Review of the Western Australian Rail Access Code

A PRELIMINARY REPORT PREPARED FOR CBH

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1 Introduction

1.1 Request

Frontier Economics (Frontier) has been engaged by Co-operative Bulk Handling Limited (CBH) to analyse and critically review the Western Australian (WA) rail access regime, and particularly the operation of the Railways (Access) Code 2000 (WA) (the Code). The Code is currently under review by the Economic Regulation Authority of Western Australia (ERA).

Our review focuses on the access pricing framework set out in the Code. In particular, CBH has asked us to consider the following in formulating our report:

- Whether the methodology for determining an access price in the Code provides the railway lease owner with too much freedom when setting access charges
- Whether there appears to be inconsistencies in the Code with respect to efficiency assumptions included in specified asset valuation methodologies and the inclusion of measures to take account of actual track performance
- Whether provisions in the Code associated with returns allowed by providers of regulated services are likely to lead to efficient prices, or whether they will enable providers of regulated services scope to earn monopoly profits
- The implications of investments made by CBH or other access seekers/users in rail infrastructure
- The implications of State and Federal rail funding investments
- Other matters that may be of relevance to the ERA review.

1.2 The Regime and Code

Western Australia's rail network access regime is established by the Railways (Access) Act 1998 (WA) (the Act), and the complementary Code.

The ERA, which administers the rail access regime, states that the main objective of the Act is to establish a rail access regime that encourages the efficient use of and investment in facilities within a contestable market for rail operations. The Act provides for the establishment of the Code as subsidiary legislation, providing more details as to how the Regime will work in practice.

The Code is currently undergoing a scheduled review under the terms of the Act. The ERA published an issues paper in October 2009 and published a draft report in November 2010.

1.2.1 Price floors and ceilings

The regime seeks to achieve its objective of encouraging the efficient use of and investment in facilities via the specification of price floors and ceilings, within which an access price can be negotiated between the access provider and access seeker.

The floor price test in clause 7 of Schedule 4 of the Code specifies that an operator who is provided with access must pay an amount not less than the incremental costs resulting from its operations on that route and use of that infrastructure.

The ceiling price test in clause 8 of Schedule 4 of the Code prescribes that an operator provided with access must pay an amount no more than the total costs attributed to that route and associated infrastructure. Importantly, Clause 2(4) of the Code specifies that Gross Replacement Value (GRV) is to be used to determine annual capital costs for the price ceiling test. GRV is the lowest current cost to replace existing assets with assets that:

a. have the capacity to provide the level of service that meets the actual and reasonably project demand; and

b. are, if appropriate, modern equivalent assets (MEAs).

Further guidelines to the railway owner are set out in Clause 13 of Schedule 4 of the Code. Section 46 of the Code requires a railway owner to submit to the ERA for approval the costing principles that will be applied when determining the floor and ceiling prices referred to in Schedule 4.

1.2.2 This review

In preparing this preliminary report, we have reviewed a number of documents pertinent to the WA rail access regime:

- The Railways Access Code 2000.
- The ERA's Draft Report on the Review of the Railways Access Code 2000 (2010) and submissions to that Review.
- The National Competition Council's (NCC's) Draft Recommendation on the proposed certification of the WA rail access regime (2010), including submissions to that process.
- Documents relating to WestNet's costing principles (various years) and the determinations relating to floor and ceiling prices (various years).

1.2.3 Findings

As noted above, the main objective of the Act is to establish a regime that encourages the efficient use of and investment in facilities within a contestable market for rail operations.

In practice, however, we find that the WA rail access regime is deficient in achieving this objective. In particular, we find that:

- There are good reasons for moving away from the GRV asset valuation methodology for setting access price ceilings. It adds complexity to the calculation of costs; does not effectively encourage new investment; and does not send better economic signals to access seekers than could be achieved via alternative costing methodologies.
- Even if the GRV methodology was accepted as the appropriate method for calculating price ceilings, it is currently being implemented in a way that has the potential to enable WestNet Rail to more than recover its efficient costs.
- The floor and ceiling approach provides little certainty for access seekers, and is likely to dissuade them from making investments that create economic value for buyers of rail haulage services.

We also note that the Australian Competition and Consumer Commission (ACCC), the regulatory authority that administers the telecommunications access regime in Australia, has also recently decided to step away from the use of an asset valuation methodology essentially identical to GRV. It has opted for a building-block method based on actual cost recovery (so long as those costs are efficiently-incurred). In justifying this change, the ACCC has cited concerns about cost over-recovery by the access provider and the inherent complexity of calculation of a GRV-equivalent method.[1] We believe these concerns are equally valid with respect to rail access in Western Australia.

In section 2 of this preliminary report, we provide further details of the analysis that has led us to these conclusions.

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1 See ACCC, *Review of 1997 Guide to Telecommunications Access Pricing for Fixed Line Services: Draft report*

2 The WA rail regime will not achieve efficient use of, and investment in, infrastructure

2.1 Even if correctly applied, use of GRV is problematic

We argue in section 2.2 that WestNet's use of flat annuities to calculate GRV results in price ceilings that are too high, and likely to lead to cost over-recovery. Nonetheless, there are fundamental issues with the use of GRV which we consider mean it should no longer be used to value assets for the purposes of price ceilings.

2.1.1 GRV is based on costing imaginary investments and increases the subjectivity and disputation associated with cost estimation

Estimating GRV requires estimation of a 'modern equivalent asset' that would be built to provide service today and into the future. In other words, it requires estimation of the hypothetical cost of building an imaginary network that is unlikely to ever be built in the way the cost modelling process imagines. In turn, the very process of imagining how the network might be built is likely to be subjective and lead to significant disputation between interested parties as the way the network should be built can be imagined in many different ways.

An example of how the decisions made about MEA can be controversial was provided to us by CBH. It notes that, notwithstanding the ERA's view that: "A "greenfields" assumption is to be utilised for estimating a GRV on a MEA basis for WNR, and costs related to constructing around rail traffic, surface restoration and other surface diversions are excluded from the GRV", the ERA assumes the rail track network to be efficiently aligned even where there are substantial differences between road and rail when comparing transport distances to destination point[2]. There are sections of the network which have a greater than 25 to 50% rail distance to destination than road distance to destination. It is not clear to us on what basis that ERA has accepted that WestNet would actually design its network in the same way to provide existing services if it was forced to rebuild the network on an MEA basis.

Further examples are apparent from a review of WestNet's costing principles, which it is required to produce under the Code. There are provisions for including in the costing of GRV 'design, construction and project management

2 ERA, WestNet Rail's Floor and Ceiling Costs Review, 2009, para 66.

fees at a rate of 20% of the total cost of the infrastructure' and 'WestNet will include in the capital cost an allowance for its cost of capital and related financing fees and charges during the construction period'. These charges appear highly arbitrary, because they relate to something that will never occur (full asset replacement) and are merely the result of a thought experiment. It also seems unsatisfactory that by accounting for these costs in a markup, cost increases occur even if there is a change in replacement asset values – which would not actually increase these costs.

In contrast, costing methodologies that are based on actual investments (such as depreciated actual cost, or depreciated historic cost) are far less likely to lead to subjectivity and disputation in relation to network design and cost.

We also note that a corollary of using GRV to estimate annual capital costs is that actual maintenance (operating) costs cannot be used in the ceiling, as these reflect the costs of maintaining a network that is not new or MEA. This creates further scope for dispute.

As an example, we note that track maintenance costs appear to be based on WestNet Rail's bottom-up modelling of costs, checked with benchmark information relating to the operations of Queensland Rail. Queensland Rail operates under significantly different conditions to WestNet, and the benchmarks measure the actual costs of maintenance, so it is unclear why these benchmarks would have any validity for a WestNet MEA network. It would be more relevant to benchmark a new or recently constructed rail network carrying freight – but, of course, it is very difficult to find such information. We are also unclear why WestNet should be annualising the costs of maintaining the network over the asset's life, because GRV makes the assumption that the network is re-built every three years.[3] Estimating maintenance costs over the asset's life and averaging them would only be valid if WestNet and the ERA committed to not revaluing WestNet's network every three years.

2.1.2 GRV does not encourage efficient investment

A further problem with GRV is that alluded to in the ERA's draft report at page 24. Although the ERA considers it problematic that *new* investment is not included in the GRV until a reset occurs, it is also true that the GRV calculation does not allow actual *replacement* investment to be reflected in the GRV. Rather, this is assumed to be already incurred in the existing GRV calculation. This creates a strong incentive to 'sweat' assets well past their assumed regulatory lives – because access seekers are already compensated as if the investment had already been undertaken. This has previously been recognised by the ACCC in the context of seeking to apply a GRV-equivalent methodology to set access

3 See WestNet's costing principles (2009), p 14.

prices for telecommunications services. In this regard, the ACCC has observed comments made by Telstra to a Senate Committee, where it observed that:

> "…the [cost] models [are] actually already optimised, so the cost pool out of which access prices are determined is already in place and in fact is already almost a [FTTN] network. What that means is that we could spend multiple billions of dollars doing a [FTTN] roll-out — multiple billions — and the total cost pool we are allowed to recover from wholesale and retail prices would not go up a jot." [4]

In other words, why would you bother to incur the cost of investment in new infrastructure if you could be compensated for making such an investment even if you don't make it?

Some evidence of this problem appears to exist as CBH argues that many of the lines have infrastructure that is more than 100 years old already, even though annuity lives of less than 50 years are used by WestNet in calculating the GRV.

We understand that, because of this problem, the objective of the ceiling calculation is said to be to provide a benchmark from which actual prices can be negotiated down, reflecting the standard of the infrastructure actually in place.[5] This seems a very odd way to fix a problem that wouldn't exist under a more straightforward methodology that allowed recovery of investments actually made. Nor is it clear how such adjustments are – or even can be – made in a transparent manner. It therefore seems to encourage disputes with access seekers while also reducing WestNet's willingness to invest.

2.1.3 GRV does not send useful signals to access seekers

In its review of the WA Rail Access Regime, the NCC has suggested that the regime is "the only regulated industry to adopt GRV". This is not correct, as it is identical, or nearly identical, to that used in setting access prices in the telecommunications industry – though there it is known as optimised replacement cost (ORC).

In initially deciding to use an ORC methodology to value assets in the late 1990s, the telecommunications regulator (the ACCC) noted it believed it would encourage efficient 'build or buy' signals for access seekers. This was because the ACCC thought the declining costs of new technology over time would mean that the cost of building a new network today would be significantly lower than the costs incurred when initially constructing telecommunications networks. It was therefore concerned that using historic costs may result in access seekers choosing to "build" infrastructure where it might be more efficient to "buy"

4 Senate ECITA Commission, 13 February 2006, p. ECITA 75

5 ibid., para 86.

access, and to correct this assets should be valued at the costs of building them now (i.e. using optimised replacement costs).[6]

It does not appear that this kind of argument has any relevance for rail, however, where it is widely accepted that below rail operations are a natural monopoly and it is unlikely that access seekers would seek to build rather than buy below rail infrastructure. The higher asset values given by GRV therefore serve little purpose other than to transfer profits between the access provider and access seekers.

2.2 Current GRV valuations do not prevent monopoly pricing

A desirable feature of an access pricing approach is that it aims to ensure that the access provider is adequately compensated (and not over- or under-compensated) in the long-run. The 'regulatory bargain' that is implicit in the regime is that the regulator (i.e. the ERA) will allow the access provider to recover the minimum 'economic' (or forward-looking, optimised replacement) costs that might be incurred by a hypothetical firm in the long run. The expected net present value (NPV) of investment, discounted at the access provider's WACC, must be no less than zero, otherwise no investment will be forthcoming.

In highly simplified settings, it is easy to show that GRV can be consistent with recovery of efficient costs (and no more). But, as we move into the realm of the real world, we can encounter problems associated with how it is implemented over time when there are changes in replacement costs. If it is not implemented in a 'time consistent' manner, then it is plausible that use of GRV will give rise to windfall gains or losses to the access provider.

Our review of WestNet's costing principles and outputs from its costing models suggests that the implementation of GRV has created the potential for large windfall gains to the access provider, at the expense of access seekers. This is due to the incorrect use of the annuity method to achieve a return on, and of, capital invested.

When applied consistently throughout the fixed period over which costs are to be recovered, annuities ensure that the compensation received from annual access charges (in NPV terms) is equal to the initial cost of investing in an asset. However, if the annuity is not applied consistently throughout the cost recovery period, cost over- or under-recovery can occur. That is, a *flat annuity should only be*

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6 The ACCC now accepts that, despite expectations that there was a greater potential for infrastructure-based competition in telecommunications that in other regulated industries, Telstra's copper customer access network is more of the character of an enduring bottleneck.

used if the regulator can commit to allowing the access provider to recover the annuity in each year of the asset's lives.

If MEA replacement costs are increasing over time, and these are reflected in the annuity calculations, this will create revaluation gains for WestNet that are not accounted for as income. This will mean that the expected NPV of investments by WestNet is greater than zero. Where replacement costs are known to be rising, a backward tilted annuity should be applied that results in an increasing path of cost recovery over time.

The use of tilted annuities is widely accepted in telecommunications cost models that rely on an ORC methodology that is essentially the same as GRV. For example, in a recent arbitration between Primus and Telstra over the price of a declared telecommunications services, the ACCC noted that:

> Conversely, Telstra has submitted that it should be permitted to recover its assets by use of a flat annuity, while increasing asset costs each year. This approach would result in an over-recovery by Telstra of the value of its network assets. A flat annuity would not lead to over-recovery if Telstra received the same amount each year. However Telstra also submits that asset prices should be increased each year. This would result in a significant overpayment from access seekers. For example, over the life of an asset of 10 years and a WACC of 10 per cent, with capital costs increasing by 4 per cent a year, Telstra's proposed approach would lead to an over-recovery in the order of 16.44 per cent in each year of the asset's life.[7]

The example used by the ACCC is demonstrated in the following graph. It assumes that the GRV in year 1 is 100. Although the approach taken in the WA regime only allows for assets to be re-valued every three years, this will merely reduce, but not eliminate, the over-recovery.

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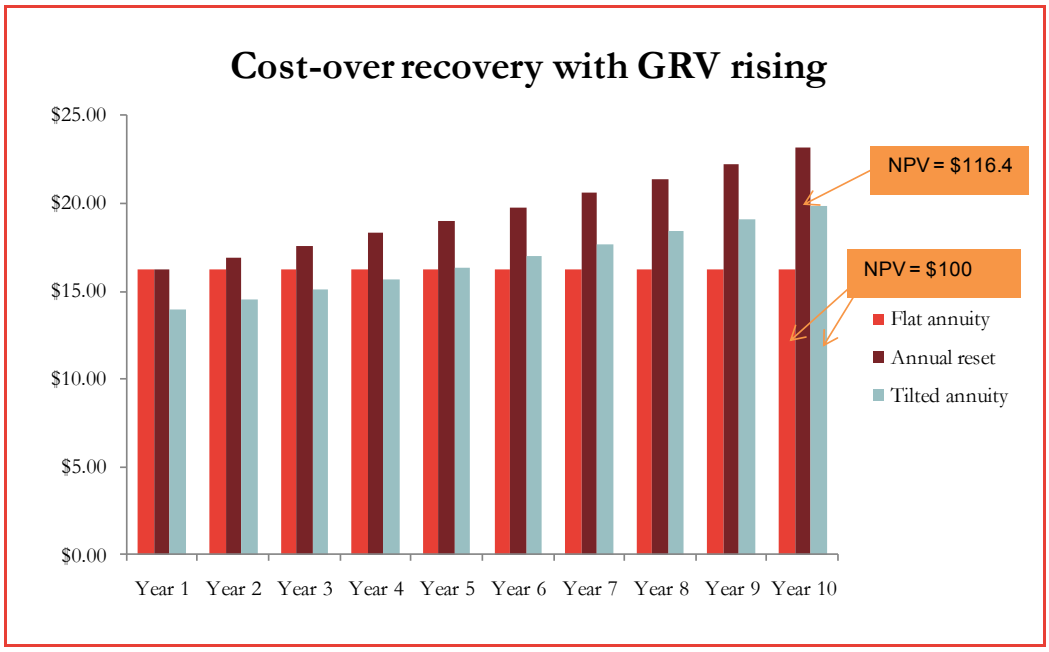
7 ACCC, *Unconditioned Local Loop Service Access Dispute Between Telstra Corporation Limited (access provider) and Primus Telecommunications Pty Ltd (access seeker) (monthly charges) Statement of Reasons for Final Determination Version published under section 152CRA of the Trade Practices Act 1974*, December 2007

Figure 1: Over-recovery under GRV with replacement costs rising



Source: Frontier Economics

We emphasise that changes in replacement cost values do not, of themselves, give rise to cost over-recovery. If these changes are correctly forecast in the (tilted) annuity, then total compensation should be the same in NPV terms under either an actual cost or a replacement cost approach. For example, if costs are forecast to rise by 4 per cent per year, then the annuity will defer capital cost recovery (relative to a normal annuity) such that only the initial investment cost will be recovered in depreciation charges.

Our brief review of the ceiling cost information contained in various ERA determinations[8] indicates that the ceiling costs for the 'grain lines' rose by around 8% per annum between 2004 and mid-2009. This is not just due to changes in replacement costs, as:

- the ceiling calculation includes operating costs and overheads
- the WACC, specifically in relation to the capital cost calculation, increases over this period

The information on GRVs for these lines indicates that replacement costs have risen around 15% over the same period – an annual growth rate of just below 3%. These gains in value should have been taken into account in setting the appropriate annuity.

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8 We refer to the July 2004 Grain Lines Determination, the 2007 and 2009 Floor and Ceiling determinations, all accessed at: http://www.erawa.com.au/3/874/48/westnet_rail__floor__ceiling_costs.pm

As an example of how this should work, and assuming that the correct tilt to apply (based on rising replacement costs) was 3%, then for a line such as Katanning-Tambellup, which has a GRV of $35.9 million, the flat annuity method (calculated over 50 years) would result in a capital charge of $3.15 million[9] whereas a titled annuity would give a value of $2.17 million – a 45% difference. A flat annuity recalculated every year[10] works out to a 32% overstatement of the ceiling value.

Table 1: Difference between flat and tilted annuities

Input	Result	
GRV		
Katanning – Tambellup **GRV** (2009)	$35.9m	
Assumed Tilt (increasing replacement costs)	3%	
Flat annuity value (50 year average asset life)	$3.15m (1a)	(1a)
Titled annuity value (50 year average asset life)	$2.17m (1b)	(1b)
Difference	*45%*	
Other ceiling charges		
Maintenance	$295,476 (2)	(2)
Working capital	$134,974 (3)	(3)
Operating	$433,994 (4)	(4)
Overhead	$34,613 (5)	(5)
Flat annuity ceiling	$4.05m	(1a+2+3+4+5)
Tilted annuity ceiling	$3.07m	(1b+2+3+4+5)
Difference	*32%*	

Source: Frontier Economics calculations based on various ERA Determinations

If the ERA is minded to continue with the GRV methodology, or even if it seeks to move to a building-block approach based on a depreciated asset base, it should

9 This is very close to the annuity calculated as the ceiling capital cost in the 2009 determination.

10 In practice these are re-calculated every three years, limiting the overstatement in those years '2' and '3' over the three year cycle.

ensure that these revaluation gains are brought to account. For the expected NPV of investments made by WestNet to be zero, it is necessary to either ignore past revaluation gains, or to ensure these are brought to account as access revenue income in future periods.

2.3 The GRV approach is now out-of-step with other regulatory jurisdictions

As noted by the ERA in its draft report, the problems associated with asset re-valuation are now widely recognized by regulators in Australia. The regime's use of replacement cost valuations, which are periodically updated, now essentially leaves it as an outlier:

- The recent undertaking submitted by ARTC in relation to the Hunter Valley rail network uses DORC asset valuations, but that the asset base is fixed and new capital expenditure is rolled into the regulatory asset base at cost. This is consistent with the ACCC's acceptance of ARTC's interstate network access undertaking in 2008:

  > However, the ACCC considers that revaluation should not normally be allowed under a DORC framework, because it creates unnecessary uncertainty, may encourage gaming and increases regulatory costs.[11]

- In Telecommunications, the ACCC has recently elected to move away from an ORC asset valuation approach, to a building block model with a fixed RAB.[12]
- In electricity and gas, amendments to national electricity and gas laws through to 2007 have had the effect of eliminating asset re-valuations.

In its draft report, the ERA recommends (subject to certain conditions) that the GRV approach should be replaced with a building block approach. For the reasons set out in this preliminary report, we would support this recommendation. However, a key issue not contemplated by the ERA is, if it is decided that we should move away from GRV, what is used in its place as the opening asset value? An undepreciated asset value, such as GRV, cannot be used as the opening asset value because it does not reflect the existing condition of the regulated assets. Capital expenditure should only be rolled in to a depreciated asset base. Rolling replacement capital expenditure into a fixed asset base

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11 ACCC, *Draft Decision Access Undertaking – Interstate Rail Network Australian Rail Track Corporation*, 2008, p.143.

12 ACCC, *Review of 1997 Guide to Telecommunications Access Pricing for Fixed Line Services: Draft report* September 2010

calculated at (undepreciated) GRV would over-compensate the access provider, as replacement investment is already included in the GRV calculation.[13]

2.4 Government contributions should reduce ceiling prices

We are advised by CBH that both the State and Federal governments have recently provided funding for investment in rail infrastructure in Western Australia.[14] An important issue for the ERA to consider is how any such investments should be treated in the estimation of price ceilings?

To the extent that WestNet Rail is not required to pay back any funding it receives from these governments, we believe any such payments should be treated as a subsidy, and not used to increase the capital base upon which WestNet Rail estimates ceiling prices. Instead, we believe any such payments should come out of the GRV, and that neither a return of or on these payments should be included. To do otherwise would enable WestNet to earn a higher rate of return on those investments it has actually made than the WACC otherwise estimated for costing valuation purposes. This conclusion may be qualified if the funding is only provided to WestNet on the proviso that if a return can be earned on the investment, and that any such return is to be repaid to the Government (as the investor).

2.5 Floors and ceilings do not promote efficient investment by access seekers

2.5.1 Gaps between floors and ceiling are wide

The gap between the floors and ceilings actually calculated by WestNet Rail and confirmed by the ERA are, by any measure, very large. The 2009 determination on Floor and Ceiling costs indicates that, in most cases, the floors are less than 4% of the ceilings.

We question whether this could provide sufficient certainty for access seekers. It exposes them to potentially protracted negotiations, and, in the event their services prove successful, little to stop escalating prices.

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13 See ACCC, *Review of 1997 Guide to Telecommunications Access Pricing for Fixed Line Services: Discussion Paper*, December 2009, p. 34. The ACCC notes that the alternative is to use the undepreciated value, but not allow replacement capital expenditure until the assets have fully depreciated out.

14 http://www.mediastatements.wa.gov.au/Pages/default.aspx?ItemId=134244&.

The ACCC specifically noted this problem in its rejection of ARTC's access undertaking in 2010:

> To achieve some pricing certainty (and avoid significant price shocks), the ACCC considers that ARTC should commit to the proposed Indicative Access Charges to be within a set percentage of the proposed Interim Indicative Access Charges. In addition, the ACCC considers that in line with this ARTC should include a clause in all TOP contracts that limit annual price increases above the initial contract prices.[15]

Section 21 of the Code does provide that the regulator (ERA) may give an opinion on the price sought for access. This might be thought to increase certainty for access seekers. But the ERA is not given any more guidance about how to assess the offered access price. Presumably, so long as the price is below the ceiling test, and meets the other requirements of Clause 13 of Schedule 4 of the Code, then there is little additional guidance that can be provided by the ERA. We also note that the NCC has recommended that there be a timeframe within which the ERA should be required to respond. However, it is not obvious that this would address the problem that we identify.

2.5.2 The ceiling provides flexibility that threatens efficient investment by access seekers

The issue about the scope of floors and ceilings is bigger than just uncertainty and an inability to plan. The more significant issue is what prevents the access provider from raising prices once above-rail operators invest in above rail assets? This concern is particularly acute for CBH as it has recently announced proposed new investments in above-rail infrastructure.

The major concern with deregulating access prices for intermodal rail freight is that the infrastructure owner may take the opportunity to increase access prices to levels that would capture some or all of the above-rail operators' return on and of capital (and other fixed costs). More specifically, the infrastructure owner would seek to shift to itself some of the quasi-rents associated with above-rail operators' sunk investments. These include not only investments in physical assets, but also and very importantly, investments in expanding the use of the rail network, for example, by the development and marketing of innovative service options.

If some or all of this above-rail investment is sunk – meaning unrecoverable if rail operations cease – the access provider could use some of its pricing freedom to increase prices. That is, WestNet may take the opportunity to increase access prices to levels that would capture some or all of the above-rail operators' return

15 ACCC, *Australian Rail Track Corporation Limited: Hunter Valley Coal Network Access Undertaking Draft Decision*, 5 March 2010, p. 628. (HVAU)

on and of capital (and other fixed costs). This is important because it might discourage access seekers from undertaking investments which increase the efficiency of rail operations (e.g. faster trains, better loading facilities). Fearing that kind of response, access seekers may rationally elect not to invest, or invest much less, thereby reducing the benefits available from above-rail competition.

An economist at the ACCC, Dr Darryl Biggar, argues this in the following way:

> As long as the actions which buyers must take to increase their demand for or value of the monopolist's service are sunk, buyers will fear that a proportion of the additional value created by these actions will be expropriated ex post. Anticipating this possibility, buyers will be reluctant to take actions which increase their exposure to opportunism by the monopolist. This may significantly reduce overall welfare.[16]

Obviously, very high price ceilings with minimal protections on within regulatory-period price increases create significant scope for this kind of pricing behaviour (although it may be mitigated to a degree by price discrimination provisions). It is also important to note that this argument does not rely on WestNet making monopoly returns. WestNet may have sufficient scope to 'hold up' its customers investments even if it is not recovering its ceiling costs on any particular route section.

Again, the ACCC was critical of ARTC in its access undertaking for the Hunter Value because it did not provide sufficient protection for access seekers:

> However, the ACCC does not consider that the limits on price discrimination are appropriate it they potentially allow ARTC to discriminate against an access seeker on the basis of the extent of its sunk and complementary investment.[17]

Further constraints on prices, such as 'price shock' mechanisms which limit prices rises, or indicative prices, might assist in preventing these kinds of problems emerging.

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16 Biggar, Darryl (2009) "Is Protecting Sunk Investments by Consumers a Key Rationale for Natural Monopoly Regulation?," *Review of Network Economics*: Vol. 8: Iss. 2, Article 1.

17 ACCC, HVAU draft decision, p. 600.

FRONTIER ECONOMICS NETWORK
BRISBANE | MELBOURNE | SYDNEY | BRUSSELS | COLOGNE | LONDON | MADRID
Frontier Economics Pty Ltd 395 Collins Street Melbourne Victoria 3000
Tel: +61 (0)3 9620 4488 Fax: +61 (0)3 9620 4499 www.frontier-economics.com
ACN: 087 553 124 ABN: 13 087 553 124