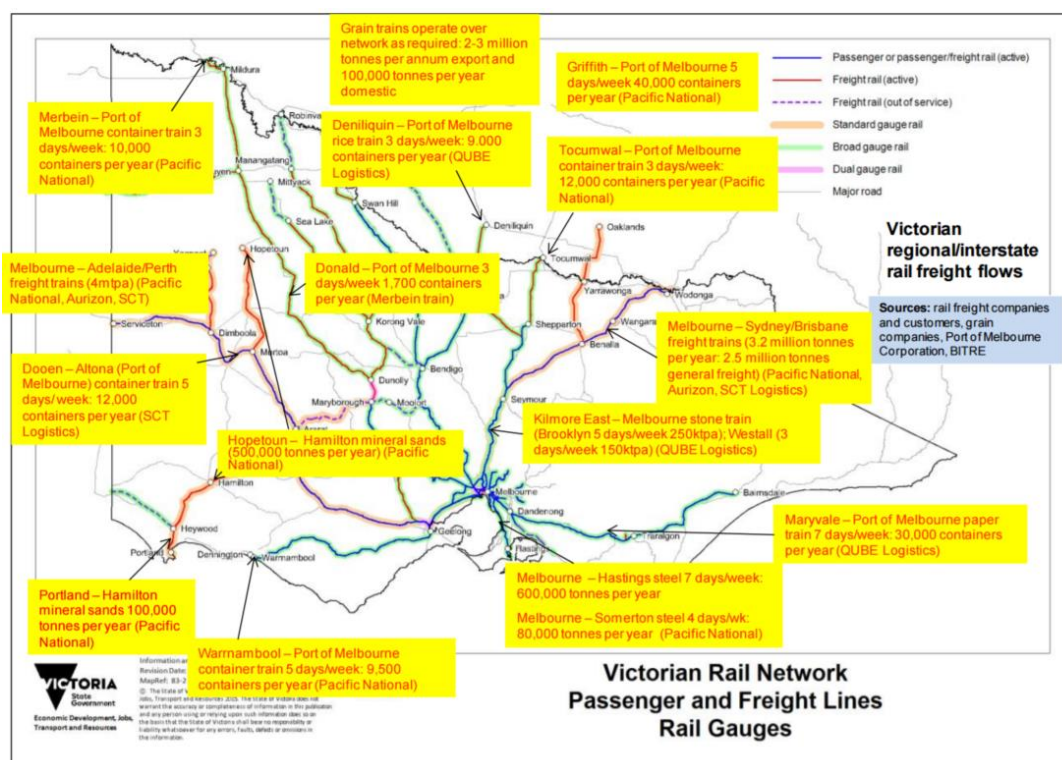
⁸⁸ Rail Futures Institute, Getting freight back on track in Victoria, June 2016, p. 7

Table 17 Victorian Rail Access Regime – stakeholders

Rail access regime	Owner(s)	Rail Infrastructure Manager / lessee	Major Operators
Victorian Rail Access Regime	Victorian Government - VicTrack	V/Line Metro Trains Melbourne	Aurizon Genesee and Wyoming Australia Pty Ltd Pacific National QUBE Logistics (Rail) Pty Ltd SCT Logistics

Source: Rail Futures Institute, Getting freight back on track in Victoria, June 2016, p.4

Figure 23 Victorian rail freight – June 2016



Source: Rail Futures Institute, Getting freight back on track in Victoria, June 2016, p.4

8.3.1 Victorian Rail Access Regime

The VRAR is legislated in Part 2A of the *Rail Management Act 1996*, and sets out the regulatory framework for rail infrastructure services in Victoria, summarised in Figure 24. It is a state access regime that has not been certified by the relevant Minister under the second pathway for access in the National Access Regime.

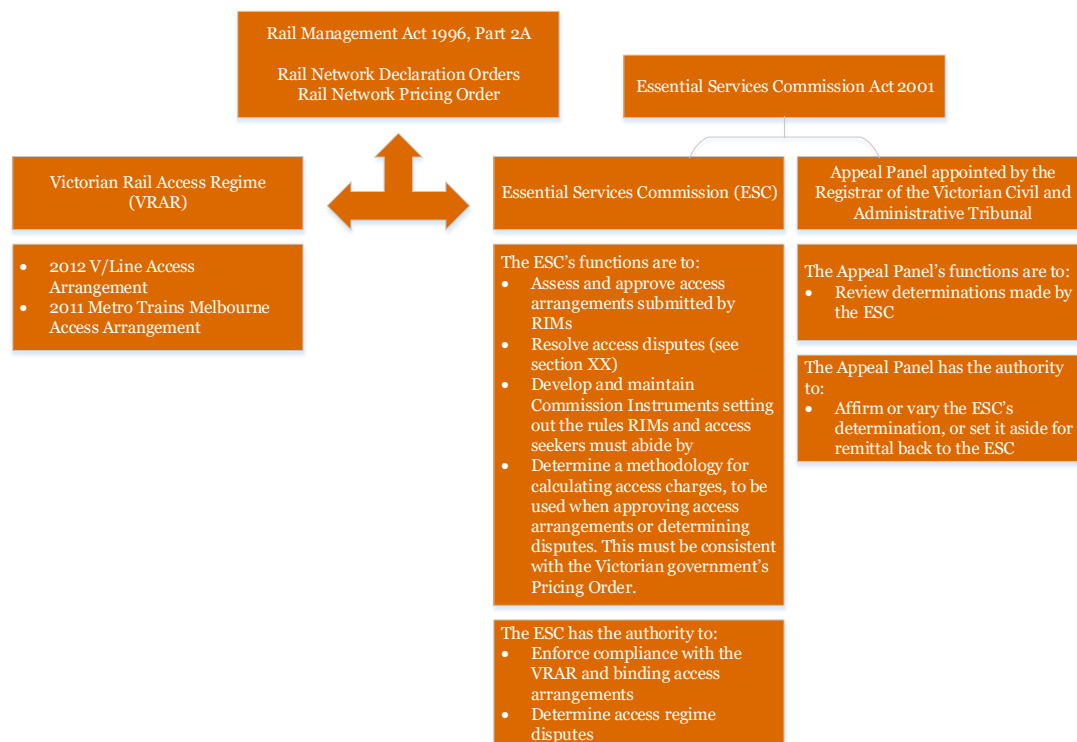
The VRAR is based on a hybrid of negotiate/arbitrate and direct price control regulatory approaches. It also has procedural control and information requirements. Table 18 summarises this.

The VRAR applies to rail infrastructure services and RIMs that have been declared by the Victorian Government. It requires these RIMs to have a binding access arrangements approved by the ESC. These access arrangements set out the terms and conditions upon

which the RIM will provide access to third parties. The ESC must make its final decision within 90 days of the RIM submitting its initial proposed access arrangement.⁸⁹

The VRAR was reviewed by the ESC in February 2010. However, its recommendations are yet to be incorporated into the legislation. The ESC’s main recommendation was to retain the VRAR, but scale it back to a lighter-handed regime. It recommended a negotiate/arbitrate approach, with RIMs able to submit voluntary access undertakings to the ESC.⁹⁰

Figure 24 Victorian Rail Access Regime



Source: PwC analysis

Table 18 Victorian Rail Access Regime – regulatory approach

Regulatory approach	Description
Negotiation/arbitrate model	The negotiation framework is set out in the approved Access Arrangements, and must be consistent with the ESC’s Negotiation Guidelines. The dispute resolution framework is set out in the approved Access Arrangements
Price/revenue control	Access Arrangements must be consistent with the ESC’s Rail Access Pricing Methodology, which controls prices via a revenue cap.
Procedural control	ESC is required to develop a set of Commission Instruments that Access Agreements must be consistent with, which include: <ul style="list-style-type: none"> Account Keeping Rules Ring Fencing Rules⁹¹ Capacity Use Rules

⁸⁹ ESC, Procedural Requirements for Approving Access Arrangements Guidance Paper p.7-8

⁹⁰ ESC, Victorian Rail Access Regime 2009 Review Final Report Volume 1, Findings and Recommendations p.3

⁹¹ Ring fencing is relevant when a network is vertically integrated. That is, the RIM is also an operator on its own network.

Regulatory approach	Description
	<ul style="list-style-type: none"> • Network Management Rules • Negotiation Guidelines <p>Access Agreements must also be consistent with the passenger priority principle set out in the VRAR, and other provisions in the <i>Rail Management Act 1996</i>.</p>
Information requirements	<p>Under the VRAR, RIMs are required to submit to the ESC, within 60 days of their infrastructure service being declared:</p> <ul style="list-style-type: none"> • A proposed access arrangement • Access arrangement information that an access seeker would reasonably require to understand the Access Arrangement • Supporting information and material to establish the proposed Access Arrangement complies with the requirements in the <i>Rail Management Act 1996</i> • A cost allocation methodology and forms for providing account information to the ESC under the Account Keeping Rules • A Separation Arrangement under the Ring Fencing Rules • A statement of Capacity Allocation Protocols under the Capacity Use Rules • Protocols required under the Network Management Rules • A system and business rules for the use, handling and disclosure of access seeker information. <p>RIMs are also required to prepare and maintain an operating handbook in accordance with the Network Management Rules</p>

Source: ESC, *Overview of the Victorian Rail Access Regime Information Paper* and ESC, *Procedural Requirements for Approving Access Arrangements Guidance Paper*

8.3.2 Access arrangements

As set out above, access arrangements set out the terms and conditions upon which a RIM will provide access to third parties. Each access arrangement contains a standard access agreement which sets out standard terms and conditions which the RIM and access seeker can agree to or negotiate on. These are the main instruments access seekers need to be aware of when applying for access. The access undertakings currently in place are:

- The 2012 V/Line Access Arrangement, which expires on 31 December 2017, after an extension variation was accepted by the ESC.⁹²
- The 2011 MTM Access Arrangement, which expires on 30 November 2017, after an extension variation was accepted by the ESC.⁹³

V/Line and MTM's Access Arrangement's are similar in substance, but V/Line's is more comprehensive. Both set out terms and conditions on areas such as:

- Application and/or negotiation process
- Pricing
- Managing capacity and network additions/interconnections
- Monitoring performance in maintaining the network
- Performance bond from operator (MTM only)

⁹² ESC V/Line Access Arrangement 2016 Decision

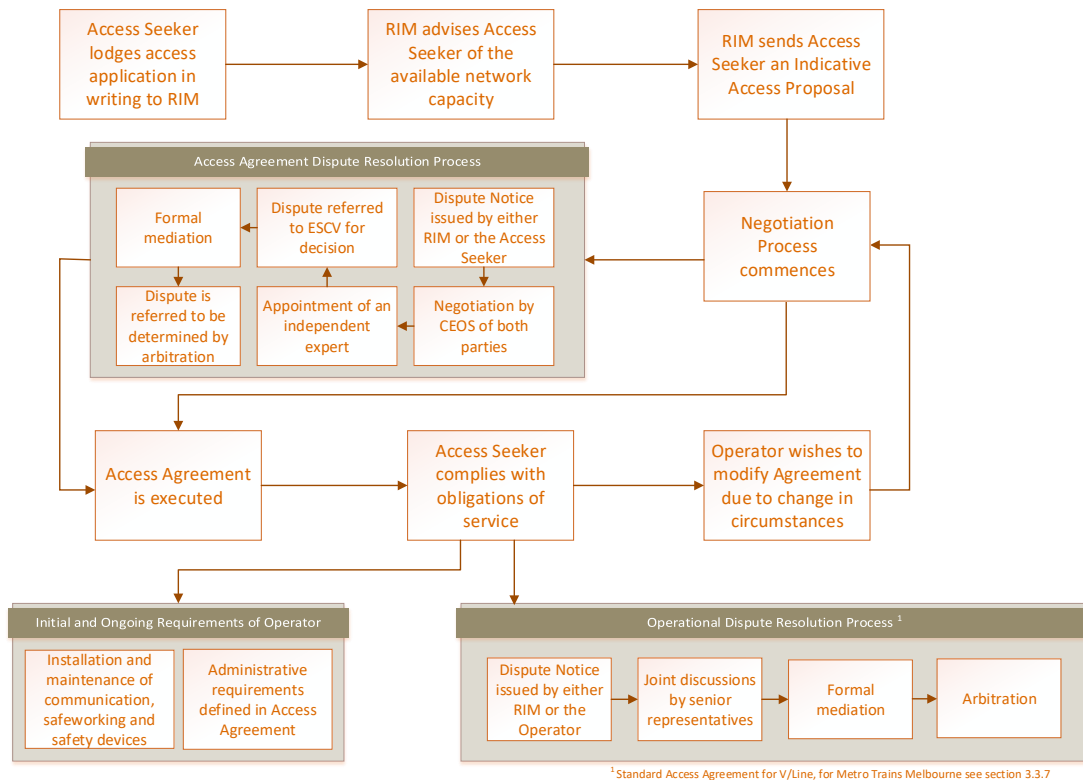
⁹³ ESC Metro Application for Variation

- Terms and conditions regarding compliance with the Commission Instruments (see section 8.3.1)⁹⁴

8.3.3 Negotiating rail access

The V/Line and MTM Access Arrangements set out a process for negotiating access. These must be consistent with the ESC's Negotiation Guidelines.⁹⁵ V/Line and MTM's processes for negotiating access are similar, and V/Line's process is summarised in Figure 25.

Figure 25 V/Line Access Arrangements access negotiation process



Source: PwC analysis; V/Line Access Arrangement.

8.3.4 Rights and obligations during rail access

Access to network infrastructure is granted through a signed access agreement. Under the VRAR, access arrangements are required to contain a standard access agreement, which sets out standard terms and conditions. These can be negotiated, so that standard access agreements provide indicative guidance only. However, some of these are mandated in the VRAR legislation.

V/Line and MTM's standard access agreements are quite similar. They give an indication of the powers, rights and obligations of each party for the duration of access to the network, for example:

⁹⁴ V/Line Access Arrangement and Metro access arrangement Attachment B Train Path Request Process and Protocol

⁹⁵ ESC Negotiation Guidelines

- Track access rights
- Each party's obligations regarding control and management of access to the network
- Operator's obligations
- Environmental requirements.

These are set out in Table 19.

Table 19 Obligations and requirements of each party under a Standard Access Agreement

Topic	RIM requirements	Operator requirements
Access rights	<p>Must grants access to:</p> <ul style="list-style-type: none"> • Approved train paths • The right to undertake ancillary movements • Stabling (V/Line only) <p>May grant access to requested unscheduled train paths.</p> <p>Will also grant non-exclusive access to certain sidings and terminals. (V/Line only)</p>	<p>Operate trains on its scheduled train paths, and can request:</p> <ul style="list-style-type: none"> • Additional train paths in accordance with Operating Handbook (V/Line only) • Unscheduled train paths
Conditions of access	<p>May allow the operator to store one or more items of rolling stock on the network on a short-term basis free of charge. (V/Line only)</p>	<p>Right to access the network is non-exclusive.</p> <p>Right to use approved train paths is subject to:</p> <ul style="list-style-type: none"> • Operational directions given by the RIM • Incidents and force majeure events • Compliance with the terms and conditions of the Safety Interface Agreement <p>There are also conditions of access for ancillary movements and ad-hoc storage (V/Line only)</p>
Operator's obligations	<p>Must provide operator with:</p> <ul style="list-style-type: none"> • Operating Handbook • Network Service Plan • Emergency Management Plan • Other published procedures and protocols (V/Line only) <p>Can inspect the operator's rolling stock at any time it is on the network (MTM only)</p>	<p>Must comply with weighbridge requirements (that is, all reasonable requirements of the RIM to weigh rolling stock or provide written evidence of tonnages) (V/Line only)</p> <p>Operator must:</p> <ul style="list-style-type: none"> • Comply with applicable procedures and protocols • Notify RIM of unhealthy trains • Use the network in a way that minimises obstruction • Comply with all laws applicable to the operation of the services or its use of the network • Provide RIM with information it reasonably requires • Must comply with any other applicable laws and standards (V/Line only) <p>Operator must:</p> <ul style="list-style-type: none"> • Request and obtain from RIM, the latest published procedures and protocols • Comply with Book of Rules and operating procedures • Comply with RIM protocols and operating

Topic	RIM requirements	Operator requirements
Environment and dangerous goods		<p>requirements</p> <ul style="list-style-type: none"> • Must comply with any other applicable laws and standards <p>Must comply with all environmental laws and maintain (and comply with) all permits and licences required in order to release or emit anything into the environment or to emit substantial noise.</p> <p>Must provide RIM with Environmental Management Plan, and comply with this plan. (V/Line only, MTM only if RIM provides a plan first)</p> <p>Must comply with Dangerous Goods Code.</p>

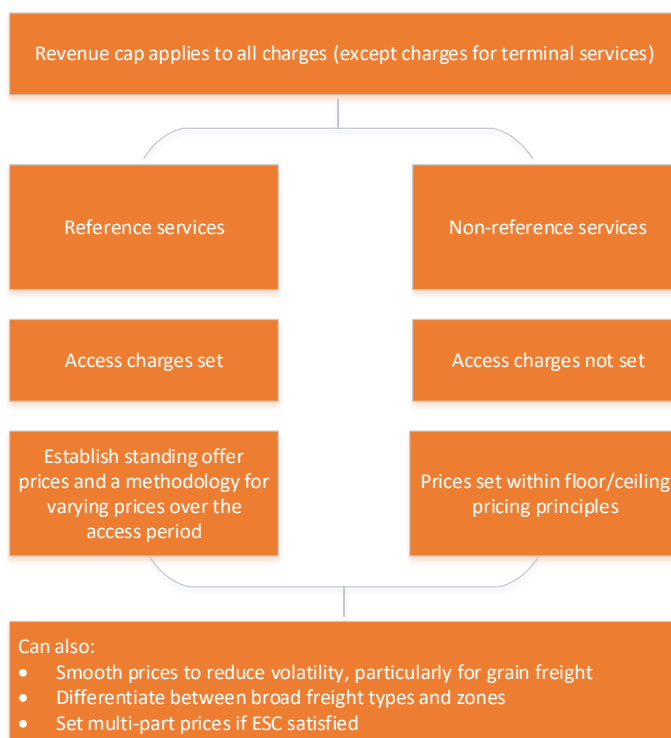
Source: V/Line and MTM standard access agreements.

8.3.5 Rail access charges

The VRAR regulates the prices RIMs can charge for access to their network infrastructure. Specifically, the Rail Network Pricing Order 2005 (Pricing Order) authorises the ESC to determine a methodology for calculating rail access charges. This methodology must be consistent with the pricing principles in the Pricing Order.

As such, the ESC developed a Rail Access Pricing Guideline, which Access Arrangements are required to be consistent with. The price regulation applying to freight from the Rail Access Pricing Guideline is summarised in Figure 26 and Table 20.

Figure 26 ESC pricing requirements



Source: ESC, Rail Access Pricing Guideline

Table 20 ESC pricing requirements

Principle	Description
General principles in Pricing Order	<p>These apply to all prices:</p> <ul style="list-style-type: none"> • Prices must be set with the objective of generating revenue across all declared rail transport services equal to a reasonable forecast of the efficient cost of providing those services having regard to the standard and quality of those services. • Prices of a declared rail transport service must not be higher than internal transfer terms charged by a RIM to itself or a related body corporate. • Multi-part pricing and price discrimination are allowed where it aids efficiency • A RIM must not price discriminate if the nature of the services are the same • The price setting framework should provide the RIM with incentives to incur an efficient level of costs • The price setting framework should seek to avoid volatility in prices arising from volatility in freight traffic • User or government contributions towards capital or maintenance expenditure should be reflected in the prices paid by the relevant user, on behalf of whom the contribution was made.
Principles for freight rail services in Pricing Order	<p>When setting its prices for freight services (including reference prices) an access provider must have regard to the following matters:</p> <ul style="list-style-type: none"> • The desirability of prices being consistent for access seekers and users with common freight use requirements • The desirability of prices being consistent for access seekers and users who are provided rail infrastructure services in the same geographic zones • The desirability of minimising administrative requirements and costs imposed on access seekers, access providers and the Commission • The principles of efficient price discrimination for relevant freight and end market characteristics
Revenue Cap	<p>All prices (except for terminal services) must comply with a revenue cap included in a RIM's Access Arrangements and approved by the ESC. The revenue cap (RC) is equal to:</p> <ul style="list-style-type: none"> • The forecast revenue requirement (FRR), which is the discounted value of the forecast cost of providing declared rail transport services in each year of the access period (calculated via a building block model), plus • Adjustments made for certain outcomes of the preceding access period, including the Under and Over Recovery Adjustment Mechanism, the Efficiency Carryover Mechanism, and/or an adjustment made under the Service and Quality Standard Adjustment Mechanism. • $RC = FRR + E + A - S$ Where E is the efficiency carryover, A is the under or over recovery adjustment and S is any claw back of revenue from underperformance on service quality in the previous access period.
Reference services	<p>The ESC uses a broad definition of freight reference services, such that all services to 'standard' types of freight trains are considered to be freight reference services. The access arrangement should identify the 'standard' type of train.</p> <p>The ESC considers that standing offer prices should be established for all freight reference services, as well as a methodology for varying freight reference prices over the access period.</p>
Non-reference services	<p>Floor and ceiling pricing principles apply to freight non-reference services. That is, prices a RIM may charge for each freight non-reference service must be set with the objective of generating revenue that:</p> <ul style="list-style-type: none"> • At least covers the directly attributable or incremental costs of providing the service; • Does not recover more than the stand alone costs of providing that service.

Source: ESC, Rail Access Pricing Guideline

V/Line and MTM's specific access charges and pricing methodologies are different, and set out in Figure 27 and Figure 28.

Figure 27 V/Line’s access charges

Revenue cap = \$30 million per annum					
Reference services		Non-reference services		Other	
Scheduled services	Unscheduled services	Unscheduled services		(1) Non-exclusive access for movements into and out of Somerton, Melbourne Arrival Sidings and those parts of Tottenham Yard not leased to PN after first 24 hours (2) Non-exclusive track access to the Geelong Grain Loop	
Normal hours <small>Or, for scheduled services, outside normal hours if operator requests extension of normal hours with 1 month notice</small>		Out of hours			
At performance standard	Above performance standard	At performance standard	Above performance standard		
Bulk grain: \$5.7 flagfall + \$7.6 variable Other: \$0.88 flagfall + \$1.6 variable	Bulk grain: \$5.7 flagfall + \$7.6 variable Other: \$0.88 flagfall + \$1.6 variable As modified by prior agreement between V/Line and the Operator so as to reflect the “Operator pays incremental costs” principle	Bulk grain: \$5.7 flagfall + \$7.6 variable Other: \$0.88 flagfall + \$1.6 variable As modified by prior agreement between V/Line and the Operator so as to reflect the “Operator pays incremental costs” principle	Bulk grain: \$5.7 flagfall + \$7.6 variable Other: \$0.88 flagfall + \$1.6 variable As modified by prior agreement between V/Line and the Operator so as to reflect the “Operator pays incremental costs” principle	(1) \$12.82 per vehicle per day (excl GST) (2) \$78.04 per train (excl GST) Or such other rate as determined by the ESC	
2011/12 maximum standing offer prices, escalated annually by CPI					

Source: V/Line Access arrangement

Notes: V/Line must get the ESC’s approval before varying its performance standard, booking a line out of service or reducing its normal hours (in certain circumstances).

The Public Transport Development Authority may direct V/Line to lower from time to time all or some of the charges payable by access seekers.

The ESC set a maximum efficient price of \$22.60 per ‘000 GTK in its 2012 decision.

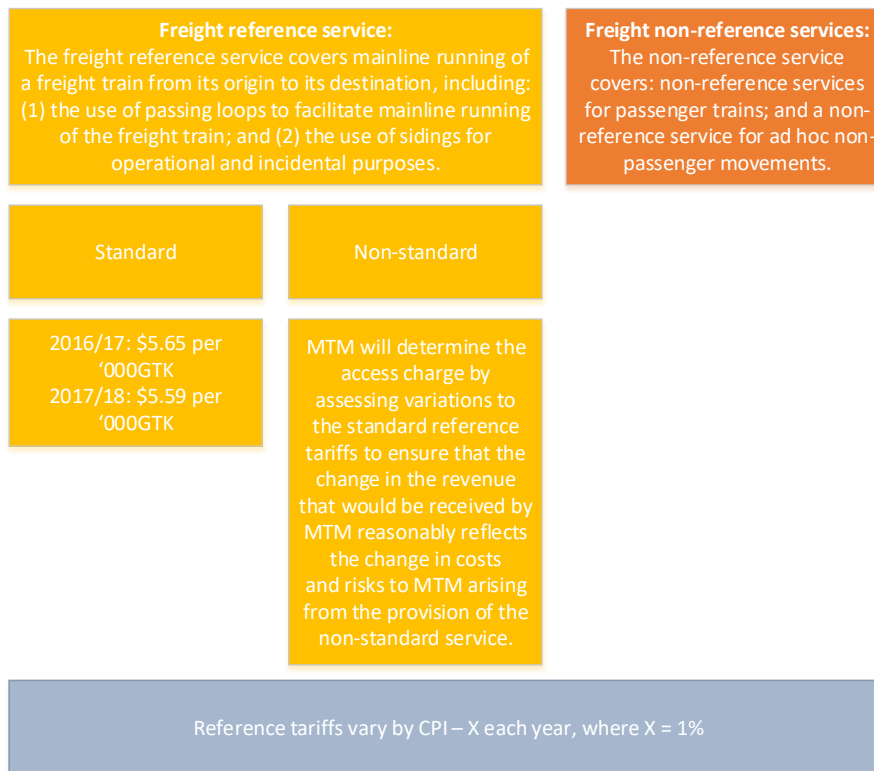
In practice, the actual access prices V/Line charges to operators will reflect the directions of the Department of Transport and the extent of Government financial assistance to each market.

Unscheduled services will be provided out of hours following application to V/Line by an operator, and mutual agreement between V/Line and the operator.

Out of hours pricing, and above performance standard pricing will be the sum of:

- (i) the normal hours and performance standard pricing; plus
- (ii) either: 1) the incremental costs incurred by V/Line in providing that Service; or 2) the reasonably anticipated costs (as agreed between the parties) of providing that Service; plus
- (iii) the operating margin of 8.0 per cent permitted under this Access Arrangement on the incremental cost in paragraph (ii) above.

Figure 28 Metro Trains Melbourne’s access charges



Source: MTM Access Arrangements

Notes: MTM has one freight reference service and one non-reference service for operators.

To the extent practicable and reasonable, operators may obtain a service which includes only those elements the operator wishes to be included in the freight reference service. To the extent practicable and reasonable, MTM will provide an Incremental Cost for an element of a service if requested to do so by an operator.

The standard reference service and reference tariff are based on the following conditions, as well as any other conditions set out in the standard Access Agreement: Maximum speed and axle load/configuration consistent with the Addenda; Compliance with Metro standard Terms and Conditions and Protocols as set out in the standard Access Agreement; and Compliance with nominated sectional running times.

Non-standard reference services are freight reference services which do not meet the conditions set out in the paragraph above.

8.3.6 Operating systems and technologies

To gain access rail network infrastructure, operators must show compliance with their systems and technologies. This is because these systems and technologies will be needed to operate on the network. The systems and technologies mainly revolve around Safeworking systems, communications technologies and safety devices. Table 21 documents these requirements for V/Line and MTM, noting the following:

- V/Line has different Safeworking systems for different lines. It reports 24 different corridors, and different Safeworking systems for different lines within these.⁹⁶

⁹⁶ Train operating data at <https://corporate.vline.com.au/Network-Access/Network-service-plan>

- MTM has different Safeworking systems for 9 different interface locations.⁹⁷

Table 21 Operating systems and technologies for V/Line and MTM networks

Network	Safeworking Systems	Communications	Wayside Devices ⁹⁸
V/Line network	Siding Conditions Working, Automatic Block Signalling (ABS), Staff and Ticket, Automatic Track Control (ATC), Centralised Traffic Control (CTC), TOW, Double Line Block System, Track Block System, Station Yard Working	End to End Local Radio, Train to Base Radio, In Cab Equipment (ICE) Radio, either Regional Rail Communications Network (RRCN) or NTCS	N/F
Metro Trains Melbourne	ATC, ABS, CTC, Track Block, Double Line Block	Urban Train Radio System (currently being replaced by the Digital Train Radio System) ⁹⁹	N/F

Source: Train operating data at <https://corporate.vline.com.au/Network-Access/Network-service-plan>; Metro Access Arrangement, Attachment G5 Operational Interface Procedures.

8.3.7 Dispute resolution

Disputes can arise between RIMs and operators over:¹⁰⁰

- Disputes in relation to the negotiation of an Access Agreement
- Disputes in relation to an Access Agreement once executed.

These processes are set out separately in the subsections below, based on V/Line and MTM's Access Arrangements and standard access agreements. The *Rail Management Act 1996*, sets out a dispute resolution framework for both of these, summarized in Table 22.

Table 22 Rail Management Act 1996 dispute resolution framework

Step	Description
Notification	An access provider, an access seeker or a user may notify the ESC, in writing, of an access regime dispute. The ESC must then notify the relevant parties.
ESC decision	<p>If the ESC receives an access dispute notice, it must conduct a hearing and make a decision in respect of the dispute (except in certain circumstances). This decision may:</p> <ul style="list-style-type: none"> • Address any matter relating to the provision of a declared rail transport service to an access seeker or user who is a party to the dispute. • Require an access provider to extend, or to permit the extension of, the rail infrastructure that is used to provide a declared rail transport service. <p>The ESC's decision has effect from the day it is made or a specified later date. It is binding on the parties and the ESC must take into account a number of matters set out in 38ZZB of the Act. The decision must not be inconsistent with the pricing principles, passenger priority principles, the access agreement and Commission Instruments. It must also not interfere with certain directions of the Safety Director.</p> <p>The ESC must make a decision within 45 days of the dispute notice, or a date specified by the</p>

⁹⁷ Metro-Access-Arrangement- Attachment-G5-Operational-Interface-Procedures.

⁹⁸ Wayside Monitoring Systems

⁹⁹ <https://www.ptv.vic.gov.au/projects/rail-projects/digital-train-radio-system/>

¹⁰⁰ ESC Rail-Access-Dispute-Resolution-Guideline.

Step	Description
	relevant Minister. The ESC's decision can be appealed (see Figure 24).

Source: Rail Management Act 1996, section 38

Disputes arising from negotiating an Access Agreement

V/Line has a dispute resolution in its approved access agreement, but MTM does not. V/Line's process is set out in Table 23.

Table 23 V/Line Access Arrangements dispute resolution process

Step	Description
Notification	Either party may give a dispute notice to the other party.
Negotiation	V/Line and the Access Seeker must use reasonable endeavours to resolve the dispute as soon as practicable. After 10 business days, the CEOs both parties must attempt to resolve the dispute.
Independent expert	If negotiation does not resolve the dispute, the parties may agree to appoint an independent expert to provide a report containing a recommendation on how the dispute should be resolved. The parties agree to appoint an expert, but if they fail to agree within 10 business days, the independent expert will be appointed by the President of the Institute of Arbitrators and Mediators Australia. The independent expert must provide his report as soon as practicable and, if possible, within 20 business days of the dispute being referred to the expert. The independent expert will act as an expert and not an arbitrator, and the costs will be borne equally by both parties.
ESC decision	Either party can refer the dispute to the ESC by providing it with a dispute notice. See Table 22 for the ESC's decision process.

Source: V/Line Access Arrangement appendix 8

Disputes arising from an Access Agreement once executed

Disputes in relation to an Access Agreement once executed are dealt with in accordance with the provisions of the specific Access Agreement.

V/Line and MTM have different dispute resolution procedures outlined in their standard access agreements, which are contained in the access arrangements approved by the ESC. These are set out in in Table 24 and Table 25. We note that V/Line allows for disputes to be resolved through the process set out in Table 24 or Table 25.

Table 24 V/Line dispute resolution process – option one

Step	Description
Negotiation	Within 10 Business Days of a dispute notification, senior representatives from each party must meet and use reasonable endeavours acting in good faith to resolve the dispute by joint discussions.
Mediation	If the dispute is not resolved within 10 business days, the parties must submit the matter to mediation. The Mediator will be chosen and appointed by the parties within 35 business days. In the absence of agreement, the Mediator will be appointed by the President of LEADR (Association of Dispute Resolvers) within 10 business days. Each party may be legally represented. The mediation process will cease if the dispute has not been settled within 20 business days.
Arbitration	Either party may by written notice refer the dispute to arbitration. The arbitrator will be chosen by the parties or, if they cannot agree, the President of the institute of Arbitrators Australia, within 10 business days. The arbitrator must have appropriate qualifications and each party may be legally represented. The <i>Commercial Arbitration Act 1984</i> will apply to the arbitration and the arbitrator must hand down a decision within 2 months.

Source: V/Line Standard Access Agreement.

Table 25 MTM dispute resolution process (and V/Line option 2)

Step	Description
Negotiation	Within 10 Business Days of a dispute notification, senior representatives from each party must

Step	Description
	meet and use reasonable endeavours acting in good faith to resolve the dispute by joint discussions.
Independent expert	<p>If the parties are unable to resolve the dispute, then the parties will:</p> <ul style="list-style-type: none"> • Jointly choose and appoint an independent expert. Or, in the absence of agreement, the independent expert will be appointed on the application of any party by the President of the Institute of Arbitrators and Mediators Australia; • The independent expert must make a determination or finding on the issues in dispute within 20 Business Days (15 for V/Line), or such longer period as may be agreed between the parties <p>The costs of the independent expert will be borne by the parties equally or as the independent expert may otherwise determine and each party will bear its own costs relating to the independent expert's decision.</p>

Source: V/Line Standard Access Agreement and MTM Standard Access Agreement.

Note: V/Line's access agreement includes that the independent expert must have appropriate qualifications necessary to understand and resolve the issues in dispute and have no conflicts of interest.

8.3.8 Interactions of access regimes

Most of the Victorian rail network is covered by the Victorian Rail Access Regime. Rail networks not regulated by ESC are managed by ARTC and regulated by the National Access Regime and the ACCC. Access to these networks is regulated by the National Access Regime and the ACCC. ARTC managed rail networks in Victoria are as follows:

- The North-south intra-state rail network that goes from Albury to Craigieburn,
- The East-west intra-state rail network that goes from Melbourne to Portland and Melbourne to Wolseley, and
- Parts of these networks that connects to intermodal terminals and ports in Melbourne.

The ARTC controls some important dual gauge line sections (e.g. Albion to Jacana). Train journeys into the Melbourne area may require paths from more than one operator. V/Line usually coordinates these paths for rail freight operators.¹⁰¹

8.4 Queensland Competition Authority

The QCA is the regulator responsible for implementing the Queensland Rail Access Regime (QRAR), discussed further below. It regulates third party access to the following networks under this regime (see network map at Figure 29):¹⁰²

- **The Central Queensland Coal Network (CQCN)** managed by Aurizon Network Pty Ltd (Aurizon):
 - This is Australia's largest coal export rail network, and consists of five rail systems in Moura, Blackwater, Goonyella, Newlands and Goonyella–Abbot Point.
- **The Regional Freight Network and Brisbane Metropolitan Network** managed by Queensland Rail (QR):
 - This covers more than 6500 km of track in Queensland, which services the passenger, tourism, resources and freight customer markets.

¹⁰¹ V/Line, Access arrangement renewal, 2012, P.3.

¹⁰² It also regulates the South Dynon terminal and the Dynon intermodal terminal. However, these are outside the scope of our report.

- The regional network extends south to Brisbane, Wallagarra and Cunnamulla, north to Cairns and Normanton, east along the coast and west to Mount Isa, Winton and Quilpie.
- The metropolitan network extends from the centre of Brisbane, south to Beenleigh and Varsity Lakes on the Gold Coast, north to Ferny Grove, Caboolture and Gympie, east to Cleveland and west to Richlands, Ipswich and Rosewood.

Part of Queensland’s rail network is also managed by the ARTC. However, this part of the network is regulated by the ACCC under the National Access Regime (see section 8.1.1).¹⁰³

Figure 29 Queensland rail networks managed by Aurizon and Queensland Rail



Source: <http://www.qca.org.au/Rail/Queensland-Rail/Qld-Rail-rail-systems>

Table 26 summarises the major stakeholders for the QRAR. The list of operators is not exhaustive.

¹⁰³ <http://www.railfutures.org.au/wp-content/uploads/2016/08/160609-Rail-Futures-Freight-Paper-FINAL.pdf> p. 7

Table 26 Queensland Rail Access Regime – stakeholders

Network	Owner(s)	Rail Infrastructure Manager / lessee	Major Operators
Central Queensland Coal Network (CQCN)	Aurizon	Aurizon	Aurizon Operations Pacific National BM Alliance Coal Operations
The Regional Freight Network and Brisbane Metropolitan Network	Queensland Rail	Queensland Rail	Pacific National Aurizon SCT Logistics

Source: <https://www.queenslandrail.com.au/forbusiness/the-regional-network>

8.4.1 Queensland Rail Access Regime

The QRAR is a state access regime, which was certified in 2011 by the relevant minister under the second access pathway in the National Access Regime.¹⁰⁴ It provides a regulatory framework for third party access to rail infrastructure services and is summarised in Figure 30. It consists of the following legislation:

- The *Queensland Competition Authority Act 1997* (QCA Act)
- The *Queensland Competition Authority Regulation 2007* (QCA Regulation)
- The *Transport Infrastructure Act 1994*
- The *Transport (Rail Safety) Act 2010*.

The QRAR is based on a negotiate/arbitrate regulatory approach, with aspects of direct price control, performance monitoring and information requirements. This is contained in Part 5 of the QCA Act and summarised in Table 27.¹⁰⁵

The QCA Act mainly applies to networks that have been declared through a ministerial decision or direct inclusion in the QCA Act.¹⁰⁶ It provides a legal right for a third party to use monopoly rail infrastructure. It does this by requiring RIMs of these networks to negotiate with access seekers in good faith, and sets out a framework for negotiation and dispute resolution. The QCA Act also allows for access undertakings to be approved by the QCA, stating that:¹⁰⁷

- The QCA can require the RIM of a declared or non-declared network to submit a draft access undertaking for approval if it satisfies certain criteria¹⁰⁸
- The RIM of a declared or non-declared network can voluntarily submit a draft access undertaking to the QCA for approval

These access undertakings set out the terms and conditions upon which the RIM will provide access to third parties. The QCA must assess the draft access undertakings against a set of criteria. It must also use its best endeavours to make its final decision within six months from the submission date plus two weeks, or the last day of the submissions period if the

¹⁰⁴ NCC Decision on the effectiveness of the Queensland Rail Access Regime

¹⁰⁵ NCC Decision on the effectiveness of the Queensland Rail Access Regime p.2.

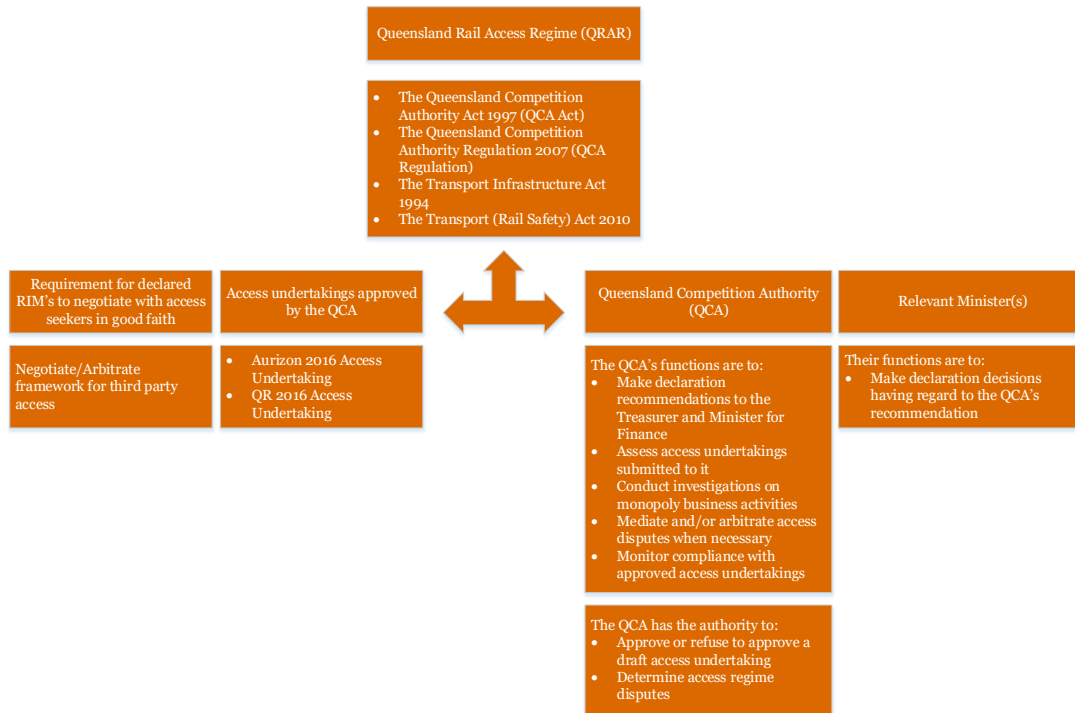
¹⁰⁶ <http://www.qca.org.au/Other-Sectors/Access-to-Infrastructure>

¹⁰⁷ Queensland Competition Authority Act 1997, p.92-94.

¹⁰⁸ Division 7 of the QCA Act is titled 'Access undertakings for declared and non-declared services'.

QCA conducts in investigation.¹⁰⁹ The two networks we assess in this section have access undertakings approved by the QCA.

Figure 30 Queensland Rail Access Regime



Source: PwC analysis and QCA website and legislation (<http://www.qca.org.au/Other-Sectors/Access-to-Infrastructure>).

Table 27 Queensland Rail Access Regime – regulatory approach

Regulatory approach	Description
Negotiate/arbitrate model	The negotiation framework is set out in the QCA Act, or in an approved access undertaking. The dispute resolution framework is set out in the QCA Act, or in an approved access undertaking
Price/revenue control	The pricing principles are set out in the QCA Act. However, they do not directly control prices. Access undertakings may have direct price control elements.
Compliance monitoring	The QCA is required to monitor compliance with approved access undertakings ¹¹⁰
Information requirements	The QCA may require RIMs to provide information in certain circumstances

Source: Queensland Competition Authority Act 1997, NCC Decision on the effectiveness of the Queensland Rail Access Regime and Queensland Rail 2015 Access Undertaking, section 10

8.4.2 Access undertakings

As set out above, access undertakings set out the terms and conditions upon which a RIM will provide access to third parties. These are the main instruments access seekers need to be aware of when applying for and negotiating access. The access undertakings currently in place are:

¹⁰⁹ Queensland Competition Authority Act 1997

¹¹⁰ QCA Act, div 2 clause 10

- Aurizon Network's 2016 access undertaking came into effect on 11 October 2016 and is scheduled to terminate on 30 June 2018. It has been extended twice from the original termination date of 30 June 2017.¹¹¹
- QR's 2016 Access Undertaking, which expires on 30 June 2020.¹¹²

The contents of access undertakings provide the basis for negotiating access, and provide the necessary information on elements such as:

- Negotiating access
- Pricing principles for access charges
- Managing capacity
- Managing network connections and additions
- Network transit management
- RIM reporting requirements.

The Aurizon Access Undertakings also sets out coal loss mitigation provisions, which are environmental requirements for coal transport.

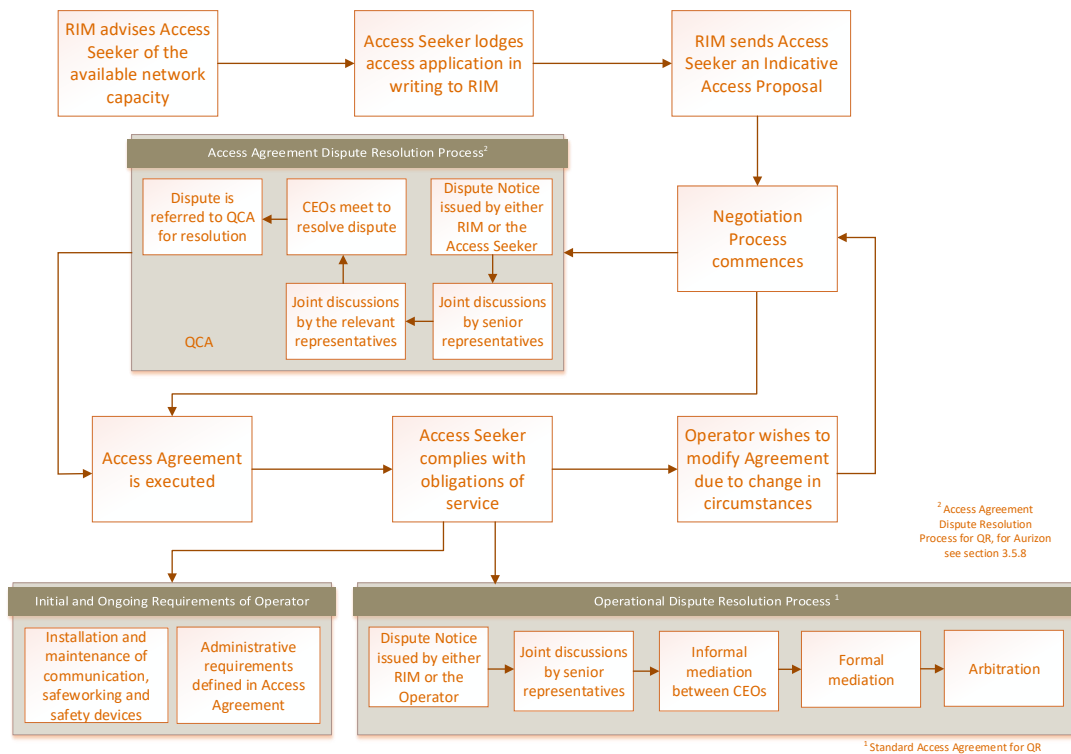
8.4.3 Negotiating rail access

The Aurizon and QR Access Undertakings set out a process for negotiating access. Aurizon's process for negotiating access is similar to QR's, but has more complex sub-processes for changes to access applications and capacity extensions. QR's process for negotiating access is summarised in Figure 31.

¹¹¹ <http://www.qca.org.au/Rail/Aurizon/Intro-to-Aurizon/2016-Access-Undertaking>

¹¹² <http://www.qca.org.au/Rail/Queensland-Rail/More-on-QLD-Rail>

Figure 31 Queensland Rail Access Undertaking access negotiation process



Source: PwC analysis; QR Access Undertaking.

8.4.4 Rights and obligations during rail access

Access to network infrastructure is granted through a signed access agreement. Both Aurizon and QR provide standard access agreements on their website (QR as part of its Access Undertaking). These can be negotiated, so provide indicative guidance only.

The standard access agreements give an indication of the powers, rights and obligations of each party once access has been granted, such as those summarised in Table 28.

Aurizon has some unique provisions for its coal network, which are:¹¹³

- A customer access seeker may give notice to Aurizon nominating a rail operator to act on its behalf to assist the customer with its Access Application, including the negotiation process.
- To use the access rights granted under an Access Agreement, the access holder must procure a Train Operations Deed, negotiated as part of the negotiation process.
- For coal carrying train services the Standard Access Agreement can be used. However, for non-coal carrying train services, the Standard Access Agreement must be amended to reflect the fact that the access is for non-coal carrying train services.

¹¹³ Aurizon Network's 2016 Access Undertaking (UT4) p. 73, 58, 72

Table 28 Obligations and requirements of each party under a standard access agreement

Topic	RIM Requirements	Operator requirements
Track access rights	QR grants the operator non-exclusive rights to access the network during the term of the access agreement (AA) and for the train services specified in the AA.	The operator must only operate on the parts of the network included in the AA. The operator that uses the network (whether directly or nominated) must hold the necessary accreditations.
Control and management of access to the network	QR is responsible for the management of the network and retains control over all activities on the network. QR may, subject to the network management principles, change train services and schedules. QR provides monthly performance reports. QR must, subject to certain conditions, carry out maintenance work on the network such that the network is consistent with rolling stock interface standards and the operator can operate train services in accordance with the AA.	The Operator agrees to maintain each train in a condition which is fit for use on the network having regard to the terms of the Agreement. The operator can negotiate with QR on performance levels.
Safety and other requirements	QR must comply with: <ul style="list-style-type: none"> • All applicable laws and authorisations • The interface risk management plan (IRMP) • Network Management Principles • Operating Requirements Manual. 	Operator must comply with: <ul style="list-style-type: none"> • All applicable laws and authorisations • The interface risk management plan (IRMP) • Network Management Principles • Operating Requirements Manual • All network control directions. The operator must only commence train operations if: <ul style="list-style-type: none"> • All security requirements have been provided • An Operating Plan has been prepared • An IRMP has been agreed • It has complied with Emergency Management Plan • It has all necessary insurances • Its rollingstock has been authorised.
Environmental requirements	This includes: <ul style="list-style-type: none"> • Compliance the IRMP. 	The operator must: <ul style="list-style-type: none"> • Not cause or allow any rubbish, debris, or freight, in accordance with prudent practices, to be deposited or released on or about the network. • Prepare an environmental investigation and risk management report (EIRMR) for environmental risks to be addressed as part of the IRMP process. • Pay to QR a contribution to the costs and expenses incurred by QR in relation to any noise mitigation or management measures on the network that QR considers is necessary to comply with noise levels, limits, standards, guidelines or other requirements.

Source: Aurizon and QR standard access agreements.

8.4.5 Rail access charges

The QCA Act sets out pricing principles the QCA must assess access undertakings against. However, the main information on access charges is contained within Aurizon and QR's Access Undertakings themselves. These are summarised below.

Aurizon Access Undertaking

The Aurizon Access Undertakings sets out complex pricing principles, which it applies in developing access charges, categorised into reference and non-reference tariffs. If any

principles conflict, Aurizon will apply the pricing principles in the following order of preference:

- Limits on price differentiation and new reference tariffs
- Pricing limits
- Pricing objectives (i.e. rail infrastructure utilisation)
- Revenue adequacy
- All remaining principles

Limits on price differentiation

Aurizon will only price differentiate between access seekers and holders under the conditions set out in this section. It sets out difference principles for reference and non-reference tariffs, summarised in Table 29.

Table 29 Aurizon limits on price differentiation

Reference tariffs	Non-reference tariffs
<p>Where there is an applicable reference tariff, the Access Charge formulated by Aurizon for an access seeker will be calculated in accordance with the Reference Tariff.</p> <p>However, Aurizon may seek to commercially negotiate to vary a reference charge to recognise a difference in cost or risk associated with the provision of Access to a Train Service that has different characteristics to the Reference Train Service</p>	<p>If there is no applicable Reference Tariff (for example, because the relevant Train Service is a non-coal carrying Train Service), the Access Charge formulated by Aurizon for an access seeker may vary between access seekers and/or holders.</p> <p>However, such variation may only be in respect of other Train Services that provide the same type of transport service or transporting the same commodity in the same geographical area as that access seeker's proposed Train Services. The variations must, on a unit rate basis reasonably reflect, over time:</p> <ul style="list-style-type: none"> • changes or differences in the cost or risk relevant to Aurizon providing access • changes in market circumstance • limitations on available capacity

Source: Aurizon Network's 2016 Access Undertaking (UT4) clause 6.2

New reference tariffs

The Aurizon Access Undertaking specifies principles for calculating new reference tariffs for:¹¹⁴

- new coal carrying train services
- new coal carrying train services that require an expansion

Aurizon must submit the proposed new reference tariffs to the QCA for approval.

Access charges for new or additional coal carrying train services

These will be calculated:

- Separately for non-electric and electric access charges.

¹¹⁴ Aurizon Network's 2016 Access Undertaking (UT4) clauses 6.3 6.4 and 6.5

- As the higher of (on an \$/ntk basis):
 - The relevant Reference Tariff applied to that Train Service, less the annual maximum allowable revenue (calculated in the same manner as for the relevant Reference Tariff) derived from the Approved Private Incremental Costs (if any)
 - The Minimum Revenue Contribution, calculated as the sum of the Incremental Costs of using any Rail Infrastructure specifically for the new coal carrying Train Service and the higher of:
 - Any applicable expansion costs
 - As applicable:
 - > For non-electric access charges, the sum of relevant components of reference tariffs
 - > For electric access charges, zero.

Private incremental costs are cost of providing access to relevant private infrastructure not owned or managed by Aurizon. The QCA may approve the prudent and efficient value of private incremental costs on request from an access seeker.

Pricing limits

Aurizon sets its access charges for train services within upper and lower revenue limits. That is, over the evaluation period, the expected access revenue for any one and combination of train services is:¹¹⁵

- No less than the level that will recover the expected Incremental Cost of providing Access for that Train Service or that combination of Train Services (as applicable)
- No more than the level that will recover the expected Stand Alone Cost of providing Access for that Train Service or that combination of Train Services (as applicable)

The stand alone cost for the evaluation period is calculated as the maximum allowable revenue. The Maximum Allowable Revenue will be measured such that the net present value of the cashflows associated with providing Access for the relevant Train Services over the Evaluation Period is zero.

Pricing objectives

Aurizon's pricing objectives are based on rail infrastructure utilisation. Aurizon Network may establish different Access Charges for non-coal carrying Train Services serving different markets or commodities to maximise the commercially viable use of Capacity while meeting, in aggregate, the Common Costs.¹¹⁶ This does not apply to train services that have reference tariffs.

¹¹⁵ Aurizon Network's 2016 Access Undertaking (UT4) clause 6.6

¹¹⁶ Aurizon Network's 2016 Access Undertaking (UT4) clause 6.7

Revenue adequacy

Aurizon Network is entitled to earn revenue from the provision of Access that is at least enough to:¹¹⁷

- Meet the Efficient Costs of providing Access
- Provide a rate of return on the value of assets commensurate with the regulatory and commercial risks involved.

Tariff structure

Aurizon sets different tariff structures for reference and non-reference services. This is summarised in Table 30.

Table 30 Tariff structures for reference and non-reference services

Reference tariffs	Non-reference tariffs
<p>Aurizon must calculate the Access Charges for all coal carrying Train Services to which a Reference Tariff applies based on a structure that comprises all of the following elements:</p> <ul style="list-style-type: none"> • an incremental maintenance component that is levied on a gtk basis • an incremental capacity component that is levied on a Train Path basis • two components levied on a ntk basis • an electric access tariff that is levied on an egtk basis (if appropriate) • an electric energy charge that is levied on an egtk basis (if appropriate) • the QCA Levy levied on a net basis. 	<p>Where there is no applicable reference tariff, the structure of the access charges will be negotiated with the access seeker, depending on their particular requirements.</p> <p>They may include any one or more of the following:</p> <ul style="list-style-type: none"> • an initial upfront component as a condition to being granted Access Rights • an ongoing periodic fixed component independent of the level of usage of the Rail Infrastructure • one or more ongoing variable components based on usage of the Rail Infrastructure

Source: Aurizon Network's 2016 Access Undertaking (UT4) clause 6.9 and 6.10

Note: The electric vehicle related charges apply to QR as well because it operates both electric and diesel electric locomotives.

Note: Access Charges for any Train Service may include a QCA Levy component to be collected for the QCA by Aurizon Network.

Queensland Rail Access Undertakings

The QR Access Undertaking sets out pricing principles that are quite similar to Aurizon's. It also categorises its access charges into reference and non-reference tariffs,¹¹⁸ and has different pricing principles applying to each tariff type, as set out in Table 31.

Table 31 Queensland Rail Access Undertakings pricing principles

Pricing principle	Tariff type	Comparison to Aurizon Access Undertaking
<p>Pricing objectives:</p> <ul style="list-style-type: none"> • Revenue adequacy • Network utilisation 	Non-reference	<p>Revenue adequacy is the same as in Aurizon Access Undertaking, but this is not contained in its pricing objectives and is not restricted to non-reference tariffs.</p> <p>Network utilisation is very similar to Aurizon Access Undertaking, but not identical.</p>
Pricing limits for non-coal carrying	Non-reference	Very similar to Aurizon Access Undertaking, except

¹¹⁷ Aurizon Network's 2016 Access Undertaking (UT4) clause 6.8

¹¹⁸ Reference tariffs apply to train services that accord with the Reference Train Service and coal carrying train services operating either solely on the Metropolitan Network or on both the West Moreton Network and the Metropolitan Network. Non-reference tariffs apply to all other train services.

Pricing principle	Tariff type	Comparison to Aurizon Access Undertaking
train services		Aurizon's is not restricted to non-reference tariffs.
Limits on price differentiation	Both	Similar to Aurizon Access Undertaking, except QR does not have to negotiate variations to the particular reference services specified in the clause.
Preferences for conflict between pricing rules for non-coal carrying train services	Non-reference	Similar to Aurizon in concept, but Aurizon's apply to all access charges, and QR's order of preference is: <ul style="list-style-type: none"> • Limits on price differentiation • Pricing limits • Network utilisation • Revenue adequacy
Reference tariffs	Reference	This defines reference tariffs and specifies where they are set out in QR's Access Undertaking. Aurizon has reference tariffs, but does not have a section like this in its pricing principles.
Rate review provisions	Both	Not in Aurizon Access Undertakings. This principle requires access charges to be varied consistent with changes over time in: <ul style="list-style-type: none"> • The reference tariff—for reference train services • The methodology rates and other inputs for calculating Access Charges agreed with other access seekers in respect of a Train Service transporting the same commodity within the same geographical area as the access seeker's proposed Train Service; and the cost of risk to QR of providing access—for non-reference services.
QCA levy	Both	Same as Aurizon Access Undertaking

Source: Queensland Rail's Access Undertaking 1, October 2016, part 3

8.4.6 Operating systems and technologies

To gain access rail network infrastructure, operators must show compliance with their systems and technologies. This is because these systems and technologies will be needed to operate on the network. The systems and technologies mainly revolve around Safeworking systems, communications technologies and safety devices. Table 32 documents these requirements for Aurizon and QR, noting the following:

- Aurizon mostly uses Remote Controlled Signalling on its five coal network systems, and all but one use the same trackside devices.
- QR has nine main network systems (including the Brisbane metropolitan network), and these mostly use Remote Controlled Signalling and Direct Traffic Control.

Table 32 Operating systems and technologies for Aurizon and Queensland Rail networks

Network	Safeworking Systems	Communications	Trackside Devices ¹¹⁹
Aurizon network	Remote Controlled Signalling (RCS), Direct Traffic Control (DTC), Rail Operator Controlled	Wide-area open-channel UHF radio systems – Train Control Radio (TCR) and Maintenance Supervisory Radio (MSR)	DED, Hot Box Detector, HBD, HWD, WILD, Axle Counters, Weighbridges

¹¹⁹ Wayside Monitoring Systems

Network	Safeworking Systems	Communications	Trackside Devices ¹¹⁹
Queensland Rail networks	RCS, DTC, Staff and Ticket, Yard Control	Wide-area open-channel UHF radio systems – TCR and MSR ^{120 121}	DED, HBD, HWD, WILD, Axle Counters, Weighbridges, Overload and Imbalanced Load Detectors, Overheight Container Detectors

Source: Aurizon CQCN Network Information Packs <http://www.aurizon.com.au/what-we-deliver/network/network-downloads>; <https://www.queenslandrail.com.au/forbusiness/the-regional-network>

8.4.7 Dispute resolution

The QCA Act, and Aurizon and QR's Access Undertakings and Access Agreements set out dispute resolution processes. There are dispute resolution processes for:

- Disputes arising in relation to the negotiation of an Access Agreement
- Disputes in relation to an Access Agreement once executed.

These processes are set out below. They are also summarised in Figure 31. Aurizon and QR's dispute resolution processes have similarities, but Aurizon's is more complex. QR's is almost a subset of Aurizon's.

Disputes in relation to the negotiation of an Access Agreement

Aurizon's dispute resolution process in relation to the negotiation of an access agreement (or Train Operations Deed) is set out in its access undertaking. The process is set out in Table 33.

Table 33 Aurizon Access Undertaking process for dispute resolution

Step	Description
Dispute notice	The dispute resolution process begins when one party issues a dispute notice. This must also be provide to the QCA.
CEO resolution	The dispute must be referred to the CEOs of each party in the first instance, and they must meet to resolve within 10 business days of the dispute notice. If they have not resolved the dispute within 10 business days of their first meeting, parties may agree to refer to dispute to: <ul style="list-style-type: none"> • Mediation • Expert determination • QCA determination If they cannot decide, then either party can refer the dispute to the QCA for resolution.
Mediation	Mediation must be administered by the Australian Commercial Disputes Centre (ACDC) in accordance with ACDC's guidelines for mediation. The costs charged by ACDC for the mediation must be borne equally by the parties and each party must bear its own costs of preparing for and attending the mediation. If mediation resolves the Dispute, the resolution must be documented in writing and signed by the parties to the Dispute. The QCA must receive a copy of the agreement. If mediation does not resolve the dispute, the parties may refer the dispute to: <ul style="list-style-type: none"> • Expert determination • QCA determination If they cannot decide, then either party can refer the dispute to the QCA for resolution.

¹²⁰ MSR only used when TCR is unavailable.

¹²¹ Normanton to Croydon Railway being stand-alone, the Officer-In-Charge communicates with both Townsville Control and Maintenance Gangs via mobile satellite telephones

Step	Description
Expert determination	<p>If the dispute is referred to expert determination, the expert must be appointed by agreement between the parties. Or, if they cannot agree within 10 business days, the QCA will nominate the expert.</p> <p>The expert must satisfy a number of criteria in the AU, including having the appropriate qualifications and expertise and not having any conflicts of interest. The expert must act as an expert not an arbitrator.</p> <p>The dispute must be determined according to the Expert Determination Rules of the Resolution Institute to the extent they are not inconsistent with the AU.</p> <p>The parties must provide necessary information in accordance with the Expert Determination Rules of the Resolution Institute information required by the expert and bear any costs.</p> <p>Parties must provide written submissions and have time to respond to written submissions.</p> <p>The expert's determination is final and binding.</p>
QCA determination	<p>If the dispute is referred to QCA determination, then separate processes may apply depending on whether:</p> <ul style="list-style-type: none"> • The dispute is a dispute for the purposes of Division 5 of Part 5 of the QCA Act • The dispute is not a dispute for the purposes of Division 5 of Part 5 of the QCA Act <p>In either case the QCA must receive and give notice of the dispute, the QCA must seek the advice of the Rail Safety Regulator, and the QCA must not make a determination inconsistent with the AU.</p>
QCA determination – Part 5 dispute	<p>If the dispute is a Part 5 dispute, the QCA determination process is in accordance with Division 5 of Part 5 of the QCA Act.</p> <p>The QCA may refer the dispute to mediation if this has not been attempted already.</p> <p>The QCA must make a draft and final determination. The determination may deal with any matter relating to access to the service by the access seeker, including matters that were not the basis for the access dispute notice for the access dispute.</p> <p>The QCA must use its best endeavours to publish a final determination within 6 months of receiving the dispute notice.</p> <p>The QCA must have regard to a number of matters in the QCA Act when making its determination.</p> <p>The QCA's determination is final and binding.</p>
QCA determination – other dispute	<p>If the dispute is not a Part 5 dispute, any QCA determination of the dispute must not commence unless all of the parties to the Dispute agree (in a legally binding way) to be bound by the outcome.</p> <p>The QCA may make a determination through any process that it considers appropriate, provided that:</p> <ul style="list-style-type: none"> • It notifies the parties of its chosen process, and has regard to Division 5 of Part 5 of the QCA Act • It does not make a determination that is inconsistent with Division 5 of Part 5 of the QCA Act or the Aurizon Access Undertaking.

Source: Aurizon Network's 2016 Access Undertaking (UT4)

QR's dispute resolution process in relation to the negotiation of an access agreement is also set out in its access undertaking. It is less complex than Aurizon's but the components are similar. For example, the process:¹²²

- Begins with a dispute notice
- The first step is resolution by escalation, which is similar to Aurizon's CEO Resolution except that it is escalated to through levels of staff to the CEOs, as follows:
 - Within 5 business days of the dispute notice, representatives meet to resolve the dispute

¹²² Queensland Rail's Access Undertaking 1, October 2016,

- If unsuccessful after 10 business days, senior representative meet to resolve the dispute
- If unsuccessful after 10 business days, CEOs meet to resolve dispute.
- If escalation is unsuccessful, the second step is QCA resolution, which is similar to Aurizon’s QCA Determination. The only significant difference is that the Rail Safety Regulator provisions only apply to Part 5 disputes.

Disputes in relation to an Access Agreement once executed

Aurizon’s dispute resolution process in relation to an access agreement (or train operating deed) once executed is set out in its standard access agreement and train operating deed. The process is the same in both. The process is set out in Table 34.

Table 34 Aurizon access agreement process for dispute resolution

Step	Description
Dispute notice	The dispute resolution process begins when one party issues a dispute notice.
Authorised representative resolution	The dispute must be referred to an authorised representative of each party for resolution in the first instance. They must meet to resolve within 10 business days of the dispute notice. If they have not resolved the dispute within 10 business days of their first meeting, parties may agree to refer to dispute to: <ul style="list-style-type: none"> • Expert determination • Arbitration • QCA resolution If they cannot decide, then either party can refer the dispute to the courts of the state.
Expert determination	This is similar to Table 33, except that: <ul style="list-style-type: none"> • If the parties cannot agree to an expert, it will be nominated by the President of the Resolution Institute of Australia (if the dispute is of a financial, accounting or technical nature) or the President of the Queensland Law Society (in any other case). • The expert determination must not be inconsistent with the access agreement (or train operating deed)
Arbitration	If the dispute is referred to arbitration, the arbitrator must be a single arbitrator sitting in Brisbane. The arbitrator can be decided by the parties, or if they cannot agree within 10 business days, the arbitrator will be appointed by the President of the Resolution Institute. The arbitration will be in accordance with the Commercial Arbitration Act 2013 (Queensland).
QCA resolution	Parties may agree to refer any dispute to the QCA for resolution.

Source: Aurizon Network’s Train Operations Deed - Coal and Access Agreement – Coal, <http://www.aurizon.com.au/what-we-deliver/network/network-downloads>

QR’s dispute resolution process in relation to an access agreement (or train operating deed) once executed is set out in its standard access agreement. This is similar to its dispute resolution process in relation to the negotiation of an access agreement, set out above. The key difference is that instead of QCA resolution, it has expert resolution.

8.4.8 Interactions of access regimes

Almost all of the Queensland rail network is covered by the Queensland Rail Access Regime. The only rail segment which is not covered under the Queensland Rail Access Regime is the part of the North-south intra-state rail network that goes from the Queensland border to the intermodal terminal at Acacia Ridge. This network is managed by ARTC and access is regulated by the National Access Regime and the ACCC.

8.5 Essential Services Commission of South Australia

The Essential Services Commission of South Australia (ESCOSA) regulates third party access to railways across South Australia under the *Railways (Operations and Access) Act 1997*. Since its first operation in January 2004, ESCOSA has also been responsible for regulating third party access to the Tarcoola-Darwin line. Arrangements for access to this line are

provided under the AustralAsia Railway (Third Party Access) Code, which is a Schedule to the *AustralAsia Railway (Third Party Access) Act 1999* (South Australia and Northern Territory).

South Australian Rail Networks

There are 3 principal inter-state standard gauge lines linking South Australia to Victoria, NSW and Western Australia, and a spur line from Port Augusta to Whyalla. Within metropolitan Adelaide, the inter-state network includes a north-south standard gauge line adjacent to the urban lines as well as a dual gauge spur line from Dry Creek to Port Adelaide and Outer Harbour. These interstate lines are regulated by the ACCC under the National Access Regime, discussed in more detail in Section 8.1.

The principal intra-state lines in South Australia are:

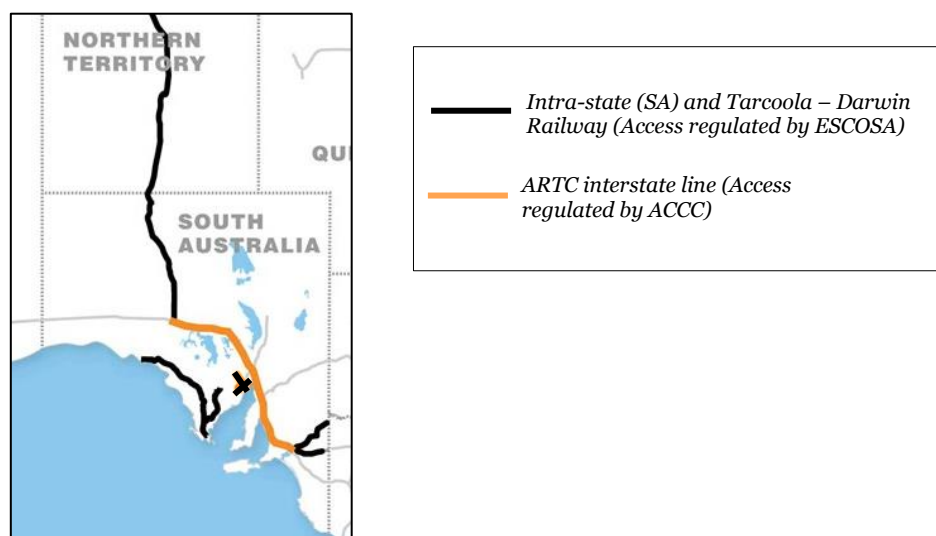
- Standard gauge lines in the Riverland and Murray-Mallee region, which connect to the Adelaide to Melbourne inter-state mainline at Tailem Bend;
- Mid-North broad gauge lines, which connect to TransAdelaide’s metropolitan network; and
- A stand-alone narrow gauge network on the Eyre Peninsula.

Tarcoola – Darwin Railway

The Railway between Tarcoola and Darwin comprises both an older section between Tarcoola and Alice Springs and the more recently constructed section between Alice Springs and Darwin. Both sections of line are standard gauge.

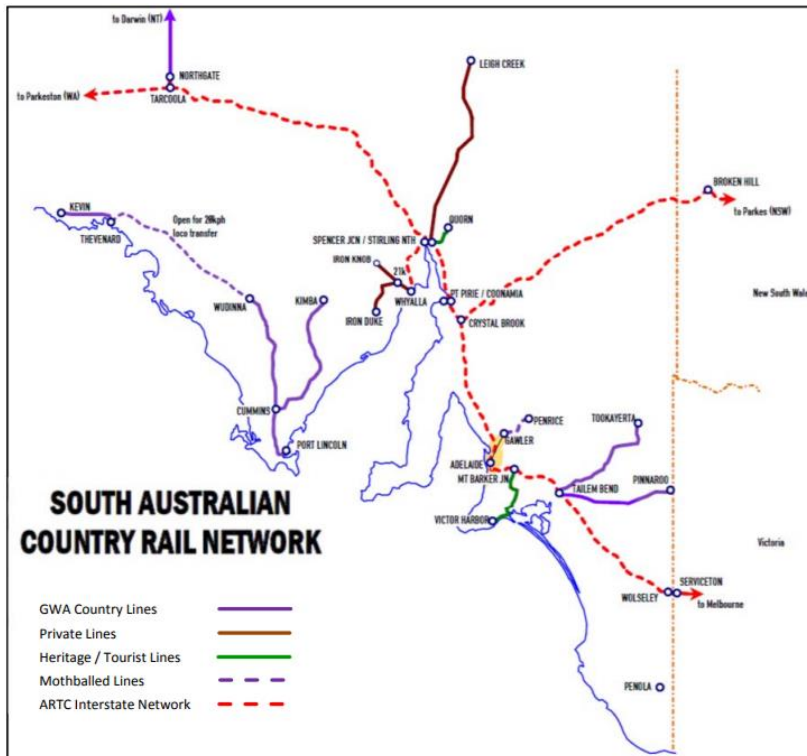
The Tarcoola to Darwin Railway and other South Australian rail networks are shown in Figure 32 and Figure 33 below.

Figure 32 Networks regulated by ESCOSA



Source: GWA website

Figure 33 South Australian networks including ARTC managed lines



Source: South Australian Rail Access Regime Review Final Report August 2015

Rail Infrastructure Management and Operation

As noted in Section 8.1, the interstate network is owned and managed by the ARTC. This section will therefore focus on access to the three principal intra-state lines in South Australia, and to the Tarcoola – Darwin Railway. The South Australian rail industry is vertically integrated, with GWA and the South Australian Government owning and operating both below-rail and above-rail infrastructure.

Table 35 summarises the major stakeholders for the South Australian Rail Access Regime. The list of operators is not exhaustive.

Table 35 South Australian Rail Access Regime – stakeholders

Network	Owner(s)	Rail Infrastructure Manager / lessee	Major Operators
Tarcoola to Darwin railway	South Australian Government	Genesee and Wyoming Australia	Genesee and Wyoming Australia
Adelaide Metropolitan Network	South Australian Government	South Australian Government	South Australian Government

Source: https://www.gwrr.com/railroads/australia/genesee_wyoming_australia

8.5.1 South Australian Rail Access Regime

The South Australian Parliament enacted the *ROA Act* in 1997, to provide a framework and enable access to essential rail infrastructure services by third parties. The *ROA Act* was introduced to:

- ensure that rail operations could be undertaken efficiently and effectively
- ensure that rail corridors were afforded competitive neutrality with roads

- provide an access regime that addressed competition issues in the context of possible monopoly power in private hands.

The *ROA Act* protects above-rail operators from the potential misuse of market power by providing a framework for access to be negotiated on fair commercial terms, with the potential for arbitration should negotiations fail. The South Australian Rail Access Regime is set out in Parts 3 to 8 of the *ROA Act*. It provides for:

- a regulator to monitor and oversee access matters, establish pricing principles and information requirements, and refer access disputes to arbitration
- the use of arbitration to resolve access disputes, where required.

The access regime is intended to be light-handed and is based on the principle of encouraging and promoting negotiation of access on fair commercial terms rather than regulated outcomes.

Under the *Railways (Operations and Access) Act 1997*, ESCOSA is responsible for conducting 5-yearly reviews into the South Australian Rail Access Regime. The last review of the South Australia Rail Access Regime was in 2015. Although the vertically integrated structure of the Tarcoola to Darwin Railway and other South Australia rail networks have the potential for misuse of market power, ESCOSA concluded that the countervailing consideration of high operator bargaining power due to low and declining demand is effective in maintaining a competitive access regime. This suggests that only light-handed regulation is required. No access disputes have been referred to ESCOSA since the Access Regime commenced and ESCOSA stated that access seekers are successfully negotiating access to railway infrastructure services.¹²³

8.5.2 Negotiating Rail Access

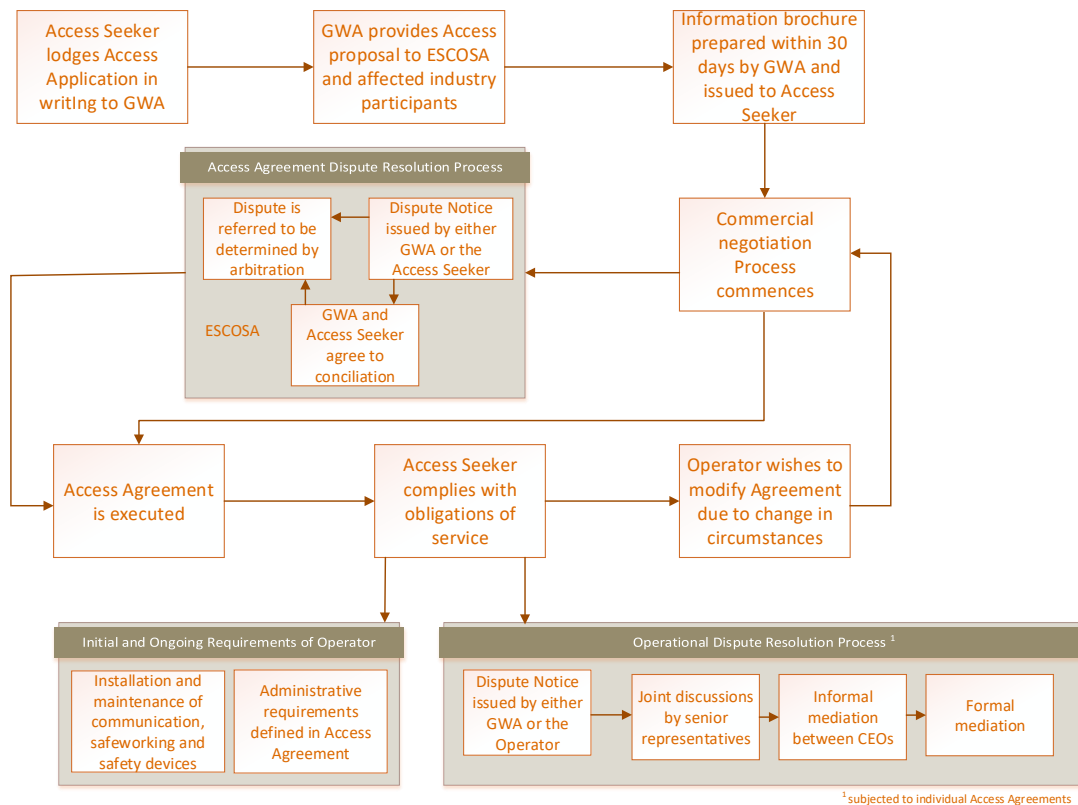
This is discussed separately for the South Australian Rail Network and Tarcoola – Darwin Railway.

South Australian Rail Network

South Australia introduced the *Railways (Operations and Access) Act* (ROA Act) in 1997 to establish the South Australian Access Regime. Figure 34 describes the process in detail.

¹²³ South Australian Rail Access Regime Review, August 2015 (Section 3.1, p26)

Figure 34 Access negotiation process under South Australian regime



Source: PwC analysis; ROA Act.

The ROA Act¹²⁴ requires that on receipt of an Access request, an Information Brochure is prepared for the Access seeker to include the terms and conditions on which the operator is prepared to make its railway infrastructure available. ESCOSA’s published ‘Information Kit’¹²⁵ lists the following matters required at a minimum:

- an indication of the “Likely Price” for their access proposal
- general rights of access, including:
 - (i) path length availability;
 - (ii) available capacity;
 - (iii) axle load limitations;
 - (iv) maximum allowable speeds;
 - (v) infrastructure characteristics;
 - (vi) applicable safeworking requirements; and
 - (vii) segment run times;
- network control;
- track occupations;
- rolling-stock standards;

¹²⁴ Section 28(1)(b)

¹²⁵ Information Kit 3.1 South Australian Rail Access Regime, p.16

- incident management;
- environmental constraints (for example, noise);
- accreditation requirements;
- inspection requirements;
- indemnity and insurance;
- performance undertakings to be made by both parties;
- breaches and termination; and
- dispute resolution.

Tarcoola – Darwin Railway Access

Access to the Tarcoola – Darwin Railway is governed by the *AustralAsia Railway (Third Party Access) Code* (the Code). The Code functions in the same way as the ROA Act does for the South Australian networks, covering matters such as the negotiation process, dispute resolution, and terms and conditions of access. With minor differences, the same processes as in Figure 34 apply for rail access negotiation.

There is a broader scope under the code for the negotiation of access terms and conditions, although in practice, typical access agreements will comprise very similar requirements as those listed above for the South Australian Rail Network. There are, however, significant differences in the form and calculation of rail access charges, detailed in section 8.5.4.

8.5.3 Rights and obligations during rail access

Confidentiality agreements prevented PwC from being able to cite an indicative access agreement for any of the South Australian rail access undertakings. This made it difficult to fill out the table on the obligations and requirements of each party under an access agreement. Also, due to the lack of publicly available information and the inability of PwC to fill information gaps through stakeholder consultations, it was not possible to source qualitative information on these rights and obligations. As GWA is the largest operator and also the RIM of the Tarcoola to Darwin Railway, it is likely that the rights and obligations will be determined by how they would like to run operations and provide access to their networks. This is an area where more research will be required.

8.5.4 Rail access charges

Both the ROA Act and the Code provide for the calculation of floor and ceiling prices, between which an Access Seeker can negotiate. There are material differences between the two.

South Australian Rail Network

The ROA Act¹²⁶ defines the floor price as representing the lowest price at which the RIM could provide the relevant services without incurring a loss. The Information Kit¹²⁷ makes clear that this is the incremental cost of providing the service, with reference only to those costs that vary directly with the usage of the railway infrastructure by the access seeker and are directly attributable to (though not necessarily incurred in) the period for which access is sought. These may include labour, material and administrative costs. Capital costs are included in the calculation only to the extent that the replacement of the required

¹²⁶ Section 27

¹²⁷ Information Kit 3.1 South Australian Rail Access Regime, Section 3.1

infrastructure is brought forward by the operation of the relevant service, or enhancements are necessary to provide for the same. In general, the floor price is that price necessary to cover the variable costs incurred.

The ROA Act¹²⁸ defines the ceiling price as the highest price that could fairly be asked by a RIM for the provision of the relevant services. This is the full economic cost of the provision of the service to the access seeker. An appropriate allocation methodology would be employed to determine the share of the total economic cost attributed to the access seeker based on total usage on a given track segment.

The Information Kit¹²⁹ defines the total economic cost as the sum of:

- segment specific labour and material and administrative costs;
- depreciation of segment specific assets;
- a return on segment specific assets, being determined by applying a real rate of return to the regulatory asset value of segment specific assets;
- an allocation of non-segment specific costs;
- an allocation of depreciation of non-segment specific assets; and
- an allocation of return of non-segment specific assets, being determined by applying a real rate of return to the value of non-segment specific assets.

Where costs are identified as not directly attributable to a given line segment, the Information Kit provides for gross tonne kilometres to be used to allocate those costs associated with track maintenance, and train kilometres for all other common costs.

Infrastructure assets are valued initially using the depreciated optimised replacement cost (DORC) method¹³⁰, which is consistent with the methodology applied in the valuation of ARTC's assets and approved by the ACCC. The value is adjusted per annum using a CPI index, and taking account of in-year capital expenditure and depreciation.

As part of the Information brochure, the RIM is required to provide the Access Seeker with an indicative price for the services for which they are applying. This will provide the basis for negotiation, and will be based on assumptions about:

- Service quality,
- Any additional infrastructure enhancements, and
- Any additional maintenance requirements.

Prices can be differentiated based on service characteristics, the commercial impact on the RIM's business, logistical impacts, capital contributions by the Access Seeker and the cost of any additional capacity necessary.

¹²⁸ Section 27

¹²⁹ Information Kit 3.1 South Australian Rail Access Regime, Section 3.2.1

¹³⁰ Assuming value of infrastructure = Return on capital + Return of capital. The DORC methodology calculates the return on capital to be the Weighted Average Cost of Capital * Opening asset value in that year as determined on a current cost basis. The return of capital is depreciation, calculated using the straight line method.

Tarcoola – Darwin Railway

The Code defines the floor price in the same way as the ROA Act. The ceiling price calculation depends upon whether there is a ‘sustainable competitive price’. Broadly, this is the case where the freight market is contestable across modes of transport, and there are no impediments to a mode shift. In this case, the ceiling price is the competitive rail line-haul price, being the maximum competitive price that the RIM could charge for the service.

Where there is no sustainable competitive price, the Code calculates the ceiling based on ‘reasonable attributable cost’ to all Operators. There would appear to be more latitude here than under the ROA Act in determining the attribution methodology.

In common with the ARTC, pricing components may include flagfall and variable rates, as well as a fixed charge based on time, usage or operating parameters.

8.5.5 Operating systems and technologies

Access seekers are required to comply with GWA’s operating systems and technologies. These mainly revolve around safeworking systems, communications technologies and safety devices. Due to limitations in publicly available information and the inability for PwC to consult with GWA, it was not possible to create a table on the operation systems and technologies. The remoteness of the Darwin to Tarcoola Railway means that the train communication systems are most likely a combination of radio systems and satellite phones and the safeworking system would be based off timetable or Train Orders operation. This is an area where more research will be required.

8.5.6 Dispute resolution

Both the ROA Act and the Code set out similar dispute resolution processes. There are dispute resolution processes for:

- Disputes arising in relation to the negotiation of an Access Agreement
- Disputes in relation to an Access Agreement once executed.

These processes are set out below.

Disputes arising from negotiating an Access Agreement

The dispute resolution process for the Access Agreement negotiation under the ROA Act and the Code follows a negotiate/conciliation/arbitrate model. A dispute process begins when:

- the Operator or another respondent to an access proposal fails to respond to the proposal within 30 days after the proposal is given to the Operator or other respondent;
- the Operator or another respondent to an access proposal refuses or fails to negotiate in good faith with the proponent on the access proposal;
- the proponent, after making reasonable attempts to reach agreement with the Operator and other respondents, fails to obtain an agreement on the proposal or an agreed modification of the proposal; or
- a respondent to an access proposal makes a formal objection to a proposed access contract of which notice has been given under Part 3 of the ROA Act.³

Conciliation – Conciliation is a process in which the parties to the dispute, with the assistance of ESCOSA, identify the disputed issues, develop options, consider alternatives and endeavor to reach an agreement.

The conciliator may have an advisory role on the content of the dispute or the outcome of its resolution, but not a determinative role.

Arbitration – If the regulator fails to settle an access dispute by conciliation after making a reasonable attempt to do so, the regulator must then appoint an arbitrator and refer the dispute to the arbitrator. The Commission will seek advice regarding suitable candidates for conducting the arbitration. The Commission will hold meetings with all the parties, either jointly or separately, in an attempt to achieve agreement as to who should be appointed as arbitrator. The Commission will make the final decision as to the appointment of the arbitrator. It will promptly inform the parties of its decision.

An arbitrator cannot make an award that would have the effect of requiring the RIM to bear any of the capital cost of an addition or extension to railway infrastructure unless the Operator agrees. An arbitrator cannot make an award that would prejudice the rights of an existing industry participant under an earlier contract or award unless the industry participant agrees or the arbitrator is satisfied that:

- the industry participant’s entitlement to access exceeds the entitlement that the participant actually needs and there is no reasonable likelihood that the participant will need to use the excess entitlement; and
- the proponent’s requirements cannot be satisfactorily met except by transferring the excess entitlement (or some of it) to the proponent.

The Access seeker may, within 7 days of the arbitration award, choose not to be bound by its terms, instead withdrawing its application for access. In this event, there is a twelve month moratorium on further applications from the same Access Seeker.

Disputes arising from an Access Agreement once executed

Disputes in relation to an Access Agreement once executed are dealt with in accordance with the provisions of the specific Access Agreement. Typically, this will include conciliation and arbitration in a similar manner to that described for Access negotiation.

Where ESCOSA feels that there has been a material breach of the ROA Act or the Code, it may apply to the Supreme Court (SA) for an interim injunction against a particular party. The injunction will either restrain a party from contravening or require a party to comply with a provision of the Act or Code, or a provision of an arbitration award. Any injured party may also make representation to the Supreme Court for an interim injunction, which may be granted at the Court’s discretion.

The Court may grant an injunction by consent without inquiring into the merits of the application. The Court cannot require ESCOSA or any other person to give an undertaking as to damages as a condition of granting the injunction.

8.5.7 Interactions of access regimes

Most of the South Australian and Northern Territory rail network is covered by the South Australian Rail Access Regime. Rail networks not regulated by ESCOSA are managed by ARTC and regulated by the National Access Regime and the ACCC. These ARTC managed rail networks are as follows:

- The East-west intra-state rail network that goes from Wolseley to Adelaide and through to Crystal Brook,
- The East-west intra-state rail network that goes from Crystal Brook to Tarcoola and through to Kalgoorlie,
- The intra-state rail network that goes from Broken Hill to Crystal Brook, and
- Parts of these networks that connects to Whyalla, Port Augusta and Dry Creek intermodal terminals and ports.

8.6 Economic Regulation Authority of Western Australia

The ERAWA is an independent statutory authority established by the Parliament of Western Australia. ERAWA regulates entities that provides access to the rail network, governed under the *Railways (Access) Act 1998*. ERAWA approve the terms and conditions and costing information that owners of railways are obliged to offer companies wanting to gain access to Western Australia railway networks. The ERAWA regulate RIMs Arc Infrastructure, Public Transport Authority, Roy Hill Infrastructure and The Pilbara Infrastructure.

Arc Infrastructure won the forty nine year lease from the Western Australian State Government to manage its rail freight network. The network lease commenced in 2000 and the Public Transport Authority is responsible for managing the freight rail network lease.¹³¹ The Public Transport Authority was formed in accordance with the *Public Transport Authority Act 2003*. It has ownership of the south western rail networks under Arc Infrastructure lease.¹³²

Arc Infrastructure controls the Rail Network throughout the southern half of Western Australia, between Geraldton, Leonora, Kalgoorlie, Esperance, Albany and Bunbury, see Figure 35. Arc Infrastructure's network transports a wide range of commodities including grain, alumina, bauxite, iron ore and interstate freight – as well as passengers on the Perth to Kalgoorlie and Perth to Bunbury lines.

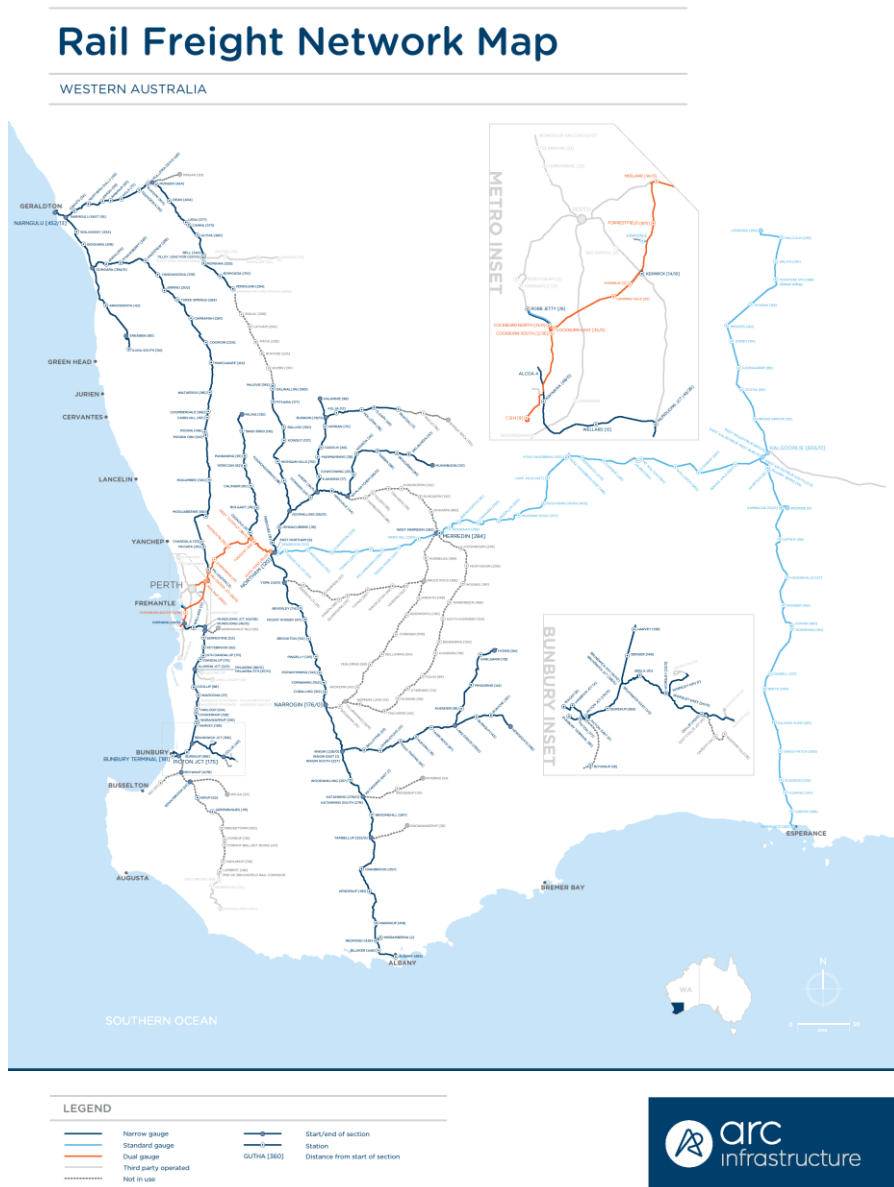
The Urban passenger component of the Western Australian Railway is under the control of the Public Transport Authority. PTA operates Transperth, the train services in metropolitan Perth, and Transwa, the regional train services in regional Western Australia. The Network operates between Fremantle, Mandurah, Armadale, Midland and Butler.

ERAWA also covers The Pilbara Infrastructure which is a wholly owned subsidiary of Fortescue Metals Group, and Roy Hill Infrastructure's railway line, which links mines in the Eastern Pilbara to port facilities at Port Hedland, see Figure 36. Not included in the Regime are the BHP-Billiton and Rio Tinto railway lines in the Pilbara and the ARTC network east of Kalgoorlie.

¹³¹ Government of Western Australia Public Transport Authority, Brookfield Rail Lease Management Plan

¹³² Economics and Industry Standing Committee, The Management of Western Australia's Freight Rail Network

Figure 35 Arc Infrastructure-managed freight network



Source: Arc Infrastructure website, <http://www.arcinfra.com/Rail-Network/Network-Specifications>

Figure 36 The Pilbara Rail Network



Source: Pilbara Ports Authority website.

Note: The Pilbara Infrastructure which is a wholly owned subsidiary of Fortescue Metals Group (FMG) and Roy Hill Infrastructure's railway line.

Table 36 summarises the major stakeholders for the Western Australian Rail Access Regime. The list of operators is not exhaustive.

Table 36 Western Australia Rail Access Regime – stakeholders

Network	Owner(s)	Rail Infrastructure Manager / lessee	Major Operators
Pilbara rail network	Roy Hill Rail Fortescue Metals Group	Fortescue Metals Group Ltd Roy Hill Holdings Pty Ltd - TBA	Roy Hill Rail Fortescue Metals Group
South-east Western Australian rail network	Public Transport Authority Western Australia	Public Transport Authority WA Arc Infrastructure	CBH Group Aurizon Transwa Transperth

Source: PwC analysis

8.6.1 Western Australia Rail Access Regime

The Western Australian Rail Access Regime was established in 2001 as a framework to govern effective, fair and transparent competition on Western Australia's railway network. The *Railways (Access) Act 1998* provides a regime for third party access to certain railways covered under the ERAWA jurisdiction.

The *Western Australian Railways (Access) Code 2000* (the Code) makes provisions for third party access to certain parts of the Western Australian Rail Network in accordance with the *Railways (Access) Act 1998*. The Code refers to Railways Owners, Managers and ERAWA.¹³³

The Code sets out the RIM's terms and conditions for providing access to third parties.

This includes procedures for:

- Negotiating access
- Managing capacity
- Managing network extensions, connections and additions
- Monitoring the RIM's performance in maintaining the network.
- Publication of information

Under the Code, ERAWA must approve the Railway Infrastructure Manager's documents before they give Operators access to their network. These include:

- the train management guidelines
- the statements of policy in the allocation of train paths
- the costing principles in the determination of costs, and management of the Railway Infrastructure Manager's accounts and financial records
- the over-payment rules

Once these documents have been approved, they are to be featured on the ERAWA website.

ERAWA undertakes a review of the *Railways (Access) Code 2000* every five years to determine if the Code effectively enables the WA Rail Access Regime to meet the objectives of the CPA.

When an access seeker wishes to gain access to a network governed under the Code it must submit an Access Proposal. The Access Proposal must be given to ERAWA as soon as is practicable.¹³⁴ ERAWA must give approval if a Railway Infrastructure Manager considers that an Access Proposal will take up an extensive amount of the Networks capacity in such a way that it excludes others from accessing the infrastructure.

Since the establishment of the Code only two proposals for access to the freight rail network have been made under the Code. The first Access Proposal was by Portman Iron Ore Ltd in 2002, and the Access Proposal procedure was finalised by commercial negotiations outside the Code. The second Access Proposal was made in 2013 by Co-operative Bulk Handling Ltd and proceeded to arbitration in June 2014. It is important to note that between 2006 and

¹³³ *Railways (Access) Code 2000*

¹³⁴ The same must be done for executed Access Agreements.

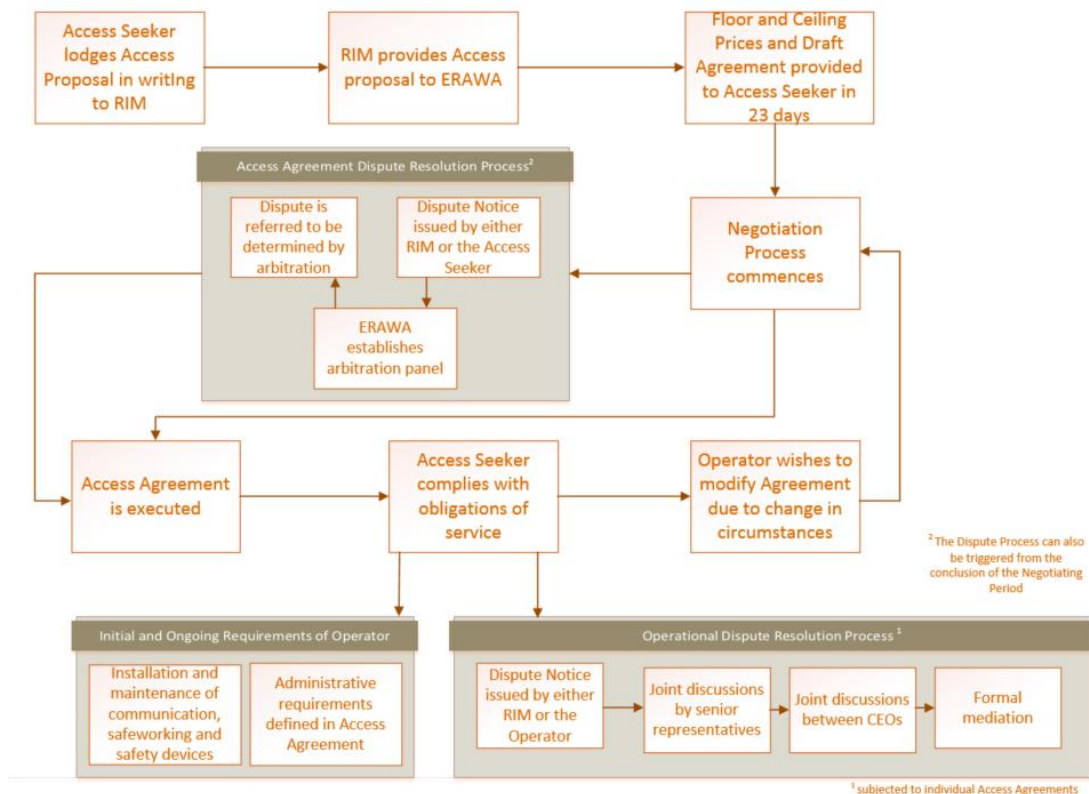
2014, 20 access agreements have been successfully negotiated outside the Code by Arc Infrastructure and above rail operators.¹³⁵

Access is granted and finalised through an Access Agreement. The Access Agreement will document the terms and conditions including responsibilities of the RIM and service operators, seen in Section 8.6.3.

8.6.2 Negotiating rail access

Figure 37 describes the process to gain access to a network covered under the Code.

Figure 37 Access negotiation process under the Code



Source: PwC analysis; *Railway (Access) Code 2000*.

The RIM must provide an information package to the access seeker prior to the access seeker lodging an Access Proposal.

An access seeker interested in making a proposal may ask the RIM in writing to provide:

- the current available capacity of that desired route,
- the price that the access seeker might pay for access, and
- the terms, conditions and obligations that the Railway Infrastructure Manager would want to be included in any access agreement.

¹³⁵ Economics and Industry Standing Committee, The Management of Western Australia's Freight Rail Network

8.6.3 Rights and obligations during rail access

The Access Agreement gives an indication of the powers, rights and obligations of each party for the duration of access to the network, for example:

- Track access rights
- Each party's obligations regarding control and management of access to the network
- Safety standards
- Environmental requirements.

These are summarised in Table 37.

Table 37 Obligations and requirements of each party under an access agreement

Topic	Railway Infrastructure Manager Requirements	Operator requirements
Track access rights	The Railway Infrastructure Manager grants the operator the right to operate services on the network using the Scheduled Train Paths (for the term of the Access Agreement). It will ensure no two trains will be allotted scheduled arrival or departure times such that there are conflicts in arrival or departure times having regard to the Safeworking Rules	The operator cannot access the network in any way other than is authorised by the Access Agreement The operator's rights to the train paths do not give it an exclusive right to any train path.
Control and management of access to the network	Control of the Network and management of access to the Network is with the Railway Infrastructure Manager.	The Operator agrees to maintain each train in a condition which is fit for use on the Network having regard to the terms of the Agreement.
Safety standards	Both the Operator and the Railway Infrastructure Manager must comply with: <ul style="list-style-type: none"> • All applicable safety standards and laws dealing with safety • Safeworking Rules • Dangerous Goods Code • The Standards • Accreditation, licences and approvals required by law Qualification requirements for employees, agents and subcontractors, and drug and alcohol tests	
Environmental requirements	This includes: <ul style="list-style-type: none"> • Compliance with environmental requirements (all laws and policies) • Notification of Environmental Condition 	This includes: <ul style="list-style-type: none"> • Compliance with environmental requirements (all laws and policies) • Notification of carriage of certain materials in Train Manifests • Notification of Incidents involving dangerous goods

Source: *Railways (Access) Code 2000*

8.6.4 Rail access charges

The Code includes pricing principles which inform the RIMs on the pricing principles which limit how much they can charge operators. While access charges are not set in the access undertakings, they are regulated by ERAWA.

Pricing principles

The pricing principles include floor and ceiling costs. These floor and ceiling costs represent the minimum and maximum recoverable revenue for each network segment, set out in Table 38.

Table 38 Pricing Principles in the Code

Limit	Method
Floor	The incremental costs resulting an Operator's operations on the network and use of the infrastructure. The incremental costs are the operating costs, capital costs and overheads incurred that could have been avoided if the operator did not have access to the network.
Ceiling	The total costs attributable to the network and railway infrastructure, which is the total of all operating costs, capital costs and overheads. Capital cost is the equivalent annual cost, comprising of both the depreciation and risk-adjusted return on the relevant railway infrastructure, and is calculated using: <ul style="list-style-type: none">• the Gross Replacement Value (GRV) of the railway infrastructure• the economic life of the railway infrastructure
Return on Assets	Based on the Weighted Average Cost of Capital

Source: *Railway (Access) Code 2000*.

In essence, the Ceiling Price is the price of replacing the network segment with a newly constructed line that meets the expected level of service, with the GRV being the lowest current costs of replacing the existing assets with modern equivalent assets. Operating costs include train control costs, information reporting costs and maintenance costs.

Under the Code, Railway Infrastructure Managers can partially pay for an extension or expansion of the network or associated railway infrastructure.

After an Access Proposal is received, the Network Infrastructure Manager submits a costing and ERAWA can either:

- approve the Railway Infrastructure Manager's determination of the Floor and Ceiling Costs for the route under the Access Proposal, or
- determine the relevant Floor and Ceiling Costs separately.

When determining the Floor and Ceiling Costs, ERAWA must take into account:

- Arc Infrastructure's legitimate business interests and investments in the network, including the contractual obligations between Arc Infrastructure and other existing operators on the network
- all costs Arc Infrastructure incurs in providing Access, including the cost of extending or expanding the network
- the operational and technical requirements of the network
- the economically efficient operation of the network¹³⁶

ERAWA also determines the weight average cost of capital each year to be used for the interest rate when calculating capital costs annuities.

Structure of Charges

Charges for the rights of access to and use of the Network is set out in the Access Agreement for each Rail Operator. Access Charges include:

Access Rates include a flagfall per the scheduled train path and a variable charge per GTK

¹³⁶ Economics and Industry Standing Committee, The Management of Western Australia's Freight Rail Network

- a flagfall component, which is fixed and specific to the scheduled train path
- a variable component, which is a function of distance and gross mass (\$/'000 GTK).

Arc Infrastructure also include a fee variation section which is applied to a Rail Operator's specific activity.

8.6.5 Operating systems and technologies

Access seekers are required to comply with the RIM's operating systems and technologies. These mainly revolve around Safeworking systems, communications technologies and safety devices. Table 39 documents these requirements for the South Western Rail Network of Western Australia.

Table 39 Operating systems and technologies for the South Western Rail Network of Western Australia

Area Covered	Safeworking System	Communications	Wayside Devices ¹³⁷
South-West area of Western Australia	TOW, CTC	UHF/VHF Radio communications with Train Control Centre or Local Communication between train network users (Train to Train) via radio (mobile or portable), Open-Channel Radios, wayside telephones	Detonator Detector System, Automatic Train Protection System, Platform Detection System, Safe Braking System

Note: Process, systems and technologies of the Sydney MFN network is covered by ARTC, see Section 8.1.6.

Source: <http://www.pta.wa.gov.au/about-us/working-with-the-pta/safety-resources>; <http://www.arcinfra.com/Rail-Network/Network-Safeworking>

8.6.6 Dispute resolution

There are dispute resolution processes for:

- Disputes arising in relation to the negotiation of an Access Agreement
- Disputes in relation to an Access Agreement once executed.

These processes are set out below.

Disputes arising from negotiating an Access Agreement

The two step Dispute Resolution Process for access seekers is set out in the Code.

Negotiation – Negotiation can commence after the Railway Infrastructure Manager provides the access seeker with a Draft Agreement and the access seeker has indicated a readiness to begin negotiations. The Railway Infrastructure Manager must negotiate in good faith. The Code requires that the parties set a negotiation period that fixes a day by which the negotiations must conclude. This negotiation period must be within 90 days from the commencement of negotiations, but can be extended. If negotiations have not been finalised

¹³⁷ Wayside Monitoring Systems

by the end of the negotiation period, the parties are considered to be in dispute and the Code's arbitration process commences.¹³⁸

Arbitration – The access seeker may refer matters to arbitration prior to the negotiation period finalising. ERAWA establishes a panel of arbitrator that cannot include any ERAWA representatives. The arbitrator must be drawn from this panel. An arbitrated decision is binding.¹³⁹

Disputes arising from an Access Agreement once executed

The Dispute Resolution Process is noted in each Operator's Access Agreement.

Negotiation – Within five business days of a Notice of Dispute being issued to the other party, senior representatives from each party will meet to resolve the dispute by joint discussions. Joint discussion is then undertaken by the CEOs of both parties.

Mediation – Is subject to agreement by the parties. If the dispute is not resolved within one month after the notice of dispute is issued, the matter will be referred to formal mediation in Perth.

Legal proceedings – May commence one month after the Notice of Dispute is given.¹⁴⁰

8.6.7 Interactions of access regimes

Most of the Western Australian rail network is covered by the Western Australian Rail Access Regime. Rail networks not regulated by ERAWA are either managed by ARTC or located in the Pilbara.

ARTC managed rail networks are regulated by the National Access Regime and the ACCC. The ARTC network is the East-west intra-state rail network that goes from the Western Australian border through to Kalgoorlie. Arc Infrastructure, which is regulated by ESCOSA, manages the network from Kalgoorlie to Perth.

¹³⁸ Economics and Industry Standing Committee, The Management of Western Australia's Freight Rail Network

¹³⁹ <https://www.erawa.com.au/rail/rail-access/are-you-an-access-seeker>

¹⁴⁰ Shire of Dowerin, Agenda of meeting held on 26 April 2017, Attachment – Brookfield Rail Track Access Agreement

Appendix C *List of stakeholders*

The table below lists the participants engaged in stakeholder consultations during the course of this study.

Type	Stakeholder
Regulator	Australian Competition and Consumer Commission
Regulator	Department of Transport – Western Australia
Regulator	Economic Regulation Authority Western Australia
Regulator	Essential Services Commission of South Australia
Regulator	Queensland Competition Authority
Rail Infrastructure Manager/Operator	Aurizon
Rail Infrastructure Manager	Australian Rail Track Corporation
Rail Infrastructure Manager	Arc Infrastructure
Rail Infrastructure Manager	Queensland Rail
Rail Infrastructure Manager	V/line
Operator	Pacific National
Operator	Qube
Operator	SCT Logistics
Operator	Sydney Trains
Group	Australasian Railway Corporation
Group	Australasian Railway Association

The table below lists the stakeholders that PwC contacted in reference to this report but wasn't able to engage in stakeholder consultations due to limitations in availability. Any future work should focus on obtaining information from these stakeholders, particularly as this report doesn't contain the views of these stakeholders.

Type	Stakeholder
Regulator	Essential Services Commission
Regulator	Independent Pricing and Regulatory Tribunal
Rail Infrastructure Manager/Operator	Genesee & Wyoming Australia
Rail Infrastructure Manager/Operator	Metro Trains

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