

Chapter 13 - Asset Valuation & Depreciation

KEY ASPECTS

DORC - the QCA has valued QR's coal network in accordance with the depreciated optimised replacement cost approach.

Adjustments to DORC - adjustments to this value were made to allow for financing costs during construction and for the additional cost in relocating infrastructure based on the historical development of the network.

Depreciation - assets were depreciated on a straight line basis assuming that the life of the resource served by QR's coal network will exceed the physical life of the network (so that depreciation is to be based on the assumed physical life of the network).

Ballast adjustment - an adjustment was made to the opening value of the Goonyella system on account of the fouled state of the ballast.

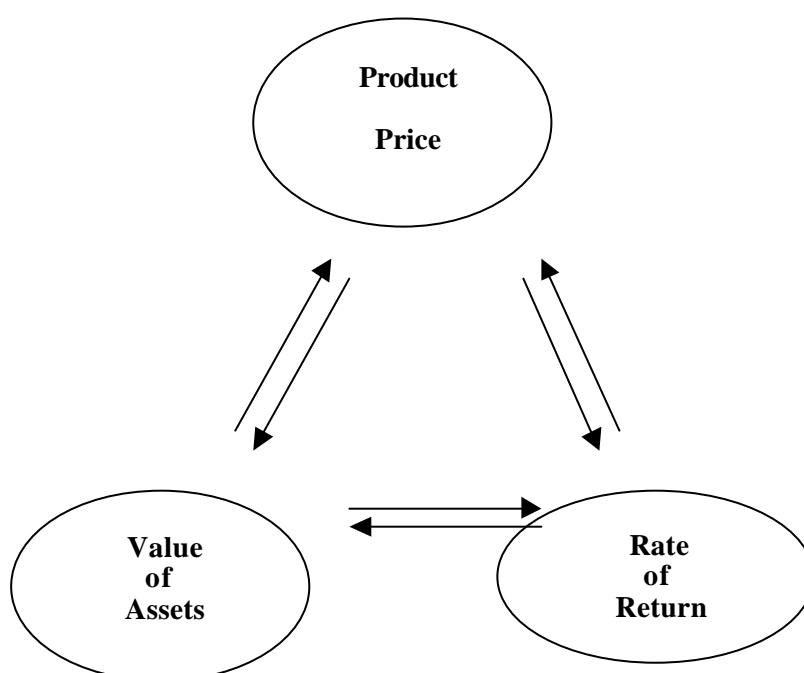
Brownfields optimisation - a limited optimisation was undertaken which resulted in approximately 50 kilometres of duplicated track on the Blackwater system between Rockhampton and Gladstone being removed from QR's asset base for the assessment of reference tariffs.

13.1 Introduction

Asset valuation refers to the process of assigning a valuation to a regulated entity's assets for the purpose of setting prices. A regulated entity's assets will normally be responsible for a major proportion of a regulated entity's assessed revenue allowance.

Figure 13.1 illustrates the interdependency between product price, asset value and rate of return. For example, if prices increase (decrease) whilst the asset value (rate of return) is held constant, then the rate of return (asset value) will correspondingly increase (decrease) and vice versa. Consequently, the asset value, along with the rate of return (which is addressed in Chapter 15) substantially affects maximum prices in a regulated environment.

Figure 13.1: Circularity of prices, rate of return and asset value



As a result, in monopoly markets there is a need to adopt a method that calculates both the value of assets and the rate of return independently of the prices that are set through the process. There are a number of approaches to both valuing physical assets and quantifying the rate of return. Each of these approaches is likely to provide different outcomes and, consequently, different prices and incentives.

13.2 Asset valuation approach

Background

The QCA determined that all assets in QR's coal network, including land, would be valued on a DORC basis. Stakeholder views

Selection of an asset valuation methodology

RTBU – the QCA's Draft Decision appears to accept the general notion of using 'depreciated replacement value' of infrastructure assets. The use of 'current written-down replacement values' is, in principle, a reasonable approach to establish estimates of the current value of investment in public sector infrastructure. However, the Australian experience during the last decade with the use of this form of accounting indicates that estimates of 'current written

down replacement values’ can be subject to major periodic adjustments, and possibly, manipulation. Evidence from some NSW GTEs suggests that the use of current written-down replacement values does not constitute a good basis for regulatory bodies or others to undertake longitudinal assessments of rates of return, unless those valuations are ‘stabilised’ for a reasonable period (say 5 years). This appears to be the approach QR was proposing (though the QCA does not appear to have revealed its thinking on this matter).

The QCA’s discussion paper asserted that ‘a variety of methods of asset valuation are available’ (page 3) but *failed to associate specific valuation methods with particular purposes or uses*, beyond (wrongly) claiming that the Council of Australian Governments ‘has agreed that deprival value should be the preferred approach to valuing network assets for public reporting purposes’ (page 10).¹

FreightCorp – the QCA’s adoption of DORC for asset valuation is an appropriate methodology.

Queensland Government – supports the use of the depreciated optimised replacement cost (DORC) methodology. Given the importance of the valuation method to QR’s operations, the Government would like input into the development of the methodology and the way it is applied to QR’s network assets. In particular, the Government believes the application of DORC should take into consideration an Integrated Supply Chain Management Approach.

The valuation of land

QR - based on advice from Arthur Andersen, the following principles should be applied to the valuation of QR’s corridor sublease:

- consistent with the QCA’s recommendations, costs associated with land acquisition will be separated into land value and assemblage components;
- in relation to assemblage costs, the following approach should be adopted:
 - consistent with the DORC principles, assemblage costs should be estimated based on the costs that would be incurred if the corridor were acquired today (that is the replacement cost of the corridor). As identified by Arthur Andersen, the practice of only including certain assemblage costs is prone to some subjectivity in relation to what costs are included, and as a result creates difficulties and uncertainties in assessing assemblage costs; and
 - QR will accept the QCA’s recommendation that assemblage costs be amortised over the period between the acquisition of the corridor and the termination date of the corridor sub-lease; and
- in relation to the value of QR’s leasehold interest in the corridor, the following issues are critical:
 - the value of the leasehold interest is best measured by reference to the present value of the profit rent (the difference between the market rent and the rent paid by the lessee). Given that QR pays a nominal \$1 rental for the sub-lease, at the beginning of the 100-year sub-lease, the present value of the profit rent (the market rent minus \$1) is only marginally less than the freehold value of the land. At 50 years into the sub-lease term, the present value of the profit rent will be rather less than freehold, and at 80 years into the sub-lease term, it will be significantly less than freehold. However, in all cases, the market rent should be assessed by taking account the freehold value of the land in question; and

¹ Such a proposal was made by the Steering Committee on National Performance Monitoring of Government Trading Enterprises in a 1994 paper, *Guidelines on accounting policy for valuation of assets of government trading enterprises*. The proposal only applied to GTEs, and only to those GTEs which were applying ‘current value methodology’. In practice, not all Australian States have applied ‘current value methodology’ to asset valuations by their GTEs. See Walker & Con Walker, *Privatisation – Sell Off or Sell Out?* (ABC Books, 2000) pp. 111-112.

- given QR's interest in the corridor diminishes over the term of the sub-lease, the value of QR's leasehold interest should be amortised over the term of the sub-lease. It is inappropriate to suggest, as has the QCA, that QR continue to value its sub-lease at an adjusted market value of the land, given that, as the lease term progresses, the value of QR's interest in the sub-lease is clearly diminishing, and the sub-lease will be of no value to QR at the end of the sub-lease term.

RTBU - neither QR nor the QCA addressed the issue of the value of government-owned land under rail infrastructure and whether it is appropriate that the prices set for access to QR's track to have no regard to the value of the rail corridor on which that track is placed. It noted that consultants GHD, commissioned to value QR's below-rail assets, assumed that a valuation of land under QR's infrastructure would be undertaken and included in an aggregate assessment of the value of QR's below-rail assets by the QCA. This did not occur and the QCA has made no allowance for the value of the rail corridor in its discussion of revenue limits.

The value of land should be included in the asset base for assessing a commercially fair rate of return. The failure by the QCA to take this into account is likely to lead to a reduction in access prices below the level which would otherwise be produced by its price-capping methodology.

FreightCorp - the most appropriate land valuation should be either zero or historic cost. The opportunity cost value of an asset that is not to be replaced (for example, land and certain earth-works) will be zero where there is no realisable opportunity - land used for rail track cannot generally be used for agriculture, and if such alternative use is possible, then there would be significant decommissioning cost.

The alternative use value of a railway corridor in an urban area should not be set at the value of the surrounding property as it is likely that the absence of the railway itself would significantly alter the surrounding values. This principle of the interdependency between land values and the existence of local transport infrastructure, and the consequent circularity of using surrounding land values as a basis for land used in providing that transport infrastructure, is well accepted in the regulatory literature.

The QCA should value the land on the basis of its current nominal rental value.

QCA's analysis

Selection of an asset valuation methodology

The QCA is mindful that the majority of stakeholders, including QR, support the application of DORC for asset valuation purposes. Consequently, the Authority maintains its position of valuing QR's coal network in accordance with this approach.

The valuation of land

The QCA considers it not appropriate to value land at zero nor historical cost. Any attempt to value land in this way would undermine the incentives to invest in the network. Historical cost assessments would substantially understate the opportunity costs imposed on society of the existence of the network, particularly as some of the land that comprises QR's network was acquired over a century ago.

Raw land value - the QCA's approach to land does not recognise the raw land value as part of the asset base, but rather through cash flows. QR sub-leases corridor land from QT at a nominal rental value of \$1 per annum. However, this value has little relevance to the imputation of a market value for rent which adequately reflects the full opportunity cost of corridor land. Hence, the Authority has imputed a market rent equal to the raw land value at 1 July 2001 multiplied by a real cost of capital. This rental value is indexed over time in line with inflation.

Through this approach, QR does not derive any benefit from increases in the market value of the corridors. It gains the use of the corridor for the term of the lease, but is unable to appropriate

any of the increase in the underlying land value that accrues over this time. However, at the same time, any increase in the opportunity costs of land use to society is reflected in the imputed rental value.

QR claims that over time, the value of the lease is falling. This view is not correct as it considers the lease from the asset owner's standpoint rather than from the perspective of the value of the service to QR. Over time, the lease's value remains unchanged because it still requires the same real rental payment and allows QR to derive the same level of service from the use of the corridor assets.

Assemblage costs - while the QCA has accepted QR's proposed assemblage costs for the other corridors, the age of the Blackwater system, much of which was obtained in the late nineteenth century, was the governing factor in the Authority's decision to only recognise those transaction costs that were incurred at the time the land was actually acquired. QR argues that the true replacement cost for its corridor assets should include assemblage costs, which incorporates the costs of acquiring the land today.

The QCA notes that this matter can be considered from two perspectives. On the one hand, it is highly likely that QR was required to pay minimal acquisition costs, particularly on the Blackwater corridor. Consequently, given that there was little need to comply with government and other more contemporary administrative regulations such as native title legislative requirements, all corridor assets are of lesser quality than if they were acquired today. Therefore, the land should be valued at something less than the current cost of acquiring it.

Alternatively, from the viewpoint of a competitive market, as rules change over time, economic agents realise gains and losses. For instance, the re-zoning of land from residential to commercial would alter the market value of residential properties, which would be reflected in a capital gain or loss. In this context, QR would realise a windfall gain in its asset value from inclusion of assemblage costs that it never incurred (reflected in an increase in asset value).

The QCA accepts that the treatment of assemblage be based on the underlying theory of stand-alone cost for each of its corridors. However, the QCA does not accept QR's proposal that assemblage costs should be amortised over the life of the corridor sub-lease, that is 1995-2095. Rather, it considers that amortisation of assemblage costs should commence at the time the land was acquired.

Consequently, the QCA proposes to give QR the benefit of a reasonable doubt and allow the requested assemblage costs to be recognised for asset valuation purposes. However, in arriving at the depreciated value of these costs, the QCA will take into account:

- the remaining time on QR's sub-lease; and
- the time that the corridor was originally acquired.

QCA's position

In assessing QR's reference tariffs, the QCA has valued all assets in the coal network, including land, on a DORC basis.

13.3 Determination of the replacement cost of assets

Background

In assessing replacement costs to determine a DORC valuation for QR's coal network assets, the QCA determined that financing costs incurred during construction would be incorporated into the asset base.

In addition, the QCA resolved that the assessment would be undertaken on a brownfields basis so as to recognise costs of altering infrastructure from the original track construction.

Stakeholder views

General

QR - as with all other aspects of the Undertaking, the QCA's role in relation to assessment of asset values is to ensure the values adopted in developing the reference tariffs are reasonable. This does not mean that the QCA has the responsibility for actually 'setting' QR's asset values, but rather to ensure the values that are set neither significantly overvalue, nor undervalue, the total asset base.

As a result, with the exception of the impact of the financing cost assumption, the estimated total replacement value for its rail infrastructure assets that is derived from GHD's assumed unit rates and quantities demonstrates QR's valuation represents a reasonable assessment of the total replacement value of these assets.

RTBU - an issue concerns whether QR will be required to value relevant infrastructure assets at (a) current written down replacement values, or (b) current written down replacement values, adjusted for their 'recoverable amount'. If the latter, then the QCA would be in the position of forcing write-downs of assets below current replacement values – simply by imposing overly stringent caps on QR's revenue stream. QCA's Draft Decision does not explicitly address how element (b) will be determined.

Brownfields valuation

QR - the QCA's interpretation of brownfields valuation costs to only include the actual costs incurred in the brownfields development of the network again confuses the DORC valuation methodology by applying elements of inflated historic cost in the valuation. This approach is inconsistent with the overarching philosophies and concepts behind the DORC approach.

In practice, the difference between the QCA's approach compared to the accepted DORC approach adopted by QR will have little, if any, impact on the allowance for brownfields development, given the manner in which QR's rail network has developed in Central Queensland. However, the difference may become important when applied to other elements of QR's network or to other regulated industries.

FreightCorp - the situation is best resolved by a greenfields approach (which gives a lower legacy asset value), with an explicit undertaking that the firm will be allowed to recover all efficient future investment costs, even though they may be in excess of strict greenfield costs.

Financing costs

QR - the construction period and expenditure patterns assumed by the QCA in assessing the estimated financing charge are unrealistic.

The QCA's estimated construction period is, on average, 30 months, which is assumed to include a 12-15 month design period, followed by a 12-18 month construction phase. QR acknowledges it had put forward a construction period of 30 months, however, it is critical to recognise that QR had excluded much of the early design work from this construction period and, as such, had assumed a preparatory phase of 6 months, followed by a construction phase of, on average, around 24 months.

QR's estimate of a 24 month construction phase is based on its previous experience in the construction of rail infrastructure, and is also consistent with the timeframes taken for construction of rail infrastructure elsewhere in Australia. While QR is aware of certain rail projects, currently on the drawing board, that are planned to have a construction phase of around 18 months, these are typically in areas with more favourable geography (that is, fewer watercourses and ranges). Further, it is yet to be proven whether these construction periods will be achieved. There are numerous issues that can arise during the construction phase (for example, redesign work if earthworks commence and the material is different to that indicated by geotechnical reports, unanticipated discovery of aboriginal sites, etc). that can cause delays in the actual construction of the infrastructure.

The QCA's estimate of a 15-18 month construction phase appears optimistic even based on the advice that the QCA has, itself, received. In its report, GHD provides some discussion on expected construction periods, and identifies an assumption of a 24 to 30 month construction time, assuming that the majority of design work (including acquisition of corridors) is finalised prior to the commencement of the construction period. Further, GHD assumes the earthworks and civil works would be completed on a staggered basis and each contract alone would take 15 months to complete.

QR considers its estimate of a 24 month average construction phase is reasonable and, in all likelihood, underestimates the time that would be taken to reconstruct the central Queensland coal systems. As such, QR remains firmly of the view its estimated 9% financing charge is reasonable.

Allowances for asset upgrades

QR - the QCA's approach for dealing with future 'wasted' assets is reasonable, notwithstanding there remains a legitimate argument for the recognition of the additional costs associated with past upgrades.

Staged development

QR - the process outlined by the QCA is one of immediately depreciating a portion of the asset, and then applying the normal depreciation profile to the remaining value. While QR can understand the theoretical basis for the QCA's recommendations, given the complexity that QR already faces in ensuring that its asset register remains accurate and relevant, QR believes this approach is likely to be unworkable in practice. Arthur Andersen supports our view.

QR will accept the exclusion of past staging costs from the assessment of the replacement cost of its existing assets, however, QR cannot accept a requirement for the immediate 'depreciation' of future staging costs, as this is likely to create significant additional difficulties for QR in managing and maintaining its asset register. QR believes the total value associated with the construction of new assets should be incorporated into the asset register and depreciated over the life of the assets. To ensure QR retains an incentive to invest in new assets, an alternate approach which captures these future staging costs must be adopted for future valuations of QR's assets.

Queensland Government – supports the position put forward by the QCA in respect of future incremental investments whereby staging costs are to recouped via depreciation but not incorporated into the asset base. However, the approach for past investments may not adequately compensate an infrastructure owner who has sought to invest efficiently via increments, especially if the owner is not allowed to recover the past staging costs in any form. There should be some consideration given to a transition allowing past staging costs to be fully recovered.

QCA's analysis

General

The QCA calculated a gross replacement value (GRV) for QR's assets by multiplying the quantity of each component of the system by the respective unit rates. Adjustments to the QCA's GRV included allowances for a financing charge and brownfields development.

QR's GRV was \$2.847 billion, which included a 9% financing charge, a brownfields component and an additional cost for staged development. In comparing the two estimates, it was found that the individual components of the GRVs varied significantly. However, the overall GRVs had a net difference of only \$27 million (that is, less than 1%). Accordingly, the QCA has proposed to adopt QR's GRV.²

Specific policy differences are dealt with in the discussion below.

Brownfield valuation

The QCA adopted QR's proposals in regard to the brownfields valuation and is perplexed with the criticism that QR has raised. The QCA is of the view that this approach is fair to both QR and users. On the one hand, it compensates QR for the direct costs associated with development at that time. On the other hand, it is also fair to users as the approach does not value the railway as if it were constructed today.

Financing charges

Given that the QCA has accepted QR's gross replacement value, the debate over financing charges becomes somewhat irrelevant. However, further analysis by the Authority suggests that a financing charge of between 8 and 9 percent of GRV is more appropriate in the context of the Central Queensland coal system.

Staged development

QR has accepted the QCA's approach to exclude staging costs from the assessment of the replacement cost of its existing asset base. However, QR has proposed that the value of all future assets, including costs associated with construction, should be included in the asset base and depreciated over the life of the asset.

The QCA agrees with QR and proposes to include any capital expenditure in the forthcoming regulatory period into the asset value for the model and be depreciated accordingly. The Authority also recognises QR's concerns about the potential for future reviews to exclude staging costs incurred over the initial regulatory period, and the disincentive that this creates for investing in new assets.

In practice, staging and wasting drives a wedge between the original DORC valuation plus any capex over the initial regulatory period, and the DORC valuation at the start of the subsequent period. Consequently, at the time of the next regulatory review, the QCA proposes that where the new DORC is calculated to be less than the closing value of QR's asset base, an assessment of staging costs will be made and subsequently included in that DORC valuation.

QCA's position

In assessing QR's reference tariffs, the QCA has calculated the current replacement cost of the network by:

- 1. allowing for costs associated with financing construction; and**
- 2. recognising costs of altering infrastructure from the original**

² While the GRVs were similar, due to the Authority's treatment of depreciation, particularly in regard to Goonyella ballast, assemblage costs for land and marginally different depreciation rates, the QCA's written-down replacement value was \$68 million lower than QR's. This \$68 million consists of \$34 million for the ballast adjustment, \$16 million for land valuation with the remainder attributable to differences in depreciation rates.

track construction.

13.4 Unit rates and quantities

Background

The unit rates developed by consultants GHD using MEERA (Modern Equivalent Replacement Asset) principles were adopted by the QCA for asset valuation purposes.

Stakeholder views

QR - the QCA has not adequately taken account of the value of inventory that is required by QR in order to facilitate the maintenance of the rail infrastructure in Central Queensland.

A detailed review of GHD's report shows it has assumed quantities of 'spares' or inventory in its valuation of signalling assets. However, it appears from GHD's report this is the only class of assets where the valuation includes a specific allowance for inventory and, in relation to other asset classes, GHD appears to be quite specific that 'spares' or inventory are not included (for example valuation of track).

The value of its rail infrastructure inventory in the Central Queensland coal region is \$23.7 million, of which \$8.8 million is signals. Allowance for a return (but not depreciation) of the remaining \$14.9 million of inventory should be incorporated into the reference tariffs.

RTBU - the QCA's Draft Decision (accompanied by the GHD report) identified and assessed the current replacement value of assets using MEERA values. However, costs incurred in developing detailed plans, and in acquiring and developing the rail corridor, together with the cost of land, were ignored. Nor did GHD complete the task of assessing the written-down value of those assets – which would be the basis for establishing revenue limits for QR.

Since the QCA seems committed to using these MEERA valuations, RTBU makes three observations:

- use of such an asset valuation technique is likely to require reductions in the asset values currently calculated for QR's infrastructure and associated assets, relative to their 'current written down replacement price'. That is because the calculations of MEERA values are based on artificial assumptions (for example, that all assets are constructed on a greenfield site using the best available equipment and construction technology);
- lower asset valuations multiplied by a ceiling rate of return will lead to lower revenue streams to QR than would otherwise be enjoyed by QR. Hence use of this approach may prevent QR from earning an appropriate rate of return on *past investments*. This may be so, even though those investments may have been entirely justified in terms of the technology available at the time, or the circumstances of the time;³ and
- application of this technique means that future technological improvements which would allow existing assets could be replaced at cheaper prices, would be followed by reductions in the values assigned to QR's coal network assets.

The on-going application of MEERA valuations could lead to further reductions in QR's revenues, possibly when the regulated entity needs to find the funds to invest in more advanced equipment. In short, the use of MEERA asset values for price capping purposes can have some perverse consequences for the regulated firm.

³ A case in point is that GHD's estimates of the current cost of replacing railway track 'as if' the rail corridor was a greenfield site – and no allowance was made for the fact that a large component of the costs of constructing the existing track was associated with the higher costs of staged construction under traffic.

QCA's analysis

QR has identified that the assumed unit rates and quantities adopted by the QCA's consultants GHD provided a reasonable basis for the estimation of the replacement value of its below-rail coal infrastructure.

However, QR considers that GHD and the QCA's subsequent modelling has not adequately accounted for the valuation of maintenance-related inventories. Accordingly, QR requested that a further \$14.9 million be allocated for this purpose.

The QCA considers that, having adopted QR's gross replacement value, this specific allocation is unwarranted because these inventories should already be incorporated in the estimated asset base.

QCA's position

In assessing QR's reference tariffs, the QCA accepts that the unit rates developed by GHD are appropriate to use for asset valuation purposes.

13.5 Depreciation method for below-rail infrastructure***Background***

The QCA recognised asset consumption through the application of a periodic depreciation charge, which was determined on a straight-line basis through the division of the cost of the asset (less its expected salvage value) by its expected life. While QR had proposed a non-linear or annuity-based approach, the Authority concluded that a linear method of depreciation would provide a superior approximation to the actual asset valuation-time profile of the collective rail asset.

In those instances where an asset's condition was inconsistent with its age, the asset value was adjusted accordingly.

Stakeholder views***Treatment of asset consumption***

QR - Arthur Andersen advised that while the adoption of straight line depreciation will not in all cases accurately mirror the pattern of consumption of service potential, nor the impacts of obsolescence, it can provide a pragmatic and reliable overall approach.

However, a key concern with the adoption of straight line depreciation is its potential impact on intergenerational equity for users. In addition, when a major asset requires replacement, there is a significant potential for this to result in a price increase (or price shock) for users, for no reason apart from the need to replace assets as their physical life expires. Such a price increase may be difficult to implement in practice.

QR is prepared to accept the use of straight line depreciation on its asset base, provided that, in the event of an anticipated replacement of major assets in a system that is likely to produce a significant price shock, alternate measures are put in place to enable a 'smoothing' of prices over time.

Depreciation for initial valuation

QR – is concerned about the QCA’s proposal to adjust the asset valuation for an asset where it has assessed that its condition is not consistent with its age, such as the adjustment that has been made in relation to the condition of ballast in the Goonyella system.

As Arthur Andersen has discussed, this is essentially adopting a hybrid approach to depreciation, with elements of condition-based depreciation being combined with the accepted straight line depreciation method. QR agrees with Arthur Andersen’s view that it is inappropriate to adopt this hybrid approach. QR is strongly of the view the only circumstances in which the condition of the asset should lead to an adjustment to the valuation of that asset is where its condition is likely to result in a reduction in its useful life.

QR has major reservations about the amount by which the QCA has reduced the Goonyella track assets to reflect ballast condition:

- a full ballast cleaning operation has never been undertaken in the Goonyella system. In the past, QR has cleaned the ‘shoulder’ of the ballast, however much of the ballast is still the original material that was used in the construction of the track, a significant amount of which is over twenty years old. In this context, and given the current age profile of the track in the Goonyella system, it is to be expected that QR is currently undergoing an intensive ballast cleaning operation in this area;
- although the ballast is heavily fouled by coal, the QCA’s assertion this extent of fouling is the result of inefficient practices is questionable. As an integrated organisation, QR has accepted a certain level of ballast contamination in order to achieve above rail benefits associated with higher payloads in wagons. The extent of ballast contamination is, therefore, the result of an accepted trade-off between above rail costs and below rail costs and reflects the level of service demanded by the railway operator. QR considers it is very difficult to demonstrate this trade-off was inefficient and considers in the absence of such demonstration, the QCA should not be penalising QR for accepting this below rail cost. It should, however, be noted, as technologies have improved, substantial measures have been put in place in recent years to reduce the future level of coal contamination; and
- the unit rate that has been used by RMS in assessing the efficient ballast cleaning costs is substantially understated and has been developed on the basis of an erroneous understanding of what is involved in the ballast cleaning operation.

QCA’s analysis*Treatment of asset consumption*

The QCA maintains the view that straight-line depreciation is a reasonable approximation of the actual asset valuation-time profile of the collective infrastructure rail asset.⁴ Accordingly, the Authority has retained its preference for straight-line depreciation since it is consistent with QR’s legitimate business interest, given the prospect of any asset stranding risk.

QR has accepted the application of straight-line depreciation provided that some attempt is made to smooth price shocks which may arise from large ‘lumpy’ asset replacements over the regulatory period. The QCA is of the view that such a problem will be resolved through the adoption of a 10-year modelling horizon, with the net present value of any adjustment relative to the shorter period being carried forward as an asset for the next regulatory period. In the context of future reviews, the Authority considers that this horizon may be extended where it is appropriate to do so.

⁴ The Authority evaluated an alternative approach which sought to determine the asset valuation over the regulatory period when considering cash inflows and outflows throughout the life of the project. In seeking to adopt a depreciation method that closely reflected the underlying assets in the coal corridor, the time profile of maintenance activity over the life of the railway was analysed and cash flows modelled in this context. This approach yielded a lower opening value and smaller return of capital during the course of the regulatory period than the straight-line approach.

The QCA remains mindful of the importance of minimising QR's asset stranding risk. In a working group meeting between QR and stakeholders, the QCA proposed a process where QR could engage users in detailed consultation regarding investment proposals. The Authority was motivated to put forward this proposal by a desire to minimise the risk that socially desirable investments are not pursued due to the risk and transaction costs arising from the regulatory framework. There was no consensus as to how investment risk should be assigned effectively among the various parties. However, there was agreement in there being little to be gained in seeking to avoid the QCA having to play a role in the ex-post assessment of QR's investments as part of future regulatory reviews. Nonetheless, the QCA remains receptive to proposals of this type that may evolve from QR, system users and other infrastructure service providers in the future.

Condition-based assessment

QR has indicated its concerns about the QCA's proposal to make a specific adjustment to an asset's valuation in the event that the asset's condition is not commensurate with its age. This issue has been of particular significance in the Goonyella system where QR has indicated that fouled ballast has necessitated the acceleration of the ballast-cleaning cycle.

The QCA, with the assistance of RMS, undertook an assessment of the proposed ballast undercutting program on the Goonyella system, based on an analysis of the age-profile and usage of the track. It revealed clear examples of planned premature ballast cleaning on some track-sections, where accumulated railed tonnages since construction and relay were significantly less than those generally accepted levels which would necessitate such action. The report concluded that, given QR has replaced 10-15% of the system's ballast during the past 5 years, less than 50% of the system should receive treatment over the next 10 years instead of the whole system as QR has proposed.

QR's consultant Arthur Andersen has suggested that an adjustment to the valuation is only appropriate where the condition is likely to result in a reduction in its useful life. This seems a curious suggestion since QR is extending the life of the asset by a process of rehabilitation – a process rendered necessary by the reduction in the useful life of the asset in its current state. If the ballast was not fouled, there would be no necessity to replace the asset at this point in time. In other words, the reduction in its useful life is precisely the reason for the investment in rehabilitative works.

QR maintains that it historically accepted a given level of ballast contamination in order to achieve above-rail benefits associated with higher payloads in wagons. In other words, the ballast contamination is the result of QR's own trade-off between above and below-rail costs. QR, however, have never provided justification for this policy, despite requests for information from the QCA. To the extent that the policy was justified (it is noted that QR has since changed its practices on account of the adverse consequences of ballast contamination), QR has already internalised the above-rail benefits – to permit QR to recover the below-rail costs would effectively allow a windfall gain by QR. The QCA considers that future rail users should not be forced to pay for QR's decision in respect of its trade-off.

QCA's position

In assessing QR's reference tariffs, the QCA has recognised asset consumption through depreciation charges and adopted a straight-line pattern of depreciation. In those instances where an asset's condition is inconsistent with its age, the asset valuation should be adjusted accordingly.

13.6 Determination of asset lives for below-rail infrastructure

Background

Given the age profile and estimated lives of the existing rail infrastructure and the remaining life of the existing and expected coal mineral resource that is served by the network, the QCA concluded that asset lives would be measured in terms of their physical lives.

Stakeholder views

QR - the adopted asset life should be the shorter of the physical lives of QR's assets or the economic lives of the mines that the assets support. While the QCA has not explicitly stated its position on this issue, it appears that this approach is supported by the QCA.

While the QCA has in some cases incorrectly reported QR's assumed asset lives, it is fair to say the asset lives assumed by QR and GHD are broadly similar and, therefore, it is assumed that this provides endorsement of the reasonableness of the asset lives it has adopted. However, it should be recognised these assumed asset lives are a guide only, and cannot be utilised in all situations. This is particularly true of assets whose life is more closely correlated with usage than it is with time, for example, track. While QR does assume that track will, on average, have a life of around 40 years, the actual life assigned by QR to a section of track may vary from this according to the extent of usage of that track.

QR acknowledges a proposed economic life for its rail infrastructure in Central Queensland ranging from 28 years to 50 years is reasonably conservative, as the adoption of too long a life will result in the stranding of QR's assets.

In all likelihood the future demand for use of QR's rail infrastructure in central Queensland will be somewhere in between that identified by QR and that identified by the QCA. As a result, QR is prepared to accept that no constraint on the physical lives of its assets will be adopted at this stage on the basis of the economic lives of the coal mines using those assets.

However, as identified by Arthur Andersen, it is critical that, at subsequent review periods, if more definite and reliable information regarding mine lives becomes available and it becomes apparent mine lives may in fact be shorter than the physical asset lives, then depreciation should be accelerated to reflect the additional loss in value to QR of its asset base.

FreightCorp - supports the QCA's position that the physical, rather than economic, lifespan of assets was the binding determinant in assessing asset lives.

QCA's analysis

In the Draft Decision, the QCA concurred with the conventionally-held view that the shorter of the economic or physical lives of the assets should be adopted for the determination of depreciation charges. This position has been maintained.

QR has accepted both the reasonableness of GHD's recommended asset lives, adopted by the QCA for modelling purposes, and the QCA's projected economic lives for the Central Queensland coal corridors.⁵

⁵ QR identified two minor typographical errors in Table 13.10. These, however, had no significant valuation consequences. Firstly, the asset lives for the 'track, steel pipes, timber bridges, yard drainage and traction power distribution' asset group should be 50 years, not 40 years as indicated. Secondly, asset lives for 'field signal equipment' should be between 15 and 40 years rather than 15 and 30 years. This was not considered to be a significant problem because the 40-year life related to a particular element of field signal equipment which is not present in the coal system. QR also considered that a number of the assets, such as noise barriers, included in the table were also not part of the coal network infrastructure.

The QCA has reassessed the asset lives for electrical overhead infrastructure and now agrees with QR's proposed asset lives for those asset categories. Table 13.12 of the Draft Decision has been revised such that the life of traction power distribution assets and traction power system equipment assets are now 40 and 20 years respectively.

The QCA agrees that, in subsequent review periods, account should be taken of more definite and reliable information regarding mine lives and future industry development as it becomes available. Consequently, the Authority will reassess asset lives in the context of any new data. Accordingly, in the event that the physical lives of the rail infrastructure assets appear likely to be constrained by a shortening of their economic lives, the QCA will consider accelerating the depreciation on the affected assets.

QCA's position

In assessing QR's reference tariffs, the QCA has measured asset lives in terms of their physical lives.

13.7 Optimisation of below-rail infrastructure

Background

The QCA undertook a greenfields assessment of a range of possible below-rail parameters and the principles underlying their inclusion in an optimisation framework. In light of this analysis and recognising that the optimisation of the rail system in Central Queensland is complicated by historical factors, the Authority chose not to penalise QR for its past investment decisions and optimisation was conducted on a limited brownfields basis. In other words, the process was implemented taking account of the existing demands on the network in the context of the overall transportation system. This resulted in \$33.6 million, comprising approximately 50 km of track between Rocklands and Callemondah, being excised from QR's asset valuation.

Stakeholder views

QR - while the QCA has not defined the term 'limited brownfields optimisation', it would appear that this is consistent with the optimisation framework suggested by QR. On this basis, QR accepts the QCA's recommendation, however, notes the issue of how much infrastructure is required for the coal only operations in the Blackwater system will need to be revisited in the event there is a significant increase in demand.

QR is concerned the QCA appears to be equivocal on this issue by only recommending this apply 'in the current circumstances'. This leaves significant uncertainty regarding how this issue will be considered by the QCA in the future. It is highly desirable the QCA provide a more positive recommendation regarding the appropriate optimisation framework for QR's rail infrastructure assets.

In the absence of this, it may be appropriate for QR to adopt a higher depreciation rate on its assets, from this point forward, in order to counteract the risk that, at a future time, the QCA may seek to optimise certain assets out of QR's asset base.

FreightCorp - supports the limited approach to optimisation since more radical approaches could not be said to represent an economically meaningful view of the world.

QCA's analysis

In respect of the optimisation framework, while a complete analysis of network parameters was conducted, only a partial attempt was made to reconfigure the network to identify the most efficient composition of assets. For example, the QCA's analysis indicated that if the

Blackwater system was used solely for the coal-only task, then, with proper siting of crossing loops and limited loop joining on steeper parts of the system, projected tonnages could be hauled using a single track. The QCA chose to be conservative and accept QR's proposition that only approximately 50 out of 155 route kilometres of dual track be excised from the asset base. In addition, the Authority's analysis identified that, given forecast tonnages and the operation of the reference train service, some parts of the present dual track on the Goonyella system could be excised. However, no action was taken on this matter.

The current Blackwater system follows a circuitous route via Rockhampton. While the line was upgraded to handle coal traffic in 1967, duplicated in the mid-1980s through to the early 1990s, and partially re-laid in the mid-1990s, much of the original alignment of the late nineteenth century remains. The QCA's preliminary review indicated that a stand-alone railway would have a substantially shorter haul for the Blackwater system, effectively bypassing Rockhampton. Accordingly, if a stranding risk emerges on the Blackwater system in the future, the Authority will look at several options, one of which is to revisit the optimisation of the route with respect to its alignment.⁶

QR's proposal to adopt a higher depreciation rate on its assets to counteract further future optimisation of assets out of the asset base is inappropriate. Indeed, if a stranding risk were to arise, there is the issue as to whether the current users of the Blackwater system were paying too much for the use of the system. Accordingly, the QCA's approach gives QR the current benefit of any reasonable doubt.

QCA's position

In assessing QR's reference tariffs, the QCA has undertaken a limited brownfields optimisation which resulted in \$33.6 million of track, comprising approximately 50 kilometres between Rocklands and Callemondah, being excised from QR's asset valuation.

⁶ This has been discussed in Chapter 10.