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## Response to ARTC Application to Vary the Hunter Valley Access Undertaking for the Final Indicative Service



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# 1. Executive Summary

## Key Points

- Aurizon does not support the concept of an identifiable homogeneous efficient train configuration which is derived without reference to sunk and avoidable costs.
- The adoption of the FIS and FIAC is not in the interests of users who have rights to use the service. Aurizon recommends that these rights need to be preserved through appropriate grandfathering provisions.
- The FIS modelling is not complete and should consider the implications of investment in the Advanced Train Managements System. Price differentiation should not occur until this review is complete.
- The FIS modelling is an inappropriate and ineffective means of establishing efficient prices for access charges to below rail services.
- Promoting efficient operations, use of, and investment in rail infrastructure over the long term will be more effectively achieved through improvements in master planning and evaluation of alternate price structures.

## Aurizon does not support the concept of a single efficient train configuration

Aurizon has actively participated in the consultation processes leading to the lodgement of the proposed variation to the Hunter Valley Coal Network Access Undertaking to implement the Final Indicative Service and Final Indicative Access Charge. During this period, inclusive of previous variations for interim indicative services, Aurizon has consistently raised concerns regarding the concept of a single efficient train configuration.

The broader supply chain is comprised of numerous participants which is intertwined through a complex interaction of sunk investments and contracts. All of the individual upstream and downstream markets within this chain can be categorised as having barriers to entry and exit associated with capital investments in those markets. These investments are durable and not readily amenable to the concept of a unifying and homogenous unit of coal chain capacity.

Aurizon recognises the importance of coordinating among 'competing' participants. In particular, Aurizon supports a focus on measures to expand supply chain capacity at the lowest feasible cost, having regard to past investments in contracts. However, Aurizon is concerned that the broader policy objectives of promoting efficient investment, or to a larger extent the promotion of competition will not be realised. Fundamentally the form of coercion chosen - price differentiation - is based on a poorly defined unit of coal chain capacity that as a result, is unlikely to incentivise the desired behaviour.

Aurizon considers that given the complex nature of contracts and sunk costs across the supply chain, efficient pricing that will promote competition in upstream and downstream markets, is the marginal costs related to the consumption of below rail capacity. Should a more efficient expansion solution be identified than investment in below rail infrastructure, the parties have sufficient incentives to achieve that outcome. No market failure has been adequately demonstrated in the competitive above rail markets to warrant regulatory intervention in those economic decisions.

Importantly, where the below rail pricing seeks to influence, or take a broader view than below rail capacity the consideration of efficient operation, use of and investment in rail infrastructure must adopt a more holistic approach to what is offered in the FIS. What is relevant is the pricing proposal that will incentivise the lowest feasible cost expansion of supply chain capacity across the range of reasonably foreseeable demand. Without such an analysis, it is unclear how the proposed FIS can be presented as the most efficient train with any degree of certainty.

The approach adopted in modelling the FIS does not consider these broader supply chain costs. Nor does the FIS modelling seek to identify the comparative incremental below rail costs which might be required to deliver a 208 mtpa coal chain throughput assuming:

- A greenfield assumption of 9408 tonne payload trains
- A greenfield assumption of 8036 tonne payload trains
- A brownfield assumption of current fleet mix and additional demand being met by either 9408 tonne or alternatively 8036 tonne trains.

It is avoidable costs that represent the true economic cost of congestion. Without demonstrating the link between price differentiation and avoidable costs, the proposed pricing framework for non-indicative services are at risk of simply representing a penalty price.

## **Aurizon considers the rights of users with existing rail haulage contracts needs to be addressed**

Aurizon considers that without detailed financial analysis then the proposed FIS and FIAC will simply redistribute the existing cost base among users who have previously responded to the gross to net tonne ratio incentives implicit in past below rail access charges. Such an outcome is not in the interest of users with rights to use the service. Accordingly, in the absence of a material commercial impact to ARTC from not price differentiating between existing users then all rail haulage services contracted prior to the FIS variation should be subject to a constant postage stamp tariff for the duration of those contracts.

## **Modelling of the FIS is incomplete and has not identified an efficient train configuration**

The FIS modelling which has been undertaken is intended to identify relative coal chain capacity consumption by holding train consists in the system constant. Accordingly, the modelling outcomes are likely to misrepresent the capacity impacts of a particular service if below rail capacity is underutilised due to this artificial constraint. Aurizon considers that there are a number of material issues associated with the FIS modelling which need to be addressed to form the basis of price differentiation:

- The modelling itself is unable to demonstrate the 208 mtpa being achieved. The practical effect of this approach is that trains longer than the FIC are assumed not to add to system throughput even though their operation is technically feasible across a range of origin to destination combinations;
- The modelling relaxes only a limited number of constraints such as load out performance, but does not seek to address what maximum feasible throughput could be achieved for a given train length through relaxation of all feasible constraints including terminal and shipping operations;
- The modelling does not consider the impact of the FIS on port unload times, queuing and stockpile management and parcel size at terminals with low stockpile ratios and therefore it has not been demonstrated that a homogenous fleet of FIS train lengths is efficient or desirable;
- The modelling does not take into consideration the coal chain capacity impacts associated with ARTC's foreseen investment in its Advanced Train Management System. The implementation of this technology will increase latent capacity and shift from optimising capacity on train length to optimising capacity on network wagon density and system velocity.

Aurizon does not support the FIS until these issues have been adequately addressed. Until these deficiencies are addressed below rail access pricing should be constrained to consumption of below rail capacity as measured by and contractually defined train paths.

## The FIS modelling does not provide an appropriate basis for price determinations

The FIS modelling is also intended to inform the price differentiation of non-indicative services. Aurizon considers the modelling is unsuitable for this purpose as:

- it does not reflect avoidable or opportunity costs associated with a particular train type;
- an access seeker is unable to readily or even intuitively understand how its access charge will be derived without access to an the ability to run complex capacity scenarios using a black box capacity model;
- it does not provide for a stable long term pricing regime with the potential for material changes in the level of and relativity of access charges between train service types as the efficient train configuration changes over time;
- it seemingly disadvantages Pricing Zone 3 users who, by way of technical limitations of rail infrastructure are unable to operator the FIS; and
- it would not appear to provide any price advantage for services longer than the FIS even though the underlying model logic is longer trains are better and they conceivably increase throughput in a system of heterogeneous constraints and train lengths..

Aurizon also considers that subject to a reasonable and effective transition period the policy objectives of the FIS can be achieved through modifications to the price structure for the common use Zone 1. By focusing on the coal chain capacity, the FIS approach ignores what is actually being priced and that is a unit of capacity for below rail services. Including in the pricing structure a component which is more representative of a unit of below rail capacity, would address the current flaws and provide a more sustainable regulatory pricing regime. In addition it would involve substantially less complexity and costs than establishing prices on the basis of coal chain capacity relativities as the number of variables and assumptions required are significantly reduced.

## Conclusion

In summary, Aurizon contends that the proposed variation:

- has not, through detailed modelling, correctly and accurately identified the most efficient train configuration that provides the lowest feasible cost to meet the reasonably foreseeable demand having regard to the all relevant operating models and their respective cost structure of all elements of the supply chain;
- has not established a price schedule which provides an effective economic incentive for investment in, and utilisation of, the efficient train configuration and the level of price differentiation that is commensurate with the opportunity or avoidable costs of that particular train service; and
- will not achieve the objectives of incentivising use of the FIS given the low proportion of the below rail access charge to a producers total costs structure and the potential material investments required to occur to operate the FIS.

## 2. Introduction

Aurizon appreciates the opportunity to respond to the Australian Competition and Consumer Commission's consultation paper (**the Consultation Paper**) on Australian Rail Track Corporation's (**ARTC**) proposed variation to the Hunter Valley Rail Network Access Undertaking (**HVAU**) to implement the Final Indicative Service (**FIS**).

The proposed variation represents the final step in the development and implementation of a deemed efficient train configuration. The FIS seeks to provide price incentives, through price differentiation, for investment by rail operators in a train configuration which is assumed to maximise throughput of the Hunter Valley Coal Supply Chain.

The FIS was lodged by ARTC on 31 January 2014 with the ACCC seeking comments from interested parties by 18 March 2014. If approved, the FIS would apply for a period of 18 months commencing 1 January 2015 (the remaining duration of the HVAU).

Aurizon is the world's largest rail transporter of coal from mine to port for export markets, and the second largest coal haulage provider in the Hunter Valley having secured almost 30 per cent market share since entering the Hunter Valley coal haulage market in 2005.

Aurizon is a strong advocate for the benefits of competition, and believes that where possible, the regulatory arrangements should facilitate commercially negotiated outcomes in the first instance, with regulatory intervention limited to a safety net function in the event of market failure.

Having said this, Aurizon recognises the need to balance the competing commercial drivers of the various parties that make up the interrelated functional layers of the coal supply chain, with a disciplined approach to their coordination.

Aurizon has previously submitted to enquiries by the ACCC on the Interim Indicative Service (IIS). This submission extends on Aurizon's earlier views on this matter and provides a considered approach to the proposal having regard to the prospective achievement of the overall objectives and the legal framework the ACCC is required to follow in its assessment.

The proposed variation assumes that implementation of the FIS will improve efficiency which must be substantiated on the following two fundamental premises:

1. ARTC has, through detailed modelling, correctly and accurately identified the most efficient train configuration that provides the lowest feasible cost to meet the reasonably foreseeable demand having regard to the all relevant operating models and their respective cost structure of all elements of the supply chain (**the First Test**); and
2. ARTC has established a price schedule which provides an effective economic incentive for investment in, and utilisation of, the efficient train configuration and the level of price differentiation is commensurate with the opportunity or avoidable costs of that particular train service (**the Second Test**).

In Aurizon's view, only if these two premises are satisfied completely can the proposed price differentiation represent an efficient price. Finally, in order to constitute an efficient price there must be a reasonable prospect that the objectives of the price discrimination could be realised (**the Third Test**).

### 2.1 Background

The Hunter Valley Access Undertaking (HVAU) includes a framework for ARTC to consult directly with the HVCCC, rail operators and coal producers on evaluating an efficient train configuration which represents the most efficient utilisation of coal chain capacity.

Aurizon welcomes the consultation undertaken by ARTC on this matter and the ability to participate and inform both the industry dialogue and the undertaking of a comprehensive and robust capacity modelling assessment.

The process for arriving at an efficient train configuration has been effectively a two stage process with ARTC consulting on and proposing interim indicative services within 5 months of the commencement date as required under clause 4.17.

Aurizon's response to the proposed interim indicative services expressed concerns with respect to the specification of efficiency and that pricing should have regard to the relevant commercial and economic impacts of ex-post changes to tariff structures and levels. Of particular relevance is the stability of a pricing regime under the prospect of periodic revisions to the FIS and the implications of investment incentives and risk premiums associated with regulatory risk.

The concerns raised by Aurizon in its response to the previously proposed IIS remain valid for the currently proposed FIS. Importantly, the level of price differentiation has increased considerably between the IIS and FIS which needs to be demonstrably commensurate with costs associated with the ongoing use of a train service that does not conform to the 'efficient train configuration'.

Under clause 4.18 of the HVAU, ARTC was required to further assess the IIS and with the expectation of having reached a definitive conclusion within 30 months from the commencement date submit to the ACCC the FIS. The ACCC noted that the timeframe was considered adequate in 'recognition of the fact that determination of optimal service characteristics that promote efficient utilisation for an optimised coal chain may be a complex exercise'<sup>1</sup>

An efficient price is one which invariably seeks to achieve multiple and often conflicting objectives, including;

- cost reflective pricing on marginal cost
- facilitating revenue adequacy through the allocation of common costs
- recognising the opportunity cost of the next best alternate use of resources; and
- reducing the long run marginal cost of the total supply chain in meeting the foreseeable demand.

In considering whether the proposed tariff structure and levels constitute an efficient price, as contemplated under the pricing principles in s. 44ZZCA of the CCA Act, it is necessary to demonstrate that the proposed prices:

- differentiate when it aids efficiency;
- does not commercially impact ARTC by allowing it to generate expected revenue for a regulated service that is at least sufficient to meet the efficient costs of providing access to the regulated service or services; and
- provide incentives to reduce costs or otherwise improve productivity.

In assessing whether these requirements are adequately addressed by the proposed FIS and associated charges it is important to understand the economic and commercial context in which the decisions on train configuration have been made in order to determine if the proposed variation would meet the policy objectives. For example, Aurizon observes that above rail productivity and efficiency has improved since approval of the HVAU with limited price differentiation as rail operators seek to maximise the outputs from their own assets.

Accordingly, this submission includes an assessment of the economic and commercial factors relevant to determining and assessing an efficient price.

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<sup>1</sup> ACCC (2014) Consultation Paper - Australian Rail Track Corporation's Hunter Valley Rail Network Access Undertaking: Final Indicative Service variation, Feb, p. 6.

## 2.2 Submission Outline

This submission is structured as follows:

1. Section 3 examines the economic and commercial context of pricing of access to rail networks;
2. Section 4 outlines our views on the assessment and selection of the FIS and whether the First Test is satisfied;
3. Section 5 reviews and comments on the price structure and differentiation in the Final Indicative Service(s) and whether the Second Test is satisfied;
4. Section 6 evaluates the prospects of the FIS and FIAC achieving its policy objectives and whether the Third Test is likely to be satisfied; and
5. Section 7 addresses each of the relevant questions from ACCC's Consultation Paper.

### 3. Economic and Commercial Relevance of Implementing the FIS

Aurizon supports initiatives that strengthen supply chain efficiency, which in turn provides opportunities for all supply chain participants to increase activity in the market. Aurizon competes vigorously in the Hunter Valley haulage market, having grown market share to almost 30% since 2005.

Economic regulation has driven significant improvements in productivity as well as supply chain and operating efficiency across the coal supply chain. The associated economic reforms have allowed competing above rail operators, including Aurizon to enter the market.

Aurizon believes that coordination of a supply chain is fundamental to efficient service delivery. The competitiveness of coal supply chains is becoming increasingly important as low cost producers in developing countries enter the seaborne market.

In seeking to optimise the competitiveness of Australian coal supply chains, it is essential to achieve the right balance between the efficiency benefits available from coordination through an integrated approach, and the efficiency benefits derived from competition within the supply chain.

At one extreme of the coordination model, full integration across the supply chain, such as exists in some Pilbara iron ore railways, provides for optimal efficiency in terms of internal trade-offs that can be made between different elements of the supply chain to minimise transaction costs between different functional layers.

At the other extreme, a purely competitive market structure provides an environment where efficiency, innovation and investment are driven through competition in as many elements of the supply chain as possible. The transaction costs of the competitive market model (such as costs of contracting, imposition of margins and costs associated with strategic competitive behaviour) are balanced against efficiency gains from competition.

In the Hunter Valley, supply chain coordination is managed through a hybrid model balancing the 'command and control' approach of the integrated model and the less prescriptive competitive market model. This hybrid model is administered through a combination of the operations of the HVCCC that seeks to centralise control, and the below rail regulatory arrangements that facilitate and promote competition, which is administered by the ACCC.

Aurizon considers it is important to maintain the appropriate balance between centralised planning and competitive operations to ensure that externalities in the form of various transaction costs do not erode the considerable efficiencies already achieved in the Hunter Valley coal chain. The tension between operational efficiency and competition-driven efficiency can result in a range of transaction costs that outweigh the benefits expected by either vertical separation along with the introduction of competition or centralised coordination through a supply chain coordination body.<sup>2</sup>

A central feature of the vertically integrated model is that the integrated firm will optimise total cost over all time horizons while simultaneously internalising the cost of those decisions. For example, the integrated firm will not immediately dispose of its existing investments to migrate to a new service. Similarly, it will only modify its existing operations when it has considered the relevant economic trade-offs of alternate investments. That is any efficiency gains from avoided below rail investment will be realised through investment in higher costs in the above rail assets (i.e. disposal expenses or increased operating costs). In making these decisions the integrated firm is continually evaluating the optimal total cost structure.

The arrangements in clause 4.18 of the HVAU effectively seek to replicate the incentives and outcomes from the integrated model. However, the issue regarding the 'internalisation' of the costs of respective elements of the whole system is notably absent within the framework.

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<sup>2</sup> OECD, January 2012, Experiences with Structural Separation, p. 12-13 "it is generally accepted that structural separation may involve a trade-off between efficiency and competition" but that nonetheless ".....it is clear the economic benefits (of competition) have been observed".

Aurizon understands the importance of balancing the efficiency benefits of competition within contestable elements of the supply chain, against the efficiency losses associated with the disaggregation of the supply chain. These efficiency losses are associated with the requirement to coordinate decision making and to also promote preferred investment decisions. The role of the regulator is to ensure that an appropriate balance is achieved having regard to the impact of coercive mechanisms on the competitive environment for those contestable markets. However, neither the regulatory body nor the service provider will possess the information necessary to replicate the internal value trade-offs in order to optimise efficiency and minimise the total cost to the supply (as would occur in the integrated model).

In undertaking these value trade-offs between investment in both the above and below rail service the regulator would need to have regard to:

- The interests of users who have rights to use the service; and
- The business interests of the service provider.

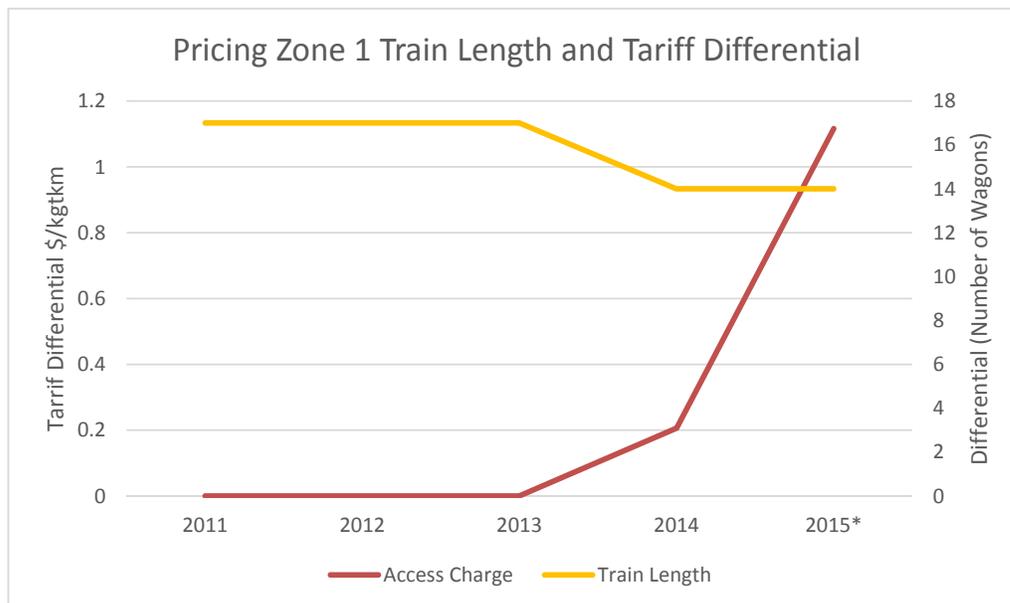
### 3.1 Interests of users with rights to use the service

Aurizon is concerned by the lack of stability and predictability in the pricing arrangements for the Hunter Valley Coal Network. It is pertinent that the proposed FIS, if approved by the ACCC, may only be in place until July 2016. ARTC notes in its consultation document of October 2013 that there is no certainty that either the FIS or the proposed price arrangements might continue into next period:

*On the other hand, the current HVAU terminates in 2016. While it might be expected that the HVAU will be renewed in terms similar to the current document, including the specification of the FIS, there is no guarantee that this will be the case.*

The following graph shows the historic price differential for Aurizon’s train services in pricing Zone 1 relative to the predominant competitor train service. The period of 2011 to 2013 being the 74 and 91 wagon train lengths and 2014-2015 period being 96 and 82 wagon train lengths. The graph demonstrates the materiality of the change in price relativity between these services. Whilst Aurizon has increased its train length thereby reducing the difference in size of consists, there has been a step change in the difference in access charges even though the train size is closer to conforming to the ‘efficient’ size. Aurizon does not consider the change in the differential between train services where investments were made under the prevailing rates is in the interest of those parties.

**Figure 1 ARTC Access Charge Differentials**



Source: ARTC published HVCN access charges

The proposed variation effectively disadvantages a rail operator who, in all good faith, responded to a given pricing signal which promoted optimisation of gross to net ratio by investing in an optimised train configuration associated with that price. That rail operator is now subject to an effective ex-post price penalty through frequent revisions to the pricing framework.

In this respect, it is normal commercial practice for material capital investments to be subject to agreed commercial terms (including price and/or price methodology) for the term of that contract in order to avoid economic hold-up by one party to the transaction.

A principal limitation of economic regulation is the assumption of perfectly contestable markets and interference in the ability of the service provider and the user to agree on relevant commercial terms. While the rationale for this intervention is understood, an efficient price is one that should require as little regulatory involvement as possible and would replicate the commercial outcomes that might be expected to prevail in the absence of the regulator (intuitively, the regulators objective in some respects should be to render itself redundant or superfluous to the negotiation).

Regulatory attempts to replicate the benefits of vertical integration of freight railroads creates a significant regulatory risk. Whilst a firm can internalise the trade-offs, the regulator does not have sufficient information to continually optimise a supply chains total cost structure, given the transaction costs and complexity associated with compensating relevant parts of the supply chain.

The Consultation Paper outlines that the legal test being applied in accepting the proposed variation is to have regard to the matters in s.44ZZA(3) of the CCA. Among the matters the ACCC is to have consideration to is 'any other matters the ACCC thinks are relevant'. Aurizon considers that this clause allows the ACCC to consider the consistency of the proposal with Part IIIA as a whole. In this respect, the proposed variation should be commensurate with the outcomes which might be expected to prevail in an arbitrated dispute. Therefore, the matters in s.44X are also relevant to the ACCC's consideration of the variation. In particular, among the matters the ACCC must take into account in making a final determination is the interests of all persons who have rights to use the service.

Under normal circumstances under a commercial negotiation the parties would have specified the pricing methodology over the term of the agreement. The proposed variation is therefore analogous to ARTC changing the pricing method after the access agreement has been executed and the rail operator has incurred sunk costs in its own investment. As the approved HVAU precluded a rail operator from directly negotiating the pricing methodology over the term of their agreements Aurizon considers the matters in 44X become relevant to the ACCC consideration under 44ZZA(3). In this regard, in making an access determination the ACCC would need to determine whether the ex-post changes to the pricing methodology are reasonable and in the interests of access holder having regard to the additional costs imposed.

Aurizon notes that in a closed vertically integrated business model the pricing and management decisions would take a whole-of-life basis and that this would be commensurate with grandfathering for the life of the assets. However, it is acknowledged that under an open access model the rail operator would be exposed to competitive market risk of its assets not being commensurate with the modern engineering equivalent at expiry of the contract and that this risk would be priced in the rail haulage rate. Accordingly, Aurizon considers grandfathering should extend to the duration of the haulage agreement.

Implementation of this principle could increase the complexity associated with managing and billing for haulage rights with differing termination dates. In this regard, Aurizon considers grandfathering could be implemented by a fixed and common terminating date which requires that price differentiation will not occur for access rights relating to above rail agreements contracted prior to the determined transition date up to a transition terminal date (for example 2025 being 10 years from the commencement of the variation). The grandfathering should not occur beyond the terminating date of the rail haulage rights in order to avoid distorting competition for the continuation of those rights.

### Aurizon Proposition 1

Price discriminations should not occur (i.e. grandfathering of a common \$/gtkm rate) between haulage contracts commencing prior to a determined transition date up to the earlier of the termination of the haulage rights or the transition period terminal date is necessary to address the interests of persons with rights to use the service prior to the commencement of the variation (s.44X)

## 3.2 Interests of the Service Provider

In considering the interests of persons with rights to use the service, Aurizon acknowledges that the grandfathering of a common \$/gtkm rate must be assessed against the legitimate business interests of the provider of the service. This is also reflected in the principles of price differentiation in section 4.15(a)(ii) of the HVAU.

The most relevant commercial impact to ARTC from the operation of non-indicative train services would be the requirement to invest in additional rail infrastructure. In circumstances, where a person's rights to use the service required ARTC to expand the facility, as opposed to altering that person's operations, ARTC has not demonstrated how it would be commercially impacted or how price differentiation would address that impact. Under the terms of the HVAU:

- ARTC obtained an agreed cost of capital with the industry (ARTC obtains its required return from expanding the facility);
- The regulatory financial model and economic life mitigates the asset stranding risk (ARTC demand risk is not materially altered by expanding the facility); and
- ARTC can require the access seeker to fund the expansion (ARTC's balance sheet and financing metrics are protected).

It is Aurizon's view that in the absence of a material commercial impact to ARTC it is reasonable for person's with rights to use the service to have a common flat \$/gtk rate apply for at least the duration of the respective haulage agreements.

Assuming an average duration for a rail haulage agreement of 10 years then the grandfathering of the \$/gtk rate for pre-2014 services would not appear to have any adverse impacts on network capacity with ARTC deferring the bulk of expenditure between Maitland and Muswellbrook to beyond 2022 as shown in 2013 Hunter Valley Corridor Strategy.

**Table 1 Projected Capital Investment in Zone 1 (excl. port precinct)**

Project	2013 Strategy (Required by)	Estimated Non-escalated Cost (\$m)
Farley - Maitland 3rd track (incl Maitland yard)	Beyond 2022	\$152
Branxton - Greta 3rd track	Beyond 2022	\$119
Minimbah Bank resignalling	2020	\$2
Drayton - Whittingham bi-di	2019	\$31
Drayton - Whittingham resignalling (incl Nundah)	2020	\$26
Nundah Bank third track extension	Not required	
Muswellbrook - Drayton resignalling	2020	\$15
Muswellbrook Junction	2020	\$69

Source. ARTC 2013-2022 Hunter Valley Corridor Capacity Strategy

However, Aurizon acknowledges that the economic life of below rail infrastructure extends beyond the average term of a rail haulage agreement and that ARTC's investments could become underutilised if it was required to expand its facility and additional demand did not emerge to consume the capacity which would ultimately become available following a change in train configuration at the end of the relevant rail haulage agreements. However, ARTC would not be required to undertake any material investment in Pricing Zone one until well into the next, or even subsequent access undertaking.

The corridor strategy has been developed having regard to average train payloads commensurate with existing resource capacities as noted in the documents assumptions:

*Estimates of the numbers of trains required to carry the forecast coal tonnages are generally based on train consists nominated by producers under the contracting process.*

Importantly, the implementation of ATMS could see the signalling upgrades avoided and the Muswellbrook Junction is not attributable to mines situated with Zone 1. It is apparent from this table that there is no immediate capacity constraint within Zone 1 which would commercially impact ARTC to warrant price differentiation of current contracted services.

### **Aurizon Proposition 2**

ARTC has not demonstrated, and it does not appear, that it would be adversely commercially impacted by grandfathering a common \$/gtkm rate for all contract above rail services commencing prior to a determined transition date.

## 4. Efficiency of the Final Indicative Service (the First Test)

Aurizon understands the importance of coordination and collaboration among the supply chain participants in order to inform and guide investment decisions among those participants to promote the efficiency and overall competitiveness of NSW coal producers.

Section 4.18 seeks to achieve this objective by requiring ARTC to:

*Develop the proposed characteristics of the indicative service (i.e. the FIS) which ARTC considered will deliver the optimum utilisation of Coal Chain Capacity, given certain system assumptions, including scenarios under which System Assumptions are also varied in addition to the Coal Train configurations.*

Aurizon holds a general concern that the relevant objectives of the process are overlooked and the analysis and consultation has been focussed on developing a capacity charge as opposed to informing the most efficient path to achieve the desired level of system throughput.

It is entirely reasonable, prudent and consistent with requirements of section 4.18 to undertake the modelling by:

- holding System Assumptions constant for the term of the agreements and then determine what the least cost expansion path is to achieve the foreseeable demand of 208 mtpa for the given set of constraints; and
- then vary System Assumptions, including Coal Train Configurations to determine alternate expansion paths, including investment by the ports, rail operators and mine loadouts.

Only through this process will the relevant costs associated with previous investments be transparently identified which then provides a framework for determining how the relevant supply chain participant can be incentivised to undertake the necessary investment. However, this economic framework is not what has been applied as the modelling is primarily focussed on determining what can be squeezed out of the existing and near term network configuration. This is evident in modelling results which shows that no scenario achieves 208 mtpa.

The efficacy of the process therefore must be called into question if, in the determination of the FIS, consideration has not been given to identifying efficient expansion and utilisation of the ARTC network. That is, it may very well be more efficient to achieve the foreseeable demand of 208 mtpa by further investment in rail infrastructure if this cost is lower than the costs to existing Access Holders to modify their assets and contracted services.

It is incongruous to determine an efficient train service and price to reflect Coal Chain Capacity without consideration of the total cost of the supply chain. Accordingly, Aurizon reiterates its view in response to the IIS that consideration of an efficient train configuration should be based on a Total Cost of Ownership approach.

As noted in section 2, approval of the proposed variation needs to satisfy two tests, the first of which is that:

*ARTC has, through detailed modelling, correctly and accurately identified the most efficient train configuration that provides the lowest feasible cost to meet the reasonably foreseeable demand having regard to the all relevant operating models and their respective cost structure of all elements of the supply chain.*

This test can be disaggregated into individual thresholds for which in order to pass the first test each of the following components must be satisfied:

1. the modelling has correctly and accurately modelled the efficient train configuration;
2. the assessment period represents the reasonably foreseeable demand;
3. the modelling has considered all relevant operating models; and
4. in determining the most efficient means of meeting the reasonably foreseeable demand the efficient train provides the lowest feasible cost of meeting that demand.

## 4.1 FIS modelling lacks precision

The FIS modelling does not present an accurate representation of the capacity consumption of the respective train configurations and the results presented by ARTC are an artefact of the modelling approach.

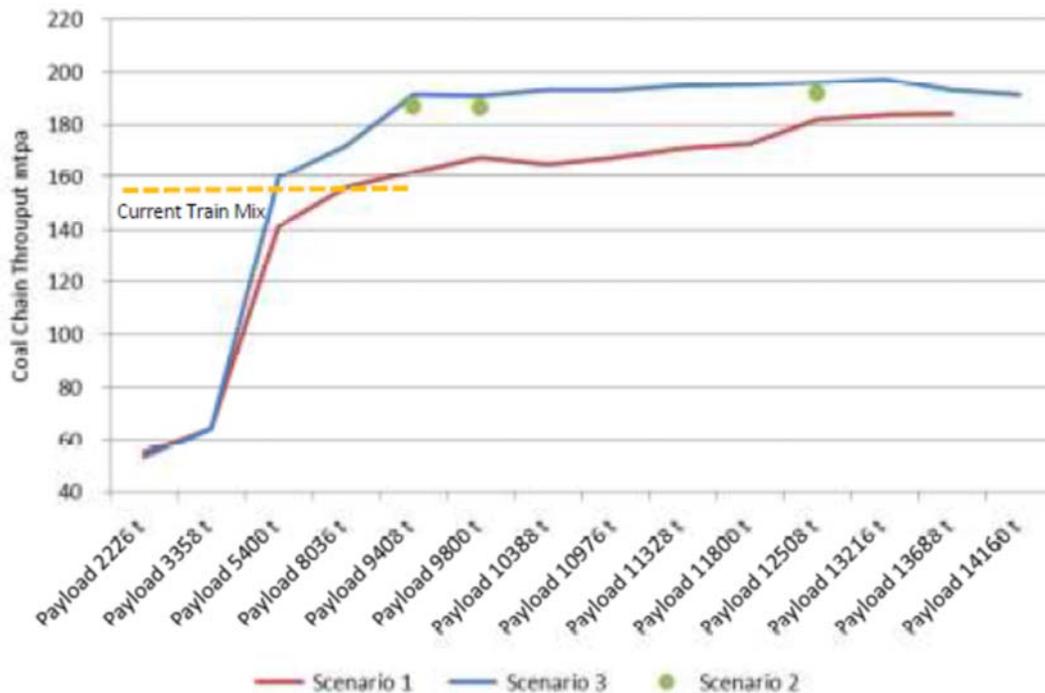
The practical effect of the adoption of the FIS is that train services which do not conform to the efficient train configuration will be subject to price discrimination where there is no material differences in cost or risk. The services not only operate in the same end market but the characteristics of the access rights, that is the below rail services utilised, are not just similar, but close to identical.<sup>3</sup> Due to the impacts on users of a material redistribution of ARTC's costs through price discrimination, it commands that the determination of the FIS is subject to a high degree of precision. This point is observed by ARTC in its acceptance that:

*"..caution in relation to the development of the Indicative Services (and associated pricing signals) before modelling existed that would enable it's accurate determination, and the risk of sending out inappropriate pricing signals as a result"*

Aurizon is not confident that an appropriate standard of precision or accuracy has been achieved in arriving at the FIS. This view is informed by numerous aspects of the modelling assumptions and results documented within the submission.

Of particular concern is that the modelling itself does not demonstrate delivery of 208 mtpa. This is an artefact of the modelling constraint that the number of train sets in the system is limited to a fixed number and the network configuration is limited to an infrastructure set which would be augmented (including loadout modifications to accommodate an unconstrained train length). The results of the exercise are presented by ARTC for its selected scenarios in the figure below.

Figure 2 ARTC Modelling on Coal Throughput on Constrained Shipping Queue



<sup>3</sup> Limitations of price differentiation, HVAU s.4.16. Note below rail access rights are for train paths which is independent of train length.

Given the constraining assumption of holding the number of train services constant across all train configurations, it is not unexpected to observe the throughput differentials in the range of 3000 tonnes to 9500 tonnes. That is the modelling and assumptions have been setup to achieve this exact outcome. In interpreting these results, ARTC notes the outcomes:

*‘should be seen as reflecting the relative performance of the train configurations only’*

Therefore the relative performance is based on nothing more than payload difference up to the FIS. This cannot be construed as representing the impacts of a particular service on the Coal Chain Capacity.

Also, the scenarios do not indicate what the coal chain throughput would be if the constraint on the number of train services was lifted to consume the apparent latent network paths available within Zone 1 as published in the 2013-2022 HVCN Corridor Strategy and shown in Table 2.

**Table 2 Surplus coal path availability (total capacity less contracted volume)**

Net Capacity (Paths)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Pricing Zone 1 (at Whittington)	42.9	37.1	31.0	31.0	30.4	29.6	29.1	29.1	29.1	29.1

### **Aurizon Proposition 3**

The FIS modelling does not accurately present the actual capacity differential across various train configurations and only assesses relative performance which is not representative of loss of Coal Chain Capacity

## **4.2 FIS modelling is inconsistent in its applied assumptions**

The modelling results are also inconsistent with previous results tabled to the stakeholder reference group (SRG) that showed without modification to the loadouts, and current mix of heterogeneous train services, the impact of 82 wagon trains on coal chain throughput is only 0.9 mtpa. The primary difference in the current FIS modelling exercise is the:

- relaxation of the loadout constraint (which based on the December 2012 ARTC presentation to the SRG) which requires improvement to 23 loadouts; and
- the unrepresentative assumption of the system comprising only one train configuration.

Aurizon holds two concerns with this approach. First the relaxation of the loadout constraint assumes flexibility in only one aspect of the system performance. To the extent the objective measure is on coal chain capacity then it should also relax other system constraints. For example, it is unclear why and how the ship queue increases and whether this is a function of the train configuration or some other aspect of the terminal performance. To the extent other aspects of the supply chains performance could be modified to reduce the shipping queue then this would have an impact on throughput and therefore the apparent capacity differential between train configurations.

Second, by assuming the system operates with only one type of train configuration the modelling does not provide an accurate representation of the interaction of multiple train configurations and how system throughput is influenced by those interactions. That the construction of a homogeneous efficient train configuration is artificial should be readily apparent from ARTC’s observation that:

- Train operators have successfully tested 100 wagon trains; and another
- Access Holder and its Train Operator are investigating the operation of a 110 wagon train.

These services would be restricted to selected loading and unloading combinations due to port, loadout and network constraints. Intuitively these services would increase throughput. However, the modelling approach employed in the FIS shows that these service would not increase throughput on the basis of homogeneity, as shown in the figure above (there is no discernible increase in throughput from a payload of 9408 to 9800). Accordingly, it is not clear how ARTC would even derive the differentiated price for these services as the modelling would show no throughput benefit.

Aurizon contends that the FIS modelling lacks precision and is inconsistent in its assumptions and therefore does not meet the requirement that the modelling has correctly and accurately modelled the efficient train configuration.

#### **Aurizon Proposition 4**

The FIS modelling would produce different capacity outcomes from changes to a substantial number of complex and interacting assumptions which influence coal chain performance. FIS modelling has limited consideration of modifying and retaining assumptions to achieve the hypothesis that the FIS is the most efficient train configuration.

### **4.3 The FIS modelling period is reasonable**

The modelling for the FIS has been limited to 208 mtpa. ARTC notes that this is an effective limitation of the HVCCC model to provide reliable results. Aurizon considers undertaking the modelling on this basis as the reasonably foreseeable demand is prudent given the emphasis on reliable model outputs.

Demand for coal chain capacity beyond 208 mtpa is also highly dependent on a range of market variables which involve uncertainty and therefore modelling of an efficient train configuration on future speculative capacities could promote inefficient investment decisions.

Notwithstanding, the limitations of the current 208 mtpa, it is important to note that the efficient train configuration required to achieve tonnages above this level could be significantly different from the current proposed FIS. In this respect it is important to note that the pricing framework needs to address how supply chain participants would be encouraged to adopt that revised FIS given the investments made to conform to a determined FIS under the current foreseeable demand. As a consequence the FIS may not promote efficient investment appropriate over the long term.

#### **Aurizon Proposition 5**

The consideration of the FIS modelling to the reasonably foreseeable demand of 208 mtpa is reasonable but the FIS may change over time and within the economic life of potential investments made in response to the price incentives.

### **4.4 FIS Modelling excludes feasible scenarios**

In order for the FIS to be the correct representation of an efficient train it must have considered all feasible scenarios. Aurizon notes that the scenarios evaluated by ARTC include a 35 TAL option which appears influenced by the higher product density in the iron ore operations. This comparative assessment does not constitute a viable scenario.

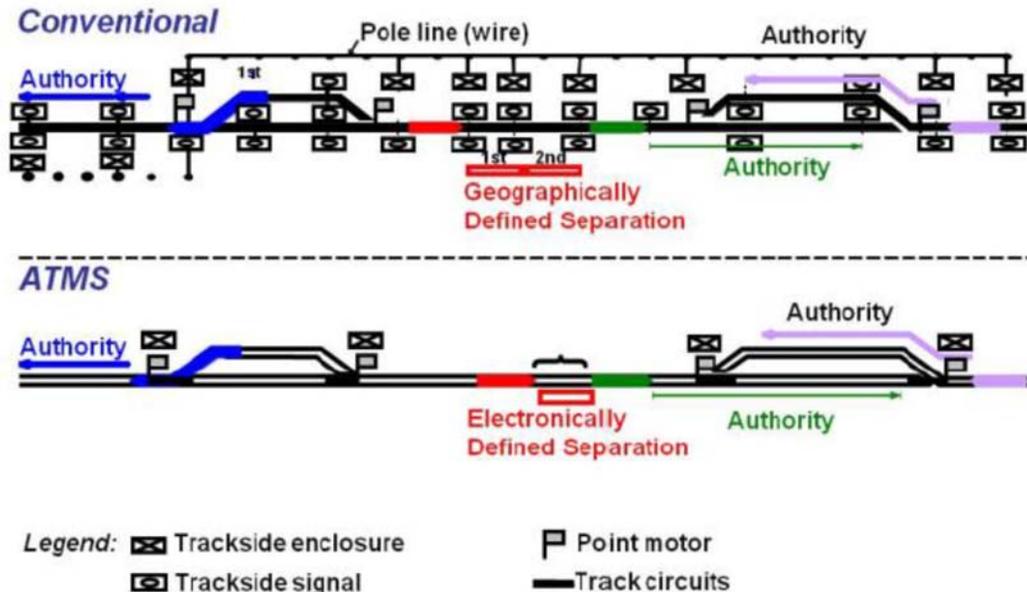
The October 2013 consultation paper considered a number of factors which would contribute to an increase in system throughput. These factors included axle loads and train speeds. However, the modelling has not been undertaken using a combination of feasible factors. In addition to the 35 TAL not representing a feasible option, Aurizon agrees with ARTC that increasing train speeds to 100 km/hr would place excessive dynamic forces on the rail infrastructure. At a less extreme level, a combination of 32 TAL with 80 km/hr, which may favour shorter trains to maintain optimal headway separations, does not appear to have been considered or evaluated.

Of particular relevance is the implication of investment in Advanced Train Management System (ATMS) on the determination of the FIS. ARTC has not previously considered the direct capacity benefits of implementing ATMS as it was unlikely to meet the development timetable for T4. However, the 2013-2022 HVCN Corridor Strategy now notes that:

*With the deferral of the T4 project, ATMS is still likely to be a highly desirable initiative, however, in this environment it means that more of the commercial justification needs to come from the system performance benefits that are harder to quantify than direct cost savings.*

The implementation of ATMS is likely to have profound implications for the determination of the FIS. The reasons for this can be illustrated by way of train separation as shown in ARTC presentation materials on ATMS. The most significant development from ATMS is the move away from fixed signalling to dynamic headway separation which substantially increases the number of feasible train services that can be operated:

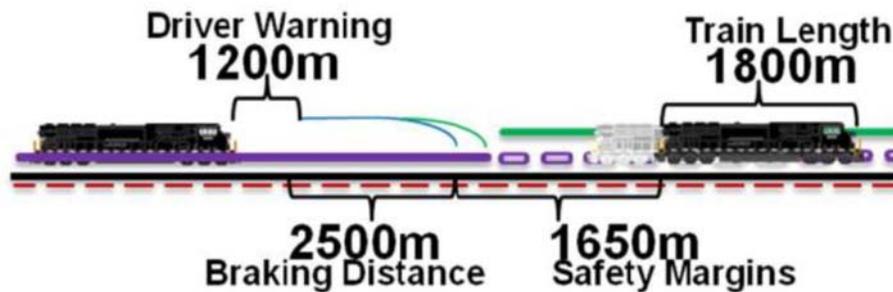
**Figure 3 Impact of ATMS on Train Separation**



The shift to dynamic headway separation places a greater emphasis on train braking performance which allows the separation distance between trains to be reduced as shown in Figure 4. As train payload increases then so may the train braking distance. Accordingly, capacity maximisation moves to system velocity and wagon density with the objective being to maximise the total number of loaded wagons being moved, and not maximising the train length. This analysis may very well favour shorter trains, at least with respect to the shorter cycle times and higher density in Zone 1.

Notwithstanding whether ATMS might favour short train lengths, it could increase the capacity of rail infrastructure to an extent that no additional below rail investment would be required to achieve 208 mpta or beyond. In this scenario, it is unclear what additional costs current train operations are imposing to necessitate price discrimination.

Figure 4 Train Separation Under ATMS is Related to Braking Performance



Given the potential material impacts of ATMS on the modelling outcomes for determining the FIS, the FIS modelling cannot possibly be considered complete. Aurizon understands that the current HVCCC modelling is unable to accommodate the change in network operation from ATMS. The inability of the HVCCC modelling to assess Coal Chain Capacity with ATMS, particularly given the expressed intentions to evaluate the implementation of ATMS, makes the model unreliable for the purpose of determining the FIS.

Aurizon contends that the FIS modelling has excluded relevant scenarios and therefore has not met the requirement that the modelling has considered all relevant operating models. Importantly consideration of the FIS should be deferred until the implementation of ATMS can be modelled.

#### **Aurizon Proposition 6**

The exclusion of the implementation of ATMS will produce highly erroneous capacity modelling results with current HVCCC modelling not be representative of such a material and predictable change in train and network operations.

Assessment of the economic costs associated with non-indicative train services should have regard to the significant latent rail network capacity which will be realised from ATMS.

### **4.5 FIS modelling does not measure efficiency**

The stated objective of the FIS is to provide incentives through price differentiation to promote the efficient utilisation of Coal Chain Capacity. In performing the modelling ARTC notes that:

*the analysis took no account of the requirement for, nor cost to provide, the infrastructure necessary to allow any particular train configuration. Nor did the analysis attempt to quantify the benefit that might accrue to Train Operators, load points or Terminal Operators through the use of different train sizes; the HVCCC modelling was solely based on the coal chain delivered tonnage. It is ARTC's view that evaluation of the infrastructure and operational costs to the various Coal Chain participants is beyond the scope of the FIS evaluation as contemplated in HVAU Section 4.18 and that to undertake such work would require very substantial time and resources.*

Aurizon does not agree with ARTC's conclusion that the consideration of the associated costs to various coal chain participants is beyond the scope of the FIS evaluation as contemplated in HVAU Section 4.18 which states:

*consult with the HVCCC, Access Holders and Operators on the characteristics of the indicative service that will deliver the optimum utilisation of Coal Chain Capacity, given certain System Assumptions, and whether gtkm is the appropriate pricing unit to encourage efficient consumption of Capacity;*

*submit to the ACCC proposed characteristics of the indicative service developed in consultation with the HVCCC which ARTC considers will deliver the optimum utilisation of Coal Chain Capacity, given certain System Assumptions and, having reasonable regard to submissions arising from the consultation at subsection.*

The requirement of s.4.18 refers to optimum utilisation of Coal Chain Capacity. As the assessment of Coal Chain Capacity includes future access rights and demand then what comprises 'optimum utilisation' must necessarily consider the respective costs of achieving that demand. It is incongruent to consider coal chain capacity and not simultaneously consider total coal chain costs.

In terms of addressing the ACCC's legal test as to whether the FIS is consistent with the objects clause evaluating the total supply chain costs of implementing the FIS would appear necessary to determine whether the variation to the HVAU would:

*promote the economically efficient operation of, use of and investment in the infrastructure by which services are provided, thereby promoting effective competition in upstream and downstream markets.*

The economically efficient investment in rail infrastructure should not be construed as being minimising investment in the facility. The proper application of the clause requires consideration of the relevant costs associated with adopting the FIS standard as it may very well demonstrate that the Coal Chain Capacity could be most efficiently expanded, given current endowments and sunk costs, through below rail investment while maintaining a heterogeneous mix of train configurations.

Of particular relevance to the costs are likely to be issues such as:

- the costs to coal producers of modifying load outs to accommodate longer train lengths and loading rates; and
- the estimated demurrage costs of various ship queue lengths (i.e. what makes 20 optimal relative to other costs which would be required to implement the FIS).

Importantly, the modelling approach employed by ARTC has been designed only to assess relative capacity consumption and not absolute capacity consumption.

Aurizon contends that the FIS modelling has not demonstrated that the proposed FIS is an efficient train and therefore has not met the requirement that the modelling has determined the most efficient means of meeting the reasonably foreseeable demand at the lowest feasible cost.

#### **Aurizon Proposition 7**

The FIS modelling has not met the First Test as to whether the proposed price differentiation represent an efficient price.

Importantly, it has not been demonstrated that the FIS will promote the most efficient expansion of coal chain capacity and therefore may not promote the most efficient use of and investment in rail infrastructure.

## **4.5 Measurement of Below Rail Capacity**

Aurizon considers that given the substantial limitations identified in the FIS modelling and lack of detailed consideration as to whether the FIS is efficient from the perspective of total cost to the supply chain then below rail pricing should be limited to differences in the consumption of below rail capacity.

The primary measure of below rail capacity is train paths. This is reflected in both:

- the relevant definition capacity entitlement in the Access Holder Agreement which means the Capacity granted to the Access Holder under this agreement in the form of Train Paths and Path Usages, or a certain number of Train Paths and Path Usages to be used in a certain period; and
- table 11 of the 2013-2022 Hunter Valley Coal Strategy which refers to saleable capacity in coal train numbers.

As the relative consumption of coal train paths is effected by differences from the section run times as per the applicable Hunter Valley standard working timetable where a coal train achieves these requirements it will only consume one train path. That is, where different train services use a similar train path there is no below rail capacity consumption differential to justify price discrimination.

### Aurizon Proposition 8

Price differentiation should be limited to consumption of below rail capacity. This requires a uniform tariff for all coal train services which conform to the nominated section run times.

## 4.6 The FIS Modelling does not pass the First Test.

This section evaluates Aurizon's assessment of whether FIS modelling passes the first test as summarised in the following table:

The First Test	
ARTC has, through detailed modelling, correctly and accurately identified the most efficient train configuration that provides the lowest feasible cost to meet the reasonably foreseeable demand having regard to the all relevant operating models and their respective cost structure of all elements of the supply chain.	
Sub-test	Conclusion
1. the modelling has correctly and accurately modelled the efficient train configuration	 Not Satisfied
2. the assessment period represents the reasonably foreseeable demand	 Satisfied but not a stable result
3. the modelling has considered all relevant operating models	 Not Satisfied
4. in determining the most efficient means of meeting the reasonably foreseeable demand the efficient train provides the lowest feasible cost of meeting that demand	 Not Satisfied

## 5. Efficiency of the Final Indicative Access Charge (the Second Test)

The role of efficient pricing in infrastructure access is often a vexed question as typically the service provider is relying on access charges to achieve multiple and conflicting objectives. This is evident in the wide disparity of views expressed by stakeholders in response to the ARTC's consultation with stakeholders.

The most important role is ensuring price reflects the marginal costs attributable to its use of the service. This requirement is effectively satisfied by the \$/gtkm non-TOP charge. Second best pricing, which is the subject of the proposed variation, then seeks to allow the service provider to achieve revenue adequacy while simultaneously promoting competition and efficiency. In addition, efficient pricing should have a number of desirable features

- Prices, or at least the pricing structures and methodology should be reasonably stable over time;
- Prices should reflect the opportunity cost associated with expanding the facility to meet additional demand; and
- Prices should be reasonably predictable;

These characteristics are consistent with the Second Test for an efficient price as noted in section 2:

*ARTC has established a price schedule which provides an effective economic incentive for investment in, and utilisation of, the efficient train configuration and the level of price differentiation is commensurate with the opportunity or avoidable costs of that particular train service)*

The test is consistent with the submission document which states that:

*The intention is that the FIAC will create incentives for users to plan and invest in a way that promotes more efficient utilisation of Capacity and Coal Chain Capacity through the use of the FIS.*

By implementing the FIS and establishing differential pricing between different train configurations based on some measure of coal chain capacity, the allocation of common and sunk costs between users of the service should be broadly proportional to the relevant costs associated with the continuation of the service and not the costs incurred. Only through the consideration of forward looking costs will prices provide the appropriate incentives to influence the optimal consumer consumption decisions. Importantly, as noted in section 3, prices should promote the most efficient future investment decisions and not redistribute sunk costs.

Therefore in assessing whether the Second Test is satisfied Aurizon has had regard to whether:

- ARTC is commercially impacted by train length to substantiate price differentiation of train services with similar characteristics operating in the same market;
- Price differentiation is proportional to the costs that could be avoided if the FIS was implemented;
- Price differentiation is justified if operation of the FIS is not technically feasible and where the investment required to operate the service is in the control of the service provider;
- The objectives of promoting more efficient utilisation of Coal Chain Capacity could be resolved between supply chain participants without the guiding hand of regulatory intervention; and
- Price differentiation on the basis of the FIS is likely to lead to stable and predictable price outcomes to provide price certainty in support of long term investment decisions.

## 5.1 Commercial impact of train length has not been established

ARTC's submission states:

*For the development of the FIAC, ARTC has elected (in addition to Capacity and Coal Chain Capacity considerations) to have regard to factors **commercially impacting** on ARTC's business and, specifically, the consumption of ARTC's resources, focussed on maintenance impacts. In order to differentiate on these bases, ARTC must also have regard to other factors such as 'the particular characteristics of the relevant Service intended to utilise the Access Rights sought, which include axle load, speed, wheel diameter, **Train length**, origin and destination (including number and length of intermediate stops), departure and arrival times and days of the week'.*

Aurizon acknowledges that many of the factors identified by ARTC will commercially impact the service provider due to increased costs and risks. This is particularly relevant to the non-TOP price associated with increased maintenance arising from higher axle load and train speed.

However, ARTC has not identified a causal link between the below rail capacity entitlement and the TOP charge. As noted in section 3, ARTC has not demonstrated how it is commercially impacted by train length, particularly where the train service is able to operate within any relevant Network constraints (i.e. no additional investment is required to allow the nominated length train to operate, such as extending a passing loop).

### **Aurizon Proposition 9**

The proposed variation does not adequately demonstrate how ARTC is commercially impacted by train length within the existing network configuration.

## 5.2 Price Differentiation Reflects Average Costs and Not Incremental Costs

Aurizon interprets the overall intent of the FIS and the FIAC as providing appropriate price signals to promote the most efficient investment in rail infrastructure. That is, it is based on the concept that the reasonably foreseeable demand could be most efficiently be met by a particular train configuration which avoids additional below rail investment. This necessarily requires assessment of what the opportunity costs are associated with an operator's decision not to use the FIS. In other words what are the avoidable costs ARTC would need to incur to meet the demand for below rail services that are in addition to the below rail services available for the FIS.

The approach taken by ARTC in arriving at the FIAC(s) does not take this approach. The methodology used to derive the FIACs has been to establish the throughput differential (not capacity) on the assumption of homogeneity of the service and apply that relativity to recover the sunk costs reflected in the fixed allowable revenue, not the avoidable costs.

Therefore, the approach employed by ARTC cannot be representative of an efficient price as it does not reflect avoidable costs. Aurizon is not in a position, nor does it possess the detailed modelling and cost information that is necessary to determine whether the proposed level of price differentiation reflects the forward looking economic costs likely to be attributable to different services. Similarly, ARTC does not identify what the network configuration requirements would be in order for the different train configurations to achieve 208 mtpa. In part, this is attributable to the modelling not being able to actually achieve the nominated reasonably foreseeable demand.

Aurizon expects that an efficient price would therefore be commensurate with the below rail costs associated with alleviating the relevant constraint and should be determined by assessing the comparative incremental below rail costs which might be required to deliver a 208 mtpa coal chain throughput assuming a:

- a greenfield assumption of 9408 tonne payload trains
- a greenfield assumption of 8036 tonne payload trains; and

- a brownfield assumption of current fleet mix and additional demand being met by either 9408 tonne or alternatively 8036 tonne trains

#### **Aurizon Proposition 10**

Price differentiation should be limited to the extent of forward looking avoidable costs associated with the continued operation of a particular train configuration.

The price differentiation necessary to reflect comparative differences in incremental below rail expansion cost has not been determined.

### **5.3 ARTC's commercial objectives for development of the Gunnedah Basin are unclear**

The FIAC for Pricing Zone 3 is constrained to an 82 wagon train with a maximum train length of 1330 metres. This service characteristic is similar to Indicative Service 2 in Pricing Zone 1 which has a higher access charge than the comparative Indicative Service 1 (96 wagon trains). As a consequence, ARTC's proposal price differentiates access to Zone 1 for services originating in Zone 3, even though it is the rail infrastructure that constrains Zone 3 services to the shorter length.

This outcome seems incompatible with the overarching intent to incentivise longer trains. Clearly the incentive is blunted where the option of not actually using the longer service is unavailable. The practical effect is to impose higher shared and common costs on Gunnedah coal producers. These producers already have significantly greater transport costs due to the longer distance to port and higher rail operating costs associated with cycle time impacts of speed limit restrictions (60 km/hr versus 80 km/hr for the rest of the network).

As ARTC does not currently recover its economic costs of rail infrastructure in Pricing Zone 3, it would appear to be in ARTC's legitimate business interests to promote development of the Gunnedah Basin.

Should price differentiation be deemed necessary for producers in Pricing Zone 3 consideration should be given to any potential benefits other users of Pricing Zone 1 obtain from the addition of these volumes. For example, would the weighted average mine life for Pricing Zone 1 be lower without those volumes and therefore other users obtain a direct benefit of lower access charges through lower depreciation expense?

#### **Aurizon Proposition 11**

Price differentiation should not be permissible between train service where the cause of the difference is attributable to a below rail infrastructure constraint.

### **5.4 Price differentiation on sunk costs represents impactor pays**

Proposition 1 of this submission recommended that price differentiation for coal chain capacity should not apply to existing contracts which were executed through a competitive market based process. Alternating the relative financial performance of these contracts by price differentiating on the basis of the FIS constitutes an impactor pays pricing model. Importantly, it impacts on those parties who may have made materially different decisions had the consequences of impactor pays pricing been known before making those decisions.

Given the potential significant costs associated with modifying loadouts and train configurations (assuming that the scale of differentiation makes that commercially viable) then an alternate perspective would be to consider the incentives from a benefactor pays approach.

To the extent that future access seekers, or assuming the costs are socialised across the system, existing users obtain the benefit of lower access charges or costs than those beneficiaries should be willing to compensate those parties with sunk contracts in order to avoid the presumably higher costs associated with expanding the rail infrastructure. This would most likely provide a much stronger incentive than the proposed price differentiation and would allow complete evaluation of relevant investment trade-offs within the coal chain. This benefactor pays model is aligned with the decision making process of a vertically integrated firm to which the regulation is seeking to replicate.

This is not to say that, to the extent the deficiencies identified in the FIS modelling are addressed and conclude that the efficient train has a payload of 9400, price differentiation should not occur for future access rights. However, it does address the problem of whether the incentives would achieve the desired or intended effect.

#### **Aurizon Proposition 12**

Price differentiation should reflect a benefactor pay model given other users of the Hunter Valley Coal Network obtain a benefit through reduced investment in rail infrastructure and are incentivised to compensate users of the network that incur additional unforeseen costs in order to reduce or forgo that investment.

### **5.5 Prices under the FIS and FIAC model are unpredictable**

The methodology used to obtain the non-TOP charge is reasonably well documented to allow an operator to understand how a variation from any of the indicative services would affect the access charge.

This is not the case with the TOP charge as it has been derived from a complex, black box, modelling exercise which has not been duplicated by ARTC to inform this proposal. As a consequence, an Access Seeker is not able to determine or predict what the likely access charge would be for variations from the indicative service.

By way of example, assume a rail operator wishes to operate a service with a train length somewhere in between 82 and 96 wagons. There is no formula for deriving the relevant capacity adjustment factor as it would need to be determined by running the same model and ensuring all the same model assumptions were replicated.

When determining the capacity multiplier associated with the Aurizon Network capacity charges in the Central Queensland Coal Network the Queensland Competition Authority expressed concern that the use of dynamic modelling to establish charges<sup>4</sup>:

*'was not adequately transparent as an access seeker would be heavily reliant on QR to carry out the path consumption calculations using specialised computer-based simulation and optimisation software, such as QR's custom-modified Planimate simulation tool'*

The problems with this approach are exemplified where time has elapsed from the initial modelling to the revised modelling as the model itself is unlikely to remain static over time. This would therefore require ARTC to be continually reviewing and recalibrating the model as circumstances in the supply chain change.

Similarly the FIS modelling results are unstable with respect to supply chain operating assumptions. Presumably it is anticipated that FIS modelling would also need to be periodically reviewed where supply chain operating assumptions are materially changed.

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<sup>4</sup> Queensland Competition Authority (2002) Rail Arbitration Guideline No. 1: Incremental Capacity Consumption Charge, November, p.7

### Aurizon Proposition 13

The FIS modelling is neither predictable, transparent nor stable over time and should not be used to establish differential pricing.

THE FIAC will not promote efficient investment where there is uncertainty as to how the level and relativity of prices may change over time and where the relative capacity impacts need to be periodically reviewed for changes in supply chain assumptions.

## 5.6 The FIS Modelling does not pass the Second Test.

The previous sections have articulated Aurizon's assessment of whether the FIS modelling passes the Second Test. This section summarises that assessment in the following table:

The Second Test	
Sub-test	Conclusion
1. ARTC is commercially impacted by train length to substantiate price differentiation of train services with similar characteristics operating in the same market	✘ Not Satisfied
2. Price differentiation is proportional to the costs that could be avoided if the FIS was implemented	✘ Not assessed
3. Price differentiation is justified where operation of the FIS is not technically feasible where the investment required to operate the service is in the control of the service provider	✘ Not Satisfied
4. The objectives of promoting more efficient utilisation of Coal Chain Capacity could be resolved between supply chain participants without the guiding hand of regulatory intervention	✘ Not assessed
5. Price differentiation on the basis of the FIS is likely to lead to stable and predictable price outcomes to provide price certainty in support of long term investment decisions	✘ Not Satisfied

## 6. The FIAC will not promote operation of the FIS (the Third Test)

It is questionable as to whether the purported efficiency benefits might actually be realised. The efficacy of price as an incentive mechanism is highly dependent on how the market participants would respond to that price signal. Importantly, whether price alters a consumer's behaviour will be influenced by the transaction costs associated with a given level of sunk costs.

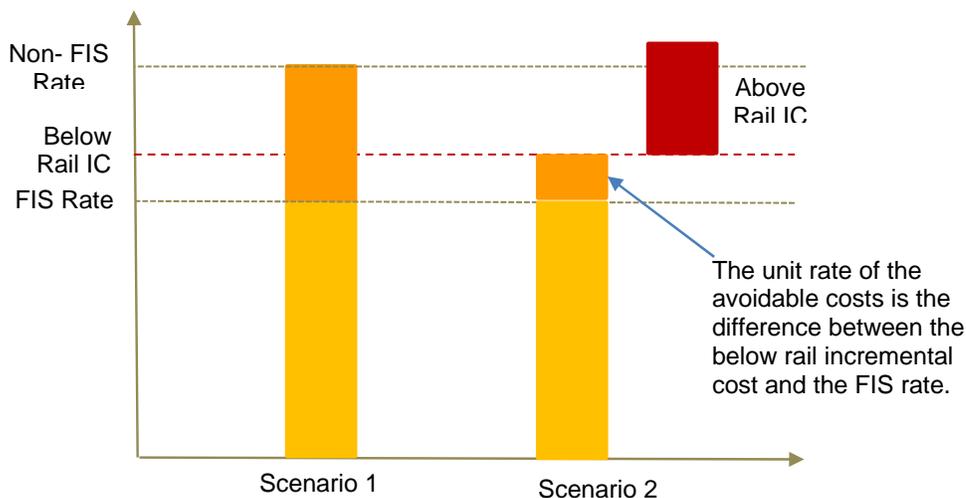
At its simplest level the change would only occur where the costs associated with moving from a non-indicative service to the FIS are substantially less than the additional below rail costs given the investments those parties have already made in response to earlier price signals.

Given the significant barriers to entry in the above rail market associated with the capital costs of rollingstock, the market will not be as elastic as might be expected in energy or water markets where consumers are able to alter their consumption decisions at little or no cost. Accordingly, the presence of sunk costs means that the regulator's primary focus should be on providing effective price signals to guide future investment decisions. Material changes to price structures after investments have occurred and long term contracts have been entered into is commensurate with the problem of economic hold-up. To the extent that the proposed price does not achieve its objectives then it simply represents a wealth transfer from one participant in the supply chain to another if the expected below rail investment cannot be avoided to realise the cost efficiencies.

It is also likely that the price differential necessary to achieve the objectives is substantially in excess of the costs imposed by that train service. In this circumstance, the price would be an inefficient price as it would involve a lower cost to expand the rail infrastructure. Assuming that an efficient price differential cannot exceed the unit rate of the avoidable costs then the incentive problem can be illustrated by the way of the following hypothetical scenarios where:

- Scenario 1. Differentiation exceeds opportunity cost; and
- Scenario 2. Differentiation does not exceed change in operators costs

Figure 5 Indicative Presentation of Pricing Impacts



In Scenario 1 the price being applied to the non-FIS rate is materially greater than the opportunity cost (the unit rate of avoidable cost) of providing additional train services as represented by the below rail incremental costs (IC). The level of price differentiation therefore represents a penalty charge as it does not reflect the economic costs associated with the continued operation of that train configuration and promotes inefficient expansion of the coal chain capacity.

In Scenario 2 the above rail incremental cost (or alternatively mine load out costs) associated with adopting the efficient train configuration materially exceeds the difference between below rail incremental costs and the FIS rate. As a consequence, the access holder has no incentive to adopt the efficient train configuration and Coal Chain Capacity can be more efficiently expanded through below rail investment. In other words, adopting the efficient train configuration will promote inefficient investment elsewhere in the coal chain.

In this respect, Aurizon presented the following perspective to ARTC in its response to their October 2013 consultation paper:

*ARTC's proposal does not appropriately acknowledge the long economic life of rollingstock investments nor does it adequately consider the rollingstock assets currently in service. In nominating FIS configurations, ARTC effectively reallocates its cost recovery across users depending on their prior investment decisions. Furthermore, as the prevailing technological and system constraints at various points in the future evolve, ARTC will inevitably be required to revise earlier nominated FIS configurations, despite the long term investment decisions taken by operators in the interim. Such revisions will likely only redistribute costs across the HVCC rather than reduce costs for all stakeholders and improve efficiency.*

The problem can be presented by way of a case study associated with a mine loadout upgrade:

- In order to conform to the FIS a mine which produces 2.5 mpta is required to increase the length of its balloon loop and increase its recharge rate. This is assumed to cost \$3 million plus an addition loss of 10 train services due to commission disruptions equivalent to forgoing revenue of \$6 - \$7 million. Note this also ignores any consequential take or pay payments the producer may also be liable.
- Assuming the mine has less than 10 years of marketable reserves and a hurdle rate of at least 15% then the upgrade would come at an annualised cost of \$.70 cents a tonne. This hypothetical amount may materially exceed the level of price differentiation between the FIS and the non-indicative train service.

The incentives are also blunted through the economic realities of competition in the above rail market as shown by the following case study:

- A potential third party entrant maintains surplus standard gauge rollingstock which would comply with any relevant rollingstock interface standards. However, due to the age and standard of the locomotives and wagons it is only able to offer a service with a train length and payload of 7500 tonnes.
- In order to be able to compete in the market against operators who offer the FIS then the entrant simply needs to ensure its above rail prices provide a total haulage cost (haulage rate and below rail non-indicative rate) below the FIS equivalent.
- Assuming the operator's variable costs represent only 25% of investing and providing the FIS then the operator only needs to make some contribution to its sunk, and potentially written down, rollingstock to effectively compete in the market.

These hypothetical examples illustrate the inherent flaws in assuming that the anticipated level of price differentiation associated with alleviating a capacity bottleneck in a complex operating, competitive and contracting environment will provide incentives to operate the FIS.

#### **Aurizon Proposition 14**

Aurizon contends that the FIAC will not incentivise utilisation of the FIS and other commercial drivers have and will continue to improve supply chain productivity

## 7. Aurizon's response to Consultation Paper Questions for Comment

This section provides Aurizon's response to the specific issues and questions set out in the ACCC's Consultation Paper. The responses consolidate the views outlined in the previous sections and follow the order in which they appear in the Consultation Paper. Due to overlap in the questions posed in the Consultation Paper, many of the responses below include repetition.

### **1. Has ARTC undertaken effective consultation and modelling (with the assistance from the HVCCC) in the development of the proposed Final Indicative Service characteristics? Has ARTC considered feedback provided by stakeholders during the consultation? Do stakeholders have any examples of where ARTC has/ has not considered feedback?**

ARTC introduced the concept of the Stakeholder Reference Group (SRG) and development of the FIS and Appropriate Pricing Unit (APU) in a letter to industry dated 21 June 2012. The letter outlined the methodology for the process which was to include regular reference by ARTC to the SRG to progress information and consultation, with ARTC's expectation that the SRG would act in an advisory capacity.

In the period between the issuing of that letter and ARTC's release of their consultation paper on the FIS and APU in October 2013, a total of four meetings were conducted by ARTC with the SRG. Throughout the process, Aurizon attempted to formally engage with ARTC to determine the status of the project and provide advice and feedback on the information released by ARTC to the SRG.

Below is a summary of formal consultation process in the development of the FIS and APU. As the table demonstrates, there was a lack of continuity with formal communication and release of information by ARTC. Only two modelling reports, with analysis, were released to the SRG for consideration and feedback with significant time gaps in between each release. Further, the modelling and analysis on which ARTC has based their recommendation for the FIS and APU was only released to industry two months prior to ARTC's release of their consultation papers. The final SRG meeting was held after the release of ARTC's consultation papers to industry on 25 October 2013, with ARTC's presentation at the meeting only being circulated to industry on 18 November 2013, four days prior to the due date for the submission of papers by industry, and effectively one month after the release of ARTC's papers.

Overall, the consultation and modelling has not been effective. The lack of consistency and regularity in SRG meetings or information flowing from ARTC and the HVCCC during the process has not allowed for any meaningful advice to be provided and not allowed stakeholders the opportunity to provide ongoing and relevant feedback. On the occasions where Aurizon attempted to engage ARTC and the HVCCC in a formal manner (see letter of 25 January 2013), ARTC was unwilling to provide formal or written feedback.

A further example relates to the approach taken with respect to ATMS in the modelling process. It is evident from the initial SRG meetings that stakeholders were eager to see the impacts this would potentially have on system capacity. This issue was raised at all subsequent SRG meetings with the final note on the topic being captured in the minutes of the final meeting suggesting that it could not be modelled. No further explanation was provided in that forum as to the reasons why this was the case.

Event Date	Document	Information Received	Comment
21.06.2012	Initial ARTC letter	21.06.2012	Letter outlining the development of the final indicative service and pricing unit process; confirming stakeholders; seeking nominations for membership of the SRG.
12.07.2012	SRG Meeting 1 Minutes	22.11.2012	Minutes of initial SRG meeting received from ARTC outlining: <ul style="list-style-type: none"> <li>• Objectives</li> <li>• Framework/Constraints noting no consensus was reached but outlining further matters for consideration including current and future cargo sizes and future looking perspective, eg ATMS, queues, timeframe</li> <li>• Model development including request for scope of the HVCCC modelling capabilities</li> <li>• Future steps noting need for the HVCCC to understand model requirements and capabilities, assess progress of IIS with the ACCC</li> </ul>
12.07.2012	SRG Meeting 1 ARTC Presentation	22.11.2012	Presentation from initial SRG meeting received outlining background, reviewing the SRG, the agenda (detailed above), issues, and section 4.18 of the HVAU.
05.12.2012	SRG Meeting 2 Minutes	21.12.2012	Detailed discussion notes released regarding matters raised by SRG representatives, particularly as they related to the scenarios to be modelled and the impacts various factors could have on the system and the decisions of stakeholders, including capital costs and infrastructure constraints. HVCCC indicated that feedback was welcome with respect to the modelling process.  Next meeting was noted to be scheduled for late January/early February 2013.
05.12.2012	SRG Meeting 2 ARTC presentation	21.12.2012	Agenda noted and slides included detailing Ulan and Gunnedah loop lengths.
05.12.2012	SRG Meeting 2 HVCCC presentation	21.12.2012	HVCCC 10 year capacity plan presentation (dated 20 August 2012) included with material circulated to SRG following meeting. Presentation detailed modelling assumptions, preliminary FIS modelling results, general comments, load-point supplement and vessel queue adjusted graphs.
08.01.2013	ARTC-Aurizon meeting Aurizon letter to ARTC	25.01.2013	Aurizon met with ARTC (Martin Jones) to discuss the modelling results and information released to date with respect to the development of the FIS. Aurizon provided feedback to ARTC by letter dated 25 January 2013, addressing concerns with the definition and parameters of the FIS and technical issues surrounding the uncertainty with the inputs used for the modelling, among other things.  A written response to the matters raised in Aurizon's letter was repeatedly requested from ARTC. However, no written response was provided. In the alternative, a meeting to discuss the feedback was proposed.

21.08.2013	SRG Meeting 3 ARTC presentation	30.08.2013	SRG meeting was held on 21 August 2013. No meeting minutes were published for this meeting. However, the email that accompanied the presentation noted that ARTC was to consider a post ATMS environment as an action item. It was also noted that another meeting was to be scheduled shortly.  ARTC presentation addressed the impacts of increased speeds and TAL on the track.
21.08.2013	SRG Meeting 3 HVCCC presentation	30.08.2013	HVCCC presented assumptions, results and comments with respect to its secondary analysis. Presentation dated 21 August 2013.  The assumptions differed dramatically from the initial presentation. Limited feedback and engagement was sought, detailed or provided with respect to the changing parameters and assumptions used for this modelling and analysis.
28.10.2013	SRG Meeting 4 Minutes	18.11.2013	Minutes and presentations were received four days before the due date of the submission to ARTC's consultation papers.  Minutes lacked detail. In response to the question raised at the last SRG meeting to investigate ATMS, minutes indicate that it was not possible to model ATMS. No further analysis on the issue was documented.
28.10.2013	SRG Meeting 4 ARTC presentation	18.11.2013	High level presentation provided outlining the modelling considerations, graphs from the consultation paper, pricing background and principles applied in its development and modelled scenarios.

**2. Are the proposed Final Indicative Service characteristics determined by ARTC appropriate?**

Aurizon does not consider that the FIS characteristics that have been determined by ARTC are appropriate. As discussed in section 4.4 the modelling undertaken by ARTC excludes feasible scenarios and importantly does not model or consider the implications of the development of ATMS on:

- The likely efficient train configuration, or configurations, associated with a material change in train scheduling and separation; and
- Whether a capacity constraint attributable to train length would actually exist for the proposed foreseeable demand to warrant price differentiation.

The submission documents lodged by ARTC do not demonstrate how it would be commercially impacted by operators not using the FIS and therefore whether the level of price differentiation proposed is required to address the legitimate business interests of the service provider.

Also, the extent of price differentiation does not adequately recognise or protect the interests of parties who procured rights to use the service prior to the proposed variation.

**3. Will the proposed Final Indicative Service characteristics promote the economically efficient use of, and investment in, the Hunter Valley Coal Network and deliver the optimum utilisation of Coal Chain Capacity in the medium to long term?**

Aurizon does not consider the FIS is consistent with the objects clause of the Act. The analysis which has been undertaken does not consider the costs associated with implementing the FIS relative to the alternative costs which would need to be incurred by ARTC to meet the foreseeable demand. Therefore, it cannot be stated with any reasonable degree of certainty that the adoption of the FIS represents the most economically efficient use of, and investment in, the Hunter Valley Coal Network. It may very well be that with sunk investments made in a competitive market in response to the below rail price and efficiency signals at the time contracts and investment decisions were made, investment in the track infrastructure is the most efficient use of and investment in the Hunter Valley Coal Network.

The modelling approach employed by ARTC has been designed only to assess relative capacity consumption and not absolute capacity consumption. Accordingly, the results obtained will vary substantially for material changes in the nature of some train operations. As a result, the lack of precision in both the modelling and its lack of predictability of future capacity and price relativities does not provide reasonable certainty to make rollingstock investments which will most likely remain in service beyond the period of the nominated 208 mtpa immediately foreseeable demand. Aurizon contends that this lack of stability is not in the public interest as it does not provide a framework for supply chain participants to evaluate the long-run economics regarding investment across different elements of the supply chain.

**4. Are the proposed Final Indicative Service Characteristics likely to facilitate more efficient use of the Hunter Valley Coal Network than, for example, the Initial Indicative Service characteristics?**

Neither the FIS nor the IIS will promote efficiency in the Hunter Valley Coal Network- it will simply re-apportion wealth between users on the basis of sunk commitments to certain rollingstock configurations

As the FIS modelling has not considered the relevant costs to the supply chain, particularly the magnitude and timing of the investment required to loadouts to achieve the efficient train length then the question cannot be quantitatively addressed with any degree of certainty. However, the examples highlighted in section 5 clearly demonstrate circumstances where it will not.

The premise of the FIS also does not take into consideration the relative cost structures in the competitive rail market. In particular, if the difference between the total economic costs and marginal costs exceeds the extent of price differentiation, rail operators with sunk investments subject to a competitive market will simply absorb the difference and maintain a train service which does not conform to the FIS; this also allows the coal producer to avoid investment in load out modifications.

The modelling also does not reflect the current heterogeneity of train configurations and what the most efficient approach across all elements of the supply chain would be to meet the foreseeable demand. Notwithstanding, Aurizon considers the question is inconsistent with the problem seeking to be addressed. The ACCC refers to efficient use of the Hunter Valley Coal Network but the FIS is intended to represent efficient use of Coal Chain Capacity which may in fact require less efficient use of the rail infrastructure.

The prospect that the reasonably foreseeable demand can be most efficiently met through a single homogeneous train configuration is fundamentally flawed.

**5. Will the proposed Final Indicative Services deliver optimum whole of supply chain capacity in the medium to long term?**

As the modelling has only been considered up to 208 mtpa and not the economic life or contractual life of haulage agreements which would be responding to the FIS then it is difficult to see how this question can be answered. This is particularly the case if ATMS is implemented and the relevant constraint in the system becomes terminal performance and train length becomes irrelevant to throughput due to substantial latent rail capacity.

The FIS modelling has also not considered what the implications of train lengths exceeding parcel size would be given the stockpile to throughput ratio of Kooragang Island.

The fact that some rail operators and coal producers are testing and assessing longer train services than FIS suggests the:

- FIS cannot possibly be the most efficient train configuration if a longer train can be operated;
- Below rail access charge plays a limited role in promoting efficient investment; and
- Coal Chain Capacity will be optimised through a heterogeneous mix of train configurations having regard to the relevant constraints within the coal chain.

Accordingly, efficient below rail pricing is most likely going to be one which:

- Does not penalise rail operators for past investment decisions over the term of their contracts; and
- Reflects a unit of below rail capacity which allows rail operators to invest and compete in way which optimises the use of a train path for a given set of constraints as is the intention of the objects clause to promote efficient investment in rail infrastructure thereby promoting effective competition in upstream and downstream markets. As those constraints are alleviated over time then the competitive haulage market will seek to reconfigure and optimise its services over time.

**6. Do stakeholders have any further comments on the modelling used by ARTC (with the assistance of the HVCCC) in the Final Indicative Service development process?**

The modelling approach employed by ARTC identifies the relative capacities of different train configurations and reflects the unrealistic assumption of homogenous train services. The assumptions in the modelling also hold the number of train services for a given train configuration constant to assess the capacity relativities. This is potentially misleading as the model outputs do not yield what the maximum achievable throughput could be for a given train configuration. Aurizon anticipates that the maximum tonnage throughput for an 8036 payload train would be greater than that presented by the FIS modelling with different assumptions, such as 80 km/hr maximum speed (increased cycle time) and ATMS (increased network density).

Of particular concern is that the FIS modelling is unable to demonstrate that any train configuration is able to achieve 208 mtpa. Ideally, the FIS modelling should demonstrate the differential in the optimised incremental costs associated with achieving 208 mtpa under each of the train configurations in order to robustly evaluate the actual costs associated with those services. The importance of this is evident in the pricing principles which require that access prices structures should allow multi-part pricing and price discrimination when it aids efficiency.

Aurizon considers that where price differentiation is permissible then it should be commensurate with the differential in the avoidable costs (and therefore the opportunity costs) associated with meeting the reasonably foreseeable demand between operation of the two services for which prices are being differentiated.

Aurizon does not consider the approach at the FIS is sufficiently transparent or predictable to allow an access seeker to understand or derive an access charge for a train service which does not conform to the FIS. This is due to the inherent blackbox approach to determining the extent of the capacity consumption. For example, under the FIS modelling a 9800 tonne payload train would be subject to the same access charge as a 9400 tonne payload train, even though on the sole basis of the efficiency measurement, train payload, it would represent a more efficient train.

As the modelling has not considered costs, the approach to price differentiation from the FIS will not promote the utilisation of the efficient train configuration in parts of the Hunter Valley Coal Network where it is likely to have the most significant economic benefit. For example, it is unclear from the FIS and FIAC what the access charge would be for various train lengths up to 96 wagons on the Ulan line and how that charge would be derived. Accordingly, the FIS modelling will not promote the most efficient investment.

## **7. Are ARTC's proposed Indicative Access Charges for the Final Indicative Service appropriate?**

Aurizon does not consider price discrimination for train services which were contracted prior to the proposed variation adequately addresses the interests of those parties who acquired haulage rights for train services which were optimised on the basis of the gross to net tonne incentives prevailing in access charges at the time those agreements were entered into. Accordingly, price differentiation should only apply to those services at the expiry of the relevant haulage rights and for services which commence after approval of the proposed variation.

Aurizon notes that the FIS for Zone 3 is identical to that for indicative service 2 for Zone 1. However, due to rail infrastructure constraints in Zone 3 which limit the ability to operate indicative service 1, coal producers in Pricing Zone 3 would be price differentiated on the basis of a parameter which is directly outside of their control. Aurizon considers it may not be appropriate to differentiate between indicative service 1 and indicative service 2 within Zone 1 where it is not technically feasible to operate the lower priced service.

Capacity is defined by the ability of the Network to operate services. Aurizon considers that there should be no adjustment factor applied to train services which achieve the nominated section run times as they do not consume additional Capacity<sup>5</sup>. In this respect, Aurizon does not believe that ARTC has arrived at the correct price relativity between indicative services 1 and 2 in Pricing Zone 1.

ARTC has provided a summary of the operation of how price differentiation would be applied but has not provided detailed workings for indicative service 2. Nor does the submission communicate or detail what the relative prices for a range of currently operating non-indicative services would be. It is difficult to envisage how the FIAC would promote efficiency without an understanding of the relative prices and how they have been determined.

Aurizon does not believe the proposed indicative access charges are appropriate as the relative price differential between services may materially exceed the avoidable or opportunity costs attributable to the non-indicative service or between the indicative services.

## **8. Are the factors ARTC has had regard to in determining the Indicative Access Charges for the Final Indicative Service appropriate?**

Aurizon notes that efficient infrastructure pricing is generally constrained to the following objectives:

- Price reflects the marginal costs;
- Prices allow for recovery of total costs in a non-discriminatory way (subject to some form of willingness to pay if necessary to increase demand and revenue) ; and
- Bottleneck (or congestion) pricing typically reflects the cost of alleviating the bottleneck.

ARTC has not demonstrated how the factors, or other objectives relate to these, to allow an appraisal of the pricing objectives. Presumably, the fixed maintenance costs reflect the proportion of fixed maintenance costs to the total costs not recovered by the non-ToP charge.

Aurizon does not support inclusion of any operating costs within the capacity factors. ARTC has not demonstrated how its operating costs are directly impacted by the FIS and therefore there is no apparent aid to efficiency from price differentiating recovery of these costs.

While s.4.18 of the HVAU requires ARTC to have regard to Coal Chain Capacity, its inclusion as a factor would appear relevant to the pricing structure. However, Aurizon considers that given the complex nature of contracts and sunk costs across the supply chain efficient below rail pricing should be constrained to the marginal costs and the relative consumption of below rail capacity in order to promote competition in upstream and downstream markets. Should a more efficient expansion solution be identified as an alternative to investment in below rail infrastructure to increase coal chain throughput then the parties have sufficient incentives to achieve that outcome. No market failure has been adequately demonstrated in unregulated competitive markets to warrant regulatory intervention in those economic decisions.

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<sup>5</sup> As measured by the use of train paths as defined in the service entitlements

**9. Are the weightings applied by ARTC to the key differentiation factors in each pricing zone appropriate?**

Until such time as the issues in the FIS modelling have been adequately addressed price differentiation for access charges for train services above 82 wagons should be limited to consumption of below rail capacity as measured by train paths. This would require the weightings for the Capacity factor to be 80% and the weighting for the Coal Chain Capacity factor should be 0%. This should be consistently applied across all Pricing Zones.

Nevertheless, Aurizon has assessed what the expected price should be based on the proposed weightings. In arriving at the FIAC, ARTC has applied the factors listed in the Table 12 of ARTC's submission. That table applies an equal proportion to both Coal Chain Capacity and Capacity. Assuming that Indicative Service 1 represents the base rate then the rate for Indicative Service 2 can be derived from the various tables in the ARTC submission as follows:

**Table 3 Derivation of Zone 1 Indicative Service 2 Access Charge**

Pricing Zone 1	Proportion	Component Price	Adjustment Factor	Adjusted Component Price
<b>Indicative Service 1</b>		<b>\$9.487</b>		
Maintenance	20%	\$1.90	1.0	\$1.90
Coal Chain Capacity	40%	\$3.79	1.11 (191.2/172.1)	\$4.21
Capacity	40%	\$3.79	1.0	\$3.79
<b>Indicative Service 2</b>				<b>\$9.90</b>

As Capacity is defined as the capability of the Network for Services, and as discussed in section 5.2 there is no differential between Indicative Services 1 and 2 in terms of train paths consumed then the relevant adjustment factor for Capacity must be 1.00. It is unclear to Aurizon how, ARTC has arrived at a TOP rate for Indicative Service 2 of \$10.603 in table 13 of its submission as it has not included details of its derivation.

**10. Will ARTC's proposed Indicative Access Charges for the Final Indicative Service provide appropriate incentives to promote efficient use of, and investment in, the Hunter Valley coal network?**

Aurizon does not believe redistribution of existing below rail costs between sunk investments in train configurations under a pricing framework which sought to optimise gross to net ratio will necessarily provide incentives to promote efficient use of, investment in, the Hunter Valley coal network and that either:

- Investment in ATMS will be made and substantially increase below rail capacity above the reasonably foreseeable demand (and therefore incentives of the FIAC become irrelevant); or
- Operators and coal producers will not respond to the perceived incentive and no material efficiency benefit (as measured by avoidable below rail costs) is realised.

It is also important to note that the effectiveness of the incentive should be segregated from other market factors which promote similar outcomes. In this regard, Aurizon notes that substantial improvements have been made to train payload and rail productivity without below rail price differentiation. Accordingly, it is unclear whether the proposed price differentiation would realise the anticipated efficiencies.

**11. Do stakeholders have any further comments about the appropriateness of gtkm as a pricing unit?**

Aurizon considers that gtkm has inherent advantages over other distance based metrics such as train kilometres and net tonne kilometres. Importantly, it provides strong incentives for rail innovations as lower tare weights with higher density coals allow for increased payload for a given TAL constraint. This is consistent with the objective of increasing efficiency.

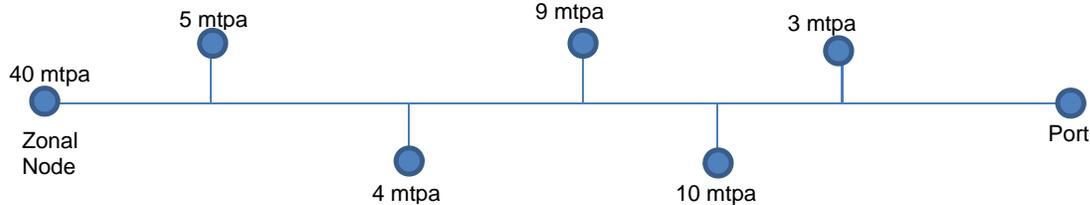
ARTC's submission suggests that the ultimate choice of metric is irrelevant as the price differentiation is based on a measure of Coal Chain Capacity and that the gtkm pricing is simply the conversion of that measure into a billing unit. Aurizon agrees with this summary but notes that this reinforces concerns regarding the repeatability and transparency of the FIS modelling.

The optimal pricing framework is one that represents a unit of below rail capacity and is reasonably stable and predictable over time to allow rail operators to both invest and aggressively compete in the rail haulage market.

By pricing on the basis of an observable and measurable unit of capacity then the incentive objectives could also be achieved without the complexity of needing to assess the relative consumption of Coal Chain Capacity. The approach would also be more robust and provide more stable pricing outcomes over time even as the conceptual and aspirational FIS changes.

Aurizon notes that ARTC's submission does not assess train path as a pricing unit with any degree of economic rigour. The assessment of train paths is dismissed in favour of train kilometres on the basis that it recognises train journey length. ARTC do not provide details of the distribution of train kilometres for the use of Pricing Zone 1 to demonstrate why train kilometres would be favoured over train paths. To the extent that the majority of train traffics operating in Zone 1 effectively utilise the same common infrastructure then the train path would appear an appropriate charging metric for that Zone. This can be shown in the following stylised example where applying a train path charge to the traffic distribution in Figure 6 would not be proportional to the infrastructure used.

**Figure 6 Traffic Distribution is Relatively Uniform – Favours Distance Based Pricing**



In contrast, the traffic distribution in Figure 7 uses an equivalent amount of rail infrastructure. It may also be appropriate for the closer mine if those services preclude the operation of an additional service from the node (without the impact of infrastructure constraints between that mine and the node).

**Figure 7 Traffic Distribution is Concentrated at Node – Favours Path Based Pricing**



Aurizon notes that provided the train path charge does not exceed 50% of the TOP component, then the pricing framework would retain the distance based component. In addition, the adoption of a train path charge could be implemented in conjunction with the gtkm rate in the proportions identified by ARTC in table 12 of the submission document as shown in the following table:

**Table 4 Alternate Long Term Price Structure to FIS and FIAC**

Pricing Zone 1	Non-TOP	TOP Component		
	Variable Costs	Maintenance	Capacity	Coal Chain Capacity
<b>Pricing metric</b>	Gtkm	Gtkm	Gtkm	Train Path
<b>Allocation</b>	100%	20%	40%	40%

The implementation of a train path charge for Zone 1 would create winners and losers with the materiality depending on whether mine distribution is closer to figure 4 than it is to figure 5. Accordingly, the implementation of a train path charge should only apply to train services contracted after the commencement date of the proposed variation.

An alternative transition arrangement, where the change could apply to all train services from the commencement date could have the train path charge allocation commence at 5% and progressively increase in 5% increments per annum. This would provide a longer term signal to producers and operators as to how the price path will adjust over time and allow for the progressive expiry of haulage agreements. This would also provide incentives to rail operators and producers to pursue train lengths above 96 wagons.

Aurizon acknowledges ARTC's concerns regarding complexity associated with changes to the structure of access charges. However, this is a one off change which must be weighed up against the considerable complexity associated with not just the current FIS modelling but the inevitable ongoing debate and monitoring regarding the continued appropriateness of the FIS. For billing purposes, the access charge can remain expressed as \$/gtkm rate, but the rate would be specific to an origin and destination having regard the train path charge and the gtkm relevant to the service.

**12. Are the drafting changes in the Proposed Variation appropriate?**

The drafting changes appear appropriate, particularly the retention of section 4.19, given the prospect of approval of the variation occurring prior to the end of the Regulatory Transition Period.

However, Aurizon notes that drafting changes would be required to accommodate any necessary grandfathering arrangements.

**13. Is the drafting of the Proposed Variation sufficiently clear and transparent?**

Aurizon is of the view that the various interactions of Interim, Initial, Indicative and Final Indicative Services is not sufficiently clear.

The drafting in section 4.17(a) makes reference to the Initial Services applying up to 30 June 2016. However, the drafting of the FIS in section indicates that the FIAC and FIS will commence in the year following publication of the relevant train characteristics.

In this respect ARTC notes that:

*Initial Services that have the characteristics set out in section 4.17(d) (previously Initial Indicative Services) to apply during an extended Initial Period ending on 30 June 2016. Initial Services have been retained as a transitional arrangement ahead of the take-up of the Indicative Services. Interim Services are no longer Indicative Services for the purpose of section 4.15 of the HVAU as they no longer represent the most efficient consumption of coal chain capacity. To recognise the existing predominant utilisation of Initial Services on the Network, Charges will continue to be determined under section 4.15 and reviewed in accordance with section 4.20 of the HVAU.*

While not opposed to transitional arrangements, Aurizon considers the position has a discriminatory impact. As drafted and read, ARTC appears to be transitioning services which are not consistent with efficient consumption of Coal Chain Capacity based solely on them being predominant while other non-indicative services will not be transitioned. It is also unclear what the relativity of price differentiation would be between Initial, Non-Indicative and Final Indicative Services.